EDGAR Online

ASPEN AEROGELS INC

FORM S-1
(Securities Registration Statement)

Filed 06/24/11

Address	30 FORBES ROAD BUILDING B NORTHBOROUGH, MA 01532
Telephone	5086911150
CIK	0001145986
Fiscal Year	12/31

Powered By EDGAR Online
http://www.edgar-online.com
© Copyright 2014, EDGAR Online, Inc. All Rights Reserved.
Distribution and use of this document restricted under EDGAR Online, Inc. Terms of Use.

Table of Contents

As filed with the Securities and Exchange Commission on June 24, 2011
Registration No. 333-

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Aspen Aerogels, Inc.
(Exact name of Registrant as specified in its charter)

Delaware	**5033**	**04-3559972**
(State or other jurisdiction of incorporation or organization)	*(Primary Standard Industrial Classification Code Number)*	*(I.R.S. Employer Identification Number)*

30 Forbes Road, Building B
Northborough, Massachusetts 01532
(508) 691-1111
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Donald R. Young
President and Chief Executive Officer
Aspen Aerogels, Inc.
30 Forbes Road, Building B
Northborough, Massachusetts 01532
(508) 691-1111
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Sahir Surmeli, Esq.
Jonathan L. Kravetz, Esq.
Thomas R. Burton, III, Esq.
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, Massachusetts 02111
(617) 542-6000

Vincent Pagano, Jr., Esq.
Simpson Thacher & Bartlett LLP
425 Lexington Avenue
New York, New York 10017
(212) 455-2000

Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 as amended (the "Securities Act"), check the following box. ☐

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐	Accelerated filer ☐	Non-accelerated filer ☑ (Do not check if a smaller reporting company)	Smaller reporting company ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	**Proposed Maximum Aggregate Offering Price(1)**	**Amount of Registration Fee(2)**
Common Stock, $0.001 par value per share	$115,000,000	$13,352

(1) *Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended. Includes the offering price of additional shares that the underwriters have the option to purchase.*

(2) *Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price of the securities registered hereunder to be sold by the Registrant.*

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

Table of Contents

The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion. Dated June 24, 2011

PRELIMINARY PROSPECTUS

Shares

Aspen Aerogels, Inc.

Common Stock

This is an initial public offering of shares of common stock of Aspen Aerogels, Inc.

We are offering shares of common stock to be sold in this offering. Prior to this offering, there has been no public market for our common stock.

It is currently estimated that the initial public offering price per share will be between $ and $. We intend to apply to list the common stock on The New York Stock Exchange under the symbol “ASPN.”

See “Risk Factors” on page 12 to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Initial public offering price	$	$
Underwriting discount	$	$
Proceeds, before expenses, to us	$	$

To the extent that the underwriters sell more than shares of common stock, the underwriters have the option to purchase up to an additional shares from us at the initial public offering price less the underwriting discount.

The underwriters expect to deliver the shares against payment in New York, New York on , 2011.

Goldman, Sachs & Co. **Morgan Stanley**

Prospectus dated , 2011

TABLE OF CONTENTS

	Page
Prospectus Summary	1
Risk Factors	12
Special Note Regarding Forward Looking Statements	37
Use of Proceeds	38
Dividend Policy	39
Capitalization	40
Dilution	42
Selected Consolidated Financial Data	44
Management's Discussion and Analysis of Financial Condition and Results of Operations	47
Business	80
Management	102
Compensation	110
Certain Relationships and Related Person Transactions	127
Principal Stockholders	135
Description of Capital Stock	139
Description of Certain Indebtedness	144
Shares Eligible For Future Sale	146
Material U.S. Federal Tax Considerations For Non-U.S. Holders	150
Underwriting	154
Legal Matters	158
Experts	158
Where You Can Find More Information	158
Index To Consolidated Financial Statements	F-1
Ex-3.1.1	
Ex-3.3	
Ex-4.2	
Ex-4.3	
Ex-4.4	
Ex-4.5	
Ex-4.6	
Ex-10.1.1	
Ex-10.1.2	
Ex-10.1.3	
Ex-10.3	
Ex-10.4	
Ex-10.5	
Ex-10.13	
Ex-10.15	
Ex-21.1	
Ex-23.1	

No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representations. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

INDUSTRY AND MARKET DATA

This prospectus contains market data and industry forecasts that were obtained from industry publications, third party market research and publicly available information. These publications generally state that the information contained therein has been obtained from sources believed to be reliable, but the accuracy and completeness of such information is not guaranteed. While we believe that the information from these publications is reliable, we have not independently verified, and make no representation as to the accuracy of, such information.

This prospectus also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. We obtained the industry and market data in this prospectus from our own research as well as from industry and general publications, surveys and studies conducted by third parties, some of which may not be publicly available. For example, this prospectus also includes statistical data extracted from a market research report by The Freedonia

Group and a separate market research report by Freedonia Custom Research, Inc., an independent international market research firm, which was commissioned by us and was issued in May 2011. Such data involves a number of assumptions and limitations and contains projections and estimates of the future performance of the industries in which we operate that are subject to a high degree of uncertainty. We caution you not to give undue weight to such projections, assumptions and estimates. While we believe that these publications, studies and surveys are reliable, we have not independently verified the data contained in them.

The Freedonia Custom Research, Inc. Report, or the Freedonia Report, represents data or viewpoints developed independently on our behalf and does not constitute a specific guide to action. In preparing the Freedonia Report, Freedonia Custom Research, Inc. used various sources, including publically available third party financial statements; government statistical reports; press releases; industry magazines; and interviews with manufacturers of related products (including us), manufacturers of competitive products, distributors of related products and government and trade associations. The Freedonia Report speaks as of its final publication date (and not as of the date of this prospectus).

TRADEMARKS, TRADE NAMES AND SERVICE MARKS

"Aspen Aerogels," "Cryogel," "Pyrogel," "Spaceloft," the Aspen Aerogels logo and other trademarks, service marks and trade names of Aspen Aerogels appearing in this prospectus are the property of Aspen Aerogels, Inc. Solely for convenience, the trademarks, service marks and trade names referred to in this prospectus are without the ® and ™ symbols, but such references are not intended to indicate, in any way, that the owner thereof will not assert, to the fullest extent under applicable law, such owner's rights to these trademarks, service marks and trade names. This prospectus contains additional trade names, trademarks and service marks of other companies, which, to our knowledge, are the property of their respective owners.

PROSPECTUS SUMMARY

This summary provides an overview of selected information contained elsewhere in this prospectus and does not contain all of the information you should consider before investing in our common stock. You should carefully read this prospectus and the registration statement of which this prospectus is a part in their entirety before investing in our common stock, including the information discussed under "Risk Factors" and our consolidated financial statements and the related notes thereto included elsewhere in this prospectus. Unless otherwise indicated herein, the terms "we," "our," "us," or "the Company" refer to Aspen Aerogels, Inc. and its predecessor entity and unless otherwise noted, their respective subsidiaries.

Overview

We are an energy efficiency company that designs, develops and manufactures innovative, high-performance aerogel insulation. We believe our aerogel blankets deliver the best thermal performance of any widely used insulation products available on the market today and provide a superior combination of performance attributes unmatched by traditional insulation materials. Our customers use our products to save money, conserve energy, reduce CO_2 emissions and protect workers and assets.

Our technologically advanced products are targeted at the estimated $32 billion annual global market for insulation materials. Our insulation is principally used by industrial companies, such as ExxonMobil and NextEra Energy, that operate petrochemical, refinery, industrial and power generation facilities. We are also working with BASF Construction Chemicals and other leading companies to develop and commercialize products for applications in the building and construction market. We achieved a compound annual revenue growth rate of 46.7% from 2008 to 2010, with revenue reaching $43.2 million in 2010. We believe demand for our high-performance insulation products will increase significantly to support widespread global efforts to cost-effectively improve energy efficiency. To address capacity constraints caused by growing demand, we began operating a second production line in late March 2011 designed to double our production capacity at our East Providence, Rhode Island facility.

We have grown our business by forming technical and commercial relationships with industry-leading customers to optimize our products to meet the particular demands of targeted market sectors. In the industrial market, we have benefited from our technical and commercial relationships with ExxonMobil in the oil refinery and petrochemical sector, with Technip in the offshore oil sector, and with NextEra Energy in the power generation sector. In the building and construction market, we have a joint development agreement with BASF Construction Chemicals to develop products to meet increasingly stringent building standards requiring improved thermal performance in retrofit and new-build wall systems, particularly in Europe.

Our core aerogel technology and manufacturing processes are our most significant assets. We currently employ 27 research scientists and process engineers focused on advancing our current aerogel technology and developing next generation aerogel compositions, form factors and manufacturing technologies. Our aerogels are complex structures in which 97% of the volume consists of air trapped in nanopores between intertwined clusters of amorphous silica solids. These extremely low density solids provide superior insulating properties. Although aerogels are usually fragile materials, we have developed innovative and proprietary manufacturing processes that enable us to produce industrially robust aerogel insulation cost-effectively and at commercial scale.

Our aerogel products provide up to five times the thermal performance of widely used traditional insulation in a thin, easy-to-use blanket form. Our products enable compact design, reduce installation time and costs, promote freight savings, simplify logistics, reduce system weight and required storage space and enhance job site safety. Our products provide excellent compression resistance, are hydrophobic and reduce the incidence of corrosion under insulation, a significant operational cost and safety issue in industrial facilities. Our products also offer strong fire protection, which is a critical

performance requirement in both the industrial and building and construction markets. We believe our array of product attributes provides strong competitive advantages over traditional insulation. Although competing insulation materials may have one or more comparable attributes, we believe that no single insulation material currently available offers all of the properties of our aerogel insulation.

We manufacture our products using our proprietary process technology at our facility in East Providence, Rhode Island. We have operated the East Providence facility at high volume and high yield continuously since mid-2008. We successfully commenced operation of our second production line at this facility at the end of March 2011 and immediately began producing commercial quality aerogel blankets. This line was completed on time and on budget and is expected to double our annual production capacity by the end of 2011 to 40 to 44 million square feet of aerogel blankets, depending on product mix. We have begun the design and engineering phase of a third production line and currently expect that this line will be completed at our East Providence facility during 2012. We also plan to construct a second manufacturing facility in the United States or Europe, the location of which will be based on factors including proximity to raw material suppliers, proximity to customers, labor and construction costs and availability of governmental incentives.

Pursuit of our capacity expansion plan requires us to raise capital. During the past year, we have completed three financings and established a line of credit. In late 2010, we issued $21.4 million of convertible preferred stock to a group of investors led by BASF Venture Capital and $10.0 million of subordinated notes to a group of investors led by affiliates of Piper Capital LLC. In the first half of 2011, we issued $30.0 million of convertible notes to affiliates of Fidelity Investments and BASF Venture Capital and established a $10.0 million revolving credit facility with Silicon Valley Bank.

Our Markets

Since 2008, our Cryogel and Pyrogel product lines have been used by some of the world's largest oil refiners and petrochemical companies, including ExxonMobil, Petrobras, Shell and Dow Chemical. These products are also used in applications as diverse as liquefied natural gas facilities, food processing facilities, oil sands extraction and electric power generation facilities, with end-use customers such as Chevron, Archer Daniels Midland, Suncor Energy, NextEra Energy and Exelon. Insulation systems in these facilities are designed to maintain hot and cold process piping and storage tanks at optimal process temperatures, to protect plant and equipment from the elements and from the risk of fire and to protect workers. Freedonia Custom Research, Inc. has estimated that the worldwide industrial insulation market totaled $4.5 billion in 2010.

Within the building and construction market, we are replicating our strategy of working with industry leaders to seek to penetrate critical market sectors. In addition to our relationship with BASF Construction Chemicals, we are also engaged in product development efforts in Europe and North America with other industry leaders to target a wide variety of applications. Our products also have been installed since 2006 in residential and commercial new-build and retrofit building projects through the efforts of a small network of distribution partners. Insulation systems in the building and construction market are designed to isolate the interior of buildings from external temperature variations and to reduce energy costs. Freedonia Custom Research, Inc. has estimated that the worldwide building and construction insulation market totaled $22.7 billion in 2010.

In addition to our core markets, we also rely on a small number of fabricators to supply fabricated insulation parts to original equipment manufacturers, or OEMs. These global OEMs develop products using our aerogels for applications as diverse as military and commercial aircraft, trains, buses, appliances, apparel, footwear and outdoor gear. While we do not currently allocate significant resources to these markets, we believe there are many future opportunities within these markets for our aerogel technology based on its unique attributes. Freedonia Custom Research, Inc. has estimated that the worldwide transportation, appliance and apparel insulation markets totaled $4.9 billion in 2010.

Our Solution

We believe our aerogel blankets deliver a superior combination of performance attributes that provide cost-effective solutions to address the demanding performance objectives of a wide range of applications in our target markets, including:

- ***Best Thermal Performance.*** Our aerogel blankets provide the best thermal performance of any widely used insulation products available on the market today and excel in applications where available space is constrained or thermal performance targets are aggressive.
- ***Wide Temperature Range.*** We offer insulation products that address the entire range of applications within the cryogenic and sub-ambient (−273 °C to 90 °C), ambient (0 °C to 40 °C) and hot process (−25 °C to 650 °C) temperature ranges.
- ***Ease of Installation.*** Our flexible aerogel blankets install faster than rigid insulation materials in the industrial market, which reduces labor costs and total system costs.
- ***Compact Design.*** Our aerogel blankets reduce insulation system volume by 50% to 80% compared to traditional insulation, enabling a reduction in the footprint, size and structural costs of facilities, systems, vehicles and buildings.
- ***High Durability.*** Our aerogel blankets offer excellent compression resistance, tensile strength and vibration resiliency. Our products allow companies to pre-insulate, stack and transport steel pipes destined for use in harsh environments, which significantly reduces installation labor costs in remote areas.
- ***Strong Fire Protection.*** Our Pyrogel XT and Spaceloft A2 product lines were specifically designed to provide strong fire performance in applications within the industrial and building and construction markets, qualifying our products for use in a variety of applications in our target markets.
- ***Moisture Resistance.*** Our aerogel blankets are durably hydrophobic. Our products offer improved thermal performance in insulation systems exposed to the elements or operating in humid environments compared to traditional insulation.
- ***Reduced Corrosion Under Insulation, or CUI.*** Our Pyrogel XT product line is both durably hydrophobic and vapor permeable. These attributes have the potential to reduce the incidence of CUI in hot process applications, which we believe provides our customers with a significant reduction in long-term operating and capital costs.
- ***Simplified Logistics.*** Our products reduce the volume and weight of material purchased, inventoried, transported and installed in the field. In addition, our products reduce the number of stock-keeping units, or SKUs, required to complete a project. Simplified logistics accelerate project timelines, reduce installation costs and improve worker safety.

We believe these performance attributes simplify logistics, accelerate project timelines, reduce installation costs, improve worker safety and significantly reduce long-term operating and capital costs for our customers. In the industrial market, we believe these characteristics enable our customers to meet their insulation performance targets at lower total installed or lifecycle costs versus traditional insulation in a growing number of applications. In the building and construction market, we believe the increasing thermal standards for retrofit and new-build wall systems in Europe will become more difficult to meet with traditional insulation materials due to space constraints. We believe the thin form factor and strong fire properties of our aerogel blankets will provide a cost-effective and practical means to meet increasingly stringent building standards in Europe.

Our Competitive Strengths

We believe the following combination of capabilities distinguishes us from our competitors and positions us to compete effectively and benefit from the expected growth in the market for energy efficiency solutions:

- ***Superior product based on proven technology in commercial production.*** Our aerogel products provide up to five times the thermal performance of widely used traditional insulation in a thin, easy-to-use blanket form. We believe our array of product attributes provides strong competitive advantages over traditional insulation and will enable us to take a growing share of the existing market for insulation in both the industrial and the building and construction markets. Although competing insulation materials may have one or more comparable attributes, we believe that no single insulation material currently available offers all of the properties of our aerogel insulation.
- ***Proven and scalable proprietary manufacturing process.*** Our manufacturing process is proven and has been replicated to meet increasing demand. Our original line in East Providence, Rhode Island, has operated continuously since mid-2008. We successfully commenced operation of our second production line at this facility in March 2011 and immediately began producing commercial quality aerogel blankets. We believe that our proven ability to produce product that meets our clients' specifications and our increased production capacity will provide customers with the certainty of supply that is required to expand their use of our products.
- ***Strong relationships with industry leaders.*** Through our relationships with industry leading end-use customers, our products have undergone rigorous testing and are now qualified for global usage in both routine maintenance and in capital projects at some of the largest industrial companies in the world. These relationships have shortened the sales cycle with other customers within the industrial market and have helped to facilitate our market penetration. Within the building and construction market, we have partnered with BASF Construction Chemicals to develop products to meet increasingly stringent building standards for thermal performance of retrofit and new-build wall systems. As part of our relationship with BASF Construction Chemicals, we have recently optimized a product, Spaceloft A2, that we believe will have broad appeal across the building and construction market.
- ***Capital efficient business model.*** To respond to increased demand for our products, we successfully commenced operation in late March 2011 of a second production line at our East Providence facility. The expansion is expected to increase our annual production capacity by 20 to 22 million square feet of aerogel blankets at a total construction cost of approximately $31.5 million. We believe that our second production line, at full capacity and at current prices, would be capable of producing in the range of $50 million to $54 million in annual revenue of aerogel blankets.
- ***Experienced management and operations team.*** Each of our executive officers has over 20 years of experience in global industrial companies, specialty chemical companies or related materials science research. This team has worked closely together at Aspen Aerogels for nearly five years, and we believe our dedicated and experienced workforce is an important competitive asset. As of May 31, 2011, we employed 157 dedicated research scientists, engineers, manufacturing line operators, sales and administrative staff and management.

Our Strategy

Our goal is to create shareholder value by becoming the leading provider of high-performance aerogel products serving the global energy efficiency market. We intend to achieve this goal by pursuing the following strategies:

- ***Expand our manufacturing capacity to meet market demand.*** Demand for our aerogel products in 2010 grew by approximately 88% compared to 2009 and exceeded our manufacturing capacity. In response, we constructed a second production line at our East Providence facility designed to double our manufacturing capacity. To meet anticipated future growth in demand for our products, we are engaged in the design and engineering of a third production line in our East Providence facility and plan to construct a second manufacturing facility in the United States or Europe.
- ***Increase industrial insulation market penetration.*** We plan to focus additional resources to achieve a greater share of the industrial insulation market, both through increased sales to our existing customers and sales to new customers. In addition, we anticipate that our growing maintenance-based business will lead to increasing sales of our products into large capital projects, including the construction of new refineries and petrochemical facilities in emerging markets.
- ***Leverage strategic relationships in the building and construction market.*** We have a joint development arrangement with BASF Construction Chemicals to penetrate the market for energy efficient wall systems. We are pursuing additional market opportunities with other leading building materials manufacturers and distributors across multiple regions to address the increasingly stringent regulatory environment governing the thermal performance of buildings. We believe this approach will enable us to leverage their broad technical and distribution capabilities and facilitate market penetration.
- ***Expand our sales force, network of distributors and OEM channels.*** We plan to expand our sales force and distribution network to support growth in the industrial and building and construction markets. We also intend to expand our network of OEM fabricators to pursue opportunities in the transportation, appliance and apparel markets.
- ***Continue to develop advanced aerogel compositions, applications and manufacturing technologies.*** We believe that we are well positioned to leverage a decade's worth of research and development to commercialize new products, applications and advanced manufacturing technologies.

Risks Related to Our Business

Investing in our common stock involves substantial risk. You should carefully consider all of the information in this prospectus prior to investing in our common stock. There are several risks related to our business that are described under "Risk Factors" elsewhere in this prospectus. Among these important risks are the following:

- We have incurred net losses since our inception, and we may continue to incur net losses in the future and may never reach profitability;
- We have yet to achieve positive cash flow, and our ability to generate positive cash flow is uncertain;
- We have a limited operating history. This may make it difficult to evaluate our business and prospects and may expose us to increased risks and uncertainties;
- The market for insulation products incorporating aerogel blankets is relatively undeveloped, which makes it difficult to forecast adoption rates and demand for our products;

- We rely on sales to a limited number of distributors and contractors for the substantial majority of our revenue, and the loss of one or more significant distributors or several of our smaller distributors could materially harm our business; and
- Any significant disruption to our sole manufacturing facility or the failure of our production lines to operate according to our expectation could have a material adverse effect on our results of operations.

Company Information

Our predecessor company was incorporated in Delaware in May 2001. In June 2008, we completed a reorganization pursuant to which our predecessor company merged with and into a newly formed Delaware corporation, Aspen Merger Sub, Inc., a wholly-owned subsidiary of our predecessor company formed for the purpose of the reorganization. As the surviving entity to the merger, we then changed our name from “Aspen Merger Sub, Inc.” to “Aspen Aerogels, Inc.”

Our principal executive offices are located at 30 Forbes Road, Building B, Northborough, Massachusetts 01532, and our telephone number is (508) 691-1111. Our website address is www.aerogel.com. The information contained on, or accessible from, our website is not incorporated by reference into this prospectus.

The Offering

Common stock offered by us	shares (or shares if the underwriters exercise their option to purchase additional shares in full)
Common stock to be outstanding immediately after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full)
Use of proceeds	We estimate that the net proceeds to us from this offering, after deducting estimated underwriting discounts and estimated offering expenses payable by us, will be approximately $ million (or approximately $ million if the underwriters exercise their option to purchase additional shares in full) assuming an initial public offering price of $ per share, which is the mid-point of the estimated price range set forth on the cover page of this prospectus. We intend to use the net proceeds from this offering for general corporate purposes, including the construction of additional manufacturing capacity. See "Use of Proceeds" for more information.
Proposed NYSE symbol	"ASPN"

The number of shares of our common stock to be outstanding after this offering is based on 94,960,028 shares of our common stock outstanding as of March 31, 2011 after giving effect to the automatic conversion of our outstanding Series A and B redeemable convertible preferred stock, which we refer to collectively as our preferred stock, into 68,853,493 shares of our common stock immediately prior to the completion of this offering and excludes the following:

- 12,832,208 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2011 at a weighted-average exercise price of $0.46 per share;
- shares of our common stock that will be available for future issuance under our 2011 equity incentive plan to be effective upon completion of this offering; and
- 1,127,372 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2011 at a weighted-average exercise price of $0.002 per share.

Except as otherwise noted, all information in this prospectus:

- assumes the adoption of our restated certificate of incorporation and restated by-laws in connection with the consummation of the offering made hereby;
- assumes that the closing of the offering made hereby occurs on , 2011 with an initial public offering price per share of $, the mid-point of the price range set forth on the cover page of this prospectus;
- gives effect to the automatic conversion of all outstanding shares of our preferred stock into 68,853,493 shares of our common stock on a 1-for-1 basis;
- gives effect to the issuance of shares of common stock to the holders of our outstanding preferred stock upon the closing of the offering made hereby in satisfaction of accumulated dividends, as required by the terms of the preferred stock;
- gives effect to the issuance of shares of common stock issuable upon the automatic conversion of our $30.0 million aggregate principal amount of 8.0% convertible subordinated notes due June 2014, which we refer to as our convertible notes, together with accrued

interest thereon, upon the closing of the offering made hereby, at a conversion price equal to 87.5% of the initial offering price per share of the common stock offered hereby;

- gives effect to a for reverse split of our common stock, which will take place prior to the closing of the offering made hereby; and
- assumes no exercise by the underwriters of their option to purchase additional shares.

See “Capitalization” for conversion adjustments with respect to our preferred stock and our convertible notes that may be applicable upon future events, such as the completion of this offering.

We refer to the conversion of our preferred stock into shares of common stock (including the conversion of accumulated dividends on each series into shares of common stock) and the automatic conversion of our convertible notes into shares of common stock (including the conversion of the accrued interest into shares of our common stock) herein, as the preferred stock and convertible notes conversions.

Summary Consolidated Financial Data

The following tables present a summary of our consolidated financial data for the periods, and as of the dates, indicated. We derived the consolidated statement of operations data for the years ended December 31, 2008, 2009 and 2010 from our audited consolidated financial statements and the related notes thereto included elsewhere in this prospectus. We derived the consolidated statement of operations data for the three months ended March 31, 2010 and 2011 and the consolidated balance sheet data as of March 31, 2011 from our unaudited consolidated financial statements and the related notes thereto included elsewhere in this prospectus. The results of operations for these interim periods are not necessarily indicative of the results to be expected for a full year. Our unaudited consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and the related notes thereto and, in the opinion of our management, reflect all adjustments that are necessary for a fair presentation in conformity with U.S. generally accepted accounting principles, or GAAP. Our historical results for prior periods are not necessarily indicative of results to be expected for any future period. The summary unaudited pro forma balance sheet information as of March 31, 2011 has been prepared to give effect to this offering, our application of the proceeds therefrom and the preferred stock and convertible notes conversions as if they had occurred on March 31, 2011. The summary unaudited pro forma balance sheet information is for informational purposes only and does not purport to indicate balance sheet information as of any future date.

You should read this summary consolidated financial data together with our audited and unaudited consolidated financial statements and the related notes thereto included elsewhere in this prospectus and the information under “Selected Consolidated Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands, except share and per share data)				
Consolidated statements of operations data:					
Revenue:					
Product	$ 17,202	$ 24,752	$ 38,690	$ 7,681	$ 11,274
Research services	2,868	3,864	4,519	1,066	1,015
Total revenue	20,070	28,616	43,209	8,747	12,289
Cost of revenue:					
Product	32,160	30,462	35,399	7,647	9,473
Research services	1,169	1,788	2,119	456	544
Impairment charge	2,524	—	—	—	—
Gross profit (loss)	(15,783)	(3,634)	5,691	644	2,272
Operating expenses:					
Research and development	2,134	2,524	2,985	917	731
Sales and marketing	4,034	3,994	4,526	1,194	1,224
General and administrative	6,180	5,430	5,675	1,504	1,587
Total operating expenses	12,348	11,948	13,186	3,615	3,542
Income (loss) from operations	(28,131)	(15,582)	(7,495)	(2,971)	(1,270)
Other income (expense):					
Interest income	287	18	170	10	48
Interest expense	(7,400)	(3,075)	(2,585)	(706)	(499)
Total other expense, net	(7,113)	(3,057)	(2,415)	(696)	(451)
Net income (loss)	(35,244)	(18,639)	(9,910)	(3,667)	(1,721)
Dividends and accretion on redeemable convertible preferred stock	(2,351)	(2,984)	(57,007)	(608)	(62,440)
Net income (loss) attributable to common stockholders	$ (37,595)	$ (21,623)	$ (66,917)	$ (4,275)	$ (64,161)
Per share data:					
Net income (loss) per share attributable to common stockholders, basic and diluted	$(3,389.12)	$ (2.21)	$ (2.62)	$ (0.17)	$ (2.48)

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands, except share and per share data)				
Weighted-average common shares outstanding, basic and diluted	11,093	9,751,616	25,574,286	25,573,418	25,892,546
Pro forma net income (loss) per share, basic and diluted(1)					
Weighted-average common shares outstanding used in computing pro forma net income (loss) per share, basic and diluted(1)					

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	(In thousands)				
Other operating data:					
Product shipments in square feet(2)	6,909	10,525	16,443	3,480	5,110
Adjusted EBITDA(3)	$(17,621)	$ (9,121)	$ (2,394)	$ (1,738)	$ 329

	As of March 31, 2011	
	Actual	Pro forma
	($ in thousands)	
Consolidated balance sheet data:		
Cash and cash equivalents	$ 16,379	
Working capital(4)	10,607	
Total assets	85,696	
Total debt	8,080	
Preferred stock	172,226	
Total stockholders' (deficit) equity	(122,082)	

(1) Pro forma per share data will be computed based upon the number of shares of common stock outstanding immediately after consummation of this offering applied to our historical net income (loss) amounts and will give retroactive effect to the preferred stock and convertible notes conversions and the issuance of the shares of our common stock offered hereby.

The following table presents the calculation of historical and pro forma basic and diluted net income (loss) per share of common stock attributable to our common stockholders:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands, except share and per share data)				
Net income (loss) attributable to common stockholders	$ (37,595)	$ (21,623)	$ (66,917)	$ (4,275)	$ (64,161)
Dividends and accretion on redeemable convertible preferred stock	2,351	2,984	57,007	608	62,440
Interest expense					
Discount on conversion of convertible notes					
Pro forma net income (loss) attributable to common stockholders					
Weighted-average common shares outstanding, basic and diluted	11,093	9,751,616	25,574,286	25,573,418	25,892,546
Common shares issued upon conversion of preferred stock and accrued dividends					
Common shares issued upon conversion of convertible notes and interest thereon					
Weighted-average common shares outstanding used in computing pro forma net income (loss) per share, basic and diluted					
Pro forma net income (loss) per share, basic and diluted					

(2) We price our products and measure our product shipments in square feet. We believe the square foot operating metric allows us and our investors to measure our manufacturing output on a uniform and consistent basis.

(3) We use Adjusted EBITDA, a non-GAAP financial measure, as a means to assess our operating performance. We define Adjusted EBITDA as income (loss) from operations before depreciation and amortization expense, share-based compensation expense and impairment charges. Adjusted EBITDA is a supplemental measure of our performance that is not required by, or presented in accordance with, GAAP. Adjusted EBITDA should not be considered as an alternative to income from operations or any other measure of financial performance calculated and presented in accordance with GAAP. In addition, our definition and presentation of Adjusted EBITDA may not be comparable to similarly titled measures presented by other companies.

We use Adjusted EBITDA as a measure of operating performance, because it does not include the impact of items that we do not consider indicative of our core operating performance, for planning purposes, including the preparation of our annual operating budget, to allocate resources to enhance the financial performance of our business and as a performance measure under our bonus plan. We also believe that the presentation of Adjusted EBITDA provides useful information to investors with respect to our results of operations and in assessing the performance and value of our business. Various measures of EBITDA are widely used by investors to measure a company's operating performance without regard to items that can vary substantially from company to company depending upon financing and accounting methods, book values of assets, capital structures and the methods by which assets were acquired.

We understand that, although measures similar to Adjusted EBITDA are frequently used by investors and securities analysts in their evaluation of companies, Adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for GAAP income from operations or an analysis of our results of operations as reported under GAAP. Some of these limitations are:

- Adjusted EBITDA does not reflect our historical cash expenditures or future requirements for capital expenditures or other contractual commitments;
- Adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- Adjusted EBITDA does not reflect stock-based compensation expense;
- Adjusted EBITDA does not reflect our tax expense or cash requirements to pay our income taxes;
- Adjusted EBITDA does not reflect our interest expense, or the cash requirements necessary to service interest or principal payments on our debt;
- Although depreciation, amortization and impairment are non-cash charges, the assets being depreciated, amortized or impaired will often have to be replaced in the future, and Adjusted EBITDA does not reflect any cash requirements for these replacements; and
- Other companies in our industry may calculate EBITDA or Adjusted EBITDA differently than we do, limiting their usefulness as a comparative measure.

Because of these limitations, our Adjusted EBITDA should not be considered as a measure of discretionary cash available to us to reinvest in the growth of our business or as a measure of cash available for us to meet our obligations.

To properly and prudently evaluate our business, we encourage you to review the GAAP financial statements included elsewhere in this prospectus and not to rely on any single financial measure to evaluate our business.

The following table presents a reconciliation of income (loss) from operations, the most directly comparable GAAP measure, to Adjusted EBITDA for the periods presented:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands)				
Income (loss) from operations	$(28,131)	$(15,582)	$(7,495)	$(2,971)	$(1,270)
Depreciation and amortization	7,059	5,630	4,633	1,137	1,409
Stock-based compensation	927	831	468	96	190
Impairment charge	2,524	—	—	—	—
Adjusted EBITDA	$(17,621)	$ (9,121)	$(2,394)	$(1,738)	$ 329

(4) Working capital means current assets minus current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below and all of the other information set forth in this prospectus, including our consolidated financial statements and the related notes thereto, before deciding to invest in our common stock. If any of the events or developments described below occurs, our business, financial condition or results of operations could be negatively affected. In that case, the market price of our common stock could decline, and you could lose all or part of your investment.

Risks Related to Our Business and Strategy

We have incurred net losses since our inception, and we may continue to incur net losses in the future and may never reach profitability.

We have a history of losses, and we may not ever achieve or sustain profitability. We experienced net losses of $35.2 million, $18.6 million and $9.9 million for the years ended December 31, 2008, 2009 and 2010, respectively, and $1.7 million for the three months ended March 31, 2011. As of March 31, 2011, our accumulated deficit was $197.9 million and total stockholders' deficit was $122.1 million. We expect to continue to incur operating losses as a result of expenses associated with the continued development and expansion of our business. Our expenses include sales and marketing, research and development, and general and administrative costs. Furthermore, these expenses are not the only factors that may contribute to our net losses. For example, interest expense on our currently outstanding debt and on any debt that we incur in the future could contribute to our net losses. Any failure to increase revenue or manage our cost structure as we implement initiatives to grow our business could prevent us from achieving or sustaining profitability. In addition, our ability to achieve profitability is subject to a number of the risks and uncertainties discussed below, many of which are beyond our control. Failure to become and remain profitable may adversely affect the market price of our common stock and our ability to raise capital and continue operations.

We have yet to achieve positive cash flow, and our ability to generate positive cash flow is uncertain.

To rapidly develop and expand our business, we have made significant up-front investments in our manufacturing capacity and incurred research and development, sales and marketing and general and administrative expenses. In addition, our growth has required a significant investment in working capital over the last several years. We have had negative cash flow before investing and financing activities of $22.0 million, $13.0 million and $15.1 million for the years ended December 31, 2008, 2009 and 2010, respectively, and $2.2 million for the three months ended March 31, 2011. We anticipate that we will continue to have negative cash flow for the foreseeable future as we continue to make significant future capital expenditures to expand our manufacturing capacity and incur increased research and development, sales and marketing, and general and administrative expenses. Our business will also require significant amounts of working capital to support our growth and we will need to increase our inventories of raw materials and our products as we seek to grow our business. Therefore, we may need to raise additional capital from investors to achieve our expected growth, and we may not achieve sufficient revenue growth to generate positive future cash flow. An inability to generate positive cash flow for the foreseeable future or raise additional capital on reasonable terms may decrease our long-term viability.

We have a limited operating history and the market for insulation products incorporating aerogel blankets is relatively undeveloped. This may make it difficult to evaluate our business and prospects, and may expose us to increased risks and uncertainties.

We began operating in May 2001 and, until 2004, when we first began generating significant commercial revenues, we were primarily focused on research and development. We did not begin

generating significant revenues from our current generation of products until 2008. Accordingly, we have only a limited operating history and an even more limited history of generating revenues from our current generation of products. In addition, the future revenue potential of our business in the emerging market for high-performance insulation is uncertain. As a result of our limited operating history, we have limited financial data that can be used to evaluate our business, strategies, performance and prospects or an investment in our common stock. Any evaluation of our business and our prospects must be considered in light of our limited operating history and the risks and uncertainties encountered by companies at our stage of development. To address these risks and uncertainties, we must do the following:

- maintain and expand our current relationships and develop new relationships with direct and end-use customers;
- increase our penetration of the industrial market and expand into the building and construction market and other markets for our products;
- maintain and increase our manufacturing capacity to meet existing and anticipated future demand for our products;
- continue to develop our aerogel insulation products and increase our research and development activities;
- identify new partnership and market opportunities for our products;
- develop new applications for our products and our aerogel technology;
- execute our business and marketing strategies successfully;
- respond to competitive developments; and
- attract, integrate, retain and motivate qualified personnel.

We may be unable to accomplish one or more of these objectives, which could cause our business to suffer. In addition, pursuing many of these goals is expected to entail substantial expense, which would adversely impact our operating results and financial condition. Any predictions about our future operating results may not be as accurate as they could be if we had a longer operating history.

If we are unable to maintain our technological advantage and expand market acceptance of our products, our business may be adversely affected. In addition, many factors outside of our control may affect the demand for our insulation products.

We are researching, developing, manufacturing and selling high-performance aerogel insulation products. The market for aerogel insulation is at a relatively early stage of development, and the extent to which our aerogel insulation will be able to meet the requirements of our direct and end-use customers and achieve significant market acceptance is uncertain. Rapid and ongoing changes in technology and product standards could quickly render our products less competitive, or even obsolete, if we fail to continue to improve the performance of our insulation products. We are currently developing new applications for our existing products as well as new aerogel technologies; however, we may not be successful in doing so and new applications or technologies may not be commercially useful. Other companies that are seeking to enhance traditional insulation materials have recently introduced or are developing other emerging and potential insulation technologies. These competitors are engaged in significant development work on these various insulation products. Competing technologies that outperform our insulation in one or more performance attributes could be developed and successfully introduced. We are also aware of certain companies that have developed or are developing products using aerogel technology similar to our technology and these or other companies could introduce aerogel products that compete directly with our products and outperform them in one or more performance attributes. As a result of this competition and potential competition, our products may not compete effectively in our target markets.

In addition, we intend to expand our penetration of the building and construction market, which we are targeting for our products. However, historically, many of our potential end-users in the building and construction market have been slow to adopt new technology and incorporate new design and construction techniques, which may delay or prevent the adoption of our products. Our efforts to expand beyond our existing markets may not be successful. Our products may never be accepted by those new markets or result in the creation of additional revenue. Additionally, we have been unable at times to produce sufficient amounts of our product to meet demand from our customers, and we may not be able to avoid capacity constraints in the future. If we are unable to deliver our products within the timeframes required by our direct and end-use customers, we may be at risk of losing sales. Therefore, our recent historical growth trajectory may not provide an accurate representation of the market dynamics we may experience in the future, making it difficult to evaluate our future prospects.

Our direct and end-use customers operate in extremely competitive industries, and competition to supply their insulation needs focuses on, among other factors, delivering sufficient thermal performance in a cost-effective fashion. Many other factors outside of our control may also affect the demand for our insulation products and the viability of widespread adoption of our aerogel blankets, including:

- the price of our aerogel insulation compared to traditional insulation materials, including the tendency of end-users in some markets to opt for the frequently lower short-term costs of traditional insulation materials even when the long-term and overall costs of our products are lower and the performance attributes of our products are superior;
- the regulation of energy efficiency and building standards in the industrial and the building and construction markets;
- the availability of government funding and incentives to support the use of high-performance insulation materials, such as our aerogel blankets; and
- fluctuations in economic and market conditions, including changes in the cost of energy, the relative value of energy efficiency measures, foreign exchange rates and the cost of the raw materials for our products.

Any of these factors could make it more difficult for us to attract and retain customers, cause us to lower our prices in order to compete, or reduce our market share and revenues, any of which could have a material adverse effect on our financial condition and results of operations.

The market for insulation products incorporating aerogel blankets is relatively undeveloped and the sales cycles are long and unpredictable, which make it difficult to forecast adoption rates and demand for our products.

The market for insulation products utilizing aerogel blankets is relatively undeveloped. Accordingly, our future financial performance will depend in large part on our ability to penetrate the worldwide insulation market. Our penetration of this market is highly dependent on the acceptance of our products by large, well-established end-users, contractors, installers and distributors. The insulation market has historically been slow to adopt new technologies and products. Most insulation types currently in use in these markets have been in use for over 50 years. If we fail to successfully educate existing and potential industrial and building and construction market end-users, installers, contractors and distributors regarding the benefits of our aerogel products, or if existing users of our products no longer rely on aerogel insulation for their insulation needs, our ability to sell our products and grow our business could be limited. Because we are a new supplier to our end-use customers, we may face concerns from these end-use customers about our reliability and our ability to produce our products in a volume sufficient to meet their supply needs. As a result, we may experience a reluctance or unwillingness by existing end-use customers to expand their use of our products and by potential end-use customers to begin using our products. Our products may never reach mass adoption, and changes or advances in technologies could adversely affect the demand for our

products. A failure to increase, or a decrease in, demand for aerogel insulation products caused by lack of end-user or distribution channel acceptance, technological challenges, competing technologies and products or otherwise would result in a lower revenue growth rate or decreased revenue, either of which could materially adversely affect our business and operating results.

In addition, the sales cycles for our products are long and can result in unpredictability in our revenues. We expect to have an increasing percentage of our products sold for use in capital projects, which orders tend to be larger and more sporadic, that will further increase this unpredictability. Because of our limited operating history and the difficulty in determining the adoption rates for our products, we have no basis on which to predict our quarterly revenue. These factors may result in a high degree of variability in our revenue and will make it difficult for us to accurately evaluate and plan based on our future outlook and forecast quarterly or annual performance.

Any significant disruption to our sole manufacturing facility or the failure of our production lines to operate according to our expectation could have a material adverse effect on our results of operations.

We currently have only two production lines in one manufacturing facility, which is located in East Providence, Rhode Island. Our ability to meet the demands of our customers depends on efficient, proper and uninterrupted operations at our manufacturing facility. We only recently began operations on our second production line and we have not yet achieved target capacity on this line. We may not be able to do so. In addition, in the event of a breakdown of one or more production lines, we may not have sufficient inventory in stock to meet demand until the production lines return to operation.

Power failures or disruptions, the breakdown, failure or substandard performance of equipment, or the damage or destruction of buildings and other facilities due to fire or natural disasters could severely affect our ability to continue our operations. In the event of such disruptions, we may not be able to find suitable alternatives or make needed repairs on a timely basis and at reasonable cost, which could have a material adverse effect on our business and results of operations. Particularly, our manufacturing processes include the use of both high temperatures and the highly flammable chemical ethanol, which subjects us to a significant risk of loss resulting from fire. We had occasional incidences of fires at our prototype facility, however, damage was immaterial. While our manufacturing facilities are designed to limit any damage resulting from a fire, this risk cannot be completely eliminated. We maintain insurance policies to cover losses caused by fire or natural disaster, including business interruption insurance, however, such insurance may not adequately compensate us for any such losses. If our manufacturing facilities were to be damaged or cease operations, and our insurance proves to be inadequate, it may reduce revenue, cause us to lose customers and otherwise adversely affect our business. If our sole manufacturing facility was damaged or destroyed prior to completing construction of a second facility, we would be unable to operate our business for an extended period of time and may go out of business.

We operate in highly competitive markets; if we are unable to compete successfully, we may not be able to increase or maintain our market share and revenues.

We face strong competition both from established manufacturers of incumbent insulation materials and from other companies producing aerogel-based products. Large producers of incumbent insulation materials dominate the insulation market. In addition, there are other companies seeking to develop high-performance insulation materials, including aerogel insulation. Many of our competitors are substantially larger and better capitalized than we are and possess greater financial resources. Cabot Corporation, or Cabot, is our primary competitor in the market for aerogel insulation and is larger and better capitalized than we are. Cabot manufactures and sells a different form of aerogel insulation that is competitive with our products in certain market sectors and for certain applications based on price and form factor. Our competitors, including Cabot, could focus their substantial financial resources to develop new or additional competing products or develop products that are more attractive to potential customers than the products that we offer.

Because some insulation manufacturers are substantially larger and better capitalized than we are, they may have the ability to sell their products at substantially lower costs to a large, existing customer base. While our products have superior performance attributes and may sometimes have the lowest cost on a fully-installed basis or offer life-cycle cost savings, our competitors offer many incumbent insulation products that are priced below our products. Our products are very expensive relative to other insulation products and end-use customers may not value our products' superior performance attributes sufficiently to pay their premium price. In addition, from time to time we may increase the prices for our products and these price increases may not be accepted by our end-use customers and could result in a decreased demand for our products. Similarly, we may make changes to our products in order to respond to customer demand or to improve their performance attributes and these changes may not be accepted by our end-use customers and could result in a decrease in demand for our products. For example, we currently plan on adding a coating to certain of our products in order to reduce dustiness; however, this planned coating may not achieve its aims, may not be valued by end-use customers and may negatively impact our cost structure and margins. Any of these competitive factors could make it more difficult for us to attract and retain customers, cause us to lower our prices in order to compete, and reduce our market share and revenues, any of which could have a material adverse effect on our financial condition and results of operations.

We rely on sales to a limited number of distributors and contractors for the substantial majority of our revenue, and the loss of one or more significant distributors or contractors or several of our smaller distributors or contractors could materially harm our business. In addition, we understand from our distributors and contractors that a substantial majority of their sales of our products are to a small number of end-use customers and the loss of one or more significant end-use customers or several of our smaller end-use customers could materially harm our business.

A substantial majority of our revenue is generated from sales to a limited number of distributors and contractors. For the years ended December 31, 2008, 2009 and 2010, and the three months ended March 31, 2011, revenue from our top ten distributors and contractors represented 51%, 47%, 53% and 70% of our revenues, respectively. For the three months ended March 31, 2010, one customer represented 36% of our total revenue and for the three months ended March 31, 2011, two customers represented 29% and 10%, respectively, of our total revenue. In 2008, one customer represented 12% of our total revenue; in 2009, no customers represented 10% or more of our total revenue; and in 2010, one customer represented 14% of total revenue. Although the composition of our significant distributors and contractors will vary from period to period, we expect that most of our revenues will continue, for the foreseeable future, to come from sales to a relatively small number of distributors and contractors. In addition, we understand from our distributors and contractors that a substantial majority of their sales of our products are to a small number of end-use customers. Our contracts with our distributors generally do not include long-term commitments or minimum volumes that ensure future sales of our products and our understanding is that our distributors' and contractors' contracts with end-use customers also generally do not include such commitments or minimums. Consequently, our financial results may fluctuate significantly from period-to-period based on the actions of one or more significant distributors, contractors or end-use customers. A distributor or contractor may take actions that affect us for reasons that we cannot anticipate or control, such as reasons related to an end-use customer's financial condition, changes in business strategy or operations, the introduction of alternative competing products, or as the result of the perceived quality or cost-effectiveness of our products. Our agreements with these distributors and contractors may be cancelled if we fail to meet certain product specifications or materially breach the agreement or for other reasons outside of our control. In addition, our distributors and contractors may seek to renegotiate the terms of current agreements or renewals. The loss of or a reduction in sales or anticipated sales to one or more of our most significant distributors, contractors or end-use customers or several of our smaller distributors, contractors or end-use customers could have a material adverse effect on our business, financial condition and results of operations.

We understand from our distributors that a substantial majority of their sales of our products are to end-use customers in the oil and gas industry, making us susceptible to prolonged negative trends relating to this industry.

We understand from our distributors that a substantial majority of their sales of our products are to end-use customers in the oil and gas industry, making us susceptible to prolonged negative trends relating to this industry. While we seek to maintain a broad end-use customer base across several industries, our end-use customers in the oil and gas industry have accounted for a significant portion of our historical revenues. Certain economic conditions, including low oil prices, can result in slowdowns in the oil and gas industry, which in turn can result in reduced demand for our products. If the oil and gas industry were to suffer a prolonged or significant downturn, our revenues, profits and cash flows may be reduced significantly. While we also sell to other direct and end-use customers in the industrial market and other markets, including the building and construction industry, these markets are also cyclical in nature and, as such, are subject to economic downturns that could have a similar adverse effect on our revenue, profits and cash flows.

Negative perceptions regarding the safety or other attributes of our products or a failure or a perceived failure of our products could have a material adverse effect on our results of operations and could make us unable to continue our business.

Given the history of asbestos as an insulation material, we believe that there is an elevated level of attention towards perceived health and safety risks in the insulation industry. As a consequence, it is essential to our existing business and to our future growth that our products are considered safe. Even modest perceptions by customers, potential customers and others in the markets that we are targeting that our products are not safe could have a critical impact on our ability to sell our products and to continue as a business. In particular, the dust produced by our products during their installation and use increases the likelihood of such perceptions. While we believe that the available scientific literature and our own testing demonstrate the safety of our products, the scientific literature may be incorrect and our testing may be inaccurate. Our products are still not widely used and there is risk of an actual or perceived failure of our products or other negative perceptions regarding our products, such as perceived health hazards. Such an event, or the perception of such an event, could quickly result in our direct and end-use customers replacing our products with traditional insulation materials which, though they may provide inferior performance attributes as compared to our aerogel blankets, still meet the technical requirements of our direct and end-use customers.

Changes to regional, national and local laws and regulations regarding energy efficiency and building standards could materially adversely affect our business and operating results.

We believe that there has been a trend in certain countries, especially within the European Union, for governments to mandate increasingly stringent energy efficiency standards and building standards for certain construction and renovation projects and this trend has evidenced itself at various levels of government, including regional, national and local. Our business is affected by these laws and regulations. If this trend toward increasingly stringent energy efficiency standards and building standards were to lessen or cease or if there were to be a trend towards weaker energy efficiency standards and building standards or reduced enforcement of existing standards, then our business and operating results could be materially adversely affected. In addition, changes to the laws and regulations governing energy efficiency and building standards in specific jurisdictions or the enforcement of such laws, regulations or standards could materially adversely impact our business and operating results if we have significant sales of our products in that jurisdiction or if we were targeting that jurisdiction for expanded future sales.

In particular, our sales in the building and construction market are driven substantially by government policies and legislation in Europe that mandate high levels of energy efficiency in buildings. The European Union’s directive on the energy performance of buildings, Directive 2010/ 31/ EU, or EPBD, requires EU member states to pass legislation or implement regulations

requiring all new buildings as well as most major renovations to achieve minimum energy performance requirements. The EPBD significantly expands the scope of the original EU directive on building energy performance adopted in 2002, Directive 2002/91/EC. While we believe the policies established under the EPBD offer a significant opportunity for our products in the European building and construction market, this opportunity is largely dependent on faithful implementation of the directive by EU member states and continued support for national and local energy efficiency initiatives. Many EU member states have not yet fully adopted legislation implementing the original 2002 directive and it is unclear when certain EU members will pass legislation implementing the EPBD. In the event that the European Union repeals or weakens the requirements of the EPBD or that EU member states do not adopt or enforce national legislation implementing the EPBD, our business and operating results may be materially adversely impacted.

As a result of becoming a public company, we will be obligated to develop and maintain proper and effective internal control over financial reporting. If our internal controls over financial reporting are determined to be ineffective, or if our auditors are otherwise unable to attest to their effectiveness when required, investor confidence in our company, and our common stock price, may be adversely affected.

We will be required, pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting for the first fiscal year beginning after the effective date of this offering and in each year thereafter. Our auditors may also need to attest to the effectiveness of our internal controls over financial reporting. These assessments will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting.

Although our independent registered public accounting firm did not complete an audit of internal controls over financial reporting as of December 31, 2010, two significant deficiencies in internal controls were identified in connection with the preparation of our financial statements and the audit of our financial results for 2010. We determined that we had a significant deficiency relating to our accounting resources and financial information systems. In addition, we determined that we had a significant deficiency relating to our information technology and general controls.

We have taken actions to remediate both of these significant deficiencies including instituting more detailed recording, review and approval processes, establishing additional internal controls, providing additional training and hiring additional financial and accounting staff; however, we do not expect that they will be remediated at the time of this offering.

We are in the very early stages of the costly and challenging process of compiling our system of internal controls over financial reporting and processing documentation necessary to perform the evaluation needed to comply with Section 404. We may discover, and not be able to remediate, future significant deficiencies or material weaknesses, nor be able to complete our evaluation, testing and any required remediation in a timely fashion, any of which would make us less likely to detect or prevent fraud. In addition, we may not be able to remediate our current significant deficiencies. During the evaluation and testing process, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal controls are effective. If we are unable to assert that our internal controls over financial reporting are effective, or if our auditors are unable to express an opinion on the effectiveness of our internal controls, we could lose investor confidence in the accuracy and completeness of our financial reports or it could cause us to fail to meet our reporting obligations, which could have a material adverse effect on the price of our common stock. In addition, a delay in compliance with Section 404 could subject us to a variety of administrative sanctions, including Securities and Exchange Commission, or SEC, action, ineligibility for short form resale registration, the suspension or delisting of our common stock from The New York Stock Exchange, or NYSE, and the inability of registered broker-dealers to make a market in our common stock, which would further reduce our stock price and could harm our business.

We will incur costs and demands upon management as a result of complying with the laws and regulations affecting public companies in the United States, which may adversely affect our operating results.

After the consummation of this offering, we will be subject to the reporting requirements of the Exchange Act that require us to file, among other things, quarterly reports on Form 10-Q and annual reports on Form 10-K. Under Section 302 of the Sarbanes-Oxley Act, as a part of each of these reports, our chief executive officer and chief financial officer will be required to evaluate and report their conclusions regarding the effectiveness of our disclosure controls and procedures and to certify that they have done so. This requirement will apply to our first Form 10-Q for the quarter following effectiveness of the registration statement. Effective internal controls are necessary for us to provide reliable financial reports and prevent fraud. In addition, under Section 404 of the Sarbanes-Oxley Act, we will be required to include a report of management on our internal control over financial reporting in our Form 10-K. In addition, the independent registered public accounting firm auditing our financial statements will be required to attest to and report on the effectiveness of our internal control over financial reporting. This requirement will first apply to our Form 10-K for our fiscal year ending December 31, 2012. The process of improving our internal controls and complying with Section 404 will be expensive and time consuming, and will require significant attention of management.

Complying with these and other requirements applicable to public companies may place a strain on our personnel, information technology systems and resources and divert management's attention from other business concerns. We may need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge, and we may not be able to do so without incurring material costs. These and other requirements may also make it more difficult or more costly for us to obtain certain types of insurance, including directors' and officers' liability insurance. We, therefore, may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers. Any one of these events could have a material adverse effect on our business, financial condition and results of operations.

Our continued growth requires that we expand our manufacturing facilities and increase our production capacity.

We have begun the design and engineering phase of building a third production line in our current manufacturing facility in East Providence and also plan to construct a second manufacturing facility located in either the United States or Europe. If, for any reason, the third production line or the second manufacturing facility should fail to be completed in a timely fashion or any of the production lines in our current or any future manufacturing facilities do not operate according to our expectations, sales may be impeded, our growth may be hindered and our business may be materially adversely affected. Many factors could delay or prevent the addition of a third production line or the construction of a second manufacturing facility, including our inability to find financing on favorable terms, or at all, design, engineering and construction difficulties, interruptions in the supply of the necessary construction materials or the increase in their price, and our failure to obtain necessary legal, regulatory and other approvals. Many factors could prevent the third production line or the second manufacturing facility from producing at their expected full capacity, including design and engineering failures, inability to retain and train a skilled workforce, improper operation of the manufacturing equipment and damage to the manufacturing equipment due to design and engineering flaws or operator error. Any such expansion will place a significant strain on our senior management team and our financial and other resources. The costs associated with our expansion could exceed our expectations and result in a materially adverse impact on our operating results.

Growth may place significant demands on our management and our infrastructure. If we fail to manage our growth effectively, we may be unable to execute our business plan or address competitive challenges adequately.

We expect to continue to expand our manufacturing, sales and marketing, operations, engineering, research and development capabilities and financial control and reporting systems, and as a result, we may be unable to manage our growth. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational, financial control and reporting systems, expand our facilities and continue to recruit and train additional qualified personnel. All of these measures will require significant expenditures and will demand the attention of management. Due to our limited resources, we may not be able to effectively manage the expansion of our operations or recruit and adequately train additional qualified personnel. The physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations. If we fail to achieve the necessary level of efficiency in our organization as it grows, our business, results of operations and financial condition would be harmed.

We compete for personnel and advisors with other companies and other organizations, many of which are larger and have greater name recognition and financial and other resources than we do. If we are not able to hire, train and retain the necessary personnel, or if these managerial, operational, financial and reporting improvements are not implemented successfully, we could lose customers and revenues. We allocate our operations, sales and marketing, research and development, general and administrative and financial resources based on our business plan, which includes assumptions about current and future orders from industrial customers, building and construction customers and original equipment manufacturers, or OEMs. However, these factors are uncertain. If our assumptions regarding these factors prove to be incorrect or if competing products gain further acceptance, then actual demand for our aerogel products could be significantly less than the demand we anticipate and we may not be able to sustain our revenue growth or achieve profitability.

Our financial results may vary from period-to-period due to changes in the mix of our products that we sell during a period and due to our expenses not corresponding with the timing of our revenues, which may lead to volatility in our stock price.

Our profitability from period-to-period may vary due to the mix of products that we sell in different periods. While we have sold most of our products to date into the industrial market, as we expand our business we expect to sell an increasing amount of our aerogel insulation products into the building and construction and OEM markets and for other applications. Certain of the products aimed at these markets have different cost profiles. In particular, Spaceloft and Spaceloft A2, which are targeted at the building and construction market, are relatively lower margin and lower output as compared to our Pyrogel and Cryogel products, which are targeted at the industrial and OEM markets. Consequently, sales of individual products may not necessarily be consistent across periods, which could affect product mix and cause our gross profit, net income and cash flow to vary significantly. In addition, most of our expenses are either relatively fixed in the short-term or incurred in advance of sales. Moreover, our spending levels are based in part on our expectations regarding future revenues. As a result, if revenues for a particular operating period are below expectations, we may not be able to proportionately reduce expenses for that period. Therefore, we believe that period-to-period comparisons of our operating results may not necessarily be meaningful and that these comparisons cannot be relied upon as indicators of future performance. Moreover, our operating results may not meet expectations of equity research analysts or investors. If this occurs, the trading price of our common stock could fall substantially either suddenly or over time.

The qualification process for our products in the industrial, building and construction and other markets can be lengthy and unpredictable and can delay adoption of our products, leading to uncertainty in our revenues. In addition, the insulation market is generally characterized by just-in-time delivery, which limits our ability to predict future sales.

Qualification of our products by many of our direct and end-use customers in the industrial, building and construction and other markets can be lengthy and unpredictable and many of these direct and end-use customers have extended budgeting and procurement processes. This extended sales process requires the dedication of significant time by our personnel and our use of significant financial resources, with no certainty of success or recovery of our related expenses. Once the qualification process is complete for a direct or end-use customer, the lead time between order placement and product shipment is typically short and the insulation market is generally characterized by just-in-time delivery. These factors limit our ability to predict future sales. This limitation could result in our being unable to reduce spending quickly enough to compensate for reductions in sales. Additionally, we have been unable at times to produce sufficient amounts of our products to meet demand from our customers and we may not be able to avoid capacity constraints in the future. If we are unable to deliver our products within such short timeframes, we may be at risk of losing direct or end-use customers. Accordingly, shortfalls in sales could materially adversely affect our business and operating results.

Shortages of the raw materials used in the production of our products, increases in the cost of such materials or disruptions in our supply chain could adversely impact our financial condition and operating results.

The raw materials used in the production of our products consist primarily of polyester and fiberglass battings, amorphous silica and ethanol, which is used in the delivery of the amorphous silica. Although we are not dependent on any one supplier, we are dependent on the ability of our third-party suppliers to supply such materials on a timely and consistent basis. While these raw materials are available from numerous sources, they may be subject to fluctuations in availability and price. Our third-party suppliers may not dedicate sufficient resources to meet our scheduled delivery requirements or our suppliers may not have sufficient resources to satisfy our requirements during any period of sustained demand. Failure of suppliers to supply, delays in supplying, or disruptions in the supply chain for our raw materials, or allocations in the supply of certain high demand raw components, could materially adversely affect our operations, our profitability and our ability to meet our delivery schedules on a timely and competitive basis.

Fluctuations in the prices of these raw materials could have a material adverse effect on results of operations. Our ability to pass increases in raw material prices on to our customers is limited due to competitive pricing pressure and the time lag between increased costs and implementation of related price increases. Although we are working with a number of amorphous silica providers to plan for our potential future needs and to develop processes to reduce our amorphous silica costs, we do not yet have a secure, long-term supply of amorphous silica. We may not be able to establish arrangements for secure, long-term amorphous silica supplies at prices consistent with our current costs or without incurring a delay in supply at prices consistent with our current costs while we seek to identify different sources. Any failure to establish a long-term supply of amorphous silica at prices consistent with our current costs would have a material adverse effect on our ability to increase our sales and achieve profitability.

If we do not continue to develop and maintain distribution channels for our products or strategic relationships with industry leaders to commercialize our products, our profitability could be impaired.

For a significant portion of our revenues in the industrial and OEM markets, we rely on sales to distributors who then sell our products to end-users in those markets. Our success depends, in part, on our maintaining satisfactory relationships with these distributors. The majority of our sales to

distributors are effected on a purchase order basis that requires us to meet expectations of delivery, quality and pricing of our products, at both the distribution channel level and at the level of the end-user of our products. If we fail to meet expected standards, our revenues would decline and this could materially adversely affect our business, results of operations and financial condition.

Our business strategy requires us to align the design and performance attributes of our products to the evolving needs of the market. To facilitate this process, we have sought out partnerships and relationships with industry leaders in order to assist in the development and commercialization of our products. We face competition from other manufacturers of insulation in seeking out and entering into such partnerships and relationships with industry leaders in our target markets and we may therefore not be successful in establishing strategic relationships in those markets. In the building and construction market, we have entered into a joint development agreement with BASF Construction Chemicals to develop products to meet increasingly stringent building standards for thermal performance of retrofit and new-build wall systems. In the event that we are unable to develop products that meet market needs or maintain our relationship with BASF Construction Chemicals, we may be required to find less prominent partners in the building and construction market and we may be less able or unable to successfully penetrate that market. As a result, we may lose our ability to grow our business in the building and construction market, which could impair our profitability.

We may enter into joint development agreements with industry leaders that may limit our ability to broadly market our products or could involve future obligations.

In order to develop and commercialize our products, we may enter into joint development agreements with industry leaders, in particular in the building and construction and OEM markets. We cannot be certain that any products will be successfully developed under any such agreement or, even if developed, that they will be successfully produced or commercialized. These agreements may contain exclusivity, ownership and other terms that may limit our ability to commercialize any products or technology developed under such joint development agreements, including in ways that we do not envision at the time of entering into the agreement. In addition, these agreements may not obligate either party to make any purchases and may contain technical specifications that must be achieved to the satisfaction of our partner, which we cannot be certain we will be able to achieve. If our ability to commercialize products or technology developed under these joint development agreements is limited or if we fail to achieve the technical specifications that may be required, then our business, financial condition and operating results could be materially adversely affected.

Our results of operations could be adversely affected if our operating expenses do not correspond with the timing of our revenues.

Most of our operating expenses, such as manufacturing facility expenses, employee compensation and research expenses, are either relatively fixed in the short-term or incurred in advance of sales. Additionally, our spending levels are based in part on our expectations regarding future revenues. As a result, if revenues for a particular quarter are below expectations, we may not be able to proportionately reduce operating expenses for that quarter. For example, the time between our customers' placing an order and delivery of our product is typically short, which limits our ability to predict future sales. This limitation could result in our being unable to reduce spending quickly enough to compensate for reductions in sales and could therefore adversely affect our operating results for any particular operating period.

We are exposed to the credit risk of some of our distributors and contractors.

Although many of our end-use customers are larger, well-capitalized industrial companies, we distribute our products through a network of distributors and contractors that may not be well-capitalized and may be of a lower credit quality. This distributor and contractor network subjects us to the risk of non-payment for our products. Although we have not experienced a significant incidence of non-payment for our products, such non-payments may occur in the future. In addition, during periods

of economic downturn in the global economy, our exposure to credit risks from our distributors and contractors may increase, and our efforts to monitor and mitigate the associated risks may not be effective. In the event of non-payment by one or more of our distributors or contractors, our business, financial condition and operating results could be materially adversely affected.

Our working capital requirements involve estimates based on demand and production expectations and may decrease or increase beyond those currently anticipated, which could harm our operating results and financial condition.

In order to fulfill the product delivery requirements of our direct and end-use customers, we plan for working capital needs in advance of customer orders. As a result, we base our funding and inventory decisions on estimates of future demand. If demand for our products does not increase as quickly as we have estimated or drops off sharply, our inventory and expenses could rise, and our business and operating results could suffer. Alternatively, if we experience sales in excess of our estimates, our working capital needs may be higher than those currently anticipated. Our ability to meet this excess customer demand depends on our ability to arrange for additional financing for any ongoing working capital shortages, since it is likely that cash flow from sales will lag behind these investment requirements. To meet any ongoing working capital shortages, we may rely on our current loan and security agreement with Silicon Valley Bank, which we refer to as our revolving credit facility, under which we are entitled to borrow up to $10.0 million. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources.” In addition, we plan to increase our inventory in order to meet our expected future demand. This would result in an increase in our working capital requirements that could harm our operating results and financial condition.

Our contracts with U.S. government agencies may subject the company to audits, criminal penalties, sanctions and other expenses and fines.

U.S. government agencies, including the Defense Contract Audit Agency and the Department of Labor, routinely audit government contractors. These agencies review a contractor’s compliance with contract terms and conditions, performance under its contracts, cost structure and compliance with applicable laws, regulations and standards. The U.S. government also may review the adequacy of the contractor’s systems and policies, including the contractor’s purchasing, property, estimating, billing, accounting, compensation and management information systems. Any costs found to be overcharged or improperly allocated to a specific contract or any amounts improperly billed or charged for products or services will be subject to reimbursement to the government. As a government contractor, we are required to disclose credible evidence of certain violations of law and contract overpayments to the U.S. government. If we are found to have participated in improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including termination of contracts, forfeiture of profits, suspension of payments, fines and suspension or prohibition from doing business with the U.S. government. Any negative publicity related to such contracts, regardless of the accuracy of such publicity, may adversely affect the company’s business or reputation.

Our contracts with U.S. government agencies may not be funded by future appropriations and are subject to modification or termination at any time prior to their completion.

Our contracts with U.S. government agencies are subject to the availability of appropriated funds. The U.S. government funds our contract research work through a variety of funding programs that rely on monies appropriated by Congress. At any point, the availability of funding could change, thus reducing the opportunities for new or continued revenues to us from government contract work. For example, we currently receive a significant portion of our government contract revenues through the Small Business Innovation Research program, or SBIR. SBIR funding for our contracts with U.S. government agencies could be reduced or eliminated for a number of reasons including the

discontinuance of the program as a result of action or inaction by Congress, a decrease in the portion of U.S. government agencies' budgets that are allocated to research and development, or a reduction of the percentage of research and development budgets that are allocated to SBIR. We expect that our revenue under such contracts will continue to decline due to the recent trend toward tightening of federal spending guidelines and programs. Additionally, SBIR funding is currently available only to companies with less than 500 employees. In the event that our employee headcount equals or exceeds 500, we would no longer be eligible to compete for and be awarded contracts funded through SBIR. Any reduction in available funding or inability to participate in the SBIR program may adversely affect our revenues.

In addition, under our contracts, the U.S. government generally has the right not to exercise options to extend or expand our contracts and may modify, curtail or terminate the contracts at its convenience. Our government customers may not renew our existing contracts after the conclusion of their terms and we may not be able to enter into new contracts with U.S. government agencies. Any decision by the U.S. government not to exercise contract options or to modify, curtail or terminate our contracts or not to renew our contracts or enter into new contracts with us would adversely affect our revenues.

Loss of the intellectual property rights that we license from Cabot Corporation would have a material adverse impact on our business.

We have licensed certain intellectual property rights from Cabot under a cross license agreement. These intellectual property rights have been and continue to be critical to the manufacture of our existing products and may also be important to our research, development and manufacture of new products. Any termination or limitation of our cross license agreement with Cabot, or any loss of the intellectual property rights granted to us thereunder as a result of ineffective protection of such rights by Cabot, a breach of or dispute under the cross license agreement by either party or our inability to meet the payment schedule set forth in the cross license agreement would have a material adverse impact on our financial condition, results of operations and growth prospects, and would prevent us from continuing our business. Under the terms of the cross license agreement, as amended, we are obligated, among other things, to pay Cabot a nonrefundable fee of $38 million that is amortized on a quarterly basis with the total amount to be paid in full no later than December 2013. As of March 31, 2011, $16.5 million remained outstanding to Cabot. For a more detailed description of the cross license agreement with Cabot, see "Business — Intellectual Property — Cross License Agreement with Cabot Corporation" and "Management's Discussion and Analysis of Financial Condition and Results of Operations — Contractual Obligations and Commitments — Cross License Agreement."

Our inability to protect our intellectual property rights could negatively affect our business and results of operations.

Our ability to compete effectively depends in part upon developing, maintaining and/or protecting intellectual property rights relevant to our aerogel product forms, applications and manufacturing processes. We rely principally on a combination of patent protection, trade secret laws, confidentiality and nondisclosure agreements and licensing arrangements to establish and protect the intellectual property rights relevant to our business. However, these measures may not be adequate in every given case to permit us to gain or keep any competitive advantage, particularly in those countries where the laws do not protect our proprietary rights as fully as in the United States. In particular, since aerogels were developed approximately 80 years ago, there has been a wide range of research, development and publication related to aerogels, which makes it difficult to establish intellectual property rights to many key elements of aerogel technology and to obtain patent protection. Accordingly, much of the critical technology that we use in our manufacture of aerogel blankets is not protected by patents.

Where we consider it appropriate, our strategy is to seek patent protection in the United States and other countries on technologies used in or relating to our aerogel product forms, applications and manufacturing processes. As of May 31, 2011, we had 17 issued U.S. patents and 13 issued foreign patents, including one U.S. patent and one European patent that we co-own with a third party. The issuance of a patent is not conclusive as to its scope, validity and enforceability. Thus, any patent held by us or to be issued to us from a pending patent application, could be challenged, invalidated or held unenforceable in litigation or proceedings before the U.S. Patent and Trademark Office and/or other patent tribunals, or circumvented by others. No consistent policy regarding the breadth of patent claims has emerged to date in the United States and the landscape could become more uncertain in view of future rule changes by the United States Patent and Trademark Office, the introduction of patent reform legislation and decisions in patent law cases by the federal courts including the United States Supreme Court. The patent landscape outside the United States is even less predictable. As a result, the validity and enforceability of patents cannot be predicted with certainty. In addition, we may fail to apply for patents on important technologies or product candidates in a timely fashion, if at all, and our existing and future patents may not be sufficiently broad to prevent others from practicing our technologies or from developing competing products or technologies, in particular given the long history of aerogel development.

As of May 31, 2011, we had 20 pending U.S. patent applications and 34 pending foreign patent applications, including one pending U.S. patent application that we co-own with a third party and a family of pending foreign patent applications that we co-own with another third party. Our pending patent applications are directed to various enabling technologies for the product forms, applications and manufacturing processes that support our current business, as well as aspects of products under development or contemplated for the future. The issuance of patents from these applications involves complex legal and factual questions and, thus, we cannot assure you that any of our pending patent applications will result in the issuance of patents to us. The U.S. Patent and Trademark Office and relevant foreign patent tribunals may deny or require significant narrowing of claims in our pending patent applications. Patents issued as a result of any of our pending patent applications may not cover our enabling technology and/or the products or processes that support our current or future business or afford us with significant commercial protection against others with similar technology. Proceedings before the U.S. Patent and Trademark Office could result in adverse decisions as to the priority of our inventions and the narrowing or invalidation of claims in issued patents. In addition, our pending patent applications filed in foreign countries are subject to laws, rules and procedures that differ from those of the United States, and thus foreign patent applications may not be granted even if counterpart United States patents are issued.

Moreover, others may independently develop and obtain patents covering technologies that are similar or superior to the product forms, applications or manufacturing processes that we employ. If that happens, we may need to obtain licenses for these technologies and may not be able to obtain licenses on reasonable terms, if at all, which could limit our ability to manufacture our current and/or future products and operate our business. Moreover, third parties could practice our intellectual property rights in territories where we do not have patent protection. Such third parties may then try to import products made using our intellectual property rights into the United States or other countries.

Our contracts with the U.S. government and other third parties could negatively affect our intellectual property rights.

To further our product development efforts, our scientists and engineers work closely with customers, the U.S. government and other third parties to research and develop advancements in aerogel product forms, applications and manufacturing processes. We have entered into agreements with private third parties and have been awarded numerous research contracts with the U.S. government to independently or jointly research, design and develop new devices and systems that incorporate our aerogel products. We also expect to enter into similar private agreements and be awarded similar government contracts in the future. In some instances, the research and development

activities that we conduct under contract with the U.S. government and/or with private third parties may produce intellectual property to which we may not have ownership or exclusive rights and will be unable to protect or monetize. Moreover, when we develop new technologies using U.S. government funding, the government may obtain certain rights in any resulting patents, technical data and/or other confidential and proprietary information, generally including, at a minimum, a non-exclusive license authorizing the U.S. government to use the invention, technical data or software for non-commercial purposes. This federal government funding may limit when and how we can deploy our technology developed under those contracts. In addition, the federal funding must be disclosed in any resulting patent applications, and our rights in such inventions will normally be subject to government license rights, periodic post-contract utilization reporting, foreign manufacturing restrictions and "march-in" rights. March-in rights refer to the right of the U.S. government to require us to grant a license to the technology to a responsible applicant or, if we refuse, the government may grant the license itself. The U.S. government may exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of any technology developed under contract with the government or because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations or to give preference to United States industry. The U.S. government may also have the right to disclose our confidential and proprietary information to third parties.

Our U.S. government-sponsored research contracts are also subject to audit and require that we provide regular written technical updates on a monthly, quarterly or annual basis, and, at the conclusion of the research contract, a final report on the results of our technical research. Because these reports are generally available to the public, third parties may obtain some aspects of our confidential and proprietary information relating to our product forms, applications and/or manufacturing processes. If we fail to provide these reports or to provide accurate or complete reports, the U.S. government could obtain rights to any intellectual property arising from the related research.

Furthermore, there could be disputes between us and a private third party as to the ownership rights to any inventions that we develop in collaboration with such third party. Any such dispute may cause us to incur substantial costs, and could place a significant strain on our financial resources, divert the attention of management from our core business and harm our reputation.

We rely on trade secrets to protect our technology, and our failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We rely in part on trade secret protection to protect confidential and proprietary information relating to our technology, particularly where we do not believe patent protection is appropriate or obtainable. We continue to develop and refine the manufacturing processes used to produce our aerogel products and believe that we have already developed, and will continue to develop, significant know-how related to these processes. However, trade secrets can be difficult to protect. We may not be able to maintain the secrecy of this know-how, and competitors may develop or acquire equally or more valuable know-how related to the manufacture of comparable aerogel products. Our strategy for scale-up of commercial production will continue to require us to share confidential and proprietary information with the U.S. government and other third parties. While we take reasonable efforts to protect our trade secrets, our employees, consultants, contractors or scientific and other advisors, or those of our business partners, may intentionally or inadvertently disclose our confidential and proprietary information to competitors. Any enforcement of claims by us that a third party has obtained and is using our trade secrets is expensive, time consuming and uncertain. In addition, foreign courts are sometimes less willing than United States courts to protect trade secrets.

We also require all employees and consultants to execute confidentiality and/or nondisclosure agreements upon the commencement of an employment or consulting arrangement with us, which agreements generally require that all confidential and proprietary information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements further generally provide

that inventions conceived by the individual in the course of rendering services to us will be our exclusive property. Nevertheless, these agreements may not be honored and our confidential and proprietary information may be disclosed, or these agreements may be unenforceable or difficult to enforce. We also require customers and vendors to execute confidentiality and/or nondisclosure agreements. However, we may not have obtained such agreements from all of our customers and vendors. Moreover, some of our customers may be subject to laws and regulations that require them to disclose information that we would otherwise seek to keep confidential. Our confidential and proprietary information may be otherwise disclosed without our authorization. For example, third parties could reverse engineer our manufacturing processes, independently develop substantially equivalent confidential and proprietary information or otherwise gain access to our trade secrets. Failure to maintain trade secret protection could enable others to produce competing products and adversely affect our competitive business position.

We could become subject to intellectual property litigation that could be costly, limit or cancel our intellectual property rights, divert time and efforts away from business operation, require us to pay damages and/or otherwise have an adverse material impact on our business.

The success of our business is highly dependent on protecting our intellectual property rights. Unauthorized parties may attempt to copy or otherwise obtain and use our products and/or enabling technology. Policing the unauthorized use of our intellectual property rights is difficult and expensive, as is enforcing these rights against unauthorized use by others. Identifying unauthorized use of our intellectual property rights is difficult because we may be unable to monitor the processes and/or materials being employed by other parties. The steps we have taken may not prevent unauthorized use of our intellectual property rights, particularly in foreign countries where enforcement of intellectual property rights may be more difficult than in the United States.

Our continued commercial success will also depend in part upon not infringing the patents or violating other intellectual property rights of third parties. We are aware of patents and patent applications generally relating to aspects of our technologies filed by, and issued to, third parties, and our knowledge of the patent landscape with respect to the technologies currently embodied within our aerogel products and the processes that we practice in manufacturing those products indicates that the third-party patent rights most relevant to our business are those owned by Cabot and licensed to us under the cross license agreement with Cabot. Nevertheless, we cannot determine with certainty whether patents or patent applications of other parties may materially affect our ability to conduct our business. There may be existing patents of which we are unaware that we may inadvertently infringe, resulting in claims against us or our customers. In the event that the manufacture, use and/or sale of our products or processes is challenged, or if our product forms or processes conflict with patent rights of others, third parties could bring legal actions against us in the United States, Europe or other countries, claiming damages and seeking to enjoin the manufacturing and/or marketing of our products. Additionally, it is not possible to predict with certainty what patent claims may issue from pending patent applications. In the United States, for example, patent prosecution can proceed in secret prior to issuance of a patent, provided such application is not filed in a foreign jurisdiction. For U.S. patent applications that are also filed in foreign jurisdictions, such patent applications will not be published until 18 months from the filing date of the application. As a result, third parties may be able to obtain patents with claims relating to our product forms, applications and/or manufacturing processes which they could attempt to assert against us.

In either case, litigation may be necessary to enforce, protect or defend our intellectual property rights or to determine the validity and scope of the intellectual property rights of others. Any litigation could be unsuccessful, cause us to incur substantial costs, divert resources and the efforts of our personnel away from daily operations, harm our reputation and/or result in the impairment of our intellectual property rights. In some cases, litigation may be threatened or brought by a patent holding company or other adverse patent owner who has no relevant product revenues and against which our patents may provide little or no deterrence. If we are found to infringe any patents, we could be

required to (1) pay substantial monetary damages, including lost profits, reasonable royalties and/or treble damages if an infringement is found to be willful and/or (2) totally discontinue or substantially modify any products or processes that are found to be in violation of another party's intellectual property rights. We also may have to seek a license to continue making and selling our products and/or using our manufacturing processes, which we may not be able to obtain on reasonable terms, if at all, which could significantly increase our operating expenses and/or decrease our revenue. If our competitors are able to use our technology without payment to us, our ability to compete effectively could be harmed. Our contracts generally indemnify our customers for third-party claims of intellectual property infringement related to our manufacture of a product up to the amount of the purchase price paid for the product. The expense of defending these claims may adversely affect our financial results.

We may incur significant costs complying with environmental laws, and failure to comply with these laws and regulations could expose us to significant liabilities, which could adversely affect our operating results.

Costs of compliance with regional, national, state and local existing and future environmental laws and regulations could adversely affect our cash flow and profitability. We are required to comply with numerous environmental laws and regulations and to obtain numerous governmental permits in order to operate our facilities and in connection with the design, development, manufacture and transport of our products and the storage, use, handling and disposal of hazardous substances, including environmental laws, regulations and permits governing air emissions. We may incur significant additional costs to comply with these requirements. If we fail to comply with these requirements, we could be subject to civil or criminal liability, damages and fines, and our operations could be curtailed or suspended. In addition, certain foreign laws and regulations may affect our ability to export products outside of the United States. Existing environmental laws and regulations could be revised or reinterpreted and new laws and regulations could be adopted or become applicable to us or our products, and future changes in environmental laws and regulations could occur. These factors may materially increase the amount we must invest to bring our processes into compliance and impose additional expense on our operations.

Among the changes to environmental laws and regulations that could occur is the adoption of regulatory frameworks to reduce greenhouse gas emissions, which a number of countries, particularly in the European Union, have adopted, or are considering adopting. These include adoption of cap and trade regimes, carbon taxes, restrictive permitting, increased efficiency standards, and incentives or mandates for renewable energy, any of which could increase the costs of manufacturing our products and increase our compliance costs, which could materially adversely affect our business and operating results.

In addition, private lawsuits, including claims for remediation of contamination, personal injury or property damage, or actions by regional, national, state and local regulatory agencies, including enforcement or cost-recovery actions, may materially increase our costs. Certain environmental laws make us potentially liable on a joint and several basis for the remediation of contamination at or emanating from properties or facilities we currently or formerly owned or operated or properties to which we arranged for the disposal of hazardous substances. Such liability is not limited to the cleanup of contamination we actually caused. For example, the site of our East Providence facility was associated with contamination caused by prior activities on and near the site. While there is currently in place a covenant not to sue from the state environmental agency and a state-approved deed restriction addressing contamination left in place by a previous owner, we are required to comply with the deed restriction and the accompanying soil management plan. We may incur additional costs to comply with these requirements and failure to do so could disrupt the operation of our manufacturing facility or could subject us to liability for environmental remediation. We may incur liability relating to the remediation of contamination, including contamination we did not cause.

We may not be able to obtain or maintain, from time to time, all required environmental regulatory approvals. A delay in obtaining any required environmental regulatory approvals or failure to obtain and comply with them could materially adversely affect our business and operating results.

Our activities and operations are subject to numerous health and safety laws and regulations, and if we violate such regulations, we could face penalties and fines.

We are subject to numerous health and safety laws and regulations in each of the jurisdictions in which we operate, including with regards to hazardous substances that we use in our manufacturing process. These laws and regulations require us to obtain and maintain permits and approvals and implement health and safety programs and procedures to control risks associated with our operations. Compliance with those laws and regulations can require us to incur substantial costs. Moreover, if our compliance programs are not successful, we could be subject to penalties or to revocation of our permits, which may require us to curtail or cease operations of the affected facilities. Violations of laws, regulations and permit requirements may also result in criminal sanctions or injunctions. Manufacture of our products requires the use of hazardous substances and our products contain these same materials, including titanium dioxide and carbon black, which, in certain forms and at certain levels, has been determined to be possibly carcinogenic or otherwise harmful to humans. While we use these hazardous substances, including titanium dioxide and carbon black, in forms and at levels that comply with current rules and regulations governing their use known to us, such rules and regulations may become more stringent such that we are required to modify our manufacturing process and such that our customers' use of our product may be impacted, or we may inadvertently use such materials. In addition, our production or manufacturing process may result in uses above permitted levels. Such uses or changes in rules or regulations could materially adversely affect our business, financial condition and operating results. Health and safety laws, regulations and permit requirements may change or become more stringent. Any such changes could require us to incur materially higher costs than we currently have. Our costs of complying with current and future health and safety laws, regulations and permit requirements, and any liabilities, fines or other sanctions resulting from violations of them, could adversely affect our business, financial condition and operating results.

We may face certain product liability or warranty claims from our products, including from improper installation of our products by third parties. As a consequence, we could lose existing and future business and our ability to develop, market and sell our insulation could be harmed.

The design, development, production and sale of our products involve an inherent risk of product liability claims and associated adverse publicity. We may be named directly in product liability suits relating to our products, even for defects resulting from errors of our distributors, third-party installers or end-use customers. These claims could be brought by various parties, including distributors and other direct customers who are purchasing products directly from us, third-party installers who are contracted by our direct and end-use customers to install our products, or end-use customers who purchase our products from our distributors. We could also be named as co-parties in product liability suits that are brought against the distributors, third-party installers and end-use customers of our products. Installation of our products is handled by third parties over which we have no control and errors or defects in their installation may also give rise to claims against us, diminish our brand or divert our resources from other purposes. The failure of our products to perform to customer expectations, whether or not because of improper installation, could give rise to warranty claims against us. Any of these claims, even if without merit, could result in costly litigation or divert management’s attention and resources. In addition, many of our products are integrated into the final products of our customers. The integration of our products may entail the risk of product liability or warranty claims based on malfunctions or hazards from both our products and the final products of our customers.

A material product liability claim may seriously harm our results of operations, as well as damage our customer relationships and reputation. Although we carry general liability insurance, our current insurance coverage could be insufficient to protect us from all liability that may be imposed under these types of claims. Insurance coverage is expensive, may be difficult to obtain and may not be available in the future on acceptable terms or at all. Our distributors, third-party installers and end-use customers may not have adequate insurance coverage to cover against potential claims. This insurance may not provide adequate coverage against potential losses, and if claims or losses exceed our liability insurance coverage, we may go out of business. In addition, insurance coverage may become more expensive, which would harm our results of operations.

A majority of our revenue comes from sales in foreign countries and we may expand our operations outside of the United States, which subjects us to increased economic, operational and political risks that could increase our costs and make it difficult for us to continue to operate profitably.

We conduct business across the globe, with a majority of our sales outside the United States for each of the years ended December 31, 2008, 2009 and 2010. In addition, we may expand our operations outside of the United States. As a result, we are subject to a number of risks, including, but not limited to:

- unexpected changes in regulatory requirements;
- foreign currency fluctuations, which could result in reduced revenue and increased operating expense;
- potentially longer payment and sales cycles;
- increased difficulty in collecting accounts receivable;
- labor rules and collective bargaining arrangements in foreign jurisdictions;
- the effect of applicable foreign tax structures, including tax rates that may be higher than tax rates in the United States or taxes that may be duplicative of those imposed in the United States;
- tariffs and trade barriers;
- general economic and political conditions in each country, which may interfere with, among other things, our supply chain, our customers and all of our activities in a particular location;
- inadequate intellectual property protection in foreign countries;
- the difficulties and increased expense in complying with a variety of domestic and foreign laws, regulations and trade standards, including the Foreign Corrupt Practices Act; and
- terrorist activity and political unrest.

Our success will depend in large part on our ability to manage the effects of continued global political and/or economic uncertainty, especially in our significant geographic markets.

Our business is affected by seasonal trends, and these trends could have an adverse effect on our operating results.

We are subject to seasonal fluctuations that we believe are tied to seasonal levels of industrial activity and the practices of the worldwide insulation market. As a result, our revenue and operating income in the fourth quarter is typically higher, and our revenue and operating income in the first quarter is typically lower, than in other quarters of the year. In addition, if our products' penetration of the building and construction market grows, we may become subject to fluctuations related to commercial and residential construction cycles. As a result of these seasonal trends and fluctuations, we may occasionally experience declines in revenue or earnings as compared to the immediately

preceding quarter, and comparisons of our operating results on a period-to-period basis may not be meaningful. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Quarterly Results of Operations — Seasonality and Quarterly Results.”

We may require significant additional capital to pursue our growth strategy, but we may not be able to obtain additional financing on acceptable terms or at all.

The growth of our business will depend on substantial amounts of additional capital for construction of new production lines or facilities, ongoing operating expenses and continued development of our aerogel product lines. Our capital requirements will depend on many factors, including the rate of our revenue growth, our introduction of new products and enhancements to existing products, and our expansion of sales and marketing and product development activities. In addition, we may consider strategic acquisitions of complementary businesses or technologies to grow our business, which could require significant capital and could increase our capital expenditures related to future operation of the acquired business or technology. We may not be able to obtain loans or additional capital on acceptable terms or at all. Moreover, our revolving credit facility, our secured subordinated notes issued in December 2010, which we refer to as the subordinated notes, our convertible notes and our loan agreement with Massachusetts Development Finance Agency contain restrictions on our ability to incur additional indebtedness, which, if not waived, could prevent us from obtaining needed capital. Any future credit facilities or debt instruments would likely contain similar restrictions. In the event additional funding is required, we may not be able to obtain bank credit arrangements or effect an equity or debt financing on terms acceptable to us or at all. A failure to obtain additional financing when needed could adversely affect our ability to maintain and grow our business.

Our credit facilities and our debt instruments contain financial and operating restrictions that may limit our access to credit. If we fail to comply with covenants in our credit facilities or our debt instruments, we may be required to repay our indebtedness thereunder, which may have an adverse effect on our liquidity.

Provisions in our revolving credit facility, our subordinated notes, our convertible notes and our loan agreement with Massachusetts Development Finance Agency each impose restrictions on our ability to operate, including, for some of the agreements and instruments, but not for others, our ability to:

- incur additional debt;
- pay dividends and make distributions;
- redeem or repurchase capital stock;
- create liens;
- enter into transactions with affiliates; and
- merge or consolidate with or into other entities.

These credit facilities and debt instruments also contain other customary covenants. We may not be able to comply with these covenants in the future. Our failure to comply with these covenants may result in the declaration of an event of default and could cause us to be unable to borrow funds under our revolving credit facility. In addition to preventing additional borrowings under our revolving credit facility, an event of default, if not cured or waived, may result in the acceleration of the maturity of indebtedness outstanding under the revolving credit facility and under our other debt instruments and credit facility, which would require us to pay all amounts outstanding. If an event of default occurs, we may not be able to cure it within any applicable cure period, if at all. If the maturity of our indebtedness is accelerated, we may not have sufficient funds available for repayment or we may not have the ability to borrow or obtain sufficient funds to replace the accelerated indebtedness on terms

acceptable to us, or at all. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources.”

If we lose key personnel upon whom we are dependent, or if we are unable to successfully recruit and retain skilled employees, we may not be able to manage our operations and meet our strategic objectives.

Our continued success depends to a considerable degree upon the continued services of a small number of our employees with critical knowledge of our products, our manufacturing process, our intellectual property, our customers and our global operations. The loss or unavailability of any of these individuals could harm our ability to execute our business plan, maintain important business relationships and complete certain product development initiatives, which could harm our business. In the event that any of these key individuals leave their employment with us or take new employment with a competitor, our business and results of operation could be materially adversely affected. In addition, our continued success depends upon the availability, contributions, vision, skills, experience and effort of our senior management, financial, sales and marketing, engineering and production teams. We do not maintain “key person” insurance on any of our employees. We have entered into employment agreements with certain members of our senior management team, but none of these agreements guarantees the services of the individual for a specified period of time. All of the agreements with members of our senior management team provide that employment is at-will and may be terminated by the employee at any time and without notice.

Although we do not have any reason to believe that we may lose the services of any our employees with critical knowledge of our products, our manufacturing processes, our customers and our global operations or any of our senior management, financial, sales and marketing, engineering and production teams in the foreseeable future, the loss of the services of any of these individuals might impede our operations or the achievement of our strategic and financial objectives. The loss or interruption of the service of any of these individuals or our inability to attract or retain other qualified personnel or advisors could have a material adverse effect on our business, financial condition and results of operations and could significantly reduce our ability to manage our operations and implement our strategy.

Our ability to use our net operating loss carryforwards will be subject to limitation.

Generally, a change of more than 50% in the ownership of a company’s stock, by value, over a three year period constitutes an ownership change for U.S. federal income tax purposes. An ownership change may limit a company’s ability to use its net operating loss carryforwards attributable to the period prior to such change. At December 31, 2010, we had $112 million of net operating losses available to offset future federal income, if any, which expire on various dates through December 31, 2030; however, we expect $30 million of our net operating losses will not be able to be utilized after June 2013. We performed an analysis pursuant to Internal Revenue Code Section 382, as well as similar state provisions, in order to determine whether any limitations might exist on the utilization of net operating losses and other tax attributes. Based on this analysis, we determined that it is more likely than not that an ownership change occurred on June 10, 2008, resulting in an annual limitation on the use of our net operating losses and other tax attributes as of such date. We also determined that we had certain built-in gains at the date of ownership change. Built-in gains increase the limitation under the Internal Revenue Code Section 382 to the extent triggered during the five year period subsequent to the date of change. Absent the disposition of certain built-in gain assets, which assets are critical to our business and are unlikely to be disposed of, within the five year period subsequent to the acquisition, approximately $30 million of our net operating losses will not be able to be utilized after June 2013.

Risks Related to This Offering

There has been no prior public market for our common stock and an active trading market may not develop.

Prior to this offering, there has never been a public market for our common stock. A liquid trading market for our common stock may not develop. We cannot predict when or whether investor interest in our common stock on the NYSE might lead to an increase in market price or the development of a more active trading market or how liquid that market might become. If an active market for our securities does not develop, it may be difficult to sell common stock you purchase in this offering. An inactive market may also impair our ability to raise capital by selling our common stock and may impair our ability to acquire other companies, products or technologies by using our common stock as consideration.

We expect that the price of our common stock will fluctuate substantially and you may not be able to sell your shares at or above the initial public offering price.

The initial public offering price of our common stock sold in this offering was determined by negotiation between the representatives of the underwriters and us. This price may not reflect the market price of our common stock that will prevail in the trading market following this offering. You may not be able to resell your shares at or above the initial public offering price due to a number of factors, including those listed in "— Risks Related to Our Business and Strategy" and including the following, some of which are beyond our control:

- volume and timing of orders for our products;
- quarterly and yearly variations in our or our competitors' results of operations;
- our announcement or our competitors' announcements regarding new products, product enhancements, significant contracts, number of distributors, acquisitions or strategic investments;
- announcements of technological innovations relating to aerogels, thermal management and energy conservation insulation;
- results of operations that vary from the expectations of securities analysts and investors;
- the periodic nature of our sales cycles, in particular for capital projects in the industrial market;
- our ability to develop, obtain regulatory clearance or approval for and market new and enhanced products on a timely basis;
- future sales of our common stock, including sales by our executive officers, directors and significant stockholders;
- announcements by third parties of significant claims or proceedings against us, including with regards to intellectual property and product liability;
- changes in accounting principles; and
- general U.S. and global economic conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

Furthermore, the U.S. stock market has at times experienced extreme volatility that in some cases has been unrelated or disproportionate to the operating performance of particular companies. These broad market and industry fluctuations may adversely affect the market price of our common stock, regardless of our actual operating performance.

In the past, following periods of market volatility, stockholders have instituted securities class action litigation. If we were involved in securities litigation, it could have a substantial cost and divert

resources and the attention of our senior management team from our business regardless of the outcome of such litigation.

Securities analysts may not initiate coverage of our common stock or may issue negative reports, which may have a negative impact on the market price of our common stock.

The trading market for our common stock will rely in part on the research and reports that industry or financial analysts publish about us or our business. Securities analysts may elect not to provide research coverage of our common stock after the completion of this offering. If securities analysts do not cover our common stock after the completion of this offering, the lack of research coverage may cause the market price of our common stock to decline. If one or more of the analysts who elects to cover us downgrades our stock, our stock price would likely decline substantially. If one or more of these analysts ceases coverage of us, we could lose visibility in the market, which in turn could cause our stock price to decline. In addition, rules mandated by the Sarbanes-Oxley Act and a global settlement reached in 2003 between the SEC, other regulatory agencies and a number of investment banks have led to a number of fundamental changes in how analysts are reviewed and compensated. In particular, many investment banking firms are required to contract with independent financial analysts for their stock research. It may be difficult for companies such as ours, with smaller market capitalizations, to attract independent financial analysts that will cover our common stock. This could have a negative effect on the market price of our stock.

Our directors, officers and principal stockholders have significant voting power and may take actions that may not be in the best interests of our other stockholders.

As of March 31, 2011, our officers, directors and principal stockholders and their affiliates collectively controlled approximately 81.3% of our outstanding common stock. After this offering, assuming no exercise of the underwriters' option to purchase additional shares, our officers, directors and principal stockholders and their affiliates collectively will control approximately % of our outstanding common stock. As a result, these stockholders, if they act together, will be able to control the management and affairs of our company and most matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying or preventing a change of control and might adversely affect the market price of our common stock. This concentration of ownership may not be in the best interests of our other stockholders.

Our management team may invest or spend the proceeds of this offering in ways in which you may not agree or in ways that may not yield a return.

We expect to use the net proceeds from this offering for general corporate purposes, including the construction of additional manufacturing capacity. Our management will have considerable discretion in the application of the net proceeds of this offering. Stockholders may not agree with such uses and the net proceeds may be used for corporate purposes that do not increase our operating results or market value. Until the net proceeds are used, they may be placed in investments that do not produce income or that lose value.

Anti-takeover provisions in our restated certificate of incorporation and restated by-laws, and Delaware law, could delay or discourage a takeover.

Anti-takeover provisions in our restated certificate of incorporation and restated by-laws and Delaware law may have the effect of deterring or delaying attempts by our stockholders to remove or replace management, engage in proxy contests and effect changes in control. The provisions of our charter documents include:

- procedures for advance notification of stockholder nominations and proposals;

- the inability of our stockholders to call a special meeting of the stockholders and the inability of our stockholders to act by written consent;
- the ability of our board of directors to create new directorships and to fill any vacancies on the board of directors;
- the ability of our board of directors to amend our restated by-laws without stockholder approval; and
- the ability of our board of directors to issue up to shares of preferred stock without stockholder approval upon the terms and conditions and with the rights, privileges and preferences as our board of directors may determine.

In addition, as a Delaware corporation, we are subject to Delaware law, including Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date that the stockholder became an interested stockholder unless certain specific requirements are met as set forth in Section 203. These provisions, alone or together, could have the effect of deterring or delaying changes in incumbent management, proxy contests or changes in control. See “Description of Capital Stock.”

Future sales of our common stock or the possibility or perception of such future sales may depress our stock price and impair our ability to raise future capital through the sale of our equity securities.

Upon completion of the offering, our current stockholders will hold a substantial number of shares of our common stock that they will be able to sell in the public market in the near future. A significant portion of these shares will be held by a small number of stockholders. Sales by our current stockholders of a substantial number of shares after this offering, or the perception that these sales could occur, could significantly reduce the market price of our common stock. All the shares sold in this offering will be freely tradable. Substantially all of the remaining shares of our common stock are available for resale in the public market, subject to the restrictions on sale or transfer during the 180-day lockup period after the date of this prospectus that is described in “Shares Eligible for Future Sale.” Registration of the sale of these shares of our common stock would permit their sale into the market immediately. As restrictions on resale end or upon registration of any of these shares for resale, the market price of our common stock could drop significantly if the holders of these shares sell them or are perceived by the market as intending to sell them. These sales could also impede our ability to raise future capital.

Moreover, following the completion of this offering and including (i) any shares issued in satisfaction of any accrued but unpaid dividends on our preferred stock and (ii) any shares of common stock issuable upon the automatic conversion of all principal and accrued but unpaid interest on our convertible notes, each of which would occur upon the closing of the offering made hereby, the holders of approximately shares of common stock, as well as approximately 1.0 million shares underlying certain outstanding warrants to purchase our common stock, will have rights, subject to some conditions, to require us to include their shares in registration statements that we may file for ourselves or other stockholders. The million shares represent approximately % of the total number of shares of our common stock to be outstanding immediately after this offering, assuming no exercise of the underwriters’ option to purchase additional shares. See “Description of Capital Stock — Registration Rights” for a description of the registration rights of these stockholders. By exercising their registration rights and selling a large number of shares, these holders could cause the prevailing market price of our common stock to decline.

As a new investor, you will experience immediate and substantial dilution in the net tangible book value of the shares you purchase in this offering.

The initial public offering price is substantially higher than the net tangible book value per share prior to the completion of this offering. Assuming an initial public offering price of our common stock of $ per share, the mid-point of the initial public offering price range set forth on the cover page of this prospectus, you will incur immediate dilution in net tangible book value per share of $. This dilution is due in large part to earlier investors in our company having paid substantially less than the initial public offering price when they purchased their shares. Additionally, new investors in this offering will have contributed % of our total equity as of , 2011, but will own only % of our outstanding shares upon completion of this offering.

Since we may require additional funds to develop new products and continue to expand our business, we may conduct substantial future offerings of equity securities. Future equity issuances, including future public offerings or future private placements of equity securities and any additional shares issued in connection with acquisitions, will result in further dilution to investors.

We do not intend to pay cash dividends in the foreseeable future and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We have never declared or paid cash dividends on our common stock and we do not intend to pay any cash dividends on our common stock in the foreseeable future. We currently expect to retain all available funds and any future earnings for use in the operation and expansion of our business. In addition, the terms of our revolving credit facility, our subordinated notes, our convertible notes and our cross license agreement with Cabot restrict our ability to pay dividends and any future credit facilities, loan agreements, debt instruments or license agreement may further restrict our ability to pay dividends. Payments of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our business, operating results and financial condition, current and anticipated cash needs, plans for expansion and any legal or contractual limitations on our ability to pay dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of potential gain for the foreseeable future.

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

This prospectus contains forward-looking statements. All statements other than statements of historical facts contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans, objectives of management and expected market growth are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

The words “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,’’ “potential,” “predict,” “project,” “should,” “target,” “will,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. These forward-looking statements include, among other things, statements about:

- our expectations as to the future growth of our business;
- the expected future growth of the market for aerogel insulation, insulation generally, and energy efficiency solutions;
- our belief that our products provide strong competitive advantages over traditional insulation materials;
- our expectations that our second production line will be capable of operating at full capacity by the end of 2011 and that our first two production lines will then be capable of an annual production capacity of 40 to 44 million square feet of aerogel blankets, depending on product mix;
- our ability to produce $50 to $54 million in annual revenue of aerogel blankets at current prices on our second production line when operating at full capacity;
- our expectation that the construction of our third production line will be completed during 2012;
- our plans to construct a second manufacturing facility in the United States or Europe, based on proximity to raw material suppliers, proximity to customers, labor and construction costs and available governmental incentives;
- the expected energy and cost savings of our products; and
- the expected future development of new aerogel technologies.

These forward looking statements are only predictions and we may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, so you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have based these forward-looking statements largely on our current expectations and projections about future events and trends that we believe may affect our business, financial condition and operating results. We have included important factors in the cautionary statements included in this prospectus, particularly in the “Risk Factors” section, that could cause actual future results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

Our forward-looking statements in this prospectus represent our views only as of the date of this prospectus. We disclaim any intent or obligation to update “forward-looking statements” made in this prospectus to reflect changed assumptions, the occurrence of unanticipated events or changes to future operating results over time. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

USE OF PROCEEDS

We estimate that we will receive net proceeds from this offering of approximately $ million, or approximately $ million if the underwriters exercise their option to purchase additional shares in full, based on an assumed initial public offering price of $ per share, which is the mid-point of the estimated price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the net proceeds to us from this offering by $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares from the expected number of shares to be sold in this offering, assuming no change in the assumed initial public offering price per share, would increase (decrease) our net proceeds from this offering by $ million.

We intend to use the net proceeds we receive from this offering for general corporate purposes, including the construction of additional manufacturing capacity. Pending specific utilization of the net proceeds as described above, we intend to invest the net proceeds of the offering in short-term investment grade and U.S. government securities.

DIVIDEND POLICY

We have never declared or paid any dividends on our common stock. We currently intend to retain future earnings, if any, to finance our research and development efforts and for use in the operation and expansion of our business and do not anticipate declaring or paying cash dividends in the foreseeable future.

The convertible note purchase agreement related to the convertible notes, the revolving credit facility, the note purchase agreement related to the subordinated notes and the cross license agreement with Cabot all contain restrictive covenants that restrict our ability to pay any dividends or make any distributions or payment on, or redeem, retire or repurchase, any capital stock. Any future determination to pay dividends will be at the discretion of our board of directors and will depend upon a number of factors, including our results of operations, financial condition, future prospects, contractual restrictions, restrictions imposed by applicable law and other factors our board of directors deems relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of March 31, 2011:

- on an actual basis;
- on an unaudited pro forma basis to give effect upon the completion of this offering to (i) the automatic conversion of all shares of our preferred stock into shares of our common stock and the issuance of shares of common stock in satisfaction of accumulated dividends on such preferred stock; (ii) the receipt in June 2011 of gross proceeds of $30.0 million from the sale of our convertible notes and the automatic conversion of the convertible notes and all accrued but unpaid interest thereon into shares of our common stock; and (iii) the sale of shares of our common stock offered by us in this offering at an assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and estimated offering expenses payable by us.

You should read this table together with our consolidated financial statements and the related notes thereto, as well as the information under "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." The unaudited pro forma information below is prepared for illustrative purposes only and our capitalization following the completion of this offering will be adjusted based on the actual initial public offering price, the closing of the offering made hereby and other terms of the offering determined at pricing.

	As of March 31, 2011	
	Actual	Pro forma
	(Unaudited)	
	(In thousands, except share and per share data)	
Cash and cash equivalents(1)	$ 16,379	$
Long-term debt including current portion	$ 8,080	$
Convertible notes(2)	—	
Series B redeemable convertible preferred stock, $0.001 par value; 17,000,000 shares authorized, 16,010,292 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma(3)	41,094	
Series A redeemable convertible preferred stock, $0.001 par value, 52,843,201 shares authorized, issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma(3)	131,132	
Stockholders' (deficit) equity:		
Common stock, $0.001 par value; 114,000,000 shares authorized, 26,106,535 shares issued and outstanding, actual; and shares issued and outstanding, pro forma(1)(2)(3)	26	
Additional paid-in capital(1)	75,788	
Accumulated deficit	(197,896)	
Total stockholders' (deficit) equity(1)	$(122,082)	$
Total capitalization(1)	$ 58,224	$

(1) To the extent we change the number of shares of common stock sold by us in this offering from the shares we expect to sell or we change the initial public offering price from the $ per share assumed initial public offering price, representing the mid-point of the estimated price range set forth on the cover page of this prospectus, or any combination of these events occurs, the net proceeds to us from this offering and consequently the cash and cash equivalents and each of

additional paid-in capital, total stockholders' equity and total capitalization may increase or decrease. A $1.00 increase (decrease) in the assumed initial public offering price per share of the common stock would increase (decrease) the net proceeds that we receive in this offering and each of our unaudited pro forma cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by approximately $ million, assuming that the number of shares offered by us under this prospectus remains the same. An increase (decrease) of 1,000,000 shares in the expected number of shares to be sold in the offering, assuming no change in the assumed initial public offering price per share, would increase (decrease) our net proceeds from this offering and consequently the cash and cash equivalents and each of additional paid-in capital, total stockholders' equity and total capitalization by approximately $ million.

(2) The unpaid principal amount of the convertible notes, together with any accrued but unpaid interest thereon, will be automatically converted into common stock upon the closing of the offering made hereby at a conversion price equal to 87.5% of the initial offering price per share to the public in this offering.

A $1.00 increase from the assumed initial public offering price of $ per share would decrease the number of shares of common stock issuable upon the conversion of the convertible notes by shares and $1.00 decrease from the assumed initial public offering price of $ per share would increase the number of shares of common stock issuable upon the conversion of the convertible notes by shares, in each case, assuming a , 2011 closing date of the offering. For each day after the assumed , 2011 closing date, the number of shares of common stock issuable upon the convertible notes would increase by shares, assuming an initial offering price of $ per share. The actual number of shares of common stock to be issued upon the conversion of the convertible notes will be based on the amount of accrued but unpaid interest then outstanding and the actual initial public offering price.

(3) Each series of our preferred stock will convert upon the completion of this offering on a 1-for-1 basis. The terms of our existing preferred stock require us, upon the closing of the offering made hereby, to issue additional shares of common stock to the holders of such preferred stock in satisfaction of accumulated dividends on such preferred stock. The accumulated dividends were approximately $4.8 million at March 31, 2011 and accumulate at the rate of approximately $11,000 per day thereafter. The common stock issued in satisfaction of those dividends will be valued at the public offering price per share in this offering.

A $1.00 increase from the assumed initial public offering price of $ per share would decrease the number of shares of common stock to be issued to the holders of preferred stock in satisfaction of accumulated dividends on such preferred stock by approximately shares and a $1.00 decrease from the assumed initial public offering price of $ per share would increase the number of shares of common stock to be issued to the holders of our preferred stock in satisfaction of accumulated dividends on such preferred stock by approximately shares, in each case, assuming the closing date of the offering hereby occurs on , 2011. For each day after the assumed , 2011 closing date, the number of shares of common stock issuable to the holders of preferred stock in satisfaction of accumulated dividends on such preferred stock would increase by shares, assuming an initial offering price of $ per share. The actual number of shares of common stock to be issued to the holders of our preferred stock will be based on the amount of accrued dividends then outstanding and the actual initial public offering price.

DILUTION

If you invest in our common stock, your interest in our net tangible book value will be diluted to the extent of the difference between the initial public offering price and the net tangible book value per share of our common stock immediately after the completion of this offering. Dilution results from the fact that the initial public offering price is substantially in excess of the book value per share attributable to the existing stockholders for the presently outstanding stock.

As of March 31, 2011, our net tangible book value was approximately $, or approximately $ per share of common stock. Net tangible book value per share represents the amount of our total tangible assets less total liabilities and preferred stock, divided by 26,106,535, the number of common shares outstanding on March 31, 2011. Our pro forma net tangible book value as of March 31, 2011 was $, or $ per share of common stock. Pro forma net tangible book value per share represents the amount of our total tangible assets less our total liabilities, divided by the number of shares of our common stock outstanding, as of March 31, 2011, after giving effect to (i) the automatic conversion of all shares of our preferred stock into 68,853,493 shares of our common stock; (ii) the issuance of shares of common stock upon the closing of the offering made hereby in satisfaction of accumulated dividends on our preferred stock, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and the closing of the offering made hereby occurs on , 2011; and (iii) the automatic conversion of $30.0 million aggregate principal amount and all accrued but unpaid interest on our convertible notes upon the closing of the offering made hereby into an aggregate of shares of our common stock, at a conversion price equal to 87.5% of the initial offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and that the closing of the offering made hereby occurs on , 2011.

After giving effect to the sale by us of shares of our common stock in the offering at the assumed initial public offering price of $, the mid-point of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2011 would have been approximately $, or approximately $ per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value of approximately $ per share to new investors purchasing shares of our common stock in this offering. We determine dilution by subtracting the pro forma as adjusted net tangible book value per share after the offering from the amount of cash that a new investor paid for a share of common stock.

The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share	$
Pro forma net tangible book value per share as of March 31, 2011	
Increase per share attributable to cash payments by new investors in this offering	
Pro forma as adjusted net tangible book value per share after this offering	
Dilution in pro forma net tangible book value per share to new investors	$

If the underwriters exercise their option to purchase additional shares in full, the pro forma as adjusted net tangible book value per share after giving effect to the offering would be $ per share. This represents an increase in pro forma as adjusted net tangible book value of $ per share to existing stockholders and dilution in pro forma as adjusted net tangible book value of $ per share to new investors.

A $1.00 increase (decrease) in the assumed initial public offering price of $, the mid-point of the price range set forth on the cover page of this prospectus, would increase (decrease) our pro forma as adjusted net tangible book value after this offering by $ million and the pro forma as

adjusted net tangible book value per share after this offering by $ per share and would increase (decrease) the dilution per share to new investors in this offering by $ per share, in each case, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and assuming the closing of the offering made hereby occurs on , 2011. The information discussed above is illustrative only and will adjust based on the actual initial public offering price and other terms of the offering determined at pricing.

The following table shows, as of , 2011, the differences between the number of shares purchased from us, the total consideration paid to us and the average price per share that existing stockholders and new investors paid.

	Shares Purchased		Total Consideration		Average Price per Share
	Number	Percentage	Amount	Percentage	
Existing stockholders		%	$	%	$
New investors					
Total		%	$	%	$

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would increase (decrease) total consideration paid by new investors, total consideration paid by all stockholders and the average price per share paid by all stockholders by $, $ and $, respectively, after deducting estimated underwriting discounts and estimated offering expenses payable by us, and assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and assuming the closing of the offering made hereby occurs on , 2011.

The discussion and tables above assume no exercise of the underwriters' option to purchase additional shares. If the underwriters' option to purchase additional shares is exercised in full, the number of shares of our common stock held by existing stockholders will be further reduced to % of the total number of shares of our common stock to be outstanding after the offering, and the number of shares of our common stock held by investors participating in the offering will be further increased to % of the total number of shares of our common stock to be outstanding after the offering.

In addition, except as noted, the above discussion and table assume no exercise of stock options or warrants to purchase common stock after March 31, 2011. As of March 31, 2011, we had outstanding options to purchase a total of 12,832,208 shares of our common stock at a weighted-average exercise price of $0.46 per share and 1,127,372 shares of common stock reserved for issuance upon the exercise of outstanding warrants at a weighted-average exercise price of $0.002 per share. If all such options and warrants had been exercised as of March 31, 2011, pro forma as adjusted net tangible book value per share would be $ per share and dilution to new investors would be $ per share. To the extent we grant options to our employees in the future and those options are exercised or other issuances of common stock are made, there will be further dilution to new investors.

SELECTED CONSOLIDATED FINANCIAL DATA

The following table sets forth our selected consolidated financial data for the periods, and as of the dates, indicated. You should read the following selected consolidated financial data in conjunction with our audited and unaudited consolidated financial statements and the related notes thereto included elsewhere in this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus.

We derived the consolidated statement of operations data for the years ended December 31, 2008, 2009 and 2010, and the consolidated balance sheet data as of December 31, 2009 and 2010, from our audited consolidated financial statements and the related notes thereto included elsewhere in this prospectus. We derived the consolidated statement of operations data for the fiscal years ended December 31, 2006 and 2007, and the consolidated balance sheet data as of December 31, 2006, 2007 and 2008, from our audited consolidated financial statements and the related notes thereto that are not included in this prospectus. We derived the consolidated statement of operations data for the three months ended March 31, 2010 and 2011, and the consolidated balance sheet data as of March 31, 2011, from our unaudited consolidated financial statements and the related notes thereto included elsewhere in this prospectus. The results of operations for these interim periods are not necessarily indicative of the results to be expected for a full year. Our unaudited consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and the related notes thereto and, in the opinion of our management, reflect all adjustments that are necessary for a fair presentation in conformity with GAAP. Our historical results for prior periods are not necessarily indicative of results to be expected for any future period.

	Year Ended December 31					Three Months Ended March 31	
	2006	2007	2008	2009	2010	2010	2011
	($ in thousands, except share and per share data)						
Consolidated statements of operations data:							
Revenue:							
Product	$ 5,571	$ 9,075	$ 17,202	$ 24,752	$ 38,690	$ 7,681	$ 11,274
Research services	5,806	4,743	2,868	3,864	4,519	1,066	1,015
Total revenue	11,377	13,818	20,070	28,616	43,209	8,747	12,289
Cost of revenue:							
Product	17,490	15,356	32,160	30,462	35,399	7,647	9,473
Research services	2,316	1,573	1,169	1,788	2,119	456	544
Impairment charge	—	—	2,524	—	—	—	—
Gross profit (loss)	(8,429)	(3,111)	(15,783)	(3,634)	5,691	644	2,272
Operating expenses:							
Research and development	6,176	3,203	2,134	2,524	2,985	917	731
Sales and marketing	5,726	4,868	4,034	3,994	4,526	1,194	1,224
General and administrative	6,678	7,158	6,180	5,430	5,675	1,504	1,587
Total operating expenses	18,580	15,229	12,348	11,948	13,186	3,615	3,542
Income (loss) from operations	(27,009)	(18,340)	(28,131)	(15,582)	(7,495)	(2,971)	(1,270)
Other income (expense):							
Interest income	271	56	287	18	170	10	48
Interest expense	(10,002)	(10,745)	(7,400)	(3,075)	(2,585)	(706)	(499)
Total other expense, net	(9,731)	(10,689)	(7,113)	(3,057)	(2,415)	(696)	(451)
Net income (loss)	(36,740)	(29,029)	(35,244)	(18,639)	(9,910)	(3,667)	(1,721)
Dividends and accretion on redeemable convertible preferred stock	(1,812)	(1,812)	(2,351)	(2,984)	(57,007)	(608)	(62,440)
Net income (loss) attributable to common stockholders	$ (38,552)	$ (30,841)	$ (37,595)	$ (21,623)	$ (66,917)	$ (4,275)	$ (64,161)
Per share data:							
Net income (loss) per share attributable to common stockholders, basic and diluted	$(4,163.04)	$(3,289.81)	$(3,389.12)	$ (2.21)	$ (2.62)	$ (0.17)	$ (2.48)
Weighted-average common shares outstanding, basic and diluted	9,261	9,375	11,093	9,751,616	25,574,286	25,573,418	25,892,546
Pro forma net income (loss) per share, basic and diluted(1)							
Weighted-average common shares outstanding used in computing pro forma net income (loss) per share, basic and diluted(1)							

	Years Ended December 31					Three Months Ended March 31
	2006	2007	2008	2009	2010	2011
	($ in thousands)					
Consolidated balance sheet data:						
Cash and cash equivalents	$ 5,839	$ 794	$ 11,988	$27,502	$ 26,800	$ 16,379
Working capital(2)	(34,593)	(55,213)	9,404	21,766	24,723	10,607
Total assets	61,273	49,296	54,624	64,735	88,795	85,696
Total debt	26,502	29,195	755	509	8,067	8,080
Preferred stock	61,051	62,863	184,269	31,681	109,786	172,226
Total stockholders' (deficit) equity	(93,185)	(123,055)	(159,655)	6,153	(58,103)	(122,082)

(1) Pro forma per share data will be computed based upon the number of shares of common stock outstanding immediately after consummation of this offering applied to our historical net income (loss) amounts and will give retroactive effect to the preferred stock and convertible notes conversions and the issuance of the shares of our common stock offered hereby.

The following table presents the calculation of historical and pro forma basic and diluted net income (loss) per share of common stock attributable to our common stockholders:

	Year Ended December 31					Three Months Ended March 31	
	2006	2007	2008	2009	2010	2010	2011
	($ in thousands, except share and per share data)						
Net income (loss) attributable to common stockholders	$(38,552)	$(30,841)	$(37,595)	$ (21,623)	$ (66,917)	$ (4,275)	$ (64,161)
Dividends and accretion on redeemable convertible preferred stock	1,812	1,812	2,351	2,984	57,007	608	62,440
Interest expense							
Discount on conversion of convertible notes							
Pro forma net income (loss) attributable to common stockholders							
Weighted-average common shares outstanding, basic and diluted	9,261	9,375	11,093	9,751,616	25,574,286	25,573,418	25,892,546
Common shares issued upon conversion of preferred stock and accrued dividends							
Common shares issued upon conversion of convertible notes and interest thereon							
Weighted-average common shares outstanding used in computing pro forma net income (loss) per share, basic and diluted							
Pro forma net income (loss) per share, basic and diluted							

(2) Working capital means current assets minus current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following in conjunction with the "Selected Consolidated Financial Data" and our consolidated financial statements and the related notes thereto included elsewhere in this prospectus. In addition to historical information, the following discussion and analysis includes forward looking information that involves risks, uncertainties and assumptions. Our actual results and the timing of events could differ materially from those anticipated by these forward looking statements as a result of many factors, including those discussed under "Risk Factors" elsewhere in this prospectus. See also "Special Note Regarding Forward Looking Statements" included elsewhere in this prospectus.

Overview

We design, develop and manufacture innovative, high-performance aerogel insulation. We believe our aerogel blankets deliver the best thermal performance of any widely used insulation products available on the market today and provide a superior combination of performance attributes unmatched by traditional insulation materials. Our customers use our products to save money, conserve energy, reduce CO_2 emissions and protect workers and assets.

Our products are targeted at the estimated $32 billion annual global market for insulation materials. Our insulation is principally used by industrial companies that operate petrochemical, refinery, industrial and power generation facilities. We are working with leading building materials manufacturers to develop and further commercialize our products for applications in the building and construction market. We also rely on a small number of fabricators and OEMs to develop and sell products for applications as diverse as military and commercial aircraft, trains, buses, appliances, apparel, footwear and outdoor gear.

We generate product revenue through the sale of our line of aerogel blankets. We market and sell our products primarily through a direct sales force based in North America, Europe and Asia. The efforts of our sales force are supported by a small number of sales consultants with extensive knowledge of a particular market or region. Our sales force is required to establish and maintain customer and partner relationships, to deliver highly technical information, and to ensure high quality customer service.

In the industrial market, we rely on an existing and well-established channel of distributors and contractors to distribute products to our end-use customers. In the building and construction market, we believe that our relationships with leading building materials manufacturers with established distribution networks will facilitate our penetration of the market on a cost-effective basis. In the transportation, appliance and apparel markets, our current plan is to rely on the efforts of OEMs to develop opportunities within and provide access to the markets.

We also perform research services under contracts with various agencies of the U.S. government, including the Department of Defense and the Department of Energy, and other institutions. Research performed under contract with government agencies and other institutions enables us to develop and leverage technologies into broader commercial applications.

We manufacture our products using our proprietary, high-volume process technology at our facility in East Providence, Rhode Island. We have operated the East Providence facility since mid-2008 and commenced operation of a second production line at this facility at the end of March 2011. We expect our annual production capacity by the end of 2011 to reach 40 to 44 million square feet of aerogel blankets, depending on product mix.

Our core aerogel technology and manufacturing processes are our most significant assets. As of May 31, 2011, we employed 27 research scientists and process engineers focused on developing next generation aerogel compositions, form factors and manufacturing technologies. Since inception

through March 31, 2011, we have invested $24.8 million into our research and development activities and have delivered $35.0 million in research services revenue.

Our predecessor company was incorporated in 2001 and spun off from Aspen Systems, Inc., of Marlborough, Massachusetts, to focus on the development and commercialization of aerogel technology. We began selling our first products commercially in the second quarter of 2001. Since inception through March 31, 2011, we have generated $152.0 million in revenue consisting of $117.0 million in product revenue and $35.0 million in research services revenue. As of May 31, 2011, we had 157 employees principally located at two sites in the United States.

Our total revenue has grown from $11.4 million for the year ended December 31, 2006 to $43.2 million for the year ended December 31, 2010. For the year ended December 31, 2010, our revenue grew 51% to $43.2 million from $28.6 million in 2009. For the three months ended March 31, 2011, our revenue grew 41% to $12.3 million from $8.7 million in the comparable period in 2010. Our revenue growth was constrained by capacity limitations during 2010 and the first quarter of 2011.

We have experienced significant losses since inception, have an accumulated deficit of $197.9 million at March 31, 2011, and have significant ongoing cash flow commitments. We have invested significant resources to commercialize aerogel technology and to build a manufacturing infrastructure capable of supplying aerogel products at the volumes and costs required by our customers. We currently market a set of commercially viable products, serve a growing base of customers and are experiencing rapid growth.

Factors Affecting Our Performance

Revenue Growth

The key driver to improve our financial performance will be continued revenue growth. We believe demand for our products will increase significantly to support widespread global efforts to improve energy efficiency. We plan to add resources to gain share of the industrial insulation market by increasing revenue from existing and new end-use customers. We also anticipate that our growing revenue base associated with maintenance programs will lead to increasing revenue associated with large capital projects, including the construction of new refineries and petrochemical facilities in emerging markets. We expect that this increased revenue will drive incremental improvement in gross profit, operating income and net income, and will lead to higher levels of cash flow from operations. Our ability to achieve sufficient revenue to generate net income and to fully fund operations will require continued near-term investments in manufacturing facilities, capital equipment, technology and personnel. We expect these investments to negatively impact current net income and cash balances, but to also set the framework for improving financial performance in the long-term.

Manufacturing Capacity

Demand for our aerogel products in 2010 increased by 88% from 2009 and exceeded our manufacturing capacity. In response to growing demand, we constructed a second production line in our East Providence facility designed to double our manufacturing capacity. We plan to continue to expand capacity to meet increased demand for our products. We have begun the design and engineering phase for a third production line in the East Providence facility and currently expect that this line will be completed during 2012. We also plan to construct a second manufacturing facility in either the United States or Europe and to commence operations at the facility in the second half of 2013. Our ability to successfully bring this capacity online when and as planned will have a significant impact on our financial condition and results of operations.

Organizational Resources

We plan to expand our sales force globally to support anticipated growth in customers and demand for our products. We also intend to increase personnel, funding and capital equipment

devoted to the research and development of new and advanced technologies. In addition, we plan to increase staff to support the expansion of our East Providence facility during 2012 and multi-facility manufacturing operations during the second half of 2013. These plans will require a significant investment in managerial talent, human resources, information systems, processes and controls to ensure maintenance of efficient and economic operations. These investments are critical to our ability to increase revenue, to generate net income and to fully fund operations.

Reliance on Partners

Our ability to initiate, maintain and manage relationships and strategic arrangements has been fundamental to the success of our business. We plan to leverage our relationships with leading building materials manufacturers and OEMs to facilitate penetration of the building and construction, transportation, appliance and apparel markets. These relationships are critical to our ability to penetrate these new markets on a cost effective basis and are critical to our ability to sustain high levels of revenue growth, to generate net income and to fully fund operations.

Components of Our Results of Operations

Revenue

We recognize product revenue from the sale of our line of aerogel products and research services revenue from the provision of services under contracts with various agencies of the U.S. government and other institutions. The following table sets forth the total revenue for the periods presented:

	Year Ended December 31					Three Months Ended March 31	
	2006	2007	2008	2009	2010	2010	2011
	($ in thousands)						
Revenue:							
Product	$ 5,571	$ 9,075	$17,202	$24,752	$38,690	$7,681	$ 11,274
Research services	5,806	4,743	2,868	3,864	4,519	1,066	1,015
Total revenue	$11,377	$13,818	$20,070	$28,616	$43,209	$8,747	$ 12,289

We expect continued growth in product revenue due to increasing market acceptance of our line of aerogel blankets and increasing demand for energy efficiency products to reduce energy consumption and CO_2 emissions. We expect that research services revenue will decline due to the recent trend toward tightening of federal spending guidelines and programs.

Product revenue accounted for 88% and 92% of total revenue for the three months ended March 31, 2010 and 2011, respectively, and 86%, 86% and 90% for the years ended December 31, 2008, 2009 and 2010, respectively. We expect that product revenue will continue to increase as a percentage of our total revenue due to the anticipated strong growth in product revenue in combination with the expected decline in research services revenue.

A significant portion of our revenue is generated from a limited number of customers, principally our distributors and contractors. Our 10 largest customers accounted for approximately 70% of our total revenue during the three months ended March 31, 2011, and we expect that most of our revenue will continue to come from a relatively small number of customers for the foreseeable future. For the three months ended March 31, 2010, one customer represented 36% of our total revenue and for the three months ended March 31, 2011, two customers represented 29% and 10%, respectively, of our total revenue. In 2008, one customer represented 12% of our total revenue; in 2009, no customers represented 10% or more of our total revenue; and in 2010, one customer represented 14% of total revenue.

Cost of Revenue

Cost of revenue for our product revenue consists primarily of raw materials, direct labor and manufacturing overhead. Cost of product revenue is recorded when the related product revenue is recognized. Cost of product revenue also includes stock-based compensation and costs of shipping.

Raw material is our most significant component of cost of product revenue and includes fibrous batting, silica materials and additives. Raw material costs have declined as a percentage of revenue during the past three years due principally to purchasing efficiencies and manufacturing yield improvements. Raw material costs as a percentage of product revenue vary from product to product due to differences in average selling prices, material requirements, blanket thickness and manufacturing yields. As a result, raw material costs as a percentage of revenue will vary from period to period due to changes in the mix of aerogel products sold. However, in general, we expect raw material costs in the aggregate to decline modestly as a percentage of revenue as we seek to achieve continued sourcing improvements and yield enhancements.

Manufacturing expense, including direct labor and manufacturing overhead, is also a significant component of cost of revenue. We expect to incur a significant increase in manufacturing expense associated with the start up and operation of our second production line in the East Providence facility. These costs are principally fixed in nature and will be underabsorbed during the period in which we ramp the production line to full capacity. These underabsorbed manufacturing costs will increase the cost of product revenue as a percentage of revenue in the near term, but we expect these costs to decrease as a percentage of revenue as a result of revenue growth supported by the increase in manufacturing capacity.

Cost of revenue for our research services revenue consists primarily of direct labor costs of research personnel committed to funded research and development contracts, as well as third-party consulting, and associated direct material costs. Cost of revenue also includes overhead expenses associated with project resources, engineering tools and supplies. Research services cost of revenue is recorded when the related research services revenue is recognized.

Gross Profit

Our gross profit as a percentage of revenue is affected by a number of factors, including the mix between product revenue and research services revenue, the mix of aerogel products sold, average selling prices, average material costs, our actual manufacturing costs and the costs associated with expansions and start-up of production capacity. As we continue to grow our base of product revenue and to build out our manufacturing capacity, we expect increased manufacturing expenses will periodically have a negative impact on gross profit, but will set the framework for improved gross profit moving forward. Accordingly, we expect that our gross profit in absolute dollars and as a percentage of revenue to vary from period to period as we expand our manufacturing capacity. However, in general, we expect gross profit to improve as a percentage of revenue in the long-term due to increases in manufacturing productivity, increased production volumes, improved manufacturing yields and material purchasing efficiencies.

Operating Expenses

Operating expenses consist of research and development, sales and marketing, and general and administrative expenses. The largest component of our operating expenses is personnel costs, consisting of salaries, benefits, incentive compensation and stock-based compensation. We expect to continue to hire a significant number of new employees in order to support our anticipated growth. In any particular period, the timing of additional hires could materially affect our operating expenses, both in absolute dollars and as a percentage of revenue.

Operating expenses are reported net of any funding received under contracts that are considered to be cost-sharing arrangements with no contractually committed deliverable. We have

entered into several cost-sharing arrangements with various agencies of the U.S. government. Funds paid to us under these agreements are not reported as revenue but are used to directly offset our cost of revenue, research and development, sales and marketing and general and administrative expenses in support of our product revenue. Costs incurred and cost of revenue, research and development, sales and marketing and general and administrative expenditures offset by cost sharing funding received under these contracts are as follows:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands)				
Total costs incurred	$3,193	$1,672	$2,005	$ 12	$ 181
Expenditures offset by cost sharing funding received:					
Cost of revenue:					
Product	$ 43	$ 20	$ 33	$ —	$ 8
Research services	1,227	637	1,124	5	54
Operating expenses:					
Research and development	1,214	620	475	4	83
Sales and marketing	342	193	170	1	16
General and administrative	367	202	203	2	20
Total expenditures offset by cost sharing	$3,193	$1,672	$2,005	$ 12	$ 181

We do not expect to receive any additional funds under cost-sharing arrangements in the near term due to the recent trend toward tightening of federal spending guidelines and programs.

Research and Development Expenses

Research and development expenses consist primarily of expenses for personnel engaged in the development of next generation aerogel compositions, form factors and manufacturing technologies. These expenses also include testing services, prototype expenses, consulting services, equipment depreciation, facilities costs and related overhead. We expense research and development costs as incurred. We expect to continue to devote substantial resources to the development of new aerogel technology. We believe that these investments are necessary to maintain and improve our competitive position. We expect that our research and development expenses will continue to increase as we continue to invest in additional research and engineering personnel and the infrastructure required in support of their efforts. Accordingly, we expect that our research and development expenses will continue to increase in absolute dollars but decrease as a percentage of revenue in the long-term.

Sales and Marketing Expenses

Sales and marketing expenses consist primarily of personnel-related costs, incentive compensation, marketing programs, travel and entertainment costs, consulting expenses and facilities-related costs. We plan to expand our sales force and sales consultants globally to support anticipated growth in customers and demand for our products. We expect that sales and marketing expenses will continue to increase in absolute dollars but decrease as a percentage of revenue in the long-term.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel costs, legal expenses, consulting and professional services, tax and audit costs, and expenses for our executive, finance, human resources and information technology organizations. We expect general and administrative expenses to increase as we incur additional costs related to operating as a publicly-traded company,

including costs of compliance with securities, corporate governance and related regulations, investor relations expenses, increased insurance premiums, including director and officer insurance, and increased audit and legal fees. In addition, we expect to add general and administrative personnel to support the anticipated growth of our business and continued expansion of our manufacturing operations. We expect that general and administrative expenses will continue to increase in absolute dollars but decrease as a percentage of revenue in the long-term.

Other Income (Expense)

Other income (expense) consists primarily of imputed interest expense on our cross license agreement with Cabot Corporation, and interest expense on our term loans and notes payable and is presented net of other income, which is primarily interest income.

Provision for Income Taxes

We have incurred net losses since inception and have not recorded benefit provisions for U.S. federal income taxes or state income taxes since the tax benefits of our net losses have been offset by valuation allowances.

Key Metrics and Non-GAAP Financial Measures

We regularly review a number of metrics, including the following key metrics, to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions.

Square Foot Operating Metric

We price our product and measure our product shipments in square feet. We have produced in excess of 38 million square feet of aerogel blankets in the East Providence facility since mid-2008. Our annual manufacturing capacity is a function of product mix. We expect our annual production capacity by the end of 2011 to reach 40 million to 44 million square feet of aerogel blankets, depending on product mix. We believe the square foot operating metric allows us and our investors to measure our manufacturing capacity and shipments on a uniform and consistent basis. The following chart sets forth product shipments in square feet for the periods presented:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
Product shipments in square feet (in thousands)	6,909	10,525	16,443	3,480	5,110

Adjusted EBITDA

We use Adjusted EBITDA, a non-GAAP financial measure, as a means to assess our operating performance. We define Adjusted EBITDA as income from operations before depreciation and amortization expense, share-based compensation expense, and impairment charges. Adjusted EBITDA is a supplemental measure of our performance that is not required by, or presented in accordance with, GAAP. Adjusted EBITDA should not be considered as an alternative to income from operations or any other measure of financial performance calculated and presented in accordance with GAAP. In addition, our definition and presentation of Adjusted EBITDA may not be comparable to similarly titled measures presented by other companies.

We use Adjusted EBITDA as a measure of operating performance, because it does not include the impact of items that we do not consider indicative of our core operating performance, for planning purposes, including the preparation of our annual operating budget, to allocate resources to enhance the financial performance of our business and as a performance measure used under our bonus plan.

We also believe that the presentation of Adjusted EBITDA provides useful information to investors with respect to our results of operations and in assessing the performance and value of our business. Various measures of EBITDA are widely used by investors to measure a company's operating performance without regard to items that can vary substantially from company to company depending upon financing and accounting methods, book values of assets, capital structures and the methods by which assets were acquired. See footnote (3) under "Summary Consolidated Financial Data."

To properly and prudently evaluate our business, we encourage you to review the GAAP financial statements included elsewhere in this prospectus, and not to rely on any single financial measure to evaluate our business.

The following table presents a reconciliation of income (loss) from operations, the most directly comparable GAAP measure, to Adjusted EBITDA for the periods presented:

	Year Ended December 31		
	2008	2009	2010
	($ in thousands)		
Income (loss) from operations	$(28,131)	$(15,582)	$(7,495)
Depreciation and amortization	7,059	5,630	4,633
Stock-based compensation(1)	927	831	468
Impairment charge	2,524	—	—
Adjusted EBITDA	$(17,621)	$ (9,121)	$(2,394)

(1) Represents non-cash stock-based compensation related to stock option grants.

	Three Months Ended								
	2009				2010				2011
	March 31	June 30	Sept. 30	Dec. 31	March 31	June 30	Sept. 30	Dec. 31	March 31
	($ In thousands)								
Income (loss) from operations	$ (4,418)	$ (5,119)	$ (3,116)	$ (2,929)	$ (2,971)	$ (2,752)	$ (731)	$ (1,041)	$ (1,270)
Depreciation and amortization	1,393	1,379	1,580	1,278	1,137	1,124	1,137	1,235	1,409
Stock-based compensation(1)	99	91	125	516	96	105	122	145	190
Impairment charge	—	—	—	—	—	—	—	—	—
Adjusted EBITDA	$ (2,926)	$ (3,649)	$ (1,411)	$ (1,135)	$ (1,738)	$ (1,523)	$ 528	$ 339	$ 329

(1) Represents non-cash stock-based compensation related to stock option grants.

Our Adjusted EBITDA has improved significantly over the nine quarters ending March 31, 2011. We achieved positive Adjusted EBITDA for the first time in the three months ended September 30, 2010, and have sustained a positive, quarterly Adjusted EBITDA since that time.

Results of Operations

The following tables set forth our results of operations for the periods presented:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands)				
Revenue:					
Product	$ 17,202	$ 24,752	$38,690	$ 7,681	$ 11,274
Research services	2,868	3,864	4,519	1,066	1,015
Total revenue	20,070	28,616	43,209	8,747	12,289
Cost of revenue:					
Product	32,160	30,462	35,399	7,647	9,473
Research services	1,169	1,788	2,119	456	544
Impairment charge	2,524	—	—	—	—
Gross profit (loss)	(15,783)	(3,634)	5,691	644	2,272
Operating expenses:					
Research and development	2,134	2,524	2,985	917	731
Sales and marketing	4,034	3,994	4,526	1,194	1,224
General and administrative	6,180	5,430	5,675	1,504	1,587
Total operating expenses	12,348	11,948	13,186	3,615	3,542
Income (loss) from operations	(28,131)	(15,582)	(7,495)	(2,971)	(1,270)
Other income (expense):					
Interest income	287	18	170	10	48
Interest expense	(7,400)	(3,075)	(2,585)	(706)	(499)
Total other expense, net	(7,113)	(3,057)	(2,415)	(696)	(451)
Net income (loss)	$(35,244)	$(18,639)	$ (9,910)	$(3,667)	$ (1,721)

Quarter ended March 31, 2010, compared to quarter ended March 31, 2011

The following tables set forth our results of operations for the periods presented:

	Three Months Ended March 31				Three Months Ended March 31	
	2010	2011	$ Change	% Change	2010	2011
	($ in thousands)				(Percentage of total revenue)	
Revenue:						
Product	$ 7,681	$11,274	$ 3,593	47%	88%	92%
Research services	1,066	1,015	(51)	(5)%	12%	8%
Total revenue	8,747	12,289	3,542	40%	100%	100%
Cost of revenue:						
Product	7,647	9,473	1,826	24%	87%	77%
Research services	456	544	88	19%	5%	4%
Gross profit	644	2,272	1,628	253%	7%	18%
Operating expenses:						
Research and development	917	731	(186)	(20)%	10%	6%
Sales and marketing	1,194	1,224	30	3%	14%	10%
General and administrative	1,504	1,587	83	6%	17%	13%
Total operating expenses	3,615	3,542	(73)	(2)%	41%	29%
Income (loss) from operations	(2,971)	(1,270)	1,701	57%	(34)%	(10)%
Other income (expense):						
Interest income	10	48	38	380%	0%	0%
Interest expense	(706)	(499)	207	29%	(8)%	(4)%
Total other expense, net	(696)	(451)	245	35%	(8)%	(4)%
Net income (loss)	$(3,667)	$ (1,721)	$ 1,946	53%	(42)%	(14)%

Revenue

	Three Months Ended March 31					
	2010		2011		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Revenue:						
Product	$ 7,681	88%	$ 11,274	92%	$ 3,593	47%
Research services	1,066	12%	1,015	8%	(51)	(5)%
Total revenue	$ 8,747	100%	$ 12,289	100%	$ 3,542	40%

The following chart sets forth product shipments in square feet for the periods presented:

	Three Months Ended March 31		Change	
	2010	2011	Amount	Percentage
Product shipments in square feet (in thousands)	3,480	5,110	1,630	47%

Total revenue increased $3.5 million, or 40%, to $12.3 million for the three months ended March 31, 2011, from $8.7 million in the comparable quarter in 2010. The increase was primarily the result of continued strong growth in product revenue due to increasing market acceptance of our products in the oil and gas sector of the industrial market.

Product revenue increased $3.6 million, or 47%, to $11.3 million for the three months ended March 31, 2011, from $7.7 million in the comparable quarter in 2010. During the three months ended March 31, 2011, $3.5 million of product revenue was associated with a capital project in the Canadian oil-sands. In terms of volume, product shipments increased 1.6 million square feet, or 47%, to 5.1 million square feet of aerogel products, as compared to 3.5 million square feet in the comparable quarter in 2010. We did not increase the prices of our products during the periods presented. Product revenue as a percentage of total revenue for the three months ended March 31, 2011 increased to 92% of total revenue from 88% of total revenue in the comparable quarter in 2010. We expect that product revenue will continue to increase as a percentage of total revenue in the long-term.

Research services revenue decreased $0.1 million, or 5%, to $1.0 million for the three months ended March 31, 2011 from $1.1 million in the comparable quarter in 2010. This decrease in revenue is principally the result of a recent trend toward tightening of federal spending guidelines and programs. Research services revenue as a percentage of total revenue decreased to 8% of total revenue for the three months ended March 31, 2011 from 12% of total revenue in the comparable quarter of 2010. We expect that research services revenue will continue to decrease as a percentage of total revenue in the long-term due to projected strong growth in product revenue.

Cost of Revenue

	Three Months Ended March 31							
	2010			2011				
	Amount	Percentage of Related Revenue	Percentage of Total Revenue	Amount	Percentage of Related Revenue	Percentage of Total Revenue	Change Amount	Change Percentage
	($ in thousands)							
Cost of revenue:								
Product	$ 7,647	100%	87%	$ 9,473	84%	77%	$ 1,826	24%
Research services	456	43%	5%	544	54%	4%	88	19%
Total cost of revenue	$ 8,103	93%	93%	$ 10,017	82%	82%	$ 1,914	24%

Total cost of revenue increased $1.9 million, or 24%, to $10.0 million for the three months ended March 31, 2011 from $8.1 million in the comparable quarter in 2010. The increase in total cost of revenue was the result of an increase in raw material used to support increased output, in combination with an increase in overhead expense to support the planned increase in manufacturing capacity at our East Providence facility. Product cost of revenue as a percentage of product revenue decreased to 84% for the three months ended March 31, 2011 from 100% in the comparable quarter in 2010, primarily due to economies of scale related to the increase in manufacturing output at the East Providence facility. We expect to incur a significant increase in manufacturing costs beginning in the three months ending June 30, 2011, primarily associated with the start up and operation of our second production line in the East Providence facility.

Research services cost of revenue as a percentage of research services revenue increased to 54% for the three months ended March 31, 2011 from 43% in the comparable quarter in 2010. This increase was the result of a change in the mix of labor and expenses required to perform the contracted research.

Gross Profit

	Three Months Ended March 31					
	2010		2011			
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Change Amount	Change Percentage
	($ in thousands)					
Gross profit	$644	7%	$2,272	18%	$1,628	253%

Gross profit increased $1.6 million, or 253%, to $2.3 million for the three months ended March 31, 2011 from $0.6 million in the comparable quarter in 2010. This increase in gross profit was principally the result of the increase in product revenue, a reduction in material costs as a percentage of product revenue and economies of scale related to the increase in manufacturing output at our East Providence facility. Gross profit as a percentage of total revenue increased to 18% for the three months ended March 31, 2011 from 7% of total revenue in the comparable quarter in 2010. We expect to experience a reduction in gross profit as a percentage of total revenue during the three months ending June 30, 2011, due to the increase in manufacturing costs associated with the start up and operation of our second production line in our East Providence facility. We expect gross profit as a percentage of total revenue to increase in the long-term due to projected growth in product revenue supported by the increase in manufacturing capacity.

Research and Development, or R&D, Expenses

	Three Months Ended March 31					
	2010		2011			
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Change Amount	Change Percentage
	($ in thousands)					
R&D expenses	$917	10%	$731	6%	$(186)	(20)%

R&D expenses decreased $0.2 million, or 20%, to $0.7 million for the three months ended March 31, 2011 from $0.9 million in the comparable quarter in 2010. This decrease was principally the result of an increase in labor allocated to research services and capitalization of plant engineering costs related to the construction of our second production line at our East Providence facility. R&D expenses as a percentage of total revenue decreased to 6% for the three months ended March 31, 2011 from 10% in the comparable period in 2010. This decrease was principally the result of the significant increase in total revenue for the three months ended March 31, 2011 from the comparable period in 2010. We expect that our research and development expenses will increase as we invest in additional research and engineering personnel and the infrastructure required in support of their efforts. However, we expect that research and development expenses will decline as a percentage of total revenue in the long-term due to projected strong growth in product revenue.

Sales and Marketing Expenses

	Three Months Ended March 31					
	2010		2011			
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Change Amount	Change Percentage
	($ in thousands)					
Sales and marketing expenses	$1,194	14%	$1,224	10%	$30	3%

Sales and marketing expenses increased by 3% to $1.2 million for the three months ended March 31, 2011 from the comparable quarter in 2010. An increase in expense associated with

additional sales and marketing personnel was offset by a decrease in incentive compensation during the period. Sales and marketing expenses as a percentage of total revenue decreased to 10% for the three months ended March 31, 2011 from 14% in the comparable period in 2010. This decrease was principally driven by the increase in total revenue for the three months ended March 31, 2011, from the comparable period in 2010. We plan to expand our sales force and sales consultants globally to support anticipated growth in customers and demand for our products. However, we expect that sales and marketing expenses will continue to decline as a percentage of total revenue in the long-term due to projected strong growth in product revenue.

General and Administrative, or G&A, Expenses

	Three Months Ended March 31					
	2010		2011			
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Change Amount	Change Percentage
	($ in thousands)					
G&A expenses	$1,504	17%	$1,587	13%	$83	6%

G&A expenses increased $0.1 million, or 6%, to $1.6 million for the three months ended March 31, 2011 from $1.5 million in the comparable quarter in 2010. This modest increase was primarily the result of costs associated with an increase in finance and human resource personnel in preparation for operating as a public company. G&A expenses as a percentage of total revenue decreased to 13% for the three months ended March 31, 2011 from 17% in the comparable period in 2010. This decrease was principally driven by the increase in total revenue for the three months ended March 31, 2011 from the comparable period in 2010. We expect G&A expenses to increase as we incur additional costs related to operating as a publicly traded company, including costs of compliance with securities, corporate governance and related regulations, investor relations expenses, increased insurance premiums, including director and officer insurance, ongoing listing fees, increased staff to comply with public company requirements and increased legal and audit fees. In addition, we expect to add general and administrative personnel to support the anticipated growth of our business and continued expansion of our manufacturing operations. However, we expect that G&A expenses will decline as a percentage of total revenue in the long-term due to projected strong growth in product revenue.

Other Income (Expense)

	Three Months Ended March 31					
	2010		2011			
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Change Amount	Change Percentage
	($ in thousands)					
Other income (expense):						
Interest income	$ 10	0%	$ 48	0%	$ 38	380%
Interest expense	(706)	(8)%	(499)	(4)%	207	29%
Total other expense, net	$ (696)	(8)%	$ (451)	(4)%	$ 245	35%

Other expense, net of other income, decreased $0.2 million, or 35%, to $0.5 million, for the three months ended March 31, 2011 from $0.7 million in the comparable quarter in 2010. This decrease was primarily the result of a decrease in imputed interest expense associated with our cross license agreement with Cabot. The decrease in imputed interest expense was driven by payment of $7.5 million of this obligation during the 12 months ending March 31, 2011, which resulted in a corresponding reduction in imputed interest expense during the period.

Year ended December 31, 2009, compared to year ended December 31, 2010

The following tables set forth our results of operations for the periods presented:

	Year Ended December 31				Year Ended December 31	
	2009	2010	$ Change	% Change	2009	2010
	($ in thousands)				(Percentage of total revenue)	
Revenue:						
Product	$ 24,752	$38,690	$ 13,938	56%	86%	90%
Research services	3,864	4,519	655	17%	14%	10%
Total revenue	28,616	43,209	14,593	51%	100%	100%
Cost of revenue:						
Product	30,462	35,399	4,937	16%	106%	82%
Research services	1,788	2,119	331	19%	6%	5%
Gross profit (loss)	(3,634)	5,691	9,325	257%	(13)%	13%
Operating expenses:						
Research and development	2,524	2,985	461	18%	9%	7%
Sales and marketing	3,994	4,526	532	13%	14%	10%
General and administrative	5,430	5,675	245	5%	19%	13%
Total operating expenses	11,948	13,186	1,238	10%	42%	31%
Income (loss) from operations	(15,582)	(7,495)	8,087	52%	(54)%	(17)%
Other income (expense):						
Interest income	18	170	152	844%	0%	0%
Interest expense	(3,075)	(2,585)	490	16%	(11)%	(6)%
Total other expense, net	(3,057)	(2,415)	642	21%	(11)%	(6)%
Net income (loss)	$(18,639)	$ (9,910)	$ 8,729	47%	(65)%	(23)%

Revenue

	Year Ended December 31					
	2009		2010		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Revenue:						
Product	$ 24,752	86%	$ 38,690	90%	$ 13,938	56%
Research services	3,864	14%	4,519	10%	655	17%
Total revenue	$ 28,616	100%	$ 43,209	100%	$ 14,593	51%

The following chart sets forth product shipments in square feet for the periods presented:

	Year Ended December 31		Change	
	2009	2010	Amount	Percentage
Product shipments in square feet (in thousands)	10,525	16,443	5,918	56%

Total revenue increased $14.6 million, or 51%, in 2010 to $43.2 million from $28.6 million in 2009 primarily as a result of an increase in product revenue. Product revenue increased $13.9 million, or 56%, to $38.7 million in 2010 from $24.8 million in 2009. This increase was principally the result of an increase in demand for our aerogel products in the oil and gas sector of the industrial market in

2010 including the receipt of several large scale orders in the offshore oil market and the Canadian oil sands. In volume terms, product shipments increased 5.9 million square feet, or 56%, to 16.4 million square feet of aerogel products, as compared to 10.5 million square feet in 2009. We did not increase the prices of our products during the periods presented. Research services revenue increased $0.7 million, or 17%, to $4.5 million in 2010 from $3.9 million in 2009 primarily due to revenue generated under a significant contract with the Department of Energy.

Product revenue as a percentage of total revenue increased to 90% of total revenue in 2010, from 86% of total revenue in 2009. Research services revenue decreased to 10% of total revenue in 2010 from 14% of total revenue in 2009. Moving forward, we expect product revenue to continue to increase as a percentage of total revenue, and research services revenue to continue to decrease as a percentage of total revenue.

Cost of Revenue

	Year Ended December 31							
	2009			2010				
	Amount	Percentage of Related Revenue	Percentage of Total Revenue	Amount	Percentage of Related of Revenue	Percentage of Total Revenue	Change Amount	Change Percentage
	($ in thousands)							
Cost of revenue:								
Product	$ 30,462	123%	106%	$ 35,399	91%	82%	$ 4,937	16%
Research services	1,788	46%	6%	2,119	47%	5%	331	19%
Total cost of revenue	$ 32,250	113%	113%	$ 37,518	87%	87%	$ 5,268	16%

Total cost of revenue increased $5.3 million, or 16%, to $37.5 million in 2010 from $32.3 million in 2009. The increase in total cost of revenue was the result of an increase in raw material costs to support increased product revenue, offset, in part, by a decrease in manufacturing expense due to improved manufacturing productivity. Product cost of revenue as a percentage of product revenue decreased to 91% during 2010 from 123% in 2009 due to the decrease in manufacturing costs, a reduction in material costs as a percentage of product revenue, and increased production volume during the year. The reduction in material costs as a percentage of product revenue, in turn, was the result of improved manufacturing yields and purchasing efficiency during 2010. We expect to incur a significant increase in manufacturing costs included in cost of revenue during 2011 primarily associated with the start up and operation of our second production line in the East Providence facility.

Research services cost of revenue increased $0.3 million, or 19%, to $2.1 million during 2010 from $1.8 million during 2009. The increase was due to the increase in research services provided during 2010 and an unfavorable mix of labor and expense associated with the contracts. Research services cost of revenue as a percentage of research services revenue increased to 47% during 2010 from 46% in 2009 principally due to the mix of labor and expense required to perform the contracted research, each of which carries a different rate of reimbursement.

Gross Profit (Loss)

	Year Ended December 31					
	2009		2010			
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Change Amount	Change Percentage
	($ in thousands)					
Gross profit (loss)	$(3,634)	(13)%	$5,691	13%	$9,325	257%

Gross profit increased $9.3 million, or 257%, to $5.7 million in 2010 from a gross loss of $3.6 million in 2009. This increase in gross profit was the result of economies of scale associated with increased product revenue, a reduction in material costs as a percentage of product revenue due to improved manufacturing yields and purchasing efficiency and a decrease in manufacturing expenses due to increased productivity at our East Providence facility. Gross profit as a percentage of total revenue increased to 13% of total revenue in 2010 from a gross loss of 13% of total revenue in 2009. We expect gross profit as a percentage of total revenue to decrease from 2010 levels in the near term due to the increase in manufacturing expense associated with the start up and operation of our second production line in the East Providence facility. We expect gross profit as a percentage of total revenue to increase in the long-term due to projected growth in product revenue supported by the increase in manufacturing capacity.

R&D Expenses

	Year Ended December 31					
	2009		2010		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
R&D expenses	$2,524	9%	$2,985	7%	$461	18%

R&D expenses increased $0.5 million, or 18%, to $3.0 million in 2010 from $2.5 million in 2009. This increase was principally the result of an increase in engineering personnel to support the operation of our East Providence facility. R&D costs as a percentage of total revenue decreased to 7% during 2010 from 9% during 2009. This decrease was the result of strong growth in product revenue during 2010. We expect that our research and development expenses will continue to increase as we invest in additional research and engineering personnel and the infrastructure required in support of their efforts. However, we expect that research and development expenses will decline as a percentage of total revenue due to projected strong growth in product revenue.

Sales and Marketing Expenses

	Year Ended December 31					
	2009		2010		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Sales and marketing expenses	$3,994	14%	$4,526	10%	$532	13%

Sales and marketing expenses increased $0.5 million, or 13%, to $4.5 million during 2010 from $4.0 million during 2009. The increase in expense was driven by an increase in sales personnel and an increase in incentive compensation associated with the 56% increase in product revenue during 2010. Sales and marketing expenses as a percentage of total revenue decreased to 10% during 2010 from 14% in 2009. This decrease was the result of the growth in total revenue during 2010. We plan to continue to expand our sales force and sales consultants globally during 2011 to support anticipated growth in customers and demand for our products. We expect that sales and marketing expenses will increase in absolute dollars but decrease as a percentage of total revenue in the long-term.

G&A Expenses

	Year Ended December 31					
	2009		2010		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
G&A expenses	$5,430	19%	$5,675	13%	$245	5%

G&A expenses increased $0.2 million, or 5%, to $5.7 million in 2010 from $5.4 million in 2009. This increase was primarily the result of an increase in finance and human resource personnel. G&A expenses as a percentage of total revenue decreased to 13% for 2010 from 19% in 2009. This decrease was principally driven by the increase in total revenue during the year. We expect G&A expenses to increase as we incur additional costs related to operating as a publicly traded company, including costs of compliance with securities, corporate governance and related regulations, investor relations expenses, increased insurance premiums, including director and officer insurance, and increased legal and audit fees. In addition, we expect to add general and administrative personnel to support the anticipated growth of our business and continued expansion of our manufacturing operations. As a result, we expect that G&A expenses will increase in absolute dollars but decrease as a percentage of total revenue in the long-term.

Other Income (Expense)

	Year Ended December 31					
	2009		2010		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Other income (expense):						
Interest income	$ 18	0%	$ 170	0%	$ 152	844%
Interest expense	(3,075)	(11)%	(2,585)	(6)%	490	16%
Total other expense, net	$ (3,057)	(11)%	$ (2,415)	(6)%	$ 642	21%

Other expense, net of other income, decreased $0.6 million, or 21%, to $2.4 million in 2010 from $3.1 million in 2009. This decrease was primarily the result of a decrease in imputed interest expense associated with our cross license agreement with Cabot. The decrease in imputed interest expense was driven by the payment of $7.4 million of this obligation during the year ended December 31, 2010, which resulted in a corresponding reduction in imputed interest expense for the period.

Year ended December 31, 2008, compared to year ended December 31, 2009

The following tables set forth our results of operations for the periods presented:

	Year Ended December 31				Year Ended December 31	
	2008	2009	$ Change	% Change	2008	2009
	($ in thousands)				(Percentage of total revenue)	
Revenue:						
Product	$ 17,202	$ 24,752	$ 7,550	44%	86%	86%
Research services	2,868	3,864	996	35%	14%	14%
Total revenue	20,070	28,616	8,546	43%	100%	100%
Cost of revenue:						
Product	32,160	30,462	(1,698)	(5)%	160%	106%
Research services	1,169	1,788	619	53%	6%	6%
Impairment charge	2,524	—	(2,524)	(100)%	13%	0%
Gross profit (loss)	(15,783)	(3,634)	12,149	77%	(79)%	(13)%
Operating expenses:						
Research and development	2,134	2,524	390	18%	11%	9%
Sales and marketing	4,034	3,994	(40)	(1)%	20%	14%
General and administrative	6,180	5,430	(750)	(12)%	31%	19%
Total operating expenses	12,348	11,948	(400)	(3)%	62%	42%
Income (loss) from operations	(28,131)	(15,582)	12,549	45%	(140)%	(54)%
Other income (expense):						
Interest income	287	18	(269)	(94)%	1%	0%
Interest expense	(7,400)	(3,075)	4,325	58%	(37)%	(11)%
Total other expense, net	(7,113)	(3,057)	4,056	57%	(35)%	(11)%
Net income (loss)	$(35,244)	$ (18,639)	$ 16,605	47%	(176)%	(65)%

Revenue

	Year Ended December 31					
	2008		2009		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Revenue:						
Product	$ 17,202	86%	$ 24,752	86%	$ 7,550	44%
Research services	2,868	14%	3,864	14%	996	35%
Total revenue	$ 20,070	100%	$ 28,616	100%	$ 8,546	43%

The following chart depicts product shipments in square feet for the periods presented:

	Year Ended December 31		Change	
	2008	2009	Amount	Percentage
Product shipments in square feet (in thousands)	6,909	10,525	3,616	52%

Total revenue increased $8.5 million, or 43%, in 2009 to $28.6 million from $20.1 million in 2008 primarily as a result of an increase in product revenue. Product revenue increased $7.6 million, or 44%, to $24.8 million in 2009 from $17.2 million in 2008. This increase was principally the result of a broad based increase in global demand for our line of aerogel products in the oil and gas sector of the industrial market. Product revenue during 2009 was also supported by an expansion of our global insulation distributor network. In addition, 2009 marked the first full year of revenue of our Pyrogel XT and Cryogel Z product lines. In volume terms, product shipments increased 3.6 million square feet, or 52%, to 10.5 million square feet of aerogel products in 2009, as compared to 6.9 million square feet in 2008. We did not increase the prices of our products during the periods presented. Accordingly, the difference between revenue growth and volume growth was the result of a change in mix of products sold. Research services revenue increased $1.0 million, or 35%, to $3.9 million in 2009 from $2.9 million in 2008 primarily due to a number of significant research contract awards.

Product revenue as a percentage of total revenue of 86% and research services revenue of 14% during 2009 remained unchanged from 2008.

Cost of Revenue

	Year Ended December 31							
	2008			2009			Change	
	Amount	Percentage of Related Revenue	Percentage of Total Revenue	Amount	Percentage of Related Revenue	Percentage of Total Revenue	Amount	Percentage
	($ in thousands)							
Cost of revenue:								
Product	$ 32,160	187%	160%	$ 30,462	123%	106%	$ (1,698)	(5)%
Research services	1,169	41%	6%	1,788	46%	6%	619	53%
Impairment charge	2,524	13%	13%	—	0%	0%	(2,524)	(100)%
Total cost of revenue	$ 35,853	179%	179%	$ 32,250	113%	113%	$ (3,603)	(10)%

Total cost of revenue decreased $3.6 million, or 10%, to $32.3 million in 2009 from $35.9 million in 2008. The decrease in total cost of revenue was the result of the shutdown of our Northborough, Massachusetts prototype facility and consolidation of manufacturing operations into our East Providence facility. The shutdown resulted in a decrease in manufacturing and overhead expenses. In addition, despite significant growth in product revenue, material costs declined in absolute dollars due to improved manufacturing yields and purchasing efficiency. As a result, product cost of revenue as a percentage of product revenue decreased to 123% during 2009 from 187% in 2008.

Research services cost of revenue increased $0.6 million, or 53%, to $1.8 million during 2009 from $1.2 million during 2008. The increase was due to the increase in research services revenue during 2009 and an unfavorable mix of labor and expense associated with the contracts. Research services cost of revenue as a percentage of research services revenue increased to 46% during 2009 from 41% in 2008 principally due to the mix of labor and expense required to perform the contracted research, each of which carries a different rate of reimbursement.

In addition, total cost of revenue in 2008 included an impairment charge of $2.5 million related to the shutdown of our Northborough facility.

Gross Profit (Loss)

	Year Ended December 31					
	2008		2009		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Gross profit (loss)	$(15,783)	(79)%	$(3,634)	(13)%	$12,149	77%

Gross loss decreased $12.1 million to $3.6 million in 2009 from a gross loss of $15.8 million in 2008. This decrease in gross loss was the result of economies of scale associated with increased product revenue, a reduction in material costs as a percentage of product revenue due to improved manufacturing yields and purchasing efficiency, and an absolute dollar decrease in manufacturing expenses due the shutdown of our Northborough facility. In addition, total cost of revenue in 2008 included an impairment charge of $2.5 million related to the shutdown of the Northborough facility. Gross loss as a percentage of total revenue decreased to 13% of total revenue in 2009 from a gross loss of 79% of total revenue in 2008.

R&D Expenses

	Year Ended December 31					
	2008		2009		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
R&D expenses	$2,134	11%	$2,524	9%	$390	18%

R&D expenses increased $0.4 million, or 18%, to $2.5 million in 2009, from $2.1 million in 2008. This increase was principally the result of an increase in research personnel devoted to product development and a reduction in proceeds from cost-sharing arrangements. R&D costs as a percentage of total revenue decreased to 9% during 2009 from 11% during 2008. This decrease was the result of the growth in total revenue during 2009.

Sales and Marketing Expenses

	Year Ended December 31					
	2008		2009		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Sales and marketing expenses	$4,034	20%	$3,994	14%	$(40)	(1)%

Sales and marketing expenses remained relatively unchanged from the 2008 levels. A reduction in expense associated with a reduction in sales personnel was offset by expense related to a non-compete agreement during 2009. Sales and marketing expenses as a percentage of total revenue decreased to 14% during 2009 from 20% in 2008. This decrease was primarily the result of the growth in total revenue during 2009.

G&A Expenses

	Year Ended December 31					
	2008		2009		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
G&A expenses	$6,180	31%	$5,430	19%	$(750)	(12)%

G&A expenses decreased $0.8 million, or 12%, to $5.4 million in 2009 from $6.2 million in 2008. This decrease was the result of a decrease in depreciation of assets in our Northborough facility and a reduction in legal and professional fees. G&A expenses as a percentage of total revenue decreased to 19% during 2009 from 31% during 2008. This decrease was principally driven by the reduction in G&A expenses and the increase in total revenue during the year.

Other Income (Expense)

	Year Ended December 31					
	2008		2009		Change	
	Amount	Percentage of Revenue	Amount	Percentage of Revenue	Amount	Percentage
	($ in thousands)					
Other income (expense):						
Interest income	$ 287	1%	$ 18	0%	$ (269)	(94)%
Interest expense	(7,400)	(37)%	(3,075)	(11)%	4,325	58%
Total other expense, net	$ (7,113)	(35)%	$ (3,057)	(11)%	$ 4,056	57%

Other expense, net of other income, decreased $4.1 million, or 57%, to $3.1 million in 2009 from $7.1 million in 2008. This decrease was primarily due to a decrease in interest expense following the conversion of our 14% promissory notes due 2010 and demand notes into several classes of preferred stock on June 10, 2008. In addition, imputed interest expense decreased due to the repayment of $4.4 million of our obligation under our cross license agreement with Cabot during 2009.

Quarterly Results of Operations

The unaudited consolidated financial statements for each of the quarters presented were prepared on a basis consistent with our audited consolidated financial statements and include all adjustments, consisting of normal and recurring adjustments, that our management considers necessary for a fair presentation of the financial position and results of operations as of and for such periods. You should review our quarterly operating results in conjunction with our consolidated financial statements and the related notes located elsewhere in this prospectus. The results of operations for any quarter are not necessarily indicative of the results of operations for any future periods.

Seasonality and Quarterly Results

Our operating results may fluctuate for a variety of reasons outside of our control, including seasonal factors that influence our customers and our markets. Historically, we have experienced a relatively high level of revenue in the quarter ended December 31 of each year and a relatively low level of revenue in the quarter ending March 31 of each year. As a result, comparing our operating results on a period-to-period basis may not be meaningful and historical results may not be indicative

of future performance. The following table sets forth the unaudited quarterly consolidated results of operations data for each of the quarters presented:

	Three Months Ended								
	2009				2010				2011
	March 31	June 30	Sept. 30	Dec. 31	March 31	June 30	Sept. 30	Dec. 31	March 31
	($ in thousands)								
Revenue:									
Product	$ 3,886	$ 5,949	$ 5,967	$ 8,950	$ 7,681	$ 8,327	$ 10,187	$12,495	$ 11,274
Research services	879	866	1,076	1,043	1,066	1,172	1,059	1,222	1,015
Total revenue	4,765	6,815	7,043	9,993	8,747	9,499	11,246	13,717	12,289
Cost of revenue:									
Product	6,064	8,426	6,860	9,112	7,647	8,467	8,567	10,718	9,473
Research services	346	418	498	526	456	549	508	606	544
Gross profit (loss)	(1,645)	(2,029)	(315)	355	644	483	2,171	2,393	2,272
Operating expenses:									
Research and development	614	601	538	771	917	802	535	731	731
Sales and marketing	749	1,276	892	1,077	1,194	1,124	1,007	1,201	1,224
General and administrative	1,410	1,213	1,371	1,436	1,504	1,309	1,360	1,502	1,587
Total operating expenses	2,773	3,090	2,801	3,284	3,615	3,235	2,902	3,434	3,542
Income (loss) from operations	(4,418)	(5,119)	(3,116)	(2,929)	(2,971)	(2,752)	(731)	(1,041)	(1,270)
Other income (expense):									
Interest income	6	—	14	(2)	10	27	1	133	48
Interest expense	(818)	(773)	(764)	(720)	(706)	(698)	(607)	(574)	(499)
Total other expense, net	(812)	(773)	(750)	(722)	(696)	(671)	(606)	(441)	(451)
Net income (loss)	$ (5,230)	$ (5,892)	$ (3,866)	$ (3,651)	$ (3,667)	$ (3,423)	$ (1,337)	$ (1,482)	$ (1,721)

Our Adjusted EBITDA has improved dramatically over the nine quarters ending March 31, 2011. We achieved positive Adjusted EBITDA for the first time in the three months ended September 30, 2010, and have sustained a positive, quarterly Adjusted EBITDA since that time. The following table sets forth a reconciliation of income (loss) from operations to Adjusted EBITDA for the periods presented:

	Three Months Ended								
	2009				2010				2011
	March 31	June 30	Sept. 30	Dec. 31	March 31	June 30	Sept. 30	Dec. 31	March 31
	($ in thousands)								
Income (loss) from operations	$ (4,418)	$ (5,119)	$ (3,116)	$ (2,929)	$ (2,971)	$ (2,752)	$ (731)	$ (1,041)	$ (1,270)
Depreciation and amortization	1,393	1,379	1,580	1,278	1,137	1,124	1,137	1,235	1,409
Stock-based compensation	99	91	125	516	96	105	122	145	190
Impairment charge	—	—	—	—	—	—	—	—	—
Adjusted EBITDA	$ (2,926)	$ (3,649)	$ (1,411)	$ (1,135)	$ (1,738)	$ (1,523)	$ 528	$ 339	$ 329

Liquidity and Capital Resources

Overview

We have experienced significant losses since inception, have an accumulated deficit of $197.9 million as of March 31, 2011 and have significant ongoing cash flow commitments. We have invested significant resources to commercialize aerogel technology and to build a manufacturing infrastructure capable of supplying aerogel products at the volumes and costs required by our customers. We currently market a set of commercially viable products, serve a growing base of customers and are experiencing rapid growth.

Our financial forecast anticipates increasing revenue, improving levels of profitability and improving cash flow from operations supported by capacity expansions and related capital investments. Based on this forecast, we believe that our existing cash, cash equivalents, marketable securities, available credit, and proceeds under recent debt financings will be sufficient to satisfy anticipated cash requirements during the next 12 months. However, if our operating performance falls short of forecast and deteriorates from levels achieved during 2010, we could conceivably experience a decrease in liquidity and a deterioration of our ability to continue as a going concern. Accordingly, we will continue to seek new sources of debt and equity financing, including funds generated through this offering, to expand our cash balances, financial resources and available credit to ensure our ability to meet commitments and to fully fund our operational plans.

Primary Sources of Liquidity

As of March 31, 2011, we had $16.4 million of cash and cash equivalents.

In December 2010, we entered into a subordinated note and warrant purchase agreement with affiliates of Piper Capital LLC and other investors and issued an aggregate of $10.0 million principal amount of secured subordinated promissory notes, which we refer to as our subordinated notes. The subordinated notes bear interest at the rate of 12% annually and are required to be repaid upon the earlier of: (i) March 2, 2014, (ii) the first anniversary of the completion of this offering or (iii) the last business day prior to the date that any of our preferred stock is redeemed. See “Description of Certain Indebtedness.”

In March 2011, we entered into a $10.0 million revolving credit facility with Silicon Valley Bank, which we refer to as our revolving credit facility, under which we could have drawn $8.0 million as of March 31, 2011 due to borrowing base limitations. Interest on extensions of credit under the revolving credit facility is equal to the prime rate which at March 31, 2011 was 4.0% per annum, plus 1.0% per annum, provided that if we are at or above a certain liquidity threshold, interest on extensions of credit under the revolving credit facility is equal to the prime rate plus 0.5% per annum. In addition, we are required to pay a quarterly unused revolving line facility fee of 0.5% per annum of the average unused portion of the revolving credit facility. The revolving credit facility will mature on March 31, 2013. As of March 31, 2011, there were no amounts outstanding under the revolving credit facility. See “Description of Certain Indebtedness.”

In June 2011, we entered into a note purchase agreement with certain affiliates of Fidelity Investments and BASF Venture Capital and issued $30.0 million aggregate principal amount of unsecured convertible notes, which we refer to as our convertible notes, with a maturity date of June 1, 2014. Interest on the convertible notes accrues at the rate of 8.0% per year. The unpaid principal amount of the convertible notes, together with any interest accrued but unpaid thereon, will be automatically converted into common stock upon the closing of the offering made hereby at a conversion price equal to 87.5% of the price to the public in this offering. See “Description of Certain Indebtedness.”

We are currently in the due diligence phase of the application process for a loan guarantee with the Department of Energy under Section 1703 of Title XVII of the Energy Policy Act of 2005 for a term loan in the amount of approximately $70 million to be used in the financing of the expansion of our East Providence facility. Our continued expansion of our East Providence facility is not dependent upon obtaining this guarantee. If awarded, we will assess the opportunity to obtain a loan guaranteed under this program.

Analysis of Cash Flow

The following table summarizes our cash flows for the periods indicated:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands)				
Net cash (used in) provided by:					
Operating activities	$(21,973)	$(12,972)	$(15,126)	$ (4,692)	$ (2,221)
Investing activities	(952)	(1,783)	(15,707)	(391)	(7,849)
Financing activities	34,119	30,269	30,131	(188)	(351)
Net increase (decrease) in cash	11,194	15,514	(702)	(5,271)	(10,421)
Cash and cash equivalents, beginning of period	794	11,988	27,502	27,502	26,800
Cash and cash equivalents, end of period	$ 11,988	$ 27,502	$ 26,800	$22,231	$ 16,379

Net Cash Used in Operating Activities

Our net cash used in operating activities for the three months ended March 31, 2011 was $2.2 million and was primarily due to our net loss of $1.7 million adjusted for non-cash items of $2.1 million (including depreciation and amortization of $1.4 million, imputed interest of $0.5 million and stock compensation expense and other items of $0.2 million) and the net decrease in cash due to changes in operating assets and liabilities of $2.6 million. This decrease in cash from changes in operating assets and liabilities is primarily due to the payments made pursuant to our cross license agreement with Cabot.

Our net cash used in operating activities in 2010 was $15.1 million and was primarily due to our net loss of $9.9 million adjusted for non-cash items of $7.5 million (including depreciation and amortization of $4.6 million, imputed interest of $2.4 million, and stock compensation expense of $0.5 million) and a net decrease in cash due to changes in operating assets and liabilities of $12.8 million. The net decrease in cash due to changes in operating assets and liabilities was primarily the result of increases in accounts receivable of $6.0 million, inventories of $0.7 million, other current assets of $0.3 million, and a decrease in other long-term liabilities of $7.4 million and deferred revenue of $0.2 million slightly offset by an increase in accrued expenses of $1.6 million. The increases in accounts receivable and inventory balances are primarily the result of the increase in revenue and the decrease in other long-term liabilities is due to the payments made pursuant to our cross license agreement with Cabot.

Our net cash used in operating activities in 2009 was $13.0 million and was primarily due to our net loss of $18.6 million adjusted for non-cash items of $9.5 million (including depreciation and amortization of $5.6 million, imputed interest of $3.0 million, and stock compensation expense of $0.8 million) and a net decrease in cash due to changes in operating assets and liabilities of $3.8 million, primarily due to a decrease in other long-term liabilities of $4.4 million and a decrease in accounts payable of $1.3 million slightly offset by decreases in inventories of $1.6 million and accounts receivable of $0.2 million. The decrease in other long-term liabilities is due to the payments made pursuant to our cross license agreement with Cabot.

Our net cash used in operating activities in 2008 was $22.0 million and was primarily due to our net loss of $35.2 million adjusted for non-cash items of $17.6 million (including depreciation and amortization of $7.1 million, an asset impairment charge of $2.5 million, imputed interest of $3.5 million, paid-in-kind interest of $3.4 million, stock compensation expense of $0.9 million and other items of $0.2 million) and a net decrease in cash due to changes in operating assets and liabilities of $4.4 million, primarily due to increases in accounts receivable of $1.1 million, inventories of $1.8 million and a decrease in long-term liabilities of $4.0 million, slightly offset by increases in

accounts payable of $1.9 million and deferred revenue of $0.5 million. The decrease in other long-term liabilities is due to the payments made pursuant to our cross license agreement with Cabot.

Net Cash Used in Investing Activities

Net cash used in investing activities primarily related to capital expenditures to support our growth. For the year ended December 31, 2010, and the three months ended March 31, 2011, investing activities also include purchases, sales and maturities of our marketable securities.

Net cash used in investing activities for the three months ended March 31, 2011 totaled $7.8 million and included capital expenditures of $11.9 million for machinery and equipment, primarily related to the build-out of our second manufacturing line at our East Providence facility, offset, in part, by net proceeds from the sale of marketable securities of $4.0 million.

Net cash used in investing activities for 2010 totaled $15.7 million and included capital expenditures of $11.3 million for machinery and equipment, primarily related to the build-out of our second manufacturing line at our East Providence facility, an increase in our restricted cash balance of $0.3 million, and net purchases of our marketable securities of $4.1 million.

Net cash used in investing activities for 2009 totaled $1.8 million and was principally related to capital expenditures for machinery and equipment.

Net cash used in investing activities for 2008 totaled $1.0 million and was principally related to capital expenditures for machinery and equipment.

Net Cash Provided by Financing Activities

Cash flows from financing activities primarily include net proceeds from issuances of preferred stock and proceeds and payments related to issuances of notes payable.

Net cash used by financing activities for the three months ended March 31, 2011 totaled $0.4 million and included payment of deferred financing costs of $0.3 million and repayments of borrowings under long-term debt and capital lease obligations of $0.1 million.

Net cash provided by financing activities in 2010 totaled $30.1 million and included proceeds from the issuance of preferred stock of $21.1 million and proceeds from the issuance of debt of $10.0 million that were partially offset by payment of deferred financing costs of $0.7 million and repayments of borrowings under long-term debt and capital lease obligations of $0.3 million.

Net cash provided by financing activities in 2009 totaled $30.3 million and included proceeds from the issuance of preferred stock of $30.5 million that were offset, in part, by repayments of borrowings under long-term debt and capital lease obligations of $0.3 million.

Net cash provided by financing activities in 2008 totaled $34.1 million and included proceeds from the issuance of preferred stock of $26.6 million and proceeds from the issuance of debt of $8.0 million that were offset, in part, by repayments of borrowings under long-term debt and capital lease obligations of $0.5 million.

Future Capital Requirements

We believe that our available cash, cash equivalents, marketable securities and amounts available under the revolving credit facility will be sufficient to fund our operations for at least the next 12 months. Our future capital requirements will depend on many factors, including our rate of revenue growth, the expansion of our sales and marketing activities, extent of spending to support technology development efforts, the expansion of our manufacturing capacity, the timing of new product introductions, investment in infrastructure to support our growth, and the continued growth in market acceptance of our products and services.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations as of March 31, 2011, under contracts that provide for fixed and determinable payments over the periods indicated :

Contractual Obligations(1)	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
			($ in thousands)		
Operating leases	$ 2,091	$ 617	$ 1,250	$ 120	$ 104
Capital leases	174	44	110	20	—
6% Term Loan	179	179	—	—	—
Subordinated Notes(2)	14,556	—	14,556	—	—
Accrued ARO	1,033	—	1,033	—	—
Cross License Agreement	16,500	6,000	10,500	—	—
Purchase Commitment	5,259	3,189	2,070	—	—
Total	$39,792	$ 10,029	$ 29,519	$ 140	$ 104

(1) The contractual obligations table excludes repayment of our convertible notes issued in June 2011, all of which will be automatically converted into shares of our common stock upon closing of the offering made hereby.

(2) In connection with the issuance of our convertible notes issued in June 2011, the holders of our subordinated notes amended the terms of their original agreement to require that the subordinated notes would become due March 2, 2014, prior to the maturity of our convertible notes. The new amount due has been retroactively presented as if these terms were in place at March 31, 2011.

Operating and Capital Leases

We lease our office space for our corporate offices in Northborough, Massachusetts, which expires in 2013, and a warehouse facility and land adjacent to our East Providence facility, which expire at various dates from 2013 through 2021, under non-cancelable operating lease agreements. See “Business — Facilities.” We also lease vehicles and equipment under non-cancelable capital leases that expire at various dates.

6% Term Loan

In January 2005, we executed a term loan with the Massachusetts Development Finance Agency for $1.5 million. The proceeds were used to build research and development lab space at our Northborough facility. The term loan bears interest at 6% per annum, is to be repaid in monthly installments of principal and interest through January 2012, and is secured by certain leasehold improvements and laboratory equipment.

Subordinated Notes

On December 29, 2010, we issued secured subordinated promissory notes for aggregate proceeds of $10.0 million. The proceeds were used to fund, in part, the construction of a second manufacturing line at our East Providence facility. The notes are collateralized by certain of our assets at our East Providence facility. The term notes bear interest at 12% per annum, and all accrued interest on the notes is compounded by adding it to the principal of the subordinated notes on a semi-annual basis commencing on June 30, 2011 and continuing until the last such date to occur prior to maturity. The subordinated notes are required to be repaid upon the earlier of: (i) March 2, 2014, (ii) the first anniversary of the completion of this offering or (iii) the last business day prior to the date that any of our preferred stock is redeemed. The noted contractual obligation reflects the balance of principal and accrued interest anticipated to be due on March 2, 2014.

Accrued Asset Retirement Obligations

We have asset retirement obligations arising from requirements to perform certain asset retirement activities at the termination of our Northborough facility lease and upon disposal of certain machinery and equipment. The liability was initially measured at fair value and subsequently adjusted for accretion expense and changes in the amount or timing of the estimated cash flows. The corresponding asset retirement costs are capitalized as part of the carrying amount of the related long-lived asset and depreciated over the asset's remaining useful life. We maintain restricted cash balances of $0.2 million to settle part of this liability.

Cross License Agreement

We are obligated to make quarterly payments through December 2013 under the terms of our cross license agreement with Cabot. As of March 31, 2011, our remaining payment obligation under the cross license agreement totaled $16.5 million.

Purchase Commitment

We have agreed to purchase at least 2.4 million pounds of silica annually through 2012 at a fixed price per pound pursuant to the terms of a supply agreement dated January 1, 2011. The contractual obligation set forth in the table above assumes that the price we pay per pound of silica remains fixed through the term of the contract. As of March 31, 2011, we have purchased 0.2 million pounds of silica and have a remaining commitment in 2011 of 2.2 million pounds.

Off Balance Sheet Arrangements

Since inception, we have not engaged in any off balance sheet activities as defined in Item 303(a)(4) of Regulation S-K.

Recent Accounting Pronouncements

In October 2009, the Financial Accounting Standards Board, or the FASB, issued Accounting Standards Update, or ASU, No. 2009-13, *Multiple-Deliverable Revenue Arrangements* , or ASU 2009-13. ASU 2009-13 supersedes certain guidance in FASB ASC Topic 605-25, *Multiple-Element Arrangements* and requires an entity to allocate arrangement consideration at the inception of an arrangement to all of its deliverables based on their relative selling prices (the relative-selling-price method). ASU 2009-13 eliminates the use of the residual method of allocation in which the undelivered element is measured at its estimated selling price and the delivered element is measured as the residual of the arrangement consideration, and requires the relative-selling-price method in all circumstances in which an entity recognizes revenue for an arrangement with multiple deliverables subject to ASU ASU 2009-13 must be adopted no later than the beginning of the first fiscal year beginning on or after June 15, 2010, with early adoption permitted through either prospective application for revenue arrangements entered into, or materially modified, after the effective date or through retrospective application to all revenue arrangements for all periods presented. We have adopted ASU 2009-13 and determined that it does not have a material impact on our consolidated financial statements.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of our financial statements and related disclosures requires us to make estimates, assumptions and judgments that affect the reported amount of assets, liabilities, revenue, costs and expenses and related disclosures. We believe that the estimates, assumptions and judgments involved in the accounting policies described below have the greatest potential impact on our financial statements; and therefore, we consider these to be our critical accounting policies. Accordingly, we evaluate our estimates and assumptions on an ongoing

basis. Our actual results may differ from these estimates under different assumptions and conditions. See Note 2 to our consolidated financial statements included elsewhere in this prospectus for information about these critical accounting policies, as well as a description of our other significant accounting policies.

Revenue Recognition

We recognize product revenue from the sale of our line of aerogel products and research services revenue upon delivery of research and development services, including under contracts with various agencies of the U.S. government. Revenue is recognized when all of the following criteria are met: persuasive evidence of an arrangement exists, the price to the buyer is fixed or determinable, delivery has occurred or services have been provided and collectability is reasonably assured. Product revenue is generally recognized upon transfer of title and risk of loss, which is generally upon shipment or delivery. In general, our customary shipping terms are FOB shipping point. Products are typically delivered without significant post-sale obligations to customers other than standard warranty obligations for product defects. We provide warranties for our products and record the estimated cost within cost of sales in the period that the revenue is recorded. Our standard warranty period extends one to two years from the date of sale, depending on the type of product purchased. Our warranties provide that our products will be free from defects in material and workmanship, and will, under normal use, conform to the specifications for the product. For the three months ended March 31, 2011, and for the years ended December 31, 2008, 2009 and 2010, warranty charges have been insignificant.

We perform research services under contracts with various government agencies and other institutions. We record revenue earned on research services contracts using the percentage-of-completion method in two ways: (1) for firm-fixed-price contracts, we accrue that portion of the total contract price that is allocable, on the basis of the our estimates of costs incurred to date to total contract costs; (2) for cost-plus-fixed-fee contracts, we record revenue that is equal to total payroll cost incurred times a stated factor plus reimbursable expenses, to a stated upper limit. Revisions in cost estimates and fees during the course of the contract are reflected in the accounting period in which the facts that require the revisions become known.

Contract costs and rates used to allocate overhead to contracts are subject to audit by the respective contracting government agency. Adjustments to revenue as a result of audit are recorded in the period they become known.

Stock-based Compensation

We maintain an equity incentive plan pursuant to which our board of directors may grant qualified and nonqualified stock options to officers, key employees, and others who provide or have provided service to us. We recognize the costs associated with stock option grants based on their estimated fair value at date of grant amortized over the vesting period of the grant, which is typically three to four years. Future expense amounts for any particular quarterly or annual period could be affected by changes in our assumptions or changes in market conditions. Stock-based compensation is included in cost of revenue and operating expenses as set forth below:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
	($ in thousands)				
Stock-based compensation:					
Product cost of revenue	$178	$148	$ 81	$ 18	$ 31
Operating expenses:					
Research and development	67	96	57	13	20
Sales and marketing	136	157	87	21	28
General and administrative	546	430	243	44	111
Total	$927	$831	$468	$ 96	$190

As of March 31, 2011, there was approximately $2.1 million of total estimated unrecognized compensation cost related to non-vested options under our equity incentive plan, which will be recognized over a weighted-average period of 3.6 years.

We use the Black-Scholes option-pricing model to estimate the fair value of stock-based awards. The determination of the estimated fair value of stock-based awards is based on a number of complex and subjective assumptions. These assumptions include the determination of the estimated fair value of the underlying security, the expected volatility of the underlying security, a risk-free interest rate, the expected term of the option, and the forfeiture rate for the award class. The following assumptions were used to estimate the fair value of the option awards:

	Year Ended December 31			Three Months Ended March 31	
	2008	2009	2010	2010	2011
Weighted-average assumptions:					
Expected term (in years)	6.08	5.60	6.04	5.94	6.06
Expected volatility	33.00%	57.00%	49.75%	49.95%	50.73%
Risk free rate	3.65%	2.64%	1.90%	2.76%	2.31%
Expected dividend yield	0.00%	0.00%	0.00%	0.00%	0.00%

- The expected term represents the period that our stock-based awards are expected to be outstanding and is determined using the simplified method described in ASC 718 for all grants. We believe this is a better representation of the estimated life than our actual limited historical exercise behavior.
- For the three months ended March 31, 2010 and 2011, and for the years ended December 31, 2008, 2009, and 2010, the expected volatility is based on the weighted-average volatility of up to six companies within various industries that the we believe are similar to our own.
- The risk-free interest rate is based on U.S. Treasury zero-coupon issues with a remaining term equal to the expected life assumed at the date of grant.

- We use an expected dividend yield of zero, since we do not intend to pay cash dividends on our common stock in the foreseeable future, nor have we paid dividends on our common stock in the past.

As share-based compensation expense is recognized based on awards ultimately expected to vest, it has been reduced for an estimated forfeiture rate of 3% for the three months ended March 31, 2010 and 2011, and the years ended December 31, 2009 and 2010, and 7% for 2008. Forfeitures are required to be estimated at the time of grant and revised, if necessary, in subsequent periods, if actual forfeitures differ from those estimates. Forfeitures were estimated based on voluntary termination behavior as well as analysis of actual option forfeitures.

The assumptions underlying these valuations represent management's estimates, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation could be materially different. The most significant input into the Black-Scholes option-pricing model used to value our option grants is the estimated fair value of the common stock. We considered a combination of valuation methodologies, including market and transaction approaches.

Determination of Fair Value

We believe we have used reasonable methodologies and assumptions in determining the fair value of our common stock for financial reporting purposes. Our board of directors has historically estimated the fair value of our common stock. Because there has been no public market for our shares, our board of directors historically determined the fair value of our common stock based on the market approach and the income approach to estimate the enterprise value of the business under various liquidity event scenarios, including an initial public offering by the company and the sale of the company. To support the valuations, we utilized a probability-weighted expected return under those various liquidity scenarios, public guideline companies, our cash flow projections, and other assumptions to derive the enterprise value of the business. We then derived the estimated fair value of each class of stock, taking into consideration the rights and preferences of each instrument based on a probability-weighted expected return.

The most significant factors considered in estimating the fair value of our common stock were as follows:

- current business conditions and projections;
- the probability and value of future liquidity scenarios, including an initial public offering by the company and the sale of the company;
- the market performance of comparable publicly traded companies; and
- U.S. and global capital conditions.

We believe consideration of these factors by our board of directors was a reasonable approach to estimating the fair value of our common stock for the periods considered. Estimating the fair value of our stock requires complex and subjective judgments, however, and there is inherent uncertainty in our estimate of fair value.

Prior to this offering, we did not maintain a market for our shares. In the absence of a public market for our common stock, the fair value of our common stock underlying our stock options has historically been determined by our board of directors using methodologies consistent with the American Institute of Certified Public Accountants Practice Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation. In connection with making this determination, we have engaged independent third-party valuation advisors to assist us. In each case, our board of directors has made the ultimate determination of fair value. While we have issued new equity to unrelated third parties and we use such facts in the estimation of the fair value of our shares, we

believe that the lack of a secondary market for our common stock and our limited history issuing stock to unrelated parties makes it impracticable to estimate the expected volatility of our common stock. Therefore, it was not possible to reasonably estimate the grant-date fair value of our options using our own historical price data. Accordingly, we accounted for the share options under the calculated value method.

The following table summarizes the number of stock options granted from January 1, 2009, through May 31, 2011, the average per share exercise price of the options, and the estimated per share fair value of the options:

Date of Grant	Number of Options Granted	Per Share Exercise Price [1]	Estimated per Share Option Fair Value [2]
March 27, 2009	2,000	$ 0.33	$ 0.04
May 27, 2009	9,100	0.33	0.04
July 22, 2009	6,000	0.33	0.04
November 11, 2009	10,276,078	0.22	0.09
December 18, 2009	225,000	0.22	0.09
January 20, 2010	27,050	0.22	0.11
March 17, 2010	49,430	0.22	0.11
July 21, 2010	333,443	1.30	0.63
September 15, 2010	54,222	1.30	0.63
November 17, 2010	1,257,018	1.30	0.64
January 18, 2011	530,000	1.46	0.74
January 19, 2011	82,512	1.46	0.74
March 16, 2011	124,013	1.46	0.72
May 18, 2011	1,318,883	2.44	1.18
Total	14,294,749		

(1) The fair value of our common stock and the per share exercise price of options are determined by our board of directors.

(2) The per share fair value of the options was estimated for the date of grant using the Black-Scholes option pricing model. This model estimates the fair value by applying a series of factors including the exercise price of the option, a risk-free interest rate, the expected term of the option, expected share price volatility of the underlying common stock and expected dividends on the underlying common stock. Additional information regarding our common stock option awards is set forth in Note 9 to our audited consolidated financial statements included elsewhere in this prospectus.

The fair value of our common stock was estimated using the probability-weighted expected return method, or PWERM, which considers the value of preferred and common stock based upon analysis of the future values for equity assuming various future outcomes, including initial public offerings, merger or sale, dissolutions, or continued operation as a private company. Accordingly, share value is based upon the probability-weighted present value of expected future net cash flows, considering each of the possible future events, as well as the rights and preferences of each share class. PWERM is complex as it requires numerous assumptions relating to potential future outcomes of equity, hence, the use of this method can be applied: (i) when possible future outcomes can be predicted with reasonable certainty; and (ii) when there is a complex capital structure (i.e., several classes of preferred and common stock).

Grants from March 27, 2009 through July 22, 2009. On March 27, 2009, our board of directors established the exercise price per share of common stock at $0.33 per share determined by the PWERM method. Our board of directors reaffirmed this exercise price on May 27, 2009 and July 22, 2009 in connection with option grants. The significant drivers and weightings for our valuations during this period were: initial public offering, 10%; sale of our company/assets, 50%, remain private, 15%; and dissolution, 25%. The estimated fair value of one share of common stock

was estimated under each of the five scenarios and the associated probabilities to arrive at a probability-weighted value per share.

Grants from November 11, 2009 through March 17, 2010. On November 11, 2009, our board of directors established the exercise price per share of common stock at $0.22 per share determined by the PWERM method. Our board of directors reaffirmed this exercise price on December 18, 2009, January 20, 2010 and March 17, 2010 in connection with option grants. This valuation took into consideration economic events including our arm's length sale of Series A redeemable convertible preferred stock, or Series A preferred stock, in August 2009, which had been sold at price per share that was less than prior sales of our preferred stock due to the economic conditions at that time and the difficulties in obtaining venture capital funding. The significant drivers and weightings for our valuations during this period were: initial public offering, 10%; sale of our company/assets, 60%, remain private, 10%; and dissolution, 20%. The estimated fair value of one share of common stock was estimated under each of the five scenarios and the associated probabilities to arrive at a probability-weighted value per share.

Grants from July 21, 2010 through November 17, 2010. On July 21, 2010, our board of directors established the exercise price per share of common stock at $1.30 per share determined by the PWERM method. Our board of directors reaffirmed this exercise price on September 15, 2010 and November 17, 2010 in connection with option grants. This valuation took into consideration economic events including our arm's length sale of Series B redeemable convertible preferred stock, or Series B preferred stock, in September and October 2010 at a price of $1.34 per share of Series B preferred stock. The significant drivers and weightings for our valuations during this period were: initial public offering, 60%; sale of our company/assets, 20%, remain private, 15%; and dissolution, 5%. The estimated fair value of one share of common stock was estimated under each of the five scenarios and the associated probabilities to arrive at a probability-weighted value per share.

Grants from January 18, 2011 through March 16, 2011. On January 18, 2011, our board of directors established the exercise price per share of common stock at $1.46 per share determined by the PWERM method. Our board of directors reaffirmed this exercise price on January 19, 2011 and March 16, 2011 in connection with option grants. This valuation took into consideration market and general economic events as well as our financial results and other data available at that time. The significant drivers and weightings for our valuations during this period were: initial public offering, 60%; sale of our company/assets, 20%, remain private, 15%; and dissolution, 5%. The estimated fair value of one share of common stock was estimated under each of the five scenarios and the associated probabilities to arrive at a probability-weighted value per share.

Grants on May 18, 2011. On May 9, 2011, our board of directors established the exercise price per share of common stock at $2.44 per share determined by the PWERM method. Our board of directors reaffirmed this exercise price on May 18, 2011 in connection with option grants. This valuation took into consideration market and general economic events as well as our financial results and other data available at that time. The significant drivers and weightings for our valuations during this period were: initial public offering, 70%; sale of our company/assets 20%; remain private, 5%; and dissolution, 5%. The estimated fair value of one share of common stock was estimated under each of the five scenarios and the associated probabilities to arrive at a probability-weighted value per share.

Valuation models require the input of highly subjective assumptions. There are significant judgments and estimates inherent in the determination of these valuations. These judgments and estimates include assumptions regarding our future performance, the time to undertaking and completing an initial public offering or other liquidity event, as well as determinations of the appropriate valuation methods. If we had made different assumptions, our stock-based compensation expense, net income (loss) and net income (loss) per share could have been significantly different. The foregoing valuation methodologies are not the only valuation methodologies available and will not

be used to value our common stock once this offering is complete. We cannot make assurances regarding any particular valuation of our common stock.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

We recognize the effect of income tax positions only if those positions are more likely than not of being sustained. We account for uncertain tax positions using a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. Differences between tax positions taken in a tax return and amounts recognized in the financial statements are recorded as adjustments to income taxes payable or receivable, or adjustments to deferred taxes, or both. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. We recognize penalties and interest related to recognized tax positions, if any, as a component of income tax expense.

Management's judgment and estimates are required in determining our tax provision, deferred tax assets and liabilities and any valuation allowance recorded against deferred tax assets. We review the recoverability of deferred tax assets during each reporting period by reviewing estimates of future taxable income, future reversals of existing taxable temporary differences, and tax planning strategies that would, if necessary, be implemented to realize the benefit of a deferred tax asset before expiration. We have recorded a full valuation allowance against our deferred tax assets due to the uncertainty associated with the utilization of the net operating loss carryforwards. In assessing the realizability of deferred tax assets, we consider all available evidence, historical and prospective, with greater weight given to historical evidence, in determining whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of our deferred tax assets generally is dependent upon generation of future taxable income.

Impairment of Long-Lived Assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset exceeds the fair value of the asset. Fair value is determined through various valuation techniques including discounted cash flows models, quoted market values and third-party independent appraisals, as considered necessary.

Redeemable Convertible Preferred Stock

Our preferred stock is classified as temporary equity and shown net of issuance costs. We recognize changes in the redemption value immediately as they occur and adjust the carrying amount of the preferred stock to equal the redemption value at the end of each reporting period.

Qualitative and Quantitative Disclosures about Market Risk

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure results primarily from

fluctuations in interest rates as well as from inflation. In the normal course of business, we are exposed to market risks, including changes in interest rates which affect our line of credit under our revolving credit facility as well as cash flows. We may also face additional exchange rate risk in the future as we expand our business internationally.

Interest Rate Risk

We are exposed to changes in interest rates in the normal course of our business. At March 31, 2011, we had unrestricted cash and cash equivalents of $16.4 million. These amounts were held for working capital purposes and were invested primarily in government-backed securities. Due to the short-term nature of these investments, we believe that we do not have any material exposure to changes in the fair value of our cash and cash equivalents as a result of changes in interest rates.

As of March 31, 2011, our outstanding debt consisted of capital leases and term loans that have fixed interest rates. In March 2011 we entered into a two-year line of credit under our revolving credit facility with a bank, to borrow up to $10.0 million secured by our then outstanding accounts receivable and inventory. Borrowings under this revolving credit facility accrue interest at prime plus 0.5%. As of March 2011, there were no borrowings outstanding under this revolving credit facility.

Inflation Risk

Although we expect that our operating results will be influenced by general economic conditions, we do not believe that inflation has had a material effect on our results of operations during the periods presented. However, our business may be affected by inflation in the future.

Foreign Currency Exchange Risk

We are subject to inherent risks attributed to operating in a global economy. Principally all of our revenue, receivables, costs and our debts are denominated in U.S. dollars. Although our international operations are currently not significant compared to our operations in the United States, we expect to expand our international operations in the long-term. An expansion of our international operations will increase our potential exposure to fluctuations in foreign currencies.

BUSINESS

Overview

We are an energy efficiency company that designs, develops and manufactures innovative, high-performance aerogel insulation. We believe our aerogel blankets deliver the best thermal performance of any widely used insulation products available on the market today and provide a superior combination of performance attributes unmatched by traditional insulation materials. Our customers use our products to save money, conserve energy, reduce CO_2 emissions and protect workers and assets.

Our technologically advanced products are targeted at the estimated $32 billion annual global market for insulation materials. Our insulation is principally used by industrial companies, such as ExxonMobil and NextEra Energy, that operate petrochemical, refinery, industrial and power generation facilities. We are also working with BASF Construction Chemicals and other leading companies to develop and commercialize products for applications in the building and construction market. We achieved a compound annual revenue growth rate of 46.7% from 2008 to 2010, with revenue reaching $43.2 million in 2010. We believe demand for our high-performance insulation products will increase significantly to support widespread global efforts to cost-effectively improve energy efficiency. To address capacity constraints caused by growing demand, we began operating a second production line in late March 2011 designed to double our production capacity at our East Providence, Rhode Island facility.

We have grown our business by forming technical and commercial relationships with industry-leading customers to optimize our products to meet the particular demands of targeted market sectors. In the industrial market, we have benefited from our technical and commercial relationships with ExxonMobil in the oil refinery and petrochemical sector, with Technip in the offshore oil sector and with NextEra Energy in the power generation sector. In the building and construction market, we have a joint development agreement with BASF Construction Chemicals to develop products to meet increasingly stringent building standards requiring improved thermal performance in retrofit and new-build wall systems, particularly in Europe. We will continue our strategy of working with innovative companies to target and penetrate new market opportunities.

Our core aerogel technology and manufacturing processes are our most significant assets. We currently employ 27 research scientists and process engineers focused on advancing our current aerogel technology and developing next generation aerogel compositions, form factors and manufacturing technologies. Our aerogels are complex structures in which 97% of the volume consists of air trapped in nanopores between intertwined clusters of amorphous silica solids. These extremely low density solids provide superior insulating properties. Although aerogels are usually fragile materials, we have developed innovative and proprietary manufacturing processes that enable us to produce industrially robust aerogel insulation cost-effectively and at commercial scale.

Our aerogel products provide up to five times the thermal performance of widely used traditional insulation in a thin, easy-to-use blanket form. Our products enable compact design, reduce installation time and costs, promote freight savings, simplify logistics, reduce system weight and required storage space, and enhance job site safety. Our products provide excellent compression resistance, are hydrophobic and reduce the incidence of corrosion under insulation, a significant operational cost and safety issue in industrial facilities. Our products also offer strong fire protection which is a critical performance requirement in both the industrial and building and construction markets. We believe our array of product attributes provides strong competitive advantages over traditional insulation. Although competing insulation materials may have one or more comparable attributes, we believe that no single insulation material currently available offers all of the properties of our aerogel insulation.

Since 2008, our Cryogel and Pyrogel product lines have been used by some of the world's largest oil refiners and petrochemical companies, including ExxonMobil, Petrobras, Shell and Dow Chemical. These products are also used in applications as diverse as liquefied natural gas facilities, food processing

facilities, oil sands extraction and electric power generation facilities, with end-use customers such as Chevron, Archer Daniels Midland, Suncor Energy, NextEra Energy and Exelon. Insulation systems in these facilities are designed to maintain hot and cold process piping and storage tanks at optimal process temperatures, to protect plant and equipment from the elements and from the risk of fire, and to protect workers. Freedonia Custom Research, Inc. has estimated that the industrial insulation market totaled $4.5 billion in 2010.

Within the building and construction market, we are replicating our strategy of working with industry leaders to seek to penetrate critical market sectors. In addition to our relationship with BASF Construction Chemicals, we are also engaged in product development efforts in Europe and North America with other industry leaders to target a wide variety of applications. Our products also have been installed since 2006 in residential and commercial new-build and retrofit building projects through the efforts of a small network of distribution partners. Freedonia Custom Research, Inc. has estimated that the building and construction insulation market totaled $22.7 billion in 2010.

In addition to our core markets, we also rely on a small number of fabricators to supply fabricated insulation parts to original equipment manufacturers, or OEMs. These global OEMs develop products using our aerogels for applications as diverse as military and commercial aircraft, trains, buses, appliances, apparel, footwear and outdoor gear. While we do not currently allocate significant resources to these markets, we believe there are many future opportunities within these markets for our aerogel technology based on its unique attributes. Freedonia Custom Research, Inc. has estimated that the transportation, appliance and apparel insulation markets totaled $4.9 billion in 2010.

We manufacture our products using our proprietary, high-volume process technology at our facility in East Providence, Rhode Island. We have operated the East Providence facility at high volume and high yield continuously since mid-2008. We successfully commenced operation of our second production line at this facility in March 2011 and immediately began producing commercial quality aerogel blankets. This line was completed on time and on budget and is expected to double our annual production capacity by the end of 2011 to 40 to 44 million square feet of aerogel blankets, depending on product mix. We have begun the design and engineering phase of a third production line and currently expect that this line will be completed at our East Providence facility during 2012. We also plan to construct a second manufacturing facility in the United States or Europe, the location of which will be based on factors including proximity to raw material suppliers, proximity to customers, labor and construction costs and availability of governmental incentives.

Industry Background

Global economic growth, continued geopolitical conflict in oil-producing regions, and rising and volatile energy prices are increasing demand for energy efficiency products to reduce energy consumption, energy costs and dependence on oil. Heightened concerns about global warming and climate change are likewise increasing demand for energy efficiency products targeting the reduction of CO_2 emissions.

Markets

Insulation is a material or combination of materials that slows the transfer of heat and is used in a wide variety of applications. According to Freedonia Custom Research, Inc., the global market for insulation materials was estimated to be $32 billion during 2010, and The Freedonia Group estimates annual growth of 6.3% through 2014. There are a variety of insulation materials available in the market, most of which have been in use for over 50 years. Each insulation material has a different set of performance attributes and the extent of its use in a given market is based on the performance and cost criteria applicable to that market.

The primary markets for insulation are:

- industrial, including use as covering for pipes, valves and storage tanks;
- building and construction, in walls, floors and ceilings; and
- original equipment manufacture, including use in transportation, appliances and apparel applications.

The industrial insulation market is global, well-established and includes large and well-capitalized customers across a diverse set of industries. Freedonia Custom Research, Inc. has estimated that the industrial market for insulation totaled $4.5 billion during 2010. This market includes companies operating refinery, petrochemical, general manufacturing, food processing and district energy operations. The market also includes firms operating gas, coal, nuclear, hydro and solar thermal power generating facilities. Insulation systems in the industrial market are designed to maintain hot and cold process piping and storage tanks at optimal temperatures, to protect plant and equipment from the elements and from the risk of fire, and to protect workers from burns. The industrial insulation market is served by a well-organized, well-established, worldwide network of distributors, contractors and engineers. We believe that under ordinary economic circumstances, approximately 70% of the annual demand for insulation in the industrial market is generated by capital expansions and related capital projects, while the remainder is associated with routine, non-discretionary maintenance programs within existing facilities. Capital expansions and related capital projects are driven primarily by increased energy prices and overall economic growth. Maintenance programs are essential to optimal operation of processing equipment, to ensure worker safety and to minimize the risk of a catastrophic loss. Accordingly, we believe that demand for insulation for maintenance purposes in comparison to capital projects is less affected by volatility associated with economic cycles, the price of oil or similar macroeconomic factors.

The building and construction insulation market is driven by residential and commercial new-build and retrofit projects. Freedonia Custom Research, Inc. has estimated that the building and construction insulation market totaled $22.7 billion in 2010. Insulation systems in the building and construction market are designed to isolate the interior of buildings from external temperature variations and to reduce energy costs. These insulation systems are used in wall systems, under traditional and radiantly heated floors, in ceilings and roofs, in window and door frames and in solar thermal panels and systems. Most insulation products in the building and construction market are manufactured or fabricated to meet industry-standard thicknesses and dimensions. The building and construction market is characterized by a fragmented distribution network and myriad national, regional and local building codes, regulations and standards. We believe there are important economic and regulatory drivers supporting energy efficiency initiatives globally in this market. First, commercial and residential buildings currently account for approximately 40% of total energy consumption in both the United States and the European Union. For example, in the United States, buildings surpass both the transportation and industrial sectors in terms of energy consumption at 29% and 30%, respectively. According to McKinsey & Company, governmental policies to strengthen the thermal performance of commercial, residential and governmental buildings are among the most cost-effective means to improve energy efficiency and to reduce carbon emissions. For example, The Better Buildings Initiative announced by U.S. President Barack Obama in February 2011 estimates that U.S. companies and business owners can reduce their energy bills by about $40 billion at today's energy prices by making buildings more energy efficient, thus constituting a direct economic benefit. Additionally, numerous European Union member states, in support of their commitments under the Kyoto accord to reduce carbon emissions, have enacted legislation that is increasing minimum thermal standards for commercial and residential wall systems through 2020. We believe that these increasing thermal standards for retrofit and new-build wall systems in Europe are becoming more difficult to meet with traditional insulation materials. We also believe that strategic relationships with leading building materials manufacturers with established distribution networks are a critical

requirement for a new industry player to penetrate the building and construction market in a rapid and cost-effective manner.

The transportation, appliance and apparel insulation markets are global, diverse and fragmented. Freedonia Custom Research, Inc. has estimated that these markets totaled $4.9 billion in 2010. The transportation market includes insulation of aircraft, automobiles, ships and trains where we believe the key performance criteria include thermal performance, a thin profile, fire resistance and durability. The appliance market includes insulation of commercial and residential refrigerators and freezers, conventional and microwave ovens, dryers and water heaters. The apparel market includes insulation of work boots, outdoor gear and tents. Insulation applications across the transportation, appliance and apparel markets commonly require insulation to be fabricated into forms to meet design specifications.

Insulation System Design Considerations

Because insulation is used in a wide variety of demanding applications, insulation materials must satisfy a wide range of performance criteria on a cost-effective basis. The technical, performance and economic challenges faced by insulation materials in meeting the thermal management requirements of applications in the industrial, building and construction and other markets include:

- ***Thermal Performance.*** Insulation must deliver the required thermal performance within the space allotted. Higher performance insulation is principally required where space is at a premium.
- ***Operating Temperature Limitations.*** Insulation must be able to perform safely and effectively in a system's operating temperature range. Insulation is commonly targeted and optimized for applications within the cryogenic and sub-ambient (−273 ºC to 90 ºC), ambient (0 ºC to 40 ºC) or hot process (−25 ºC to 650 ºC) temperature regimes.
- ***Form Factor.*** Insulation must be supplied in a form that meets system specifications. Common insulation forms include flexible blankets, boards, loose fill, rigid pipe covers, sprayed and shaped foam structures.
- ***Speed of Installation.*** Insulation that installs rapidly helps reduce total system costs. Labor costs for on-site installation are a significant component of an insulation system's total cost.
- ***Volume and Weight.*** The volume and weight of the insulation required to meet system specifications impact capital and operating costs of a facility, system, vehicle or building.
- ***Durability.*** Insulation must meet customer specifications for tensile strength, compressive strength and resiliency. Under cryogenic conditions, insulation should not crack, contract or degrade in response to freeze-thaw cycles. In hot process applications, insulation should not crack, crumble or sag.
- ***Fire Resistance and Protection.*** Insulation is commonly tested for fire resistance and fire protection under industry-standard protocols. These tests measure whether insulation contributes to the spread of flame and smoke or acts as a passive fire barrier. In industrial markets, minimum fire ratings are largely determined by individual companies. In the building and construction markets, minimum fire ratings are usually determined by national, regional and local building practices and codes.
- ***Moisture Resistance.*** Insulation is commonly tested for water absorption using industry-standard protocols. Moisture reduces the thermal performance of insulation. The resistance of insulation to moisture is critical to the performance of systems exposed to the elements and operating in humid climates.
- ***Vapor Permeability.*** The rate of flow of vapor through insulation layers is critical to the performance of industrial systems. Insulation systems used in cryogenic applications must be impermeable to water vapor to avoid catastrophic system failures. Many cryogenic insulation

systems incorporate vapor barriers. Conversely, high vapor permeability enables optimal system performance in hot process applications.

- ***Corrosion Under Insulation, or CUI.*** In the industrial market, systems operating between −4 °C and 175 °C are subject to CUI. Insulation materials can trap water and exacerbate corrosion of the underlying metal surfaces. Corrosion of process piping and storage tanks increases the risk of catastrophic system failures. Preventative facility maintenance and shutdowns are estimated to cost the petrochemical industry billions of dollars per year. Insulation that is both hydrophobic and vapor permeable has the potential to significantly reduce the incidence of CUI.
- ***Logistics.*** The logistics associated with purchasing, storing, transporting and installing insulation materials in facilities and on job sites can be complex and costly. Improved logistics on job sites reduces operating costs and enhances worker safety.

Within the industrial market, insulation systems are generally designed to maintain hot and cold process piping and storage tanks at optimal temperatures, to protect plant and equipment from external elements and risk of fire, and to protect workers. In this market, we believe that the performance attributes that are most important are thermal performance, durability, ease of installation, moisture resistance and vapor permeability. When choosing products in the industrial market, we believe that customers evaluate which insulation product enables them to meet their performance targets with the lowest installed and/or lifecycle costs.

Within the building and construction market, insulation systems are generally designed to isolate the interior of the building from external temperature variations and to reduce energy costs. In this market, we believe that the most important performance attributes of insulation are thermal performance, form factor, volume, weight and fire resistance. When choosing insulation in the building and construction market, customers evaluate which product provides the most cost-effective means to achieve their performance targets within system design specifications.

Our Solution

We believe that our aerogel technology has allowed us to create superior insulation products for our core markets that will allow us to continue to grow our market share. We believe that the potential for significant technological innovation in traditional insulation materials is limited and that new high-performance materials will be required to meet evolving market requirements for energy efficient insulation systems. Our line of high-performance aerogel blankets is positioned to meet these requirements. Our solution is driven by our innovative and proprietary manufacturing processes that produce aerogels in a flexible and industrially robust blanket form and is supported by over ten years of research and development dedicated to new aerogel compositions, form factors and manufacturing technologies. We believe our aerogel blankets deliver a superior combination of performance attributes that provide cost-effective solutions to address the demanding performance objectives of a wide range of applications in our target markets, including:

- ***Best Thermal Performance.*** Our aerogel blankets provide the best thermal performance of any widely used insulation products available on the market today. Our products excel in applications where available space is constrained or thermal performance targets are aggressive.
- ***Wide Temperature Range.*** We offer insulation products that address the entire range of applications within the cryogenic and sub-ambient (−273 °C to 90 °C), ambient (0 °C to 40 °C) and hot process (−25 °C to 650 °C) temperature ranges.
- ***Ease of Installation.*** Our flexible aerogel blankets install faster than rigid insulation materials in the industrial market, which reduces labor costs and total system costs.

- ***Compact Design.*** Our aerogel blankets reduce insulation system volume by 50% to 80% compared to traditional insulation. Our products allow for a reduction in the footprint, size and structural costs of facilities, systems, vehicles and buildings.
- ***High Durability.*** Our aerogel blankets offer excellent compression resistance, tensile strength and vibration resiliency. The compression resistance of our products allows companies to pre-insulate, stack and transport steel pipes destined for use in harsh or remote environments. Pre-insulation of pipes significantly reduces installation labor costs in industrial applications in remote areas such as the oil sands in Alberta, Canada.
- ***Strong Fire Protection.*** Our Pyrogel XT and Spaceloft A2 product lines were specifically designed to provide strong fire performance in applications within the industrial and building and construction markets. Strong fire performance qualifies our products for use in a variety of applications in our target markets.
- ***Moisture Resistance.*** Our aerogel blankets are durably hydrophobic. Our products offer improved thermal performance in insulation systems exposed to the elements or operating in humid environments compared to traditional insulation.
- ***Reduced Corrosion Under Insulation.*** Our Pyrogel XT product line is both durably hydrophobic and vapor permeable. These attributes have the potential to reduce the incidence of CUI in hot process applications. We believe that a reduction in CUI offers industrial customers a significant reduction in long-term operating and capital costs.
- ***Simplified Logistics.*** Our aerogel blankets simplify job site logistics. Our products reduce the volume and weight of material purchased, inventoried, transported and installed in the field. In addition, our products reduce the number of stock-keeping units, or SKUs, required to complete a project. Simplified logistics accelerate project timelines, reduce installation costs and improve worker safety.

In the industrial market, we believe these characteristics enable our customers to meet their insulation performance targets at lower total installed or lifecycle costs versus traditional insulation in a growing number of applications. In the building and construction market, we believe the increasing thermal standards for retrofit and new-build wall systems in Europe will become more difficult to meet with traditional insulation materials due to space constraints. We believe the thin form factor and strong fire properties of our aerogel blankets will provide a cost-effective and practical means to meet increasingly stringent building standards in Europe.

Our Competitive Strengths

We believe the following combination of capabilities distinguishes us from our competitors and positions us to compete effectively and benefit from the expected growth in the market for energy efficiency solutions:

- ***Superior product based on proven technology in commercial production.*** Our aerogel products provide up to five times the thermal performance of widely used insulation in a thin, easy-to-use blanket form. Our products enable compact design, reduce installation time and costs, promote freight savings, simplify logistics, reduce system weight and required storage space and enhance job site safety. Our products provide excellent compression resistance, are hydrophobic and reduce the incidence of corrosion under insulation, a significant operational cost and safety issue in industrial facilities. Our products also offer strong fire protection which is a critical performance requirement in both the industrial and building and construction markets. We believe our array of product attributes provides strong competitive advantages over traditional insulation and will enable us to take a growing share of the existing market for insulation in both the industrial and the building and construction markets. Although competing insulation materials may have one or more comparable attributes, we believe that no single insulation material currently available offers all of the properties of our aerogel insulation.

- ***Proven and scalable proprietary manufacturing process.*** Our manufacturing process is proven and has been replicated to meet increasing demand. Our original line in East Providence, Rhode Island, has operated continuously since mid-2008. From mid-2008 through March 31, 2011, we have produced and sold in excess of 38 million square feet of aerogel blankets. We successfully commenced operation of our second production line at this facility in March 2011 and immediately began producing commercial quality aerogel blankets. This line was completed on time and on budget and is expected to double our annual production capacity by the end of 2011 to 40 to 44 million square feet of aerogel blankets, depending on product mix. We believe that our proven ability to produce product that meets our clients' specifications and our increased production capacity will provide customers with the certainty of supply that is required to expand their use of our products.
- ***Strong relationships with industry leaders.*** We have a track record of working with industry leading end-use customers, in order to achieve in-depth knowledge of our target market and to optimize our products to meet the challenges they face. With these relationships, our products have undergone rigorous testing and are now qualified for global usage in both routine maintenance and in capital projects at some of the largest industrial companies in the world. We believe these strong relationships represent a competitive advantage, giving us both a significant source of potential demand and a means of validating our technology, products and value proposition. These relationships have proven to shorten the sales cycle with other customers within the industrial market and have helped to facilitate our market penetration. Within the building and construction market, we have partnered with BASF Construction Chemicals to develop products to meet increasingly stringent building standards for thermal performance of retrofit and new-build wall systems. As part of our relationship with BASF Construction Chemicals, we have recently optimized a product, Spaceloft A2, that we believe will have broad appeal across the building and construction market. BASF Venture Capital made strategic investments in us in September 2010 and June 2011.
- ***Capital efficient business model.*** To respond to increased demand for our products, we successfully commenced operation in late March 2011 of a second production line at the East Providence facility. The expansion is expected to increase our annual production capacity by 20 to 22 million square feet of aerogel blankets at a total construction cost of approximately $31.5 million. We believe that our second production line, at full capacity and at current prices, would be capable of producing in the range of $50 million to $54 million in annual revenue of aerogel blankets. We expect to add production capacity in a capital efficient manner through the planned expansion of our East Providence facility and construction of a second manufacturing facility in the United States or Europe.
- ***Experienced management and operations team.*** Each of our executive officers has over 20 years of experience in global industrial companies, specialty chemical companies or related materials science research. This team has worked closely together at Aspen Aerogels for nearly five years and we believe our dedicated and experienced workforce is an important competitive asset. As of May 31, 2011, we employed 157 dedicated research scientists, engineers, manufacturing line operators, sales and administrative staff and management.

Our Strategy

Our goal is to create shareholder value by becoming the leading provider of high-performance aerogel products serving the global energy efficiency market. We intend to achieve this goal by pursuing the following strategies:

- ***Expand our manufacturing capacity to meet market demand.*** Demand for our aerogel products in 2010 grew by approximately 88% compared to 2009 and exceeded our manufacturing capacity. In response, we constructed a second production line in our East

Providence, Rhode Island, manufacturing facility designed to double our manufacturing capacity. To meet anticipated future growth in demand for our products, we are engaged in the design and engineering of a third production line at our East Providence facility and plan to construct a second manufacturing facility in the United States or Europe. We believe an expanded and geographically diversified manufacturing base will allow us to satisfy increasing demand for our products and to eliminate the risk associated with single site operations.

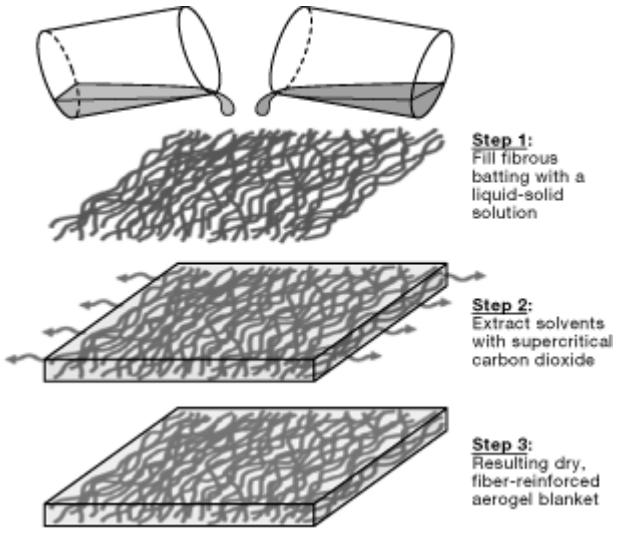
- ***Increase industrial insulation market penetration.*** We plan to focus additional resources to achieve a greater share of the industrial insulation market, both through increased sales to our existing customers and sales to new customers. We are promoting greater enterprise-wide utilization of our products by existing end-use customers. We believe the validation of our products by these technically sophisticated customers helps shorten the sales cycle with new customers and facilitates market penetration. In addition, we anticipate that our growing maintenance-based business will lead to increasing sales of our products into large capital projects, including the construction of new refineries and petrochemical facilities in emerging markets.
- ***Leverage strategic relationships in the building and construction market.*** We believe the building and construction market represents our largest target market opportunity and is in the midst of a transformation that is increasing demand for high-performance, energy-efficient insulation systems. We have partnered with BASF Construction Chemicals to penetrate the market for energy efficient wall systems. We are pursuing additional market opportunities with other leading building materials manufacturers and distributors across multiple regions to address the increasingly stringent regulatory environment governing the thermal performance of buildings. We believe this approach will enable us to leverage their broad technical and distribution capabilities and facilitate market penetration.
- ***Expand our sales force, network of distributors and OEM channels.*** We plan to expand our sales force and distribution network to support growth in the industrial and building and construction markets. We have identified distributors with proven records of success serving important customers and intend to make selected additions to our existing global distribution network. We also intend to expand our network of OEM fabricators to pursue opportunities in the transportation, appliance and apparel markets. We believe that a strong, global and diverse network of distributors and OEMs will support our goal to expand and further penetrate the global markets for our products.
- ***Continue to develop advanced aerogel compositions, applications and manufacturing technologies.*** We believe that we are well positioned to leverage a decade's worth of research and development to commercialize new products, applications and advanced manufacturing technologies. While we have not formalized our intellectual property rights to all of these potential new products, applications and advanced manufacturing technologies, we have already obtained patents for a number of these technologies in the United States and abroad. We also maintain a significant portfolio of trade secrets and know-how in areas of gel compositions, aerogel manufacturing and process scalability. Examples of new technologies under development include:
  - Refractory aerogel insulation compositions for use in applications with temperatures as high as 1649℃ including advanced aerospace thermal protect ion, high temperature furnaces and boilers and single crystal silicon manufacture.
  - Ultra-low dielectric aerogel films that are mechanically robust and can be readily integrated into electronic devices including circuit boards, cables, connectors and discrete components.
  - Aerogel solid sorbents that reversibly capture carbon dioxide for future use in the power industry.

- Highly durable and flexible aerogel composite insulation for use in tents, outerwear and safety gear.
- Advanced gel compositions designed to enable aerogels to be processed rapidly and at ultra-high volumes.
- Aerogel materials suitable for gas, liquid and solid filtration and separation.
- Electrically conductive aerogels suitable for power storage applications.

We intend to increase personnel, funding and capital equipment devoted to the research, development and protection of intellectual property associated with new and advanced technologies. We will also continue to seek opportunities to leverage new and advanced technologies into broad commercial opportunities.

Our Products

Our aerogels consist of a complex structure of intertwined clusters of very fine, lightweight, amorphous silica solids that comprise 3% of the material by volume. The remaining volume of the aerogel material is composed of air contained in nanopores. Aerogels are a very low density solid and are usually extremely fragile materials. However, our manufacturing processes produce aerogels in a flexible, resilient, durable and easy-to-use blanket form.



The core raw material in the production of our aerogel products is a silica-rich stream of ethanol. Our manufacturing process initially creates a semi-solid alcogel in which the nanopore structure is filled with ethanol. We produce aerogel by means of a supercritical extraction process that removes ethanol from the gel and replaces it with air. Our process allows the liquid ethanol to be extracted without causing the solid matrix in the gel to collapse from capillary forces.

The nanoporous structure of our aerogel products minimizes the three mechanisms of thermal transport:

- ***Convection.*** Heat convection through the gas in nanoporous structures is confined. The mean free path, or average distance traveled, of gas molecules in aerogels is significantly reduced. As a result, thermal convection is severely restricted.
- ***Conduction.*** Heat conduction is correlated to material density. Aerogels are very low density solids. As a result, thermal conductivity is extremely low.

- ***Radiation.*** Radiation requires no medium to transfer heat. Thermal radiation is partially absorbed by aerogels. Our aerogel products also contain infrared absorbing additives to significantly reduce radiant heat transfer.

We believe our aerogel products offer the lowest levels of thermal conductivity, or best insulating performance, of any widely used insulation available on the market today. Our aerogel blankets are reinforced with non-woven fiber batting. We manufacture and sell our blankets in 60 inch wide, three foot diameter rolls with a range of thickness of 2 millimeters to 10 millimeters. Our base products are all flexible, hydrophobic yet breathable, compression resistant and able to be cut with conventional cutting tools. We have specifically developed our line of aerogel blankets to meet the requirements of a broad set of applications within the industrial, building and construction and OEM markets. The composition and attributes of our aerogel blankets are as described below:

Industrial

- ***Pyrogel XT.*** Pyrogel XT, our best selling product, is reinforced with a glass-fiber batting and has an upper use temperature of 650 ^{o} C. Pyrogel XT was initially designed for use in high temperature systems in refineries and petrochemical facilities, and we believe that it has wide applicability throughout the industrial market, including the power generation and district heating sectors. Pyrogel XT's hydrophobicity and vapor permeability reduce the risk of corrosion under insulation in high temperature operating systems when compared to traditional insulation.
- ***Pyrogel XTF.*** Pyrogel XTF is similar in thermal performance to Pyrogel XT, but is reinforced with a glass- and silica-fiber batting. Pyrogel XTF is specially formulated to provide strong protection against fire.
- ***Cryogel Z.*** Cryogel Z is designed for sub-ambient and cryogenic applications in the industrial market. Cryogel Z is reinforced with a glass- and polyester-fiber batting and is produced with an integral vapor barrier. Cryogel Z is also specially formulated to minimize the incidence of stress corrosion cracking in stainless steel systems. We believe that Cryogel Z's combination of properties allow for simplified designs and reduced installation costs in cold applications throughout the industrial market when compared to traditional insulation.
- ***Spaceloft Subsea.*** Spaceloft Subsea is reinforced with glass- and polyester-fiber batting and is designed for use in pipe-in-pipe applications in offshore oil production. Spaceloft Subsea can be fabricated and pre-packaged to permit faster installation. Spaceloft Subsea allows for small profile carrier pipelines and associated reductions in capital costs.

Building and Construction

- ***Spaceloft.*** Spaceloft is reinforced with a glass- and polyester-fiber batting and is designed for use in the building and construction market. Spaceloft is either utilized in roll form by contractors in the field or fabricated by OEMs into strips, panels and systems that meet industry standards. Spaceloft is designed for use in solid wall buildings and where space is at a premium.
- ***Spaceloft A2.*** Spaceloft A2 is reinforced with a glass-fiber batting and specifically designed to meet Euroclass A2 standards for fire properties of building and construction products. Spaceloft A2 was developed under a joint development agreement with BASF Construction Chemicals. Spaceloft A2 is designed for use in systems subject to European fire performance standards, including hospitals, schools, warehouses, factories, shopping centers and commercial buildings over 15 meters high.

OEM

- ***Pyrogel 2250.*** Pyrogel 2250 is reinforced with carbon-fiber batting and has an upper use temperature of 200 ºC. Pyrogel 2250 is our thinnest and our highest tensile strength product. Pyrogel 2250 is designed for use in applications where space is limited. Pyrogel 2250 is targeted to OEMs that design, produce and sell hot appliances, automotive systems and electronic components.
- ***Pyrogel 6650.*** Pyrogel 6650 is reinforced with silica-fiber batting and has an upper use temperature of 650 ºC. Pyrogel 6650 is our lowest-density product and is designed for use in applications where weight is critical. Pyrogel 6650 is targeted to OEMs that design, produce and sell aerospace systems and components.
- ***Cryogel X201.*** Cryogel X201 is similar in composition to Cryogel Z, but is produced without a vapor barrier. Cryogel X201 is designed for use in cold system designs where space is at a premium. Cryogel X201 is targeted to OEMs that design, produce and sell refrigerated appliances, cold storage equipment and aerospace systems.

The attributes of our aerogel blankets are as summarized in the following table:

Product	Nominal Thickness		Thermal Conductivity		Density		Maximum Use Temperature		Applications	Markets
	mm	in	mW/m-K	Btu-in/hr-ft²-℉	g/cc	lb/ft³	℃	℉		
Pyrogel XT	5.0 10.0	0.20 0.40	21.0	0.146	0.18	11.0	650°	1200°	High temperature steam pipes, vessels and equipment, and aerospace and defense systems	Industrial
Pyrogel XTF	10.0	0.40	21.0	0.146	0.18	11.0	650°	1200°	High temperature steam pipes, vessels and equipment, aerospace and defense systems, fire barriers and welding blankets	Industrial
Cryogel Z	5.0 10.0	0.20 0.40	15.0	0.104	0.13	8.0	90°	194°	Sub-ambient and cryogenic pipelines, vessels and equipment	Industrial
Spaceloft Subsea	5.0	0.20	13.9	0.096	0.13	8.0	200°	390°	Medium to high temperature offshore oil pipelines	Industrial
Spaceloft	5.0 10.0	0.20 0.40	14.0	0.097	0.15	9.4	200°	390°	Ambient temperature walls, floors and roofs in commercial, residential and institutional buildings	Building and Construction
Spaceloft A2	10.0	0.40	18.0	0.125	0.18	11.0	200°	390°	Ambient temperature walls, floors and roofs in commercial, residential and institutional buildings; Euroclass A2 Fire Rated	Building and Construction
Pyrogel 2250	2.0	0.08	15.5	0.107	0.17	10.7	200°	390°	Medium to high temperature appliances, transportation and electronics	OEM
Pyrogel 6650	6.0	0.24	14.0	0.097	0.12	7.5	650°	1200°	High temperature aerospace and defense systems	OEM
Cryogel x201	5.0 10.0	0.20 0.40	15.0	0.104	0.13	8.0	200°	390°	Sub-ambient including refrigerated appliances, cold storage and aerospace	OEM

Traditional and specialty insulation materials provide a range of R-values. The following table provides the R-value per meter of thickness:

R-Values by Material

Material	Form	R-Value per meter of thickness From	To
Aerogel	Blankets, Beads	66	100
Cellulose	Loose Fill	22	26
Expanded Clay	Loose Fill	4	4
Expanded Polystyrene (EPS)	Boardstock	26	31
Extruded Polystyrene (XPS)	Boardstock	35	40
Fiberglass	Blankets	22	28
Fiberglass	Loose Fill	20	20
Fiberglass	Pipe Covering	25	25
Foamed Glass	Boardstock	21	21
Mineral Wool	Blankets	22	26
Mineral Wool	Loose Fill	17	17
Mineral Wool	Pipe Covering	19	26
Perlite	Pipe Covering	17	17
Perlite	Loose Fill	17	21
Perlite	Board	17	19
Polyurethane	Spray On	44	44
Polyurethane	Rigid board	44	44
Polyisocyanurate	Rigid board	45	50
Vermiculite	Loose Fill	17	26

Sales and Marketing

We market and sell our products primarily through a direct sales force. Our salespeople are based in North America, Europe and Asia and travel extensively to market and sell to new and existing customers. The efforts of our sales force are supported by a small number of sales consultants with extensive knowledge of a particular market or region. Our sales force is required to establish and maintain customer and partner relationships, to deliver highly technical information and to provide first class customer service. We have plans to expand our sales force globally to support anticipated growth in customers and demand for our products.

Our sales force calls on and maintains relationships with all participants in the insulation industry supply chain. Our salespeople have established and manage a network of insulation distributors to ensure rapid delivery of our products in critical regions. Our salespeople work to educate insulation contractors about the technical and operating cost advantages of aerogel blankets. Our sales force works with end users to promote qualification and acceptance of our products. In addition, our salespeople work with OEMs and development partners to create new products and solutions to open new markets.

In the industrial market, we rely heavily on the existing and well-established channel of distributors and contractors to distribute products to our customers. In the building and construction market, we believe that our relationships with leading building materials manufacturers with established distribution networks are a critical requirement to our penetration of the market on a cost effective basis. In the transportation, appliance and apparel markets, our current plan is to rely on the efforts of OEMs to develop opportunities within and provide access to the markets.

The sales cycle for a new insulation material is typically lengthy. Our sales cycle from initial customer trials to widespread use can take from three to five years, although we typically realize increasing revenue at each stage in the cycle. Our relationships with technically sophisticated customers serve to validate our technology, products and value proposition within a target market. These relationships have proven to shorten the sales cycle with other customers within specific market segments and to facilitate market penetration.

We have focused our marketing efforts on developing technical support materials, installation guides, case studies and general awareness of the superior performance of our aerogel blankets. We rely on our website, printed technical materials, participation in industry conferences and tradeshows and presentation of technical papers to communicate our message to potential customers. We also receive strong word-of-mouth support from the growing network of distributors, contractors, OEMs and end users that understand the benefits of our products.

As of May 31, 2011, we had 17 employees in our sales and marketing organization worldwide. Their efforts were supported by a team of eight sales consultants.

Customers, Development Relationships and End Users

As described below, our primary customers are distributors, contractors and OEMs that stock, install and fabricate insulation products, components and systems for technically sophisticated end users that require high-performance insulation.

- ***Distributors:*** We are currently operating under agreements with a network of over 40 insulation distributors serving industrial and building and construction markets across the globe. The agreements generally provide for exclusivity by geography linked to annual purchase volume minimums. In general, insulation distributors stock, sell and distribute aerogel materials to insulation contractors and end users. Outside of North America, insulation distributors often will also proactively market and promote aerogel materials across all markets. During 2010, our most significant distributors by revenue were Thorpe Products and Distribution International in the United States, Aerogel Korea Co, Ltd. in Asia, Aktarus Group in Europe and Burnaby Insulation in Canada.
- ***Contractors:*** We currently sell directly to a number of insulation contractors under multi-year agreements and under project specific contracts. Insulation contractors generally perform insulation installation, inspection and maintenance and project management for end users. In addition, some insulation contractors provide end users with project engineering and design services. Several of our agreements with contractors provide for exclusivity by market sector or geography linked to annual purchase volume minimums. During 2010, our significant contractor customers included Technip and Saint-Gobain Wanner.
- ***OEMs:*** We currently sell directly to more than ten OEMs that design, fabricate and manufacture insulation components and systems for use in the industrial, building and construction, transportation, appliance and apparel markets. During 2010, our most significant OEM customers ranked by revenue were Enershield, A. Proctor Group and Shenzhen Naneng Technology Co., Ltd. Enershield manufactures and sells pre-insulated pipes for use in the Canadian oil sands, A. Proctor Group fabricates and sells aerogel insulated wall board in the U.K. market, and Shenzhen Naneng Technology Co., Ltd. supplies insulation systems for use in China's national high speed railway.

Our development partners are some of the most technically sophisticated companies in our target markets. These relationships have allowed us to seek to optimize our products to meet the particular demands of targeted market sectors. In the industrial market, we have benefited from our relationship with ExxonMobil in the oil refinery and petrochemical sector, with Technip in the offshore oil sector and with NextEra Energy in the power generation sector. In the building and construction market, we have a joint development agreement with BASF Construction Chemicals to develop

products to meet increasingly stringent building standards requiring improved thermal performance of retrofit and new-build wall systems. We are also engaged in developmental relationships in Europe and North America with other leading building materials manufacturers to target a variety of applications within the broader building and construction market. We also rely on a small number of OEM partners to develop opportunities in the transportation, appliance and apparel markets.

As described below, the end users of our aerogel blankets range from individual homeowners to some of the largest and most well capitalized companies in the world:

Industrial

- ***Oil Refinery and Petrochemical:*** Our aerogel blankets are in use at ExxonMobil, Citgo, Chevron, BP, Valero, PPG Industries, PEMEX, Petrobras, ConocoPhillips, Shell, Lyondell, China National Petroleum, Tupras, Ecopetrol and Kuwaiti National Petroleum Group, among others. Over time, these companies have used our products in an increasing range of applications and throughout an increasing number of their industrial facilities.
- ***LNG Production and Storage:*** Our products are in use in LNG facilities including Gate Import Terminal in the Netherlands, Canaport LNG in Canada and Golden Pass LNG in the United States, among others. These facilities are owned and operated by Qatar Petroleum, ExxonMobil, ConocoPhillips, Repsol, Irving Oil, Gasunie and Vopak, among others.
- ***Oil Production:*** Our aerogel blankets are in use in several Canadian oil sands facilities owned and operated by Suncor Energy. In the offshore oil sector, our products are currently used off the coast of Brazil, in the Gulf of Mexico, in the North Sea and off the west coast of Africa in projects operated by ExxonMobil, Total, BP and Statoil, among others.
- ***Power Generation:*** We are targeting operators of gas, coal, nuclear, hydro and solar power generating facilities. We are working with NextEra Energy to optimize our product and approach to the power generation sectors. Our products are currently in use at facilities owned or operated by NextEra Energy, American Electric Power, NRG Energy, Luminant Energy, Nova Scotia Power and Xcel Energy, among others.
- ***Other Industrial:*** Our network of distributors and contractors provides access to additional sectors within the industrial market. Our aerogel blankets are in use in district heating systems owned by Brown University, Massachusetts Institute of Technology, University of Minnesota, The City of Baltimore and the Intercontinental Hotel, Miami. We also have products in use at an Archer Daniels Midland corn processing plant and at a paper mill owned by Tullis Russell Group.

Building and Construction

- ***Building and Construction:*** We are targeting leading building products manufacturers with established distribution channels to facilitate penetration of the building and construction market. We have partnered with BASF Construction Chemicals to jointly develop technologically advanced solutions for improved energy efficiency, particularly for the building envelope. In addition, our products have been sold and installed in several hundred residential and commercial new-build and retrofit building projects through the efforts of our network of distributors and OEMs and by means of U.S. federal, state and local sponsored projects. We have products in use today in properties owned or supported by agencies of U.S. federal, state and local governments, private and public schools and universities, hospitals, housing associations, businesses and individuals.

OEM

- ***Other Markets:*** We rely on the efforts of a small network of OEMs and fabrication houses to target opportunities in the transportation, apparel and appliance markets. Our OEMs are

manufacturers of components and systems for refrigerated and hot appliances, cold storage equipment, automobiles, aircraft, trains and electronic sectors and manufacturers of outdoor gear and apparel. While our products have not yet been widely adopted in these markets, we expect that the end users of our products in these markets will include a wide range of government agencies, institutions, businesses and individuals. We currently have products in use in China's national high-speed railway, commercial ovens, transport ships, helicopters, motorcycles, hunting and hiking boots, sleeping pads and insulated water bottles.

Customer Case Studies

The following case studies illustrate how our customers and end users benefit from our industry leading thermal performance and unique set of performance attributes:

- ***Petrobras,*** a global integrated energy company, needed to replace deteriorating calcium silicate thermal insulation on its REGAP NAPHTHA hydrodesulfurization and treatment unit. Prior to the replacement, the unit was insulated with a combination of calcium silicate for thermal protection and a cementitious surface application for fire protection. However, continued water ingress had deteriorated the calcium silicate over five years of operation. Petrobras chose to replace this insulation with Pyrogel XTF for the project, which offers improved thermal performance and reduced thickness, UL 1709 compliant passive fire protection, hydrophobic properties that prevent water ingress, and rapid installation. As a result of the choice to use Pyrogel XTF, the refurbishment was accomplished with a single insulation product with reduced installation time, which helped reduce disruption at the facility.
- ***Brown University,*** a private, Ivy League university in the Northeast, wanted to replace existing fiberglass insulation damaged by moisture that surrounded high-pressure hot water and chilled water lines running throughout its campus. Due to tight spaces and limited access in the underground tunnels where the pipes are housed, the contractor specified Cryogel Z for chilled water lines and Pyrogel XT for hot water lines. The aerogel blankets met thermal performance and corrosion prevention requirements and offered easier installation than bulkier insulation on pipes of all sizes. Additionally, the aerogel blankets reduced insulation volume in comparison to alternative insulation material considered for the project, which improved clearances in the tunnel pipe racks. The contractor has informed us that the aerogel blankets reduced total project costs by 16% in comparison to incumbent materials.
- ***NextEra Energy,*** a leading U.S.-based power company, has installed Pyrogel XT at four existing fossil fuel-fired power plants, for distinct applications. NextEra Energy determined that Pyrogel XT's thermal efficiency was superior to competing insulations and its hydrophobicity and vapor permeability would help to prevent corrosion under insulation. Due to Pyrogel XT's flexible form factor, NextEra Energy achieved accelerated installation times that it determined would result in net cost savings over time versus traditional materials. In May 2011, NextEra Energy placed a significant order for Pyrogel XT material, for use at a new 250 megawatt solar thermal power plant to be located in Riverside County, California, with product delivery planned for 2012 and 2013.
- ***Brock Services Ltd.,*** a leading insulation contractor in the United States, was hired to replace perlite insulation and associated jacketing on an overhead accumulator drum at a U.S.-based manufacturing facility. Upon removal of the existing insulation, Brock uncovered heavy corrosion of the drum and recommended Pyrogel XT as the preferred alternative due to its hydrophobicity and vapor permeability. Brock informed us that it was impressed by the 75% reduction in material, reduced weight and ease of installation associated with the aerogel blankets. Brock also informed us that Pyrogel XT was more durable and reduced waste and breakage on the job site. Brock estimated that use of the aerogel material reduced total installed costs by 12% in comparison to the traditional material.

- ***Framingham Housing Authority,*** in cooperation with the Massachusetts Department of Housing & Community Development, renovated and re-insulated a 110-unit low income housing development in Framingham, Massachusetts. The renovation was a semi-gut rehabilitation that consisted of retrofitting the insulation to the existing building walls and adding insulation to the crawl spaces. Insulating the existing building walls with traditional insulation materials was problematic due to the limited space under a new cement plank siding. Spaceloft's combination of high thermal performance and compact design allowed our insulation materials to be successfully installed in all 110 housing units.

Manufacturing

We manufacture our products using our proprietary, high-volume process technology at our facility located in East Providence, Rhode Island. We have operated the East Providence facility continuously since mid-2008. Our manufacturing process is proven and has been replicated to help meet increasing demand.

Our manufacturing group is led by a seasoned team with management experience at global industrial and specialty chemical companies. Our manufacturing workforce is experienced and, to date, we have experienced low employee turnover. We have well-defined maintenance and environmental, health and safety programs and operating processes in place. We utilize statistical process and quality controls to measure the thermal conductivity, hydrophobicity and thickness of our aerogel blankets during the manufacturing process. We are ISO 9000:2000 certified.

We price our product and measure our product shipments in square feet. Annual capacity is a function of product mix. Our original line in East Providence has operated continuously since mid-2008. Through March 31, 2011, we have produced and sold in excess of 38 million square feet of aerogel blankets. With the recent addition of our second production line, we estimate that our annual manufacturing capacity will range between 40 to 44 million square feet of aerogel blankets by the end of 2011, depending principally upon the mix of products produced.

We directly control all stages in the manufacture of our aerogel blankets. Our direct ownership of manufacturing operations allows us to maintain control of proprietary process technologies and to control product quality. Our production of aerogel blankets utilizes a continuous batch process and consists of the following key steps:

- ***Sol Preparation.*** Mixing of a silica precursor in ethanol, a catalyst and additives in set formulas to deliver the target properties of the resultant aerogel.
- ***Casting.*** Application of the sol into a non-woven batting and initial formation of the gel structure.
- ***Aging.*** Bathing of the gel-saturated blankets in fluids to impart desired physical and thermal properties.
- ***Extraction.*** Supercritcal extraction of the ethanol liquid from the gel-saturated blanket to produce an aerogel blanket.
- ***Heat Treatment.*** Drying to remove trace ethanol, ammonia salts and water from the aerogel blankets.
- ***Quality Control.*** Utilizing statistical process and quality controls to measure thermal conductivity, hydrophobicity and thickness of our aerogel blankets.

Raw materials represent a significant portion of our final product cost. The raw materials for our products include a silica-rich stream of ethanol, batting materials and CO_2. Multiple sources of supply exist for all of our raw materials, and we believe the markets for these products are highly competitive and prices are relatively stable.

We are seeking to lower our manufacturing costs and to improve the per square foot costs of our aerogel blankets by optimizing our chemistries and manufacturing processes to improve yields, by obtaining raw material price reductions from existing vendors, by qualifying new vendors for certain raw materials, and by optimizing shipping costs. Our objective is both to reduce costs to enhance our competitive advantage and to ensure we deliver high quality finished products.

We plan to expand our aerogel blanket production capacity by adding a third production line to our East Providence facility and to establish a second facility in the United States or Europe. We intend to utilize current processes and equipment in the design and construction of our third production line and our second facility. We are currently engaged in a process to identify optimal sites for our second facility. Considerations will include proximity to raw material suppliers, proximity to customers, labor and construction costs and the availability of governmental incentives.

Research and Development

The mission of our research and development organization is to provide new innovation and products in support of our commercial objectives. Our scientists and engineers work closely with customers to study and assess insulation application requirements and guide advancements in aerogel materials and manufacturing. The scope and focus of our research and development activities include:

- ***Research:*** Our research scientists and process engineers explore the chemistry and process technologies of aerogel materials to enhance product performance in response to needs for high temperature thermal stability, high compression strength, low density, low thermal conductivity at low, ambient and high temperatures, high resilience and flexibility and resistance to environmental elements. Our research scientists are investigating aerogel compositions beyond the fiber reinforced silicate aerogel materials which are the backbone of current products. Carbon, ceramic, rubber and hybrid aerogels are all topics of study. A range of form factors are under exploration, including flexible sheets, monoliths, beads and powders.
- ***Development:*** Our development team responds to customer needs for new and broader performance aerogel products. Our efforts to enhance the aerogel product line currently include new grades of flexible aerogel with higher temperature performance, compression resistance, flame and smoke resistance and improved low infrared signature properties.
- ***Analytical Services:*** We have invested in testing and characterization equipment for chemical, mechanical and thermal property measurements. The instrumentation allows in-house measurement of all key properties related to formulation and performance of aerogel products. The analytical laboratory is managed on a service basis with testing prioritized against commercial opportunities.
- ***Process Engineering:*** We maintain a range of pilot equipment that allows rapid examination of formulation and process variables at the research scale. This capability allows the study and continuous improvement of operating processes and provides the ability to produce a range of novel product forms.
- ***Program Management:*** We have a demonstrated record of success in winning and delivering upon government research programs. Research and development performed under contract to NASA, NSF, DARPA, U.S. Army, U.S. Navy, U.S. Air Force and the Department of Energy enables us to develop and leverage technologies into broader commercial applications.
- ***Business Development and Technology Transition:*** We work closely with customers in government and industry to develop potential aerogel solutions that leverage a wide range of attributes of aerogels. We have a long history and demonstrated capability of successfully transitioning technologies from the lab scale into full production.

We believe that we are well positioned to leverage a decade's worth of research and development activity to continue to commercialize new products, applications and advanced manufacturing technologies. We have already obtained patents for a number of these technologies in the United States and abroad. We also maintain a significant portfolio of trade secrets and know-how in areas of gel compositions, aerogel manufacturing and process scalability. As of May 31, 2011, we had 27 research and development employees located at our headquarters in Northborough, Massachusetts.

Contract Research and Government Support

We have a demonstrated record of pursuing and securing government support for our business:

- ***Contract Research.*** We regularly seek funding from a number of federal and non-federal government agencies in support our research and development and manufacturing activities. Research performed under contract to NASA, National Science Foundation, Defense Advanced Research Projects Agency, U.S. Army, U.S. Navy, U.S. Air Force and the Department of Energy allows us to develop and leverage technologies into broader commercial applications. We also work closely with customers in government and industry to develop potential aerogel solutions that leverage not only the thermal insulation performance but other benefits of aerogels as well. We have received $35.0 million in funding under contracts since inception and had a contract research backlog of $3.7 million and $4.9 million as of March 31, 2011 and March 31, 2010, respectively.
- ***Title III.*** Title III of the Defense Production Act was established to create, expand and maintain domestic capacity to produce materials needed for national defense. Title III has accelerated technology adoption by establishing competitive and reliable U.S. sources for key materials. We have received $16.8 million in awards under Title III to build our first production line in East Providence, Rhode Island, to expand effective production capacity, and to reduce manufacturing costs of high temperature aerogel blankets.
- ***Department of Energy Loan Guarantee:*** We have applied to the Department of Energy for a loan guarantee of up to $70.7 million under Section 1703 of Title XVII of the Energy Policy Act of 2005 to fund a portion of our anticipated construction costs of our second and third production lines in East Providence, Rhode Island and associated infrastructure. The Department of Energy is currently performing a detailed Phase II due diligence review of our business and financial condition to determine whether the capacity expansion project meets program, statutory and regulatory requirements. Our continued expansion of our East Providence facility is not dependent upon obtaining this guarantee. If awarded, we will assess the opportunity to obtain a loan guaranteed under this program.
- ***MassDevelopment:*** In January 2005, we executed a term loan with the Massachusetts Development Finance Agency for $1.5 million. The proceeds were used to build research and development lab space at our Northborough facility. The Massachusetts Development Finance Agency is a finance and development authority established to strengthen the Massachusetts economy.
- ***Rhode Island:*** Our East Providence facility is located in a Rhode Island Enterprise Zone. We are eligible for tax credits, credit guarantees and job training grants.

Intellectual Property

Our success depends in part upon our ability to obtain, maintain and protect intellectual property rights that cover our product forms, applications and/or manufacturing processes and specifications and the technology or know-how that enables these product forms, applications, processes and specifications, to avoid and defend against claims that we infringe the intellectual property rights of others, and to prevent the unauthorized use of our intellectual property. Since aerogels were developed approximately 80 years ago, there has been a wide range of research, development and publication on aerogels, which makes it difficult to establish intellectual property rights to many key

elements of aerogel technology and to obtain patent protection. Accordingly, much of the critical technology that we use in our manufacture of aerogel blankets is not protected by patents. Where we consider it appropriate, our policy is to seek to protect our proprietary rights by filing United States and foreign patent applications related to technology, inventions and improvements that are important to the development and conduct of our business and, in particular, our aerogel technology, product forms and their applications in promising markets and our manufacturing processes. We also rely on trade secrets, trademarks, licensing agreements, confidentiality and nondisclosure agreements and continuing technological innovation to safeguard our intellectual property rights and develop and maintain our competitive advantage.

As of May 31, 2011, we had 17 issued U.S. patents, 20 pending U.S. patent applications (including one U.S. patent that we co-own with a third party and one U.S. pending patent application that we co-own with another third party), 13 issued foreign patents and 34 pending foreign patent applications (including one European patent and a family of pending patent applications that we co-own with a third party). The patent strategy of companies such as ours is generally uncertain and involves complex legal and factual questions. Our ability to maintain and solidify both our proprietary and our licensed technology will depend in part upon our success in obtaining patent rights and enforcing those rights once granted or licensed. We do not know whether any of our patent applications or those patent applications that we license from others will result in the issuance of any patents. Our issued patents and those that may issue in the future, or those licensed to us, may be challenged, invalidated, rendered unenforceable or circumvented, which could limit our ability to prevent competitors from marketing similar or related products, or shorten the term of patent protection that we may have for our products, processes and enabling technologies. In addition, the rights granted under any issued patents may not provide us with competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies or duplicate technology developed by us or may possess intellectual property rights that could limit our ability to manufacture our products and operate our business, particularly given the long history of the development of aerogel technology. Because of the extensive time required for research, development and testing of a potential product, it is possible that, before a product under development can be commercialized, any related patent, whether owned by us or licensed to us, may expire or remain in force for only a short period of time following commercialization, thereby substantially reducing or eliminating any advantage of the patent.

We also rely on trade secret protection for our confidential and proprietary information. However, trade secrets can be difficult to protect. We may not be able to maintain our technology or know-how as trade secrets, and competitors may develop or acquire equally valuable or more valuable technology or know-how related to the manufacture of comparable aerogel products. We also seek to protect our confidential and proprietary information, in part, by requiring all employees and consultants to execute confidentiality and/or nondisclosure agreements upon the commencement of an employment or consulting arrangement with us. These agreements generally require that all confidential and proprietary information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements may be breached and may not provide adequate remedies in the event of breach. We also require our customers and vendors to execute confidentiality and/or nondisclosure agreements. However, we have not obtained such agreements from all of our customers and vendors. Moreover, some of our customers may be subject to laws and regulations that require them to disclose information that we would otherwise seek to keep confidential. In addition, our trade secrets may otherwise become known or be independently discovered by competitors, customers or vendors. To the extent that our employees, consultants, vendors or contractors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting technologies, know-how or inventions.

We also believe that having distinctive names may be an important factor in marketing our products, and therefore we use trademarks to brand some of our products, including PYROGEL,

CRYOGEL and SPACELOFT. As of May 31, 2011, we had five trademark registrations in the United States, four trademark registrations in the European Union and three trademark registrations in Japan. We have 29 trademark applications pending in foreign jurisdictions, including China and Brazil. Although we have a foreign trademark registration program for selected marks, we may not be able to register or use such marks in each foreign country in which we seek registration.

We also regularly seek funding from a number of federal and non-federal government agencies in support of our research and development and manufacturing activities. The research and development activities that we conduct under such contracts may produce intellectual property to which we may not have ownership or exclusive rights and will be unable to protect or monetize.

Cross License Agreement with Cabot Corporation

In April 2006, we entered into a cross license agreement with Cabot Corporation, or Cabot, which was amended in September 2007. Under the terms of the cross license agreement, each party has granted certain intellectual property rights to the other. We hold a non-exclusive, worldwide license to practice certain of Cabot's intellectual property within a specified field of use. We have granted to Cabot a similar non-exclusive, worldwide license to practice certain of our intellectual property within a specified field of use. In exchange for access to certain of Cabot's intellectual property, we are obligated to make an aggregate payment to Cabot of $38 million payable in quarterly installments over a seven-year period ending no later than December 2013. As of March 31, 2011, $16.5 million remains due to Cabot under the cross license agreement. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Contractual Obligations and Commitments — Cross License Agreement." Upon payment to Cabot of the full consideration due under the cross license agreement, we will retain a non-exclusive, worldwide license to any and all existing Cabot intellectual property licensed under the agreement until the expiration of the last-to-expire of Cabot's licensed patents.

Competition

We operate in a highly competitive environment. In general, competition in our markets is between various types of insulation materials based on product quality, price and performance. Customers may choose among a variety of standard insulation materials that offer a range of characteristics including thermal performance, durability, vapor permeability, moisture resistance, ease of installation and upfront and lifecycle costs. Within each type of insulation material, there is also competition between the manufacturers of that material. Most types of insulation materials are produced by a number of different manufactures and once customers have chosen the type of insulation material that they intend to use, they will choose a manufacturer of that material based primarily on each manufacturer's price and delivery schedule. Insulation manufacturers include a range of large, high-volume, multinational manufacturers offering branded products and strong technical support services to small, low-volume, local manufacturers offering low prices and limited customer support.

We believe the primary competitive factors in our market are:

- product performance and fitness for purpose;
- product price, installed cost and lifecycle cost;
- product availability; and
- proximity to customer and logistics.

According to The Freedonia Group, industry leading manufacturers for each of the principal industry materials include:

- ***Foamed Plastics.*** Armacell, BASF, Bayer, CRH, Dow Chemical, Huntsman, Johns Manville, Kingspan, Knauf Gips, Owens Corning, Recticel and Saint-Gobain.

- ***Fiberglass.*** Johns Manville, Knauf Gips, Owens Corning, Saint-Gobain and Uralita.
- ***Mineral Wool.*** Rockwool, Beijing New Building Materials, CSR, Johns Manville, KCC, Knauf Gips, Nichias, Paroc Group, Saint-Gobain and TechnoNICOL.
- ***Aerogels.*** Aspen Aerogels and Cabot.
- ***Other.*** Pittsburgh Corning for foam glass insulation; manufacturers of calcium silicate, perlite and vermiculite tend to be limited to medium- and small-sized, regional suppliers.

Within each of our target markets, we encounter these organizations and a significant number of other aggressive national, regional and local suppliers. Our competitors are both seeking to enhance traditional insulation materials and develop and introduce new and emerging insulation technologies. Competing technologies that outperform our insulation in one or more performance attributes could be developed and successfully introduced. We are also aware of certain companies that are developing products using aerogel technology similar to our technology and these or other companies could introduce aerogel products that compete directly with our products and outperform them in one or more performance attributes.

Many of our competitors have greater market presence, longer operating histories, stronger name recognition, larger customer bases and significantly greater financial, technical, sales and marketing, manufacturing and other resources than we have and may be better able to withstand volatility within the industry and throughout the economy as a whole while retaining greater operating and financial flexibility. If our competitors lower their prices, develop new products or if we are unable to compete effectively, our growth opportunities, share of the market, margins and profitability may decline.

In addition, our sales in the building and construction market in Europe are driven substantially by EU and EU member state policies and legislation that mandate high levels of energy efficiency in buildings. The European Union's directive on the energy performance of buildings, Directive 2010/31/EU, or EPBD, significantly expands the scope of the original EU directive on building energy performance adopted in 2002, Directive 2002/91/EC, by requiring all new buildings as well as most major renovations to achieve minimum energy performance requirements. National legislation implementing the minimum energy performance requirements under the EPBD must be effective by July 2013. In addition, a number of EU member states provide various forms of incentives for consumers to improve the energy efficiency of their homes, including in certain EU member states tax credits, low-interest loans or grants. While we believe the policies established under the EPBD and by various EU member states offer a significant opportunity for our products in the European building and construction market, this opportunity is largely dependent on faithful implementation of the directive by EU member states. Many EU member states have been revising their national building requirements to comply with the original 2002 directive since its adoption and continue to do so in response to the EPBD, but levels of implementation and the specific national requirements have varied substantially from country to country. Full implementation of the EPBD by any or all of the EU member states may not occur.

Insulation Materials

The insulation materials that are currently most widely in use in the industrial, building and construction, transportation, appliance and apparel markets include:

- ***Foamed Plastics.*** Foamed plastics are the most prevalent form of insulation material in the world and are used broadly in the appliance, transportation, industrial and building and construction markets. Foamed plastic insulation is made from inexpensive raw materials and is a cost-effective solution for many end users. Foamed plastics provide some of the characteristics of solid insulation and are available in a wide variety of form factors. However, foamed plastics are generally not fire resistant.
- ***Fiberglass.*** Fiberglass is used primarily in building and construction and transportation markets in North America. Fiberglass insulation is made of fine fibers of glass and is typically

adhered with a chemical binder to a batt form. Fiberglass will not burn, but will melt under intensive heat. Fiberglass is inexpensive, easy to install, can be cut very easily and is primarily used to fill cavity spaces in building and construction applications.

- ***Mineral Wool.*** Mineral wool is commonly used for insulation and fire protection in the building and construction market and in high temperature applications in the industrial market. The two different types of mineral wool are rock wool, which is produced from natural minerals, and slag wool, which is produced from iron ore blast furnace slag. Mineral wool is inexpensive, performs well at high temperatures, and meets fire safety standards in the building and construction market, primarily in Europe.
- ***Specialty Materials.*** Other insulation materials are typically used in specialty applications. Generally, these insulations are either inexpensive, low performance materials or expensive, high-performance materials. Perlite and vermiculite are low performance materials used generally as lightweight, noncombustible insulation. Calcium silicate is a high-performance alternative that can be molded for retrofit industrial applications and can withstand high temperatures. Foamed glass is a high-performance, closed cell, lightweight material that is used in industrial applications where chemical absorption is an issue. Vacuum insulated panels are a relatively new product that provides excellent thermal performance.

Foamed plastics, fiberglass and mineral wool materials account for more than 96% of worldwide insulation demand. The remaining 4% of the market is comprised of specialty materials including aerogels, perlite, calcium silicate, foamed glass and vacuum insulated panels.

Employees

Our success depends, in part, on our employees employed at our facilities, particularly during peak production periods. As of May 31, 2011, we had 157 full-time employees with 27 in research and development, 97 in manufacturing operations and supply chain, 17 in sales and marketing and 16 in general and administrative functions. Of our employees, 153 are located in the United States and four are abroad. We consider our current relationship with our employees to be good. None of our employees are represented by labor unions or have collective bargaining agreements.

Legal Proceedings

In the ordinary course of our business we may be party to various legal proceedings, including but not limited to those brought by our current or former employees, customers, suppliers and competitors, the outcome of which cannot be predicted with certainty. We are not involved in any legal proceedings that are expected to have a material adverse effect on our business, results of operations or financial condition. To the knowledge of our management, no legal proceedings of a material nature involving us are pending or threatened by any individuals, entities or governmental authorities.

Facilities

Our corporate headquarters are located in Northborough, Massachusetts, where we occupy approximately 83,000 square feet under a lease expiring on December 31, 2013. We also own an approximately 143,000 square foot manufacturing facility in East Providence, Rhode Island. In February 2011, we entered into a lease for an additional 24,000 square foot facility in East Providence, Rhode Island, which lease expires on February 29, 2016. We intend to build a third production line in our current manufacturing facility in East Providence and to construct a second manufacturing facility located in either the United States or Europe. We believe that our facilities are adequate to meet our current needs, although if additional space is needed in the future, we believe that such space will be available on commercially reasonable terms.

MANAGEMENT

Executive Officers and Directors

Our executive officers and directors and their respective ages and positions as of June 20, 2011 are as follows:

Name	Age	Position
Executive Officers		
Donald R. Young	54	President, Chief Executive Officer and Director
John F. Fairbanks	50	Chief Financial Officer, Vice President and Treasurer
George L. Gould, Ph.D.	48	Vice President, Research and Development
Christopher L. Marlette	42	Vice President, Engineering and Design
Kevin A. Schmidt	45	Vice President, Operations
Harry R. Walkoff	50	Vice President, Sales and Marketing
Non-Employee Directors		
P. Ramsay Battin	40	Director [2]
Robert M. Gervis	51	Director [3]
Craig A. Huff	46	Director
Steven R. Mitchell	41	Director [3]
Mark L. Noetzel	54	Chairman of the Board [1]
William P. Noglows	53	Director [2]
David J. Prend	53	Director [2]
Richard F. Reilly	63	Director [1][3]

[1] Member of audit committee.

[2] Member of compensation and leadership development committee.

[3] Member of nominating and corporate governance committee.

Donald R. Young has been our President, Chief Executive Officer and a member of our board of directors since November 2001. Prior to joining us, Mr. Young served as Chief Executive Officer of HighWired, a leading venture capital backed software and e-learning company. Prior to that, Mr. Young worked in the United States and abroad in a broad range of senior operating roles for Cabot Corporation, a leading global specialty chemical company. Prior to Cabot Corporation, Mr. Young worked in the investment business at Fidelity Management & Research. Mr. Young holds a BA from Harvard College and an MBA from Harvard Business School. We believe that Mr. Young possesses specific attributes that qualify him to serve as a member of our board of directors, including the perspective and experience he brings as our Chief Executive Officer, which brings historic knowledge, operational expertise and continuity to our Board of Directors.

John F. Fairbanks has been our Vice President, Chief Financial Officer and Treasurer since October 2006. Prior to joining us, Mr. Fairbanks was a Senior Vice President of New England Business Service, Inc., or NEBS, and served as treasurer, chief financial officer and in several senior operating roles for NEBS during his tenure. Immediately prior to joining NEBS, Mr. Fairbanks was vice president and treasurer of M/A-Com, Inc. Mr. Fairbanks holds a BA in Economics from Middlebury College and an MBA in Finance from the Wharton School at University of Pennsylvania.

Kevin A. Schmidt has been with us since June 2004 and has served as our Vice President, Operations since February 2007. From June 2004 to February 2007, Mr. Schmidt served as our Vice President, Manufacturing. Prior to joining us, Mr. Schmidt worked for the Dow Chemical Company as a plant and site leader on global business and operational teams. Mr. Schmidt holds a BS in Chemical Engineering from Pennsylvania State University.

Harry R. Walkoff has been our Vice President of Sales and Marketing since December 2006. Prior to joining us, Mr. Walkoff served as vice president of marketing for FOAMGLAS and Glass Block

products with Pittsburgh Corning Corporation. Mr. Walkoff holds a BS in Geophysical Engineering from Colorado School of Mines.

George L. Gould, Ph.D. has been with us since our inception in 2001 and has served as our Vice President, Research and Development since April 2011. Prior to this role, Dr. Gould served in a variety of positions with us, most recently as our Director, Research and Development from February 2009 to April 2011 and Director, Research from June 2005 to February 2009. Prior to joining us, Dr. Gould was employed by our predecessor, Aspen Systems. Prior to joining Aspen Systems, Dr. Gould was a chemistry professor at the University of Illinois at Chicago. Dr. Gould holds B.A. in Chemistry from the College of Wooster, a Ph.D. in Inorganic Chemistry from Yale University and carried out his post-doctoral training at Brookhaven National Laboratory.

Christopher L. Marlette has been with us since July 2004 and has served as our Vice President, Engineering and Design since April 2011. From February 2007 to April 2011, Mr. Marlette served as our Director, Manufacturing and Engineering, and prior to that, from July 2004 to February 2007, he served as our Director, Plant Engineering and Maintenance. Mr. Marlette holds a B.S. in Mechanical Engineering from Ohio University.

P. Ramsay Battin has served on our board of directors since June 2008. Mr. Battin is a director with Arcapita Inc. and, prior to joining Arcapita in March 2006, was a partner with Southeastern Technology Fund, an early and growth stage venture capital firm. Mr. Battin has also served in the corporate finance departments at Lehman Brothers and Robinson-Humphrey in New York, London and Atlanta. Mr. Battin currently serves on the boards of directors of FrameMax, Prenova and Fidelis SeniorCare, and previously served as a member of the board of directors of Best Doctors, RTO Software, Seventh Wave and SPI Dynamics. Mr. Battin holds an AB in History from Princeton University and an MBA from Harvard Business School. We believe that Mr. Battin possesses specific attributes that qualify him to serve as a member of our board of directors, including his experience building, investing in and growing technology companies and his experience with sophisticated transactions as an investment banker. In addition, because Mr. Battin has served on many boards of directors, we believe he has substantial experience regarding how boards can and should effectively oversee and manage companies, and a significant understanding of governance issues.

Robert M. Gervis has served on our board of directors since January 2011. Mr. Gervis is Managing Member and President of Epilogue, LLC, a private advisory firm he founded in April 2009. Prior to founding Epilogue, LLC, Mr. Gervis served in various senior executive positions at Fidelity Investments from July 1994 to March 2009. Mr. Gervis' management experience during his tenure with Fidelity Investments included serving as (i) Chief Executive Officer of an oil and natural gas exploration and production company from December 2002 to March 2006; (ii) Chief Operating Officer of a full-service real estate development and investment company that specialized in the acquisition, design, development and management of high-profile projects in both the United States and foreign markets from May 2002 to June 2003; and (iii) Managing Director of a private equity division that invested in a broad range of industries, including technology, biotechnology, real estate, oil and gas exploration and production and telecommunications from March 2002 to March 2006. Prior to joining Fidelity Investments, Mr. Gervis was a partner at the law firm of Weil, Gotshal & Manges. He currently also serves on the boards of directors of Georgia Gulf Corporation (NYSE: GGC), and Tronox Incorporated (OTC: TROX.PK). Mr. Gervis previously served as a director of Ballyrock Investment Advisors, Inc., a registered investment adviser that manages Fidelity Investments' structured credit business. Mr. Gervis holds a BS in Industrial Engineering from Lehigh University and a JD from The George Washington University. Mr. Gervis also is a CFA charterholder. We believe that Mr. Gervis possesses specific attributes that qualify him to serve as a member of our board of directors and chair of our nominating and governance committee, including his extensive experience in finance, capital markets and investing, his management skills, as well as his experience with sophisticated transactions as a corporate attorney. In addition, because Mr. Gervis has served on many boards of directors, we believe he has substantial experience regarding how boards can and should effectively oversee and manage companies, and a significant understanding of governance issues.

Craig A. Huff has served on our board of directors since September 2010, and prior to that served on our board of directors from February 2005 to August 2009. Mr. Huff is co-Chief Executive Officer and co-founder of Reservoir Capital Group, or Reservoir, a privately-held investment firm he formed in 1997. Prior to forming Reservoir, Mr. Huff was a Partner at Ziff Brothers Investments. Mr. Huff currently serves on the boards of directors of Contour Global Management, Inc.; Intrepid Aviation Group, LLC; Amerilife Group, LLC; and AB Resources Management, Inc. Mr. Huff is also President of the Board of Trustees of St. Bernard's School and serves on the Board of Trustees of the Princeton Theological Seminary and on the Board of Advisors of the Center for Regenerative Medicine (Massachusetts General Hospital/Harvard Stem Cell Institute). Mr. Huff also served in the U.S. Navy as a nuclear engineer and nuclear submarine officer. Mr. Huff holds a BS in Engineering Physics from Abilene Christian University and received an MBA from Harvard Business School. We believe that Mr. Huff possesses specific attributes that qualify him to serve as a member of our board of directors, including his experience building, investing in and growing technology companies and his executive experience as co-Chief Executive Officer of Reservoir, as well as his scientific background. In addition, because Mr. Huff has served on many boards of directors, we believe he has substantial experience regarding how boards can and should effectively oversee and manage companies, and a significant understanding of governance issues.

Steven R. Mitchell has served on our board of directors since August 2009. Mr. Mitchell has served as the managing director of Argonaut Private Equity, LLC, or Argonaut, since November 2004. Prior to joining Argonaut, Mr. Mitchell was a principal in both Radical Incubation and 2929 Entertainment. He currently serves on the boards of directors of Global Client Solutions, LLC; Westec Intelligent Surveillance, LLC; Yulex Corporation; Solyndra, Inc.; Stepstone Group; Southwest United Industries, Inc.; Green Hills Software, Inc.; Newco Valves, LLC; S&R Compression, LLC; DMB Real Estate, LLC; Aimbridge Hospitality LP; Cordy's Holding, BV; and Major Incorporated, LLC. From 1996 to 1999, Mr. Mitchell was a corporate attorney at Gibson, Dunn & Crutcher. Mr. Mitchell holds a BBA in Marketing from Baylor University and a JD from University of San Diego School of Law. We believe that Mr. Mitchell possesses specific attributes that qualify him to serve as a member of our board of directors, including his experience building, investing in and growing several manufacturing, technology and product companies and his experience with sophisticated transactions as a corporate attorney. In addition, because Mr. Mitchell has served on many boards of directors, we believe he has substantial experience regarding how boards can and should effectively oversee and manage companies, and a significant understanding of governance issues.

Mark L. Noetzel has served on our board of directors since December 2009. Mr. Noetzel has worked as a consultant to several high growth private companies since May 2009. From June 2007 to May 2009, Mr. Noetzel was president and chief executive officer of Cilion, Inc., a biofuels company. Prior to joining Cilion in 2007, he had served in several senior positions at BP plc, including Group Vice President, Global Retail, from 2003 until 2007, Group Vice President, B2B Fuels and New Markets, during 2001 and 2002 and Group Vice President, Chemicals, from 1997 until 2001. Prior to those senior management roles with BP plc, Mr. Noetzel served in other management and non-management roles with Amoco from 1981 until BP plc acquired Amoco Corporation in 1998. Mr. Noetzel is also chairman of the board of directors of Georgia Gulf Corporation (NYSE: GGC). Mr. Noetzel holds a BA in Political Science from Yale University and an MBA from the Wharton School at University of Pennsylvania. We believe that Mr. Noetzel possesses specific attributes that qualify him to serve as a member and chairman of our board of directors, including more than ten years experience in senior executive management roles with large, international businesses within the chemical and fuel industries and his experience as chairman of the board of an existing public company.

William P. Noglows has served on our board of directors since January 2011. Mr. Noglows has served as Chairman, President and Chief Executive Officer of Cabot Microelectronics Corporation (NASDAQ: CCMP), a worldwide supplier of consumable products used in the semiconductor manufacturing process, since November 2003. Mr. Noglows was a primary founder of Cabot

Microelectronics, which has been a publicly-traded entity since 2000. From 1983 to 2003, Mr. Noglows was an Executive Vice President and General Manager at Cabot Corporation, where he served in a number of roles including Research and Development, Operations and Global Business Leadership. Mr. Noglows is also a director of Littelfuse, Inc. (NASDAQ: LFUS), a leading supplier of circuit protection products for the electronics industry. Mr. Noglows holds a BS in Chemical Engineering from the Georgia Institute of Technology. We believe that Mr. Noglows possesses specific attributes that qualify him to serve as a member of our board of directors, including his experience as chief executive officer of a leading public company and his expertise in developing technology. In addition, because Mr. Noglows has served on boards of directors of two other public companies, we believe he has significant experience regarding how boards can and should effectively oversee and manage companies, and a significant understanding of governance issues.

David J. Prend has served on our board of directors since May 2001. Mr. Prend is the co-founder of RockPort Capital Partners and has served as a managing general partner since 1998. Mr. Prend began his career in the energy industry as an engineer at Bechtel Corporation where he worked in the area of advanced energy technologies. From 1984 until 1987, he worked at Amoco Corporation in the Treasurer's Department, and in the chemical and upstream oil and gas subsidiaries of Amoco. He later joined Shearson Lehman Hutton Inc. in their Natural Resources Investment Banking Group where he advised companies in the energy, mining and forest products industries. In 1990, he joined Salomon Brothers where he was promoted to Managing Director and headed the Global Energy Investment Banking Group. He currently serves on the boards of directors of Achates Power, Inc., Aspen Products Group, Inc., Hycrete Technologies, Inc., InVisage Technologies, Inc., SatCon Technology Corporation (NASDAQ: SATC), Solyndra, Inc. and SustainX, Inc. He is also a member of the National Advisory Council to the National Renewable Energy Laboratory, or NREL, and is the chairman of the Solar Technology Review Panel for NREL. Mr. Prend holds a BS in Civil Engineering from University of California at Berkeley and an MBA from Harvard Business School. We believe that Mr. Prend possesses specific attributes that qualify him to serve as a member of our board of directors and chair of our compensation and leadership development committee, including his experience in the renewable energy sector and venture capital industries. In addition, because Mr. Prend has served on many boards of directors, we believe he has substantial experience regarding how boards can and should effectively oversee and manage companies, and a significant understanding of governance issues.

Richard F. Reilly has served on our board of directors since July 2010. For 31 years prior to his retirement in 2009, Mr. Reilly specialized in audits of manufacturing, technology and distribution companies with KPMG LLP, with 28 years in the role of senior audit partner. Prior to his tenure with KPMG LLP Mr. Reilly worked in private industry, serving in various accounting management roles in technology and manufacturing companies. Mr. Reilly also served for ten years in the U.S. Army reserve as a combat engineer officer. Mr. Reilly currently serves as a member of the board of trustees and as chair of the audit committee of Perkins School for the Blind, a non-profit institution headquartered in Boston, Massachusetts. Mr. Reilly holds a BS in Business Administration from Northeastern University and is a Certified Public Accountant. We believe that Mr. Reilly possesses specific attributes that qualify him to serve as a member of our board of directors and to serve as chair of our audit committee, including a deep understanding of accounting principles and financial reporting rules and regulations, acquired over the course of his career at KPMG LLP and in private industry. In addition, we believe Mr. Reilly has significant experience overseeing, from an independent auditor's perspective, the financial reporting processes of large public companies in a variety of industries with a global presence.

Composition of our Board of Directors

Our board of directors currently consists of nine members, eight of whom are non-employee directors. Our directors hold office until their successors have been elected and qualified or until the

earlier of their death, resignation or removal. There are no family relationships among any of our directors or executive officers.

In accordance with our restated certificate of incorporation and restated by-laws, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders commencing with the meeting in 2012, the successors to the directors whose terms then expire will be elected to serve until the third annual meeting following the election. At the closing of the offering made hereby, our directors will be divided among the three classes as follows:

- the Class I directors will be , and and their terms will expire at the annual meeting of stockholders to be held in 2012;
- the Class II directors will be , and and their terms will expire at the annual meeting of stockholders to be held in 2013; and
- the Class III directors will be , and and their terms will expire at the annual meeting of stockholders to be held in 2014.

Our restated certificate of incorporation provides that the authorized number of directors comprising our board of directors shall be fixed by our restated by-laws. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that each class will consist of approximately one-third of the directors.

Director Independence

Under applicable NYSE rules, a director will qualify as "independent" if our board of directors affirmatively determines that he or she has no material relationship with Aspen Aerogels (either directly or as a partner, stockholder or officer of an organization that has a relationship with us). Our board of directors will establish guidelines to assist it in determining whether a director has such a material relationship. Ownership of a significant amount of our stock, by itself, does not constitute a material relationship.

Pursuant to NYSE rules, a director employed by us cannot be deemed to be an "independent director," and consequently Mr. Young does not qualify as an independent director.

The applicable rules and regulations of the NYSE require us to have a majority of independent directors within one year of the date of the completion of this offering. Our board has determined that each of Messrs. meet the categorical standards described above, that none of these directors has a material relationship with us and that each of these directors is "independent" as determined under Section 303A.02(b) of the NYSE Listed Company Manual.

Committees of the Board of Directors

Our board of directors has established an audit committee, a compensation and leadership development committee, or compensation committee, and a nominating and corporate governance committee. Each committee operates under a charter approved by our board of directors. Following the closing of this offering, copies of each committee's charter will be posted on the Investor Relations section of our website, which is located at www.aerogel.com. The composition and function of each of these committees are described below.

Audit Committee. Upon the completion of this offering, our audit committee will be comprised of , and . Our board of directors has determined that is an audit committee financial expert, as defined by the rules of the SEC, and satisfies the financial sophistication requirements of applicable NYSE rules. Our audit committee is authorized to:

- approve and retain the independent auditors to conduct the annual audit of our financial statements;
- review the proposed scope and results of the audit;

- review and pre-approve audit and non-audit fees and services;
- review accounting and financial controls with the independent auditors and our financial and accounting staff;
- review and approve transactions between us and our directors, officers and affiliates;
- recognize and prevent prohibited non-audit services;
- establish procedures for complaints received by us regarding accounting matters; and
- oversee internal audit functions, if any.

The applicable rules and regulations of the SEC and NYSE require us to have one independent audit committee member upon the listing of our common stock on NYSE, a majority of independent members within 90 days of the date of the completion of this offering and all independent audit committee members within one year of the date of the completion of this offering.

Compensation Committee. Upon completion of this offering, our compensation committee will be comprised of , and . Our compensation committee is authorized to:

- review and recommend the compensation arrangements for management;
- establish and review general compensation policies with the objective to attract and retain superior talent, to reward individual performance and to achieve our financial goals;
- administer our stock incentive and purchase plans;
- ensure appropriate leadership development and succession planning is in place; and
- oversee the evaluation of management.

The applicable rules and regulations of the NYSE require us to have one independent compensation committee member upon the listing of our common stock on NYSE, a majority of independent members within 90 days of the date of the completion of this offering and all independent compensation committee members within one year of the date of the completion of this offering.

Nominating and Governance Committee. Upon completion of this offering, our nominating and governance committee will be comprised of , and . Our nominating and governance committee is authorized to:

- identify and nominate candidates for election to the board of directors;
- review and recommend the compensation arrangements for certain members of our board of directors;
- develop and recommend to the board of directors a set of corporate governance principles applicable to our company; and
- oversee the evaluation of our board of directors.

The applicable rules and regulations of the NYSE require us to have one independent nominating and governance committee member upon the listing of our common stock on NYSE, a majority of independent members within 90 days of the date of the completion of this offering and all independent nominating and governance committee members within one year of the date of the completion of this offering.

Compensation Committee Interlocks and Insider Participation

No member of our compensation committee has at any time been an employee of ours. None of our executive officers serves as a member of another entity's board of directors or compensation committee that has one or more executive officers serving as a member of our board of directors or compensation committee.

Corporate Governance Guidelines

Our board of directors will adopt corporate governance guidelines to assist the board in the exercise of its duties and responsibilities and to serve the best interests of our company and our stockholders. Following this offering, a copy of these guidelines will be posted on the Investor Relations section of our website, which is located at www.aerogel.com. These guidelines, which provide a framework for the conduct of our board's business, will provide that:

- our board's principal responsibility is to oversee the management of Aspen Aerogels;
- a majority of the members of our board of directors shall be independent directors;
- directors have full and free access to management and employees of our company, and the right to hire and consult with independent advisors at our expense;
- all directors are expected to participate in continuing director education on an ongoing basis; and
- at least annually, our board of directors and its committees will conduct self-evaluations to determine whether they are functioning effectively.

Code of Business Conduct and Ethics

We will adopt a code of business conduct and ethics that will apply to all of our employees, officers and directors, including those officers responsible for financial reporting. The code of business conduct and ethics will be available on our website at www.aerogel.com upon completion of this offering. We expect that any amendments to the code, or any waivers of its requirements, will be disclosed on our website.

Limitation of Directors' and Officers' Liability and Indemnification

The Delaware General Corporation Law authorizes corporations to limit or eliminate, subject to specified conditions, the personal liability of directors to corporations and their stockholders for monetary damages for breach of their fiduciary duties. Our existing third amended and restated certificate of incorporation, as amended, and the restated certificate of incorporation to be effective upon the completion of this offering limits the liability of our directors to the fullest extent permitted by Delaware law.

We have obtained director and officer liability insurance to cover liabilities our directors and officers may incur in connection with their services to us. Our restated certificate of incorporation and restated by-laws to be effective upon the completion of this offering also provide that we will indemnify and advance expenses to any of our directors and officers who, by reason of the fact that he or she is one of our officers or directors, is involved in a legal proceeding of any nature. We will repay certain expenses incurred by a director or officer in connection with any civil, criminal, administrative or investigative action or proceeding, including actions by us or in our name. Such indemnifiable expenses include, to the maximum extent permitted by law, attorney's fees, judgments, fines, ERISA excise taxes, penalties, settlement amounts and other expenses reasonably incurred in connection with legal proceedings. A director or officer will not receive indemnification if he or she is found not to have acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interest.

We have entered into indemnification agreements with each of our non-employee directors and will enter into similar agreements with certain officers. These agreements provide that we will, among other things, indemnify and advance expenses to our directors and officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by any such person in any action or proceeding, including any action by us arising out of such person's services as our director or officer, or any other company or enterprise to which the person provides services at our

request. We believe that these provisions and agreements are necessary to attract and retain qualified persons as directors and officers.

Such limitation of liability and indemnification does not affect the availability of equitable remedies. In addition, we have been advised that in the opinion of the SEC, indemnification for liabilities arising under the Securities Act is against public policy as expressed in the Securities Act and is therefore unenforceable.

There is no pending litigation or proceeding involving any of our directors, officers, employees or agents in which indemnification will be required or permitted. We are not aware of any threatened litigation or proceeding that may result in a claim for such indemnification.

COMPENSATION

Compensation Discussion and Analysis

This Compensation Discussion and Analysis provides an overview of our executive compensation philosophy, the overall objectives of our executive compensation program, and the components of our executive compensation program. In addition, we explain how and why we arrived at specific compensation policies and decisions involving our named executive officers listed in the Summary Compensation Table set forth below during 2010.

This Compensation Discussion and Analysis contains forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding future compensation programs. The actual compensation programs that we adopt may differ materially from currently planned programs as summarized in this discussion.

Significant Executive Compensation Actions in 2010

As reflected in our compensation philosophy described below, we set the compensation of our executive officers, including our named executive officers, based on their ability to achieve annual operational objectives that further our long-term business objectives and to create sustainable long-term stockholder value in a cost-effective manner. Accordingly, our 2010 compensation actions and decisions were based on our executive officers' accomplishments in these dual areas.

For 2010, we took the following actions with respect to the compensation of our named executive officers:

- increased the base salary of each named executive officer by three percent;
- awarded bonuses above a pre-established target based on revenue performance and awarded discretionary bonuses to our CEO, Mr. Young, and our Vice President Sales and Marketing, Mr. Walkoff, who were instrumental in helping the company achieve its 2010 revenue performance and sales order activity;
- approved stock option awards to provide additional incentives, satisfy our retention objectives and reward individual performance for 2010; and
- entered into employment agreements with our executive officers, including our named executive officers, that provide for severance and change of control benefits.

Executive Compensation Philosophy and Objectives

We have been developing a new technology in a competitive business environment against much larger entrenched competitors. To thrive in this environment, we must continuously develop and refine our product and its manufacturability. To achieve these objectives, we need a highly talented and seasoned team of technical and business professionals. To meet this challenge, our compensation philosophy has been to offer our executive officers competitive cash compensation and benefits packages and significant upside potential focused on long-term value creation through equity compensation.

We have designed our executive compensation program to:

- provide total compensation opportunities which enable us to recruit and retain executives with the experience and skills to manage the development of our products and the profitable growth of our company;
- create a direct and meaningful link between the compensation we pay and both our business results and each executive's performance;

- establish a clear alignment between the interests of our executives and the interests of our stockholders;
- reinforce a culture of ownership, excellence and urgency; and
- offer total compensation that is competitive and fair.

Compensation Program Design

To date, the compensation of our executive officers, including our named executive officers, has consisted of base salary, an annual cash bonus, equity compensation in the form of stock options, employee benefits and certain post-employment arrangements.

A key component of our executive compensation program has been grants of stock options to purchase shares of our common stock. As a privately-held company, we have emphasized the use of equity awards to incentivize our employees, including our named executive officers, to focus on the growth of our overall enterprise value and, correspondingly, to create value for our stockholders. We believe that stock options offer our employees, including our named executive officers, a valuable long-term incentive that aligns their interests with the long-term interests of our stockholders.

We also offer cash compensation in the form of base salaries and annual cash bonuses. For 2010, our bonus program focused on the achievement of corporate financial objectives that will reinforce and are aligned with our longer-term goal of profitable growth.

We have not adopted any formal policies or guidelines for allocating compensation between current and long-term compensation, between cash and non-cash compensation, or among different forms of non-cash compensation. Instead, we review each component of executive compensation separately and also take into consideration the value of each executive's compensation package as a whole and its relative size in comparison to the other members of the executive team.

Compensation-Setting Process

To obtain the skills and experience that we believe are necessary to successfully lead our company, most of our executive officers have been hired from larger organizations and have significant experience in their roles. Their initial compensation arrangements have been determined in individual negotiations with each individual in connection with his or her joining us, taking into account his or her qualifications, experience and prior compensation levels. Historically, our CEO has been responsible for negotiating these arrangements (except with respect to his own compensation) with the oversight and final approval of the board of directors.

Thereafter, in recent years, our compensation and leadership development committee, referred to as our compensation committee, has been responsible for overseeing our executive compensation program, including recommending to our board of directors for their approval adjustments to the compensation arrangements of our CEO and other executive officers. Typically, our CEO makes recommendations to our compensation committee regarding compensation matters, except with respect to his own compensation, and often attends the compensation committee meetings, while excusing himself from any discussions involving his own compensation. The recommended compensation of our CEO is proposed by our compensation committee. Once finalized, all recommendations for executive compensation are then presented to our board of directors for their approval. In March 2011, our board of directors approved a compensation committee charter that delegates to our compensation committee the authority to approve the compensation of our executive officers, including our named executive officers.

Our compensation committee is authorized to retain the services of executive compensation advisors from time to time, as it sees fit, in connection with the carrying out of its duties. In April 2011, our compensation committee engaged Compensia, Inc., a national compensation consulting firm that provides executive compensation advisory services, to assist it in evaluating our executive

compensation program and provide guidance in administering our future executive and equity compensation programs. Compensia serves at the discretion of our compensation committee.

In April 2011, Compensia assisted our compensation committee in developing a peer group of companies to use in understanding competitive market practices, Compensia also assisted our compensation committee in assessing the competitiveness of our executive officers' compensation against those of similarly situated executive officers at late stage venture capital financed private companies and comparable public companies. Based on this market assessment, our compensation committee considered adjustments to our named executive officers' compensation to ensure alignment with the company's compensation objectives and competitive market practice. The compensation adjustments included selected increases in the base salaries of certain executive officers, including our Vice President, Engineering and Design, who had recently been promoted; an increase in the target bonus percentages under the 2011 bonus program for all executive officers in order to provide a stronger link between annual incentive pay and annual performance; and an annual grant of stock options to the executive officers to ensure that they continue to have appropriate amounts of unvested equity as an incentive and retention tool after our initial public offering.

Executive Compensation Program Components

The following describes each component of our executive compensation program, the rationale for each, and how awards are determined.

Base Salary

Base salary is the primary fixed component of our executive compensation program. We use base salary to compensate our named executive officers for services rendered during the fiscal year, and to ensure that we remain competitive in attracting and retaining executive talent. Each year our compensation committee conducts a review of each executive officer's base salary, with input from our CEO, and makes adjustments it determines to be reasonable and necessary to reflect the scope of an executive officer's performance, individual contributions and responsibilities, position (in the case of a promotion), and market conditions.

In 2009, our CEO and CFO voluntarily reduced their base salaries by approximately 11% and 8%, respectively, and all other executive officers had their base salaries frozen. These actions were taken to conserve cash in the face of the recession. In 2010, as business recovered, our compensation committee approved a company-wide base salary merit increase. Each of our executive officers received a 3% base salary increase as part of the company-wide program. For 2011, our executive officers each received a 3% base salary increase as part of the annual company-wide base salary merit increase. The employment agreements we entered into with our CEO and CFO in March 2010 reflect the base salary increases that have been made on the reduced base salary amounts.

The 2010 base salaries of our named executive officers are discussed below under "— Employment Arrangements with Our Named Executive Officers."

Cash Bonuses

We use cash bonuses to motivate our executive officers to achieve our annual financial and strategic objectives. Prior to 2010, bonuses were paid at the discretion of the board of directors based on their review of the performance of each executive officer and the company and considering the recommendations of our CEO. For 2010, our compensation committee developed a formal bonus program with goals based on company performance. For 2010, our CEO's target bonus payout was 30% of his annual base salary, our CFO, Vice President, Operations and Vice President, Sales and Marketing target bonus payout was 20% of each of their annual base salaries and all other employees participating in the bonus program, including our Vice President, Engineering and Design, had a target bonus payout equal to 15% of each employee's respective annual base salary.

Upon the recommendation of our compensation committee, our board of directors approved our 2010 corporate bonus plan on March 17, 2010, and amended such plan on July 21, 2010. Under both the original and amended bonus plan, the performance metrics were revenue and Adjusted EBITDA. We define Adjusted EBITDA as earnings (loss) from operations before depreciation and amortization, share-based compensation expense and impairment charges.

The amendment to the plan maintained the revenue goal of $41.75 million and changed the Adjusted EBITDA target from a target dollar amount for the year to a goal of achieving positive Adjusted EBITDA in the third and fourth fiscal quarters. Our compensation committee made this change to focus the plan participants on achieving positive Adjusted EBITDA for the last six months of our fiscal year.

Pursuant to the 2010 corporate bonus plan, each named executive officer's 2010 bonus award amount was determined based upon the achievement of the performance metrics identified above. If these metrics were met or exceeded, our CEO was entitled to 30% of his annual base salary and an additional 4% of annual base salary for every 1% by which the actual revenue exceeded the target amount; our CFO, Vice President, Operations and Vice President, Sales and Marketing were entitled to 20% of their respective annual base salaries and an additional 3% of annual base salary for every 1% by which the actual revenue exceeded the target amount; and our Vice President, Engineering and Design was entitled to 15% of his annual base salary and an additional 2% of annual base salary for every 1% by which the actual revenue exceeded the target amount. For 2010, we achieved positive Adjusted EBITDA in the third and fourth fiscal quarters and we exceeded the revenue target by 3.37% with actual revenue of $43.2 million, so that our named executive officers received a payout above the target amount. The 2010 bonus payments for our CEO, CFO, Vice President, Operations, Vice President, Sales and Marketing and Vice President, Engineering and Design were $140,503 (43.5% of base salary), $72,215, $78,414, $70,481 (each 30.1% of base salary) and $40,728 (21.7% of base salary), respectively. A description of our 2010 corporate bonus plan as amended is described below under "— 2010 Corporate Bonus Plan.

In addition to the payments made under our 2010 corporate bonus plan, our compensation committee decided to pay discretionary bonuses to the CEO and the Vice President, Sales and Marketing to recognize their contributions in achieving the company's 2010 revenue performance and order activity significantly above plan. The amounts were determined by our compensation committee based on its judgment of each individual's performance, their experience, each executive's compensation and internal pay equity among the executive officers to ensure that the relative pay of each executive officer is appropriate in the context of the duties, responsibilities and criticality of each executive officer to the company.

In May 2011, in connection with our compensation committee's review of our executive compensation program, the target bonus payouts for our named executive officers were increased. Our compensation committee determined the increases based on its judgment and taking into account the positive cash flow that we are starting to generate, the desire for increased incentive for achieving annual financial goals and the greater emphasis on variable cash compensation in public companies. The increased target bonus payouts are 50% of our CEO's annual base salary, 35% of the annual base salaries of our CFO, Vice President, Operations and Vice President, Sales and Marketing and 25% of the annual base salary of our Vice President, Engineering and Design.

Equity Compensation

We use equity awards to incentivize and reward our executive officers, including our named executive officers, for long-term corporate performance based on the value of our common stock and, thereby, to align the interests of our executive officers with those of our stockholders.

To date, we have not applied a rigid formula in determining the size of the equity awards that have been granted to our executive officers. Instead, initial awards have been established through arms-length negotiation at the time the individual was hired. In making these awards, our

compensation committee has exercised its judgment, taking into consideration, among other things, the prospective role and responsibility of the executive, the long-term potential of the executive officer, competitive factors, the amount of equity-based compensation held by the executive officer at his or her former employer, and the cash compensation received by the executive officer. Based upon these factors, our compensation committee determined the size of the award for each of our named executive officers at a level it considered appropriate to create a meaningful opportunity for reward predicated on the creation of long-term stockholder value.

After an executive joins the company, upon the recommendation of our compensation committee, our board of directors has granted additional equity awards to our executive officers, including our named executive officers, on an ad hoc basis. In recommending these awards, our compensation committee has exercised its judgment as to the amount of the awards, taking into consideration the performance of our company, its evaluation of the expected and actual performance of each executive officer, his or her individual contributions and responsibilities, internal parity of awards granted to our executive officers who are considered at the same level of responsibility, the overall level of equity compensation at the company and market conditions.

In November 2009, the company raised additional equity capital at a price and amount that significantly diluted the ownership stakes of our employees, including our executive officers. As a result of this financing, which also resulted in our then current stock price being well below the exercise price of the employees' existing option grants, the company exchanged all then outstanding stock options and issued new stock options with an exercise price equal to the then current fair market value of the stock and with a new vesting schedule. The company took this step to ensure that the employees were incentivized to continue to execute on the company's long-term business strategy despite the adverse effects of the recession. The new vesting schedule provided that 25% of the shares were vested immediately upon grant, with the remaining shares vesting over three years.

In November 2010, we made a grant of stock options to select high performing employees, including our named executive officers. Our grants were based on an overall budget of stock options our board of directors determined appropriate and was allocated based on the recommendations of our CEO, except for his grant. Our CEO used his judgment to develop his recommendations and considered the performance and criticality of each executive as well as the internal parity of the grant sizes among our executive officers and without use of competitive market information. Similarly, our compensation committee used its judgment to determine the size of the stock option grant for our CEO taking into account its assessment of his performance, the grant sizes of our other executive officers.

The equity awards granted to the named executive officers during 2010 are set forth below under "— Grants of Plan-Based Awards."

In May 2011, our compensation committee granted the following additional stock options to the executive officers below in recognition of their past contributions to the company and to provide continued incentive and retention going forward:

Name	Number of Stock Options
Donald R. Young	250,000
John F. Fairbanks	100,000
Kevin A. Schmidt	100,000
Harry R. Walkoff	100,000
Christopher L. Marlette	40,000

Retirement and Other Benefits

We have established a tax-qualified Section 401(k) retirement savings plan for our employees, including our named executive officers. Additional benefits received by our executive officers, including

our named executive officers, include medical, dental and vision benefits, medical and dependent care flexible spending accounts, short-term and long-term disability insurance, accidental death and dismemberment insurance and basic life insurance coverage. These benefits are provided to our executive officers on the same basis as to all of our full-time employees.

We design our employee benefit programs to be affordable and competitive in relation to the market as well as compliant with applicable laws and practices. We adjust our employee benefit programs as needed based upon regular monitoring of applicable laws and practices and the competitive market.

Currently, we do not view perquisites or other personal benefits as a significant component of our executive compensation program. In the future, however, we may provide such items in limited circumstances, such as where we believe it is appropriate to assist an individual in the performance of his or her duties, to make our executive officers more efficient and effective, and for recruitment, motivation, or retention purposes. All future practices with respect to perquisites or other personal benefits will be approved and subject to periodic review by our compensation committee.

Post-Employment Compensation

In March 2010, we entered into employment agreements with our named executive officers that include change of control and severance benefits.

We believe that the severance and change of control benefits set forth in the employment agreements entered into in March 2010 assist us in retaining all of our named executive officers. We also believe that these benefits help our executive officers maintain continued focus and dedication to their assigned duties to maximize stockholder value if there is a potential transaction that could involve a change of control of our company. The terms of these agreements were determined by our board of directors based on their experience in developing compensation programs and their general understanding of the market terms for severance and change of control benefits. For a summary of the material terms and conditions of these provisions, see "— Potential Payments Upon Termination or Change of Control."

Tax and Accounting Considerations

Deductibility of Executive Compensation

As a private company, in making our compensation decisions, we have not considered Section 162 (m) of the Internal Revenue Code, or the Code, which disallows a tax deduction to any publicly-held corporation for any remuneration in excess of $1 million paid in any taxable year to its chief executive officer and each of its other named executive officers (other than its chief financial officer) unless an exception applies. We expect our compensation arrangements put in place prior to our initial public offering and for several years thereafter will be exempt under Section 162(m) of the Code.

Once our exemption period expires, we expect that our compensation committee will adopt a policy that, where reasonably practicable, we will seek to qualify the variable compensation paid to our executive officers for the "performance-based compensation" exemption from the deductibility limit. Our compensation committee may, in its judgment, authorize compensation payments that do not comply with an exemption from the deductibility limit when it believes that such payments are appropriate to attract and retain executive talent.

Taxation of "Parachute" Payments and Deferred Compensation

Sections 280G and 4999 of the Code provide that executive officers and directors who hold significant equity interests and certain other service providers may be subject to an excise tax if they receive payments or benefits in connection with a change of control of our company that exceeds certain prescribed limits, and that our company (or a successor) may forfeit a deduction on the

amounts subject to this additional tax. We do not currently provide any executive, including any named executive officer, with a "gross-up" or other reimbursement payment for any tax liability that he or she might owe as a result of the application of Sections 280G or 4999.

Compensation Risk Consideration

During fiscal year 2011, at the direction of our compensation committee, Compensia, assisted by our management, conducted a review of our compensation policies and practices and their respective risk profiles. The findings were presented to our compensation committee for consideration. After consideration of the information presented, our compensation committee concluded that our compensation programs are designed with an appropriate balance of risk and reward in relation to our overall business strategy and do not encourage excessive or unnecessary risk-taking behavior.

In making this determination, we considered our pay mix, our base salaries and the attributes of our variable compensation programs including our annual bonus plan, our equity programs and our sales compensation plans and our alignment with market pay levels and compensation program designs.

Our compensation committee believes that the design of our executive compensation programs as outlined in the "Compensation Discussion and Analysis" above places emphasis on long-term incentives and competitive base salaries, while the annual bonus plan is tied to annual goals for profitable growth. Our compensation committee concluded that this mix of incentives appropriately balances risk and aligns the executive officers' motivations for the Company's long-term success, including stock price performance.

Summary Compensation Table

The following table sets forth information regarding compensation earned by our chief executive officer, our chief financial officer and our three next most highly compensated executive officers during our fiscal year ended December 31, 2010.

Name and Principal Position	Year	Salary ($)	Bonus ($) [1]	Option Awards ($) [2]	Non-Equity Incentive Plan Compensation ($)	Total ($)
Donald R. Young *President and Chief Executive Officer*	2010	$325,214	$40,000	$223,265	$140,503	$728,982
John F. Fairbanks *Vice President, Finance and Chief Financial Officer*	2010	241,170	—	95,685	72,215	409,070
Kevin A. Schmidt *Vice President, Operations*	2010	261,878	—	95,685	78,414	435,977
Harry R. Walkoff *Vice President, Sales and Marketing*	2010	234,628	20,000	95,685	70,481	420,794
Christopher L. Marlette *Vice President, Engineering and Design*	2010	188,541	—	31,895	40,728	261,164

[1] Represents a discretionary bonus amount recommended by our compensation committee and approved by our board of directors in January 2011 for performance in fiscal year 2010.

(2) These amounts represent the aggregate grant date fair value for option awards granted to our named executive officers, computed in accordance with FASB ASC Topic 718. Valuation assumptions are described in the notes to our financial statements included elsewhere in this prospectus. See our discussion of stock-based compensation under "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Stock-based Compensation."

Grants of Plan-Based Awards in 2010

The following table sets forth information regarding grants of plan-based awards during the fiscal year ended December 31, 2010 to our named executive officers.

Name	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards: Target ($) (1)	All Other Option Awards: Number of Securities Underlying Options (#)	Exercise or Base Price of Option Awards ($/Sh)	Grant Date Fair Value of Stock and Option Awards ($) (2)
Donald R. Young	—	$95,937(3)	—	—	—
	11/17/2010	—	350,000	$1.30	$223,265
John F. Fairbanks	—	47,429(4)	—	—	—
	11/17/2010	—	150,000	1.30	95,685
Kevin A. Schmidt	—	51,500(4)	—	—	—
	11/17/2010	—	150,000	1.30	95,685
Harry R. Walkoff	—	46,290(4)	—	—	—
	11/17/2010	—	150,000	1.30	95,685
Christopher L. Marlette	—	27,810(5)	—	—	—
	11/17/2010	—	50,000	1.30	31,895

(1) Reflects the target non-equity incentive plan award amounts under our 2010 corporate bonus plan. The amount shown above for each named executive officer reflects the target award amount for the full fiscal year which is based on a percentage of that named executive officer's base salary. The maximum amount of such award cannot be determined because the named executive officer, upon the achievement of certain corporate goals, is entitled to a payout equal to an additional 4% of annual base salary for Mr. Young, an additional 3% of annual base salary for each of Messrs. Fairbanks, Schmidt and Walkoff, and 2% of annual base salary for Mr. Marlette, for every 1% by which the actual revenue exceeded the target amount. The amounts actually paid to our named executive officers under the 2010 corporate bonus plan are shown above in the Summary Compensation Table under the "Non-Equity Incentive Plan Compensation" column. Additionally, see "Compensation Discussion and Analysis — Cash Bonuses" and "— 2010 Corporate Bonus Plan" below for details related to the determination of payments under our 2010 corporate bonus plan.

(2) These amounts represent the aggregate grant date fair value for option awards granted to our named executive officers, computed in accordance with FASB ASC Topic 718. Valuation assumptions are described in the notes to our financial statements included elsewhere in this prospectus. See our discussion of stock-based compensation under "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Stock-based Compensation."

(3) Represents 30% of Mr. Young's base salary. See "— 2010 Corporate Bonus Plan" below for details related to the determination of payments under our 2010 corporate bonus plan.

(4) Represents 20% of the named executive officer's base salary. See "— 2010 Corporate Bonus Plan" below for details related to the determination of payments under our 2010 corporate bonus plan.

(5) Represents 15% of Mr. Marlette's base salary. See "— 2010 Corporate Bonus Plan" below for details related to the determination of payments under our 2010 corporate bonus plan.

Narrative Disclosure to Summary Compensation Table and Grants of Plan-Based Awards Table

Employment Arrangements with Our Named Executive Officers

Donald R. Young

We entered into an executive agreement with Mr. Young on March 17, 2010 pursuant to which he continues to serve as our Chief Executive Officer on an at-will basis. Pursuant to this agreement,

Mr. Young's annual base salary is $319,789 per year, and he is eligible to receive an annual performance-based bonus in an amount, if any, to be determined by our board of directors. Mr. Young's base salary may be increased, but not decreased, at the discretion of our board of directors. In January 2011, Mr. Young's base salary was increased to $329,400.

Mr. Young is entitled to certain benefits in connection with a termination of his employment or a change of control as discussed below under "— Potential Payments Upon Termination or Change of Control."

Other Named Executive Officers

We also entered into executive agreements with Messrs. Fairbanks, Schmidt, Walkoff and Marlette on March 17, 2010 pursuant to which they continue to serve as our executive officers on an at-will basis. We refer to these agreements, as well as our executive agreement with Mr. Young described above, as the executive agreements. Pursuant to these agreements, the annual base salaries for Messrs. Fairbanks, Schmidt, Walkoff and Marlette are $237,145, $257,500, $231,450 and $185,400 per year, respectively, and they are eligible to receive an annual performance-based bonus in an amount, if any, to be determined by our President and Chief Executive Officer. The annual base salaries set forth in these agreements may be increased, but not decreased, at the discretion of our President and Chief Executive Officer. In January 2011, the annual base salaries for Messrs. Fairbanks, Schmidt, Walkoff and Marlette were increased to $244,300, $265,300, $238,400 and $205,000.

Messrs. Fairbanks, Schmidt, Walkoff and Marlette are entitled to certain benefits in connection with a termination of their employment or a change of control as discussed below under "— Potential Payments Upon Termination or Change of Control."

Employment, Confidentiality and Non-Competition Agreements

Each of our named executive officers has also entered into an employment, confidentiality and non-competition agreement. Among other things, this agreement obligates each named executive officer to refrain from disclosing any of our proprietary information received during the course of employment and to assign to us any inventions conceived or developed during the course of employment. Additionally, each of our named executive officers is prohibited from (i) competing with us for a period of one year following termination of employment and (ii) soliciting or interfering with our business relationship of any of our existing clients, customers, business partners, or employees for a period of two years.

2010 Corporate Bonus Plan

Upon the recommendation of our compensation committee, our board of directors approved our 2010 corporate bonus plan on March 17, 2010 and amended such plan on July 21, 2010. Pursuant to the 2010 corporate bonus plan, as amended, or the 2010 corporate bonus plan, each named executive officer's 2010 bonus award amount was determined based upon the achievement of certain predetermined revenue and EBITDA targets for 2010. If these corporate goals were met or exceeded, Mr. Young was entitled to 30% of his annual base salary and an additional 4% of annual base salary for every 1% by which the actual revenue exceeded the target amount; Messrs. Fairbanks, Schmidt and Walkoff were entitled to 20% of their respective annual base salaries and an additional 3% of annual base salary for every 1% by which the actual revenue exceeded the target amount; and Mr. Marlette was entitled to 15% of his annual base salary and an additional 2% of annual base salary for every 1% by which the actual revenue exceeded the target amount. As a result of meeting and exceeding these corporate goals for fiscal year 2010, our compensation committee recommended and our board of directors approved 2010 bonus payments under our 2010 corporate bonus plan to Messrs. Young, Fairbanks, Schmidt, Walkoff and Marlette of $140,503, $72,215, $78,414, $70,481 and $40,728, respectively.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information regarding stock options held by our named executive officers as of December 31, 2010.

	Option Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date
Donald R. Young	1,854,024[1]	1,705,704[2]	$ 0.22	11/11/2019
	7,291	342,709[3]	1.30	11/17/2020
John F. Fairbanks	466,576	429,250[2]	0.22	11/11/2019
	3,124	146,876[3]	1.30	11/17/2020
Kevin A. Schmidt	552,524	508,323[2]	0.22	11/11/2019
	3,124	146,876[3]	1.30	11/17/2020
Harry R. Walkoff	466,576	429,250[2]	0.22	11/11/2019
	3,124	146,876[3]	1.30	11/17/2020
Christopher L. Marlette	202,592	186,385[2]	0.22	11/11/2019
	1,041	48,959[3]	1.30	11/17/2020

[1] Includes options for 58,206 shares of our common stock transferred to Mr. Young's children in November 2010.

[2] This option to purchase shares of our common stock vested as to 25% of the shares on November 11, 2009 and thereafter 2.083% of the shares vest in equal monthly installments over 36 months.

[3] This option to purchase shares of our common stock vests as to 2.083% of the shares in equal monthly installments over the 48 months following the grant date of November 17, 2010.

Option Exercises and Stock Vested

There were no options exercised by any of the named executive officers during 2010.

Pension Benefits

None of our named executive officers participates in or has account balances in qualified or non-qualified defined benefit plans sponsored by us.

Non-Qualified Deferred Compensation

None of our named executive officers participate in or have account balances in non-qualified defined contribution plans or other deferred compensation plans maintained by us. The compensation committee may elect to provide our officers and other employees with non-qualified defined contribution or deferred compensation benefits if the compensation committee determines that doing so is in our best interests.

Potential Payments Upon Termination or Change of Control

We have agreed to provide severance and change of control payments and benefits to our named executive officers under specified circumstances, as described below.

Donald R. Young

Pursuant to the terms of our executive agreement with Mr. Young, dated March 17, 2010, (i) if we terminate Mr. Young's employment without cause, (ii) if he resigns within 30 days of the

occurrence of an event constituting good reason (including the expiration of any applicable cure periods) or (iii) upon a change of control, if the executive does not receive an offer to remain employed by us in the same position that is set forth in his executive agreement at a comparable rate of compensation, bonus, benefits and other material terms for a period of at least two years following the change of control, which we refer to as a change of control termination, Mr. Young will receive severance payments in an amount equal to six months of his base salary then in effect, such amount to be paid in regular installments in accordance with our regular payroll practices. Upon such an occurrence, Mr. Young will also have the right to continue participation in all employee benefit plans and programs to which he was entitled to participate as of the date of termination for a period of six months following the date of such termination.

Upon a change of control where the executive does not receive an offer to remain employed in the same position at a comparable rate of compensation, bonus, benefits and other material terms for a period of at least two years following the change of control, or if Mr. Young's employment is terminated without cause or he resigns for good reason at any time during the two year period following a change of control, any and all then unvested options to purchase shares of our common stock will immediately vest and become exercisable.

After March 17, 2011, (i) if we terminate Mr. Young's employment without cause or (ii) if he resigns for good reason, Mr. Young's unvested options to purchase shares of our common stock will accelerate by three months. Upon such an occurrence, Mr. Young's options to purchase shares of our common stock will remain exercisable for the entire ten year term of the option and will not be subject to the general provision in our 2001 equity incentive plan that provides that an employee is required to exercise options within 90 days of termination of employment.

Mr. Young's right to receive the severance amounts set forth above are conditioned upon Mr. Young's execution and non-revocation within 45 days of the date of termination of a general release satisfactory to us releasing us, our officers, agents, stockholder and affiliates from any liability for any matter other than for payments under the executive agreement.

Section 280G of the Internal Revenue Code, or the Code, denies the company a tax deduction for certain payments made to an executive in connection with a change of control if the payments exceed a certain amount. Section 4999 of the Code imposes on the executive an additional twenty percent excise tax on those payments. As a result, if the aggregate of the payments and benefits that Mr. Young receives pursuant to his employment agreement or pursuant to any other plan or agreement with us are subject to the excise tax imposed by Section 4999 of the Code, under Mr. Young's executive agreement, we are required to reduce the amount of the aggregate payments so that they are not subject to Section 4999 of the Code unless the aggregate value of the payments and benefits on an after tax basis would be greater than if they are not reduced.

Other Named Executive Officers

Pursuant to the terms of our executive agreements with Messrs. Fairbanks, Schmidt, Walkoff and Marlette, each dated March 17, 2010, (i) if we terminate the executive's employment without cause, (ii) if the executive resigns within 30 days of the occurrence of an event constituting good reason (including the expiration of any applicable cure periods) or (iii) upon a change of control termination, the executive will receive severance payments in an amount equal to three months of the executive's base salary then in effect, such amount to be paid in regular installments in accordance with our regular payroll practices. Upon such an occurrence, the executive will also have the right to continue participation in all employee benefit plans and programs to which the executive was entitled to participate as of the date of termination for a period of three months following the date of such termination.

Upon a change of control where the executive does not receive an offer to remain employed in the same position at a comparable rate of compensation, bonus, benefits and other material terms for a period of at least two years following the change of control, or if the executive's employment is

terminated without cause or he resigns for good reason at any time during the two year period following a change of control, any and all then unvested options to purchase shares of our common stock will immediately vest and become immediately exercisable.

After March 17, 2011, (i) if we terminate the executive's employment without cause or (ii) if he resigns for good reason, the executive's unvested options to purchase shares of our common stock will accelerate by three months. Upon such an occurrence, the executive's options to purchase shares of our common stock will remain exercisable for the entire ten year term of the option and will not be subject to the general provision in our 2001 equity incentive plan that provides that an employee is required to exercise options within 90 days of termination of employment.

The executive's right to receive the severance amounts set forth above are conditioned upon the executive's execution and non-revocation within 45 days of the date of termination of a general release satisfactory to us releasing us, our officers, agents, stockholder and affiliates from any liability for any matter other than for payments under the executive agreement.

Section 280G of the Code denies the company a tax deduction for certain payments made to an executive in connection with a change of control if the payments exceed a certain amount. Section 4999 of the Code imposes on the executive an additional twenty percent excise tax on those payments. As a result, if the aggregate of the payments and benefits that the executive receives pursuant to his employment agreement or pursuant to any other plan or agreement with us are subject to the excise tax imposed by Section 4999 of the Code, under the executive's executive agreement, we are required to reduce the amount of the aggregate payments so that they are not subject to Section 4999 of Code unless the aggregate value of the payments and benefits on an after tax basis would be greater than if they are not reduced.

"Cause" is defined under all of the executive agreements as (i) willful misconduct, dishonesty, fraud or breach of fiduciary duty to us; (ii) deliberate disregard of our lawful rules or policies, or breach of an employment or other agreement with us, which results in direct or indirect loss, damage or injury to us; (iii) the unauthorized disclosure of any of our trade secrets or confidential information; or (iv) the commission of an act which constitutes unfair competition with us or which induces any customer or supplier to breach a contract with us.

"Good Reason" is defined under all of the executive agreements as (i) any material breach by us of the executive agreement that we do not cure within thirty (30) days of receiving written notice specifying in reasonable detail the nature of such material breach provided by the executive; (ii) the demotion of the executive such that the executive no longer serves as in the position set forth in the executive agreement or a material reduction in the executive's current duties and authority in the position set forth in the executive agreement, in each case, without his consent; (iii) the written demand by us for the executive to relocate or commute more than 40 miles from Brookline, Massachusetts, in the case of Mr. Young, or Northborough, Massachusetts, in the case of all other named executive officers, without his consent; or (iv) any reduction by us in the executive's base salary without his consent.

"Change of Control" is defined under all of the executive agreements as the occurrence of any of the following: (i) any "person" or "group" (as such terms are used in Section 13(d)(3) of the Exchange Act (other than a person or group which is one of our shareholders as of March 17, 2010)) is or becomes the beneficial owner, directly or indirectly, through a purchase, merger or other acquisition transaction or series of transactions, of our capital stock entitling such person or group to control 50% or more of the total voting power of our capital stock entitled to vote generally in the election of directors, where any voting capital stock of which such person or group is the beneficial owner that are not then outstanding are deemed outstanding for purposes of calculating such percentage; except in connection with our issuance of capital stock in a bona-fide financing

transaction the proceeds of which are to be utilized by us for general corporate purposes or (ii) any sale or transfer of all or substantially all of our assets to another person.

Potential Payments at December 31, 2010

The table below summarizes the potential payments and benefits to each of our named executive officers assuming he was terminated without cause or resigned for good reason at December 31, 2010.

Name	Severance Payments	Bonus Payments	Post-Termination Benefits [1]	Total Benefits
Donald R. Young	$159,895	$140,503	$7,113	$307,511
John F. Fairbanks	59,286	72,215	4,125	135,626
Kevin A. Schmidt	64,375	78,414	3,557	146,346
Harry R. Walkoff	57,863	90,481	3,557	151,901
Christopher L. Marlette	46,350	40,728	3,557	90,635

(1) Represents premiums paid by us for continuation of the executive's medical, dental and vision insurance coverage.

The table below summarizes the potential payments and benefits to each of our named executive officers assuming there was (i) a change of control where the executive does not receive an offer to remain employed in the same position at a comparable rate of compensation, bonus, benefits and other material terms for a period of at least two years following the change of control or (ii) the executive was terminated without cause or resigned for good reason at any time during the two year period following the change of control, as if such event occurred at December 31, 2010.

Name	Severance Payments	Bonus Payments	Value of Additional Vested Option Awards ($) [1]	Post-Termination Benefits [2]	Total Benefits
Donald R. Young	$159,895	$140,503	$2,169,906	$7,113	$2,477,417
John F. Fairbanks	59,286	72,215	555,770	4,125	691,396
Kevin A. Schmidt	64,375	78,414	653,821	3,557	800,167
Harry R. Walkoff	57,863	90,481	555,770	3,557	707,671
Christopher L. Marlette	46,350	40,728	238,951	3,557	329,586

(1) This represents the amount equal to (a) the number of option shares that would vest, assuming a change of control termination at December 31, 2010, multiplied by (b) the excess of $1.46, which represented our board of directors' determination of the fair market value of our common stock as of December 31, 2010, over the exercise price of the option.

(2) Represents premiums paid by us for continuation of the executive's medical, dental and vision insurance coverage.

Director Compensation

The following table shows the total compensation paid or accrued during the fiscal year ended December 31, 2010 to each of our non-employee directors who served during the year.

Name	Fees Earned or Paid in Cash	Option Awards ($) [1]	All Other Compensation ($)	Total ($)
Thomas E. Banahan [2]	$—	$ —	$ —	$ —
P. Ramsay Battin	—	—	—	—
Craig A. Huff	—	—	—	—
Steven R. Mitchell	—	—	—	—
Mark L. Noetzel	—	63,980[3]	32,625[5]	96,605
David J. Prend	—	—	—	—
Richard F. Reilly	—	173,313[4]	9,376[5]	182,689

[1] These amounts represent the aggregate grant date fair value for option awards granted to our directors, computed in accordance with FASB ASC Topic 718. Valuation assumptions are described in the notes to our financial statements included elsewhere in this prospectus. See our discussion of stock-based compensation under "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Stock-based Compensation."

[2] Mr. Banahan resigned as a member of our board of directors on June 17, 2011.

[3] On November 17, 2010, Mr. Noetzel was granted options to purchase 100,000 shares of our common stock at an exercise price of $1.30. These options vest at the rate of 6.25% per quarter beginning three months after the grant date, provided that upon completion of this offering or a sale of the company, 25% of any unvested options will immediately vest. As of December 31, 2010, Mr. Noetzel held options to purchase 325,000 shares of common stock, 56,250 of which were vested.

[4] On July 21, 2010 and November 17, 2010, Mr. Reilly was granted options to purchase 225,000 and 50,000, respectively, shares of our common stock, each with an exercise price of $1.30 per share. These options vest at the rate of 6.25% per quarter beginning three months after the applicable grant date, provided that upon completion of this offering or a sale of the company, 25% of any unvested options will immediately vest. As of December 31, 2010, Mr. Reilly held options to purchase 275,000 shares of common stock, 14,062 of which were vested.

[5] Consists of payments made pursuant to a consulting arrangement with the director that is unrelated to the director's service on the board. Pursuant to the arrangement, the director was required to attend operating, sales or similar meetings with our management team and received an hourly fee in connection with such service.

In January 2011, Robert M. Gervis and William P. Noglows were elected as members of our board of directors. In connection with their agreement to serve on our board of directors, we granted each an option to purchase 265,000 shares of our common stock at an exercise price of $1.46. These options vest at the rate of 6.25% per quarter beginning three months after the grant date, provided that upon the completion of this offering or a sale of the company, 25% of any unvested options will immediately vest.

In recent years, we have not provided any compensation to employee directors or to directors who were affiliated with our major shareholders. We have, however, provided option grants, as set forth above, to non-employee, non-investor directors for serving on our board of directors.

In 2011, our board of directors adopted the non-employee director compensation policy, or our director compensation policy, that will become effective following the completion of this offering. The policy is designed to ensure that the compensation aligns our non-employee directors' interests with the long-term interests of the stockholders, that the structure of the compensation is simple, transparent and easy for stockholders to understand and that our non-employee directors are fairly compensated. Directors who are also our employees, such as Mr. Young, will not receive additional compensation for their services as directors.

Pursuant to our director compensation policy, upon initial election or appointment to the board of directors, new non-employee directors receive a non-qualified stock option to purchase shares of our common stock at an exercise price equal to the fair market value on the date

of grant, which will vest from the date of grant. Each year of a non-employee director's tenure, the director will receive a non-qualified stock option to purchase shares of our common stock at an exercise price equal to the fair market value on the date of grant, which will vest from the date of grant. Any vested and unexercised stock options granted pursuant to our director compensation policy will terminate on the earlier of years from the date of grant and months after the recipient ceases to serve as a director. The options become fully vested and exercisable upon a change of control.

In addition, pursuant to our director compensation policy, each non-employee director will be paid an annual retainer of $, or $ in the case of the chairperson, for their services. If we hold more than board meetings in a calendar year, each non-employee director will receive a fee of $ for each additional board meeting attended in person and a fee of $ for each additional board meeting attended by telephone or by other means of communication. Committee members will receive additional annual retainers as follows:

Committee	Chairman	Member
Audit Committee	$	$
Compensation Committee		
Nominating and Governance Committee		

With respect to each committee set forth above, if we hold more than meetings of a committee in a calendar year, each committee member will receive a fee of $ for each additional committee meeting attended in person and a fee of $ for each additional committee meeting attended by telephone or by other means of communication.

We have reimbursed and will continue to reimburse our non-employee directors for their reasonable expenses incurred in attending meetings of our board of directors and committees of the board of directors.

Stock Option and Other Compensation Plans

2011 Employee, Director and Consultant Equity Incentive Plan

Our 2011 employee, director and consultant equity incentive plan, or the 2011 equity incentive plan, which will become effective upon the closing of the offering made hereby, was adopted by our board of directors in 2011 and approved by our stockholders in 2011. The 2011 equity incentive plan will expire in 2021. Under our 2011 equity incentive plan, we may grant incentive stock options, non-qualified stock options, restricted and unrestricted stock awards and other stock-based awards. There will be (1) shares of our common stock authorized for issuance under the 2011 equity incentive plan plus (2) shares of our common stock represented by awards granted under our 2001 stock plan that are forfeited, expire or are cancelled without delivery of shares or which result in the forfeiture of shares of our common stock back to us on or after the date that the 2011 equity incentive plan becomes effective.

In addition, the 2011 equity incentive plan contains an "evergreen" provision, which allows for an annual increase in the number of shares of our common stock available for issuance under the 2011 equity incentive plan on the first day of each fiscal year during the period beginning in fiscal year 2012 and ending in fiscal year 2021. The annual increase in the number of shares shall be equal to the lowest of:

- shares of our common stock;
- % of the number of shares of our common stock outstanding as of such date; and
- an amount determined by our board of directors or compensation committee.

The board of directors has authorized our compensation committee to administer the 2011 equity incentive plan. In accordance with the provisions of the plan, the compensation committee will determine the terms of options and other awards. The compensation committee or our board of directors will determine:

- which employees, directors and consultants shall be granted awards;
- the number of shares of our common stock subject to options and other awards;
- the exercise price of each option, which generally shall not be less than fair market value on the date of grant;
- the schedule upon which options become exercisable;
- the termination or cancellation provisions applicable to options;
- the terms and conditions of other awards, including conditions for repurchase, termination or cancellation, issue price and repurchase price; and
- all other terms and conditions upon which each award may be granted in accordance with our plan.

No participant may receive awards for more than shares of our common stock in any fiscal year.

In addition, our board of directors or any committee to which the board of directors delegates authority may, with the consent of the affected plan participants, reprice or otherwise amend outstanding awards consistent with the terms of our plan.

Upon a merger, consolidation or sale of all or substantially all of our assets, our board of directors or any committee to which the board of directors delegates authority, or the board of directors of any corporation assuming our obligations, may, in its sole discretion, take any one or more of the following actions pursuant to our plan, as to some or all outstanding awards:

- provide that outstanding options will be assumed or substituted for options of the successor corporation;
- provide that the outstanding options must be exercised within a certain number of days, either to the extent the options are then exercisable, or at our board of directors' discretion, any such options being made partially or fully exercisable;
- terminate outstanding options in exchange for a cash payment of an amount equal to the difference between (a) the consideration payable upon consummation of the corporate transaction to a holder of the number of shares into which such option would have been exercisable to the extent then exercisable (or, in our board of directors' discretion, any such options being made partially or fully exercisable) and (b) the aggregate exercise price of those options;
- provide that outstanding stock grants will be substituted for shares of the successor corporation or consideration payable with respect to our outstanding stock in connection with the corporate transaction; and
- terminate outstanding stock grants in exchange for payment of an amount equal to the consideration payable upon consummation of the corporate transaction to a holder of the same number of shares comprising the stock grant, to the extent the stock grant is no longer subject to any forfeiture or repurchase rights (or, at our board of directors' discretion, all forfeiture and repurchase rights being waived upon the corporate transaction).

2001 Equity Incentive Plan

The 2001 equity incentive plan, as amended, or the 2001 equity incentive plan, was adopted in May 2001 and was last amended in May 2011. As of March 31, 2011, a maximum of 13,145,806 shares of our common stock was authorized for issuance under the 2001 equity incentive plan. The 2001 equity incentive plan allows us to grant options, restricted stock awards and other stock-based awards to our employees, officers and directors as well as outside consultants we retain from time to time. As of March 31, 2011, under the 2001 equity incentive plan, options to purchase 12,832,208 shares of our common stock were outstanding, 35,360 shares of our common stock had been issued and were outstanding pursuant to the exercise of options, and 278,238 shares of our common stock were available for future awards. We anticipate that upon completion of this offering we will grant no further stock options or restricted stock awards under the 2001 equity incentive plan.

Under the 2001 equity incentive plan, if we are consolidated with or acquired by another entity in a merger, sale of all or substantially all of our assets or otherwise, our board of directors or the board of directors of any entity assuming our obligations under the 2001 equity incentive plan will take any of the following actions with respect to the options: (i) provide that outstanding options will be substituted on equitable basis for the shares subject to such options either with (a) consideration payable with respect to the outstanding shares in connection with the acquisition event or (b) with comparable securities of the surviving corporation or acquiring entity; (ii) provide option holders with an opportunity to exercise their outstanding options and then terminate any or all unexercised options at such time as the board of directors deems appropriate; or (iii) require that option holders surrender their outstanding options in exchange for a payment in cash in an amount equal to the amount by which the then fair market value of the unexercised options exceeds the exercise price of the options.

401(k) Retirement Plan

We maintain a 401(k) retirement plan that is intended to be a tax-qualified defined contribution plan under Section 401(k) of the Code. In general, all of our employees are eligible to participate upon commencement of their employment. The 401(k) plan includes a salary deferral arrangement pursuant to which participants may elect to reduce their current compensation by up to the statutorily prescribed limit, equal to $16,500 in 2011, plus $5,500 for individuals aged 50 and over, and have the amount of the reduction contributed to the 401(k) plan. We do not currently match any 401(k) contributions.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

Since January 1, 2008, we have engaged in the following transactions with our directors, executive officers and holders of more than 5% of our voting securities, which we refer to as our principal stockholders, and affiliates or immediately family members of our directors, executive officers and principal stockholders. We believe that all of these transactions were on terms as favorable as could have been obtained from unrelated third parties.

Some of our directors are affiliated with our principal stockholders as indicated in the table below:

Director	Affiliation with Principal Stockholder
Thomas E. Banahan [1]	Managing Member of the general partners of Tenaya Capital IV, L.P. and affiliated entities
P. Ramsay Battin	Director of Arcapita Inc., an affiliate of Arcapita Ventures I Limited
Craig A. Huff	Senior Managing Member of RCGM, LLC, the ultimate general partner of Reservoir Capital Partners, L.P. and Reservoir Capital Master Fund, L.P.
Steven R. Mitchell	Managing Director of Argonaut Private Equity, LLC, the manager of Argonaut Ventures I, LLC
David J. Prend	Managing Member of the general partners of RockPort Capital Partners, L.P. and affiliated entities

[1] Mr. Banahan resigned as a member of our board of directors on June 17, 2011.

Demand Notes Issued in 2008

Prior to the 2008 recapitalization, referenced below, we issued a series of demand notes between July 2006 and May 2008. Certain of these demand notes were purchased in 2008 by certain of our principal stockholders in the following amounts and on the following dates:

Name of Beneficial Owner	Date of Issuance of Debt	Original Principal Amount of Debt
Reservoir Capital Partners, L.P. and affiliated funds:		
Reservoir Capital Partners, L.P.	January 30, 2008	$220,450.00
	February 11, 2008	$220,450.00
	February 26, 2008	$661,350.00
	March 11, 2008	$661,350.00
	March 25, 2008	$440,900.00
	April 22, 2008	$440,900.00
	May 6, 2008	$440,900.00
	May 27, 2008	$456,001.71
Reservoir Capital Master Fund, L.P.	January 30, 2008	$ 29,550.00
	February 11, 2008	$ 29,550.00
	February 26, 2008	$ 88,650.00
	March 11, 2008	$ 88,650.00
	March 25, 2008	$ 59,100.00
	April 22, 2008	$ 59,100.00
	May 6, 2008	$ 59,100.00
	May 27, 2008	$ 61,124.29

These demand notes, which accrued interest at the rate of 6% per year and were payable on demand, but in any event no later than June 30, 2008, were converted into preferred stock in connection with the 2008 recapitalization. See "2008 Reorganization, Recapitalization and Series B-1 Preferred Stock Financing" below.

2008 Reorganization, Recapitalization and Series B-1 Convertible Preferred Stock Financing

In June 2008, we completed a reorganization and recapitalization pursuant to which our predecessor company merged with and into a newly formed Delaware corporation, Aspen Merger Sub, Inc., a wholly-owned subsidiary of our predecessor company formed for the purpose of the reorganization. As the surviving entity to the merger, we then changed our name from "Aspen Merger Sub, Inc." to "Aspen Aerogels, Inc." Each outstanding share of our predecessor company's common stock was converted in the merger into 18 shares of the company's common stock. All unexercised and unexpired options and warrants then outstanding to purchase our predecessor company's common stock were assumed by us and became exercisable for the company's common stock. All outstanding shares of our predecessor company's Series A convertible preferred stock, Series C convertible preferred stock and Series D convertible preferred stock were converted in the merger into shares of our Series A-3 convertible preferred stock, Series A-2 convertible preferred stock and Series A-1 convertible preferred stock, respectively. In addition, the predecessor company's then outstanding demand loans made prior to November 30, 2007, then outstanding 14% senior secured notes due 2010 and then outstanding demand loans made on or after November 30, 2007 were converted into shares of our Series B-3 convertible preferred stock, Series B-2 convertible preferred stock and Series B-1 convertible preferred stock, respectively. The following table summarizes these conversions of our predecessor company's Series A convertible preferred stock, Series C convertible preferred stock, Series D convertible preferred stock, demand notes and 14% senior secured notes due 2010 with respect to our principal stockholders:

Name of Beneficial Owner	Type of Preferred Shares Converted	Number of Shares Converted	Type of Preferred Shares Received in Conversion	Number of Shares Received in Conversion
Reservoir Capital Partners, L.P. and affiliated funds	Series D	838.8141 (1)	Series A-1	1,863,372 (2)
RockPort Capital Partners, L.P. and affiliated funds	Series A	279.9500 (3)	Series A-3	229,867 (3)
	Series C	235.8491 (4)	Series A-2	315,874 (5)
	Series D	67.7626 (6)	Series A-1	150,530 (7)

(1) Consists of 739.6663 shares held by Reservoir Capital Partners, L.P. and 99.1478 shares held by Reservoir Capital Master Fund, L.P.

(2) Consists of 1,643,121 shares held by Reservoir Capital Partners, L.P. and 220,251 shares held by Reservoir Capital Master Fund, L.P.

(3) Consists of shares held by RockPort Capital Partners, L.P.

(4) Consists of 146.2264 shares held by RockPort Capital Partners, L.P. and 89.6227 shares held by RP Co-Investment Fund I, L.P.

(5) Consists of 195,842 shares held by RockPort Capital Partners, L.P. and 120,032 shares held by RP Co-Investment Fund I, L.P.

(6) Consists of 32.0654 shares held by RockPort Capital Partners, L.P. and 35.6972 shares held by RP Co-Investment Fund I, L.P.

(7) Consists of 71,231 shares held by RockPort Capital Partners, L.P. and 79,299 shares held by RP Co-Investment Fund I, L.P.

Name of Beneficial Owner	Description of Debt Converted	Date of Issuance of Debt	Original Principal Amount of Debt	Type of Preferred Shares Received in Conversion	Number of Shares Received in Conversion
Reservoir Capital Partners, L.P. and affiliated funds	Demand loans	(1)	$16,686,082.39 (1)	Series B-3	8,312,260 (2)
	14% senior secured notes due 2010	(3)	$16,480,460.48 (3)	Series B-2	11,847,136 (4)
	Demand loans	(5)	$ 5,017,126.00 (5)	Series B-1	2,353,601 (6)
RockPort Capital Partners, L.P. and affiliated funds	Demand loans	(7)	$14,506,944.47 (7)	Series B-3	7,234,907 (8)
	14% senior secured notes due 2010	(9)	$ 1,331,354.42 (9)	Series B-2	950,910 (10)

(1) Consists of demand notes held by: Reservoir Capital Partners, L.P. dated January 19, 2007 in the original principal amount of $10,966,137.45, Reservoir Capital Partners, L.P. dated February 26, 2007 in the original principal amount of $440,900, Reservoir Capital Partners, L.P. dated March 28, 2007 in the original principal amount of $440,900, Reservoir Capital Partners, L.P. dated April 25, 2007 in the original principal amount of $440,900, Reservoir Capital Partners, L.P. dated June 6, 2007 in the original principal amount of $881,800, Reservoir Capital Partners, L.P. dated August 1, 2007 in the original principal amount of $881,800, Reservoir Capital Partners, L.P. dated September 24, 2007 in the original principal amount of $661,350, Reservoir Capital Master Fund, L.P. dated January 19, 2007 in the original principal amount of $1,469,944.94, Reservoir Capital Master Fund, L.P. dated February 26, 2007 in the original principal amount of $59,100, Reservoir Capital Master Fund, L.P. dated March 28, 2007 in the original principal amount of $59,100, Reservoir Capital Master Fund, L.P. dated April 25, 2007 in the original principal amount of $59,100, Reservoir Capital Master Fund, L.P. dated June 6, 2007 in the original principal amount of $118,200, Reservoir Capital Master Fund, L.P. dated August 1, 2007 in the original principal amount of $118,200 and Reservoir Capital Master Fund, L.P. dated September 24, 2007 in the original principal amount of $88,650.

(2) Consists of 7,329,751 shares held by Reservoir Capital Partners, L.P. and 982,509 shares held by Reservoir Capital Master Fund, L.P.

(3) Consists of 14% senior secured notes due 2010 held by: Reservoir Capital Partners, L.P. dated February 24, 2005 in the original principal amount of $8,818,000, Reservoir Capital Partners, L.P. dated March 23, 2005 in the original principal amount of $5,714,470.05, Reservoir Capital Master Fund, L.P. dated February 24, 2005 in the original principal amount of $1,182,000 and Reservoir Capital Master Fund, L.P. dated March 23, 2005 in the original principal amount of $765,990.43.

(4) Consists of 10,446,805 shares held by Reservoir Capital Partners, L.P. and 1,400,331 shares held by Reservoir Capital Master Fund, L.P.

(5) Consists of demand notes held by: Reservoir Capital Partners, L.P. dated November 30, 2007 in the original principal amount of $661,350, Reservoir Capital Partners, L.P. dated December 28, 2007 in the original principal amount of $220,450, Reservoir Capital Partners, L.P. dated January 30, 2008 in the original principal amount of $220,450, Reservoir Capital Partners, L.P. dated February 11, 2008 in the original principal amount of $220,450, Reservoir Capital Partners, L.P. dated February 26, 2008 in the original principal amount of $661,350, Reservoir Capital Partners, L.P. dated March 11, 2008 in the original principal amount of $661,350, Reservoir Capital Partners, L.P. dated March 25, 2008 in the original principal amount of $440,900, Reservoir Capital Partners, L.P. dated April 22, 2008 in the original principal amount of $440,900, Reservoir Capital Partners, L.P. dated May 6, 2008 in the original principal amount of $440,900, Reservoir Capital Partners, L.P. dated May 27, 2008 in the original principal amount of $456,001.71, Reservoir Capital Master Fund, L.P. dated November 30, 2007 in the original principal amount of $88,650, Reservoir Capital Master Fund, L.P. dated December 28, 2007 in the original principal amount of $29,550, Reservoir Capital Master Fund, L.P. dated January 30, 2008 in the original principal amount of $29,550, Reservoir Capital Master Fund, L.P. dated February 11, 2008 in the original principal amount of $29,550, Reservoir Capital Master Fund, L.P. dated February 26, 2008 in the original principal amount of $88,650, Reservoir Capital Master Fund, L.P. dated March 11, 2008 in the original principal amount of $88,650, Reservoir Capital Master Fund, L.P. dated March 25, 2008 in the original principal amount of $59,100, Reservoir Capital Master Fund, L.P. dated April 22, 2008 in the original principal amount of $59,100, Reservoir Capital Master Fund, L.P. dated May 6, 2008 in the original principal amount of $59,100 and Reservoir Capital Master Fund, L.P. dated May 27, 2008 in the original principal amount of $61,124.29.

(6) Consists of 2,075,405 shares held by Reservoir Capital Partners, L.P. and 278,196 shares held by Reservoir Capital Master Fund, L.P.

(7) Consists of demand notes held by: RockPort Capital Partners, L.P. dated January 19, 2007 in the original principal amount of $1,023,763.65, RP Co-Investment Fund I, L.P. dated January 19, 2007 in the original principal amount of $713,117.81, RockPort SII, LLC dated January 19, 2007 in the original principal amount of $3,157,624.65, RockPort Capital Partners II,

L.P. dated January 19, 2007 in the original principal amount of $6,112,438.36, RockPort Capital Partners II, L.P. dated February 26, 2007 in the original principal amount of $500,000, RockPort Capital Partners II, L.P. dated March 28, 2007 in the original principal amount of $500,000, RockPort Capital Partners II, L.P. dated April 25, 2007 in the original principal amount of $500,000, RockPort Capital Partners II, L.P. dated June 6, 2007 in the original principal amount of $1,000,000 and RockPort Capital Partners II, L.P. dated August 1, 2007 in the original principal amount of $1,000,000.

(8) Consists of 512,953 shares held by RockPort Capital Partners, L.P., 357,305 shares held by RP Co-Investment Fund I, L.P., 1,582,116 shares held by Rockport SII, LLC and 4,782,533 shares held by RockPort Capital Partners II, L.P.

(9) Consists of 14% senior secured notes due 2010 held by RockPort Capital Partners, L.P. dated March 23, 2005 in the original principal amount of $630,000 and RP Co-Investment Fund I, L.P. dated March 23, 2005 in the original principal amount of $701,354.42.

(10) Consists of 449,973 shares held by RockPort Capital Partners, L.P. and 500,937 shares held by RP Co-Investment Fund I, L.P.

In connection with the 2008 reorganization and recapitalization, we issued and sold 12,476,528 shares of our Series B-1 convertible preferred stock for an aggregate purchase price of approximately $27,018,062 under a stock purchase agreement. Shares of our Series B-1 convertible preferred stock were purchased by certain of our stockholders in the following amounts and for the following purchase prices:

Name of Beneficial Owner	Number of Shares of Series B-1 Convertible Preferred Stock Purchased	Approximate Aggregate Purchase Price	Date of Purchase
Arcapita Ventures I Limited	4,617,847	$10,000,000	June 10, 2008
Reservoir Capital Partners, L.P. and affiliated funds	1,385,355(1)	$ 3,000,000	June 10, 2008
RockPort Capital Partners, L.P. and affiliated funds	2,078,031(2)	$ 4,500,000	June 10, 2008

(1) Consists of 1,221,606 shares purchased by Reservoir Capital Partners, L.P. and 163,479 shares purchased by Reservoir Capital Master Fund, L.P.

(2) Consists of shares purchased by RockPort Capital Partners II, L.P.

The purpose of the 2008 reorganization and recapitalization was to modify and simplify our capital structure in order to attract additional financing for the company.

2009 Recapitalization and Series A Convertible Preferred Stock Financing

In August 2009, we consummated a recapitalization in which the then outstanding shares of our Series A-3 convertible preferred stock, Series A-2 convertible preferred stock, Series A-1 convertible preferred stock, Series B-3 convertible preferred stock and Series B-2 convertible preferred stock were converted into shares of our common stock on a 1-for-1 basis and the then outstanding shares of our Series B-1 convertible preferred stock were converted into shares of our common stock on a two-for-one basis. As part of this recapitalization and financing, we and Arcapita Ventures I Limited agreed to cancel a warrant to purchase 1,154,462 shares of Series B-1 convertible preferred stock.

The following table summarizes the preferred stock conversions with respect to our principal stockholders and does not reflect a 1-for-3 reverse stock split effected on September 25, 2009:

Name of Beneficial Owner	Number of Shares of Preferred Stock Converted						Number of Shares of Common Stock Received in Conversion
	Series A-3	Series A-2	Series A-1	Series B-3	Series B-2	Series B-1	
Arcapita Ventures I Limited	—	—	—	—	—	4,617,847	9,235,694
Tenaya Capital and affiliated funds	—	97,031[1]	19,221[1]	957,450[1]	121,423[1]	359,027[1]	1,913,179[1]
Reservoir Capital Partners, L.P. and affiliated funds	—	—	1,863,372[2]	8,312,260[3]	11,847,136[4]	3,738,956[5]	29,500,680[6]
RockPort Capital Partners, L.P. and affiliated funds	229,867[7]	315,874[8]	150,530[9]	7,234,907[10]	950,910[11]	2,078,031[12]	13,039,094[13]

(1) Consists of shares held by Tenaya Capital IV, LP.

(2) Consists of 1,643,121 shares held by Reservoir Capital Partners, L.P. and 220,251 shares held by Reservoir Capital Master Fund, L.P.

(3) Consists of 7,329,751 shares held by Reservoir Capital Partners, L.P. and 982,509 shares held by Reservoir Capital Master Fund, L.P.

(4) Consists of 10,446,805 shares held by Reservoir Capital Partners, L.P. and 1,400,331 shares held by Reservoir Capital Master Fund, L.P.

(5) Consists of 3,297,011 shares held by Reservoir Capital Partners, L.P. and 441,945 shares held by Reservoir Capital Master Fund, L.P.

(6) Consists of 26,013,699 shares held by Reservoir Capital Partners, L.P. and 3,486,981 shares held by Reservoir Capital Master Fund, L.P.

(7) Consists of shares held by RockPort Capital Partners, L.P.

(8) Consists of 195,842 shares held by RockPort Capital Partners, L.P. and 120,032 shares held by RP Co-Investment Fund I, L.P.

(9) Consists of 71,231 shares held by RockPort Capital Partners, L.P. and 79,299 shares held by RP Co-Investment Fund I, L.P.

(10) Consists of 512,953 shares held by RockPort Capital Partners, L.P., 357,305 shares held by RP Co-Investment Fund I, L.P., 4,782,533 shares held by RockPort Capital Partners II, L.P. and 1,582,116 shares held by RockPort SII, LLC.

(11) Consists of 449,973 shares held by RockPort Capital Partners, L.P. and 500,937 shares held by RP Co-Investment Fund I, L.P.

(12) Consists of shares held by RockPort Capital Partners II, L.P.

(13) Consists of 1,460,810 shares held by RockPort Capital Partners, L.P., 1,057,573 shares held by RP Co-Investment Fund I, L.P., 8,938,595 shares held by RockPort Capital Partners II, L.P. and 1,582,116 shares held by RockPort SII, LLC.

In connection with the 2009 recapitalization, in August and September 2009 we issued and sold an aggregate of 52,843,201 shares of our Series A preferred stock for an aggregate purchase price of $30,839,407. See “— Sales of Securities” below.

The purpose of the 2009 recapitalization was to modify and simplify our capital structure in order to attract additional financing for us.

Sales of Securities

The following table summarizes our sales of Series A preferred stock and Series B preferred stock to our officers, directors and beneficial owners of more than five percent of any class of our voting securities, and reflects the 1-for-3 reverse stock split effected on September 25, 2009. The purchase price was the fair market value as determined by arms-length negotiations between

sophisticated investors and our management and board of directors. Each share of our Series A preferred stock and Series B preferred stock is convertible into one share of our common stock. Additionally, the holders of our preferred stock are entitled to a cumulative dividend a the rate of 8.0% per year, and we will issue shares of common stock upon the closing of the offering made hereby in satisfaction of these accumulated dividends, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and that the offering is closed on , 2011.

Name of Beneficial Owner	Type of Preferred Shares	Number of Shares	Approximate Aggregate Purchase Price	Date of Purchase
5% or Greater Stockholders				
Arcapita Ventures I Limited [1]	Series A	5,140,488	$3,000,000	8/14/09
	Series A	5,063,381	$2,955,000	9/14/09
	Series B	1,569,961	$2,098,727	9/22/10
Argonaut Ventures I, LLC	Series A	12,851,220	$7,500,000	8/14/09
	Series A	2,499,517	$1,458,724	9/14/09
	Series B	1,831,721	$2,448,649	9/22/10
Tenaya Capital IV, L.P. and affiliated funds	Series A	1,720,198[2]	$1,003,911	9/14/09
	Series B	625,531[3]	$ 836,211	9/22/10
Reservoir Capital Partners, L.P. and affiliated funds	Series A	5,997,236[4]	$3,500,000	8/14/09
	Series A	7,710,733[5]	$4,500,000	9/14/09
	Series B	2,809,085[6]	$3,755,191	9/22/10
RockPort Capital Partners, L.P. and affiliated funds	Series A	3,426,992[7]	$2,000,000	8/14/09
	Series A	3,769,692[8]	$2,200,000	9/14/09
	Series B	1,377,332[9]	$1,841,221	9/22/10
Officers and Directors				
P. Ramsay Battin	Series A	25,702	$ 15,000	9/14/09
	Series B	3,067	$ 4,100	10/20/10
John F. Fairbanks	Series A	12,919	$ 7,540	9/10/09
	Series B	1,541	$ 2,061	10/20/10
Donald R. Young	Series A	12,919	$ 7,540	9/10/09
	Series B	1,541	$ 2,061	10/20/10

[1] Does not include shares of preferred stock purchased by P. Ramsay Battin, a director of Arcapita Inc., which is an affiliate of Arcapita Ventures I Limited, and referenced under the “Officers and Directors” section of this table.

[2] Consists of 676,380 shares of Series A preferred stock purchased by Tenaya Capital IV-P, LP, 649,052 shares of Series A preferred stock purchased by Tenaya Capital IV-C, LP and 394,766 shares of Series A preferred stock purchased by Tenaya Capital IV, LP.

[3] Consists of 211,090 shares of Series B preferred stock purchased by Tenaya Capital IV-P, LP, 202,561 shares of Series B preferred stock purchased by Tenaya Capital IV-C, LP and 211,880 shares of Series B preferred stock purchased by Tenaya Capital IV, LP.

[4] Consists of 5,222,427 shares of Series A preferred stock purchased by Reservoir Capital Partners, L.P. and 774,809 shares of Series A preferred stock purchased by Reservoir Capital Master Fund, L.P.

[5] Consists of 6,799,324 shares of Series A preferred stock purchased by Reservoir Capital Partners, L.P. and 911,409 shares of Series A preferred stock purchased by Reservoir Capital Master Fund, L.P.

[6] Consists of shares of Series B preferred stock purchased by Reservoir Capital Partners, L.P.

[7] Consists of shares of Series A preferred stock purchased by RockPort Capital Partners II, L.P.

(8) Consists of 2,398,894 shares of Series A preferred stock purchased by RockPort Capital Partners, L.P., 965,348 shares of Series A preferred stock purchased by RockPort S II, LLC and 405,449 shares of Series A preferred stock purchased by RockPort Capital Partners II, L.P.

(9) Consists of 344,313 shares of Series B preferred stock purchased by RockPort Capital Partners, L.P., 812,836 shares of Series B preferred stock purchased by RockPort Capital Partners II, L.P., 178,118 shares of Series B preferred stock purchased by RockPort S II, LLC and 42,065 shares of Series B preferred stock purchased by RP Co-Investment Fund I, L.P.

Agreements with Stockholders

In connection with our preferred stock financings described above under "— Sales of Securities," we entered into various stockholder agreements with the holders of our preferred stock relating to voting rights and information rights and registration rights, among other things. These stockholder agreements will terminate upon the completion of this offering, except for the registration rights granted under our registration rights agreement, as more fully described below in "— Registration Rights" and in "Description of Capital Stock — Registration Rights."

2011 Convertible Note Financing

In 2011, we issued $30.0 million aggregate principal amount of convertible notes with a maturity date of June 1, 2014 to 13 accredited investors, including 12 funds affiliated with Fidelity Investments, in our 2011 convertible note financing. Interest on the convertible notes accrues at the rate of 8.0% per year. The unpaid principal amount of the convertible notes, together with any interest accrued but unpaid thereon, will be automatically converted into common stock upon the closing of the offering made hereby at a conversion price equal to 87.5% of the price to the public in this offering. Assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and the closing of the offering made hereby occurs on , 2011, the $30.0 million principal amount of the outstanding convertible notes will convert into approximately shares of our common stock.

The convertible notes were issued in a private placement in accordance with Section 4(2) of the Securities Act and the shares of common stock issued upon the automatic conversion of the convertible notes will be restricted securities. The holders of the convertible notes will be entitled to the registration rights provided in our registration rights agreement with regard to the shares of common stock issued upon the automatic conversion of the convertible notes.

Indemnification Agreements

We have entered into indemnification agreements with each of our non-employee directors and will enter similar agreements with certain officers. The indemnification agreements and our restated certificate of incorporation and restated by-laws require us to indemnify our directors and officers to the fullest extent permitted by Delaware law. See "Management — Limitation of Directors' and Officers' Liability and Indemnification."

Registration Rights

Following the expiration of the lock-up period described below in "Shares Eligible for Future Sale — Lock-Up Agreements," pursuant to our registration rights agreement, the holders of shares of common stock, which includes, 26,027,222 shares of common stock, 65,853,493 shares of common stock issuable upon conversion of all of our outstanding preferred stock, shares of our common stock issuable upon conversion of our convertible notes upon completion of the offering made hereby and shares of common stock issuable in satisfaction of accrued but unpaid dividends on preferred stock held by our preferred stockholders, and 993,985 shares of common stock issuable pursuant to the exercise of warrants or their transferees, are entitled to registration rights with respect to the shares of common stock held by them. These shares include substantially all of the shares held by our principal stockholders and their affiliates and the outstanding shares of our

preferred stock held by P. Ramsay Battin, one of our directors, Donald R. Young, our President and Chief Executive Officer and John F. Fairbanks, our Chief Financial Officer.

See “Description of Capital Stock — Registration Rights” for a more detailed description of these registration rights.

Policy for Approval of Related Person Transactions

Pursuant to the written charter of our audit committee that will be in effect upon completion of this offering, the audit committee is responsible for reviewing, discussing with management and the independent auditors and approving, (i) prior to our entry into any such transaction, all transactions in which we are a participant and in which any parties related to us, including our executive officers, our directors, beneficial owners of more than 5% of our securities, immediate family members of the foregoing persons and any other persons whom our board of directors determines may be considered related parties under Item 404 of Regulation S-K, has or will have a direct or indirect material interest, or (ii) courses of dealing with related parties that are significant in size or involve terms or other aspects that differ from those that would likely be negotiated with independent parties. Approval of such related party transaction may, at the discretion of our audit committee, be conditioned upon our and/or the related person at issue taking any actions that our audit committee in its judgment determines to be necessary or appropriate. In the event that a member of our audit committee has an interest in the related party transaction under discussion, such member must abstain from voting on the transaction. Such member may, if so requested by the chair of the audit committee, participate in some or all of the discussions about the related party transaction in question.

PRINCIPAL STOCKHOLDERS

The following table and accompanying footnotes present information about the beneficial ownership of our common stock as of March 31, 2011, and as adjusted to reflect the shares offered by this prospectus, by:

- each existing stockholder we know to beneficially own 5% or more of our common stock, which we call our principal stockholders;
- each of our directors;
- each of our named executive officers; and
- all of our current directors and executive officers as a group.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to the securities. Shares of common stock that may be acquired by an individual or group within 60 days following March 31, 2011, pursuant to the exercise of options are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or group, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. Under these rules, more than one person may be deemed to be a beneficial owner of the same securities and a person may be deemed to be a beneficial owner of securities as to which such person has no economic interest.

The percentage of shares beneficially owned before the offering is based on shares of our common stock outstanding as of March 31, 2011, which gives effect to (i) the automatic conversion of all shares of our preferred stock outstanding at March 31, 2011 on a 1-for-1 basis into an aggregate of shares of our common stock effective immediately prior to the completion of this offering; (ii) shares of common stock to be issued upon the consummation of this offering to holders of our preferred stock as payment of accrued but unpaid dividends accrued through an assumed closing date of the offering made hereby of , 2011 at an assumed offering price of $ per share the mid-point of the price range set forth on the cover page of this prospectus; and (iii) the automatic conversion of $30.0 million aggregate principal amount and all accrued but unpaid interest on the convertible notes due upon the closing of the offering made hereby into an aggregate of shares of our common stock, at a conversion price equal to 87.5% of the initial offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and that the closing of the offering made hereby occurs on , 2011. The percentage of shares beneficially owned after the offering is based on shares of our common stock to be outstanding after the offering.

Except as indicated in footnotes to this table, we believe that the stockholders named in this table have sole voting and investment power with respect to all shares of common stock shown to be beneficially owned by them, based on information provided to us by such stockholders.

	Prior to this Offering		After this Offering Assuming the Underwriters' Option is not Exercised		After this Offering Assuming the Underwriters' Option is Exercised in Full	
Name of Beneficial Owner	**Shares of Common Stock [1]**	**Percentage of Common Stock [1]**	**Shares of Common Stock**	**Percentage of Common Stock**	**Shares of Common Stock**	**Percentage of Common Stock**
Principal Stockholders:						
Arcapita Ventures I Limited and affiliated persons [2]	14,852,396	15.6%				
Argonaut Ventures I, LLC [3]	17,182,459	18.1%				
Reservoir Capital Partners, L.P. and affiliated funds [4]	26,354,045	27.8%				
RockPort Capital Partners, L.P. and affiliated funds [5]	12,937,266	13.6%				
Tenaya Capital and affiliated funds [6]	5,869,742	6.2%				
Entities affiliated with Fidelity Investments [7]		%				
Directors and Executive Officers:						
Donald R. Young [8]	2,283,038	2.3%				
John F. Fairbanks [9]	592,920	*				
Christopher L. Marlette [10]	249,359	*				
Kevin A. Schmidt [10]	681,778	*				
Harry R. Walkoff [10]	578,460	*				
Thomas E. Banahan [11]	5,869,742	6.2%				
P. Ramsay Battin [12]	28,769	*				
Robert M. Gervis [10]	16,562	*				
Craig A. Huff [13]	26,354,045	27.8%				
Steven R. Mitchell [14]	17,182,459	18.1%				
Mark L. Noetzel [10]	82,812	*				
William P. Noglows [10]	16,562	*				
David J. Prend [15]	12,937,266	13.6%				
Richard F. Reilly [10]	48,437	*				
All executive officers and directors as a group (15 persons) [16]	67,148,444	67.3%				

* Indicates beneficial ownership of less than 1%.

[1] For purposes of this table and to reflect the current beneficial ownership percentage of our officers, directors and principal stockholders, the percentage of shares beneficially owned before the offering is based solely on 94,960,028 shares of our common stock outstanding as of March 31, 2011, which gives effect to the automatic conversion of all shares of our preferred stock outstanding at March 31, 2011 on a 1-for-1 basis into an aggregate of 62,853,493 shares of our common stock effective immediately prior to the completion of this offering, but does not give effect to (i) the issuance of shares of common stock to be issued upon the consummation of this offering to holders of our preferred stock as payment of accrued but unpaid dividends or (ii) the automatic conversion of $30.0 million aggregate principal amount and all accrued but unpaid interest on the convertible notes upon the closing of the offering made hereby into shares of our common stock, each as described above in "Capitalization." This information will be adjusted when a price range is determined.

[2] Consists of shares held by Arcapita Ventures I Limited ("AVIL"). AVIL is managed and advised by Arcapita Investment Management Limited and Arcapita Inc., two wholly-owned subsidiaries of Arcapita Bank B.S.C.(c), which exercises the voting and investment power over the shares held of record by AVIL. The address for AVIL is c/o Arcapita Inc., 75 Fourteenth Street, 24th Floor, Atlanta, Georgia 30309.

[3] Consists of shares of common stock held by Argonaut Ventures I, LLC ("Argonaut"), a limited liability company, which is managed by Ken Levit and Argonaut Private Equity, LLC ("APE"). Steven R. Mitchell, one of our directors, Jason Martin, Don Millican, Fred Dorwart and Ken Kinnear are managers, and the George B. Kaiser Family Foundation ("GKFF"), an Oklahoma not-for-profit corporation, is the majority owner, of APE. Messrs. Mitchell, Martin, Millican, Dorwart and Kinnear and GKFF may be deemed to share and voting and investment control over the shares, which are beneficially owned by Argonaut. Each of these individuals and GKFF disclaims beneficial ownership of the reported securities except to the

extent of his or its pecuniary interest therein. The address of Argonaut Ventures I, LLC is 6733 South Yale, Tulsa, OK 74136.

(4) Consists of 23,502,071 shares of common stock and 3,025 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by Reservoir Capital Partners, L.P. ("RCP") and 2,848,544 shares of common stock and 405 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by Reservoir Capital Master Fund, L.P. ("RCMF"). The securities held by RCP may be deemed to be beneficially owned by Daniel Stern and one of our directors, Craig A. Huff, who are the senior managing members (the "Reservoir Members") of RCGM, LLC ("RCGM"). RCGM is the managing member of Reservoir Capital Group, L.L.C. ("RCG"), which is in turn the general partner of Reservoir Capital Partners (Cayman), L.P. ("RCP Cayman"), which is in turn the sole member of RCP GP, LLC ("RCP GP"), and which is in turn the general partner of RCP. The securities held by RCMF may be deemed to be beneficially owned by the Reservoir Members, who are the senior managing members of RCGM. RCGM is the managing member of RCG, which is in turn the general partner of RCMF. As a result, Messrs. Stern and Huff share voting and investment control over the shares held by RCP and RCMF. Each of the Reservoir Members, RCGM, RCG, RCP Cayman and RCP GP disclaims beneficial ownership of the reported securities except to the extent of his or its pecuniary interest therein. The address for RCP and RCMF is c/o Reservoir Capital Group, L.L.C., 650 Madison Avenue, 24 th Floor, New York, New York 10022.

(5) Consists of 3,231,129 shares of common stock and 13,972 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by RockPort Capital Partners, L.P. ("RockPort I"); 7,624,809 shares of common stock and 1,368 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by RockPort Capital Partners II, L.P. ("RockPort II"); 1,670,838 shares of common stock and 446 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by RockPort SII, LLC ("RSII"); and 394,589 shares of common stock and 115 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by RP Co-Investment Fund I, LP ("RPCIF"). The securities held by RockPort I, RockPort II, RSII and RPCIF may be deemed to be beneficially owned by RockPort Capital I, LLC, RockPort Capital II, LLC, RockPort SGII, LLC and RP Co-Investment Fund I GP, LLC, respectively, each of which is the general partner of the respective entity. The securities held by RockPort I, RockPort II, RSII and RPCIF may also be deemed to be beneficially owned by Alexander Ellis III, Janet B. James, William E. James, Charles J. McDermott, Stoddard M. Wilson and one of our directors, David J. Prend, who are the managing members (the "Rockport Members") of the general partners of each of RockPort I, RockPort II, RSII and RPCIF, all of which may be deemed to share voting and investment control with respect to such shares. Each of the general partners of RockPort I, RockPort II, RSII and RPCIF and the Rockport Members (the "Rockport Reporting Persons") disclaim beneficial ownership of the reported securities except to the extent of his, her or its pecuniary interest therein. The address for the Rockport Reporting Persons is c/o RockPort Capital Partners, 160 Federal Street, 18th Floor, Boston, Massachusetts 02110.

(6) Consists of 1,987,541 shares of common stock and 661 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by Tenaya Capital IV, LP ("TC IV"); 1,980,126 shares of common stock and 658 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by Tenaya Capital IV-P, LP ("TC IV-P"); 1,900,123 shares of common stock and 633 shares issuable upon the exercise of warrants exercisable within 60 days of March 31, 2011 held by Tenaya Capital IV-C, LP ("TC IV-C"). The general partner of TC IV is Tenaya Capital IV Annex GP, LLC ("TC IV Annex"). The general partner of both TC IV-P and TC IV-C is Tenaya Capital IV GP, LP, whose general partner is Tenaya Capital IV GP, LLC ("TC IV LLC"). The managing members of TC IV LLC and TC IV Annex are Thomas E. Banahan, Benjamin Boyer, Stewart Gollmer, Brian Melton and Brian Paul (collectively, the "TC Managing Members"), all of which share voting and dispositive power over these shares. The TC Managing Members disclaim beneficial of such shares except to the extent of his pecuniary interest, if any. The address for TC IV, TC IV-P, TC IV-C and the TC Managing Members is c/o Tenaya Capital, 2965 Woodside Road, Suite A, Woodside, California 94062.

(7) Consists of shares of our common stock to be issued upon the automatic conversion of $29.0 million principal amount and all accrued but unpaid interest on the convertible notes upon the closing of the offering made hereby at a conversion price equal to 87.5% of the initial offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and that the closing of the offering made hereby occurs on , 2011. The address for each of these entities is c/o Fidelity Investments, 82 Devonshire Street, Boston, MA 02109.

(8) Consists of 14,460 shares of common stock and 2,268,578 shares issuable upon the exercise of options exercisable within 60 days of March 31, 2011. These options include 116,412 shares issuable upon the exercise of options held by Mr. Young's children, of which Mr. Young has sole voting power.

(9) Consists of 14,460 shares of common stock and 578,460 shares issuable upon the exercise of options exercisable within 60 days of March 31, 2011.

(10) Consists of shares issuable upon the exercise of options exercisable within 60 days of March 31, 2011.

(11) Reflects securities beneficially owned by entities affiliated with Tenaya Capital as set forth in footnote 6, for which Mr. Banahan is the managing director and is entitled to vote the shares. Mr. Banahan disclaims beneficial ownership of

such shares except to the extent of his pecuniary interest therein, if any. Mr. Banahan resigned as a member of our board of directors on June 17, 2011.

(12) Reflects securities beneficially owned individually by Mr. Battin. Mr. Battin is a director of Arcapita Inc., an affiliate of AVIL, but is not deemed to beneficially own any of the shares held by AVIL.

(13) Reflects securities beneficially owned by RCP and RCMF as set forth in footnote 4, for which Mr. Huff is a senior managing member of the ultimate general partner of both entities. Mr. Huff disclaims beneficial ownership of such shares except to the extent of his pecuniary interest therein, if any.

(14) Reflects securities beneficially owned by Argonaut as set forth in footnote 3. Mr. Mitchell is a manager of APE, a manager of Argonaut. Mr. Mitchell disclaims beneficial ownership of such shares except to the extent of his pecuniary interest therein, if any.

(15) Reflects securities beneficially owned by Rockport Capital Partners, L.P. and affiliated funds as set forth in footnote 5, for which Mr. Prend is the managing general partner. Mr. Prend disclaims beneficial ownership of such shares except to the extent of his pecuniary interest therein, if any.

(16) See footnotes 8 through 15. Also includes options to purchase 249,359 shares of common stock held by George L. Gould, Ph.D., which are exercisable within 60 days following March 31, 2011.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock and provisions of our restated certificate of incorporation and restated by-laws are summaries and are qualified by reference to our restated certificate of incorporation and restated by-laws that will be in effect upon the closing of the offering made hereby. Copies of these documents will be filed with the SEC as exhibits to our registration statement, of which this prospectus forms a part. The descriptions of our common stock and preferred stock reflect changes to our capital structure that will occur upon the closing of the offering made hereby.

Authorized Capitalization

Upon the closing of the offering made hereby, our authorized capital stock will consist of shares of our common stock, par value $0.001 per share, and shares of preferred stock, par value $0.001 per share.

As of March 31, 2011, after giving effect to the conversion of all outstanding shares of our preferred stock into shares of our common stock upon completion of this offering, but excluding any shares issued in satisfaction of any accrued but unpaid dividends on the preferred stock and any additional shares of common stock issuable upon conversion of the Series B preferred stock, each as described above in "Capitalization," we would have had 94,960,028 shares of common stock outstanding held of record by 107 stockholders. Immediately following the completion of this offering made hereby, we will have shares of common stock outstanding (and shares of common stock outstanding if the underwriters exercise their option to purchase additional shares in full) and no shares of preferred stock outstanding.

Common Stock

As of March 31, 2011, we had issued and outstanding 26,106,535 shares of common stock, held by 98 stockholders of record, and there were outstanding options to purchase 12,832,208 shares of common stock and outstanding warrants to purchase 1,127,372 shares of common stock.

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, and do not have cumulative voting rights. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our board of directors out of funds legally available for dividend payments. All outstanding shares of common stock are fully paid and nonassessable, and the shares of common stock to be issued upon completion of this offering will be fully paid and nonassessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

Preferred Stock

As of March 31, 2011, we had issued and outstanding 52,843,201 shares of Series A preferred stock, held by 53 stockholders of record and 16,010,292 shares of Series B preferred stock held by 45 stockholders of record. Upon completion of this offering, all of our outstanding shares of preferred stock will convert into shares of common stock. We will also issue shares of common stock upon the closing of the offering made hereby in satisfaction of accumulated dividends on our preferred stock, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and that the offering is closed on , 2011.

If we issue preferred stock after the closing of the offering made hereby, such preferred stock would have priority over common stock with respect to dividends and other distributions, including the distribution of assets upon liquidation. Our board of directors has the authority, without further stockholder authorization, to issue from time to time up to shares of preferred stock in one or more series and to fix the terms, limitations, voting rights, relative rights and preferences and variations of each series. Although we have no present plans to issue any other shares of preferred stock, the issuance of shares of preferred stock, or the issuance of rights to purchase such shares, could decrease the amount of earnings and assets available for distribution to the holders of common stock, could adversely affect the rights and powers, including voting rights, of the common stock, and could have the effect of delaying, deterring or preventing a change of control of us or an unsolicited acquisition proposal.

Warrants

As of March 31, 2011, we had warrants outstanding for the number of shares of our common stock at the exercise prices and expiration dates set forth below. Warrants entitle the holder to purchase shares of our common at the specified exercise price at any time prior to the expiration date.

Expiration Date	Number of Shares	Weighted-Average Exercise Price
May 17, 2011 (1)	48	$0.003
February 24, 2013 (1)(3)(4)(5)	224	$0.003
March 23, 2013 (1)(3)(4)(5)	237	$0.003
October 20, 2014 (1)(2)(3)(4)(5)	56	$5.094
October 28, 2014 (1)(2)(3)(4)(5)	28	$5.094
January 12, 2015 (1)(2)(3)(4)(5)	25	$5.094
June 10, 2016	133,339	$0.003
December 29, 2017 (3)(5)	993,415	$0.001
Total:	**1,127,372**	**$0.002**

(1) Each of these warrants contains anti-dilution provisions providing for adjustments to the exercise price upon the issuance of shares of our common stock at a price less than the exercise price, excluding shares of our common stock issuable upon exercise of options, warrants, conversion of convertible securities and certain issuances approved in advance by a majority of our board of directors.

(2) Each of these warrants expires on the earlier of this date or a corporate event, which is defined in the warrant to include (i) the sale, transfer, exchange or other disposition of all or substantially all of our assets; (ii) a merger or reorganization that results in our stockholder immediately prior to such transaction holding less than 50% of the voting power of the surviving entity of such transaction; (iii) a dissolution or liquidation; and (iv) the sale, transfer, exchange or other disposition of all or substantially all of our common stock.

(3) The shares underlying each of these warrants are entitled to certain registration rights set forth in our registration rights agreement. See "— Registration Rights" below for a description of these registration rights.

(4) Each of these warrants provides that immediately before its expiration or termination, if the fair market value of one share of our common stock is greater than the exercise price, the warrant will be automatically exercised pursuant to its net exercise provision.

(5) Each of these warrants has net exercise provisions under which the holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares of our common based on the fair market value of the underlying shares of our common stock at the time of exercise of the warrant, after deduction of the aggregate exercise price.

Registration Rights

Following the expiration of the lock-up period described below in "Shares Eligible for Future Sale — Lock-Up Agreements," the holders of shares of common stock, which includes, 26,027,222 shares of common stock, 65,853,493 shares of common stock issuable upon conversion

of all of our outstanding preferred stock, shares of our common stock issuable upon conversion of our convertible notes upon completion of the offering made hereby and shares of common stock issuable in satisfaction of accrued but unpaid dividends on preferred stock held by our preferred stockholders, and 993,985 shares of common stock issuable pursuant to the exercise of warrants or their transferees, are entitled to certain registration rights with respect to these securities as set forth in an agreement between us and the holders of these securities. We are generally required to pay all expenses incurred in connection with registrations effected in connection with the following rights, excluding underwriting discounts and commissions, and fees and expenses of counsel to the registering security holders. All registration rights described below shall terminate at the earlier of (1) the seventh anniversary of the completion of this offering, provided this offering constitutes a qualified public offering under our existing third amended and restated certificate of incorporation, (2) such shares have been registered under the Securities Act and (3) with respect to any holder of registrable shares that holds less than 1% of our common stock, when such holder can sell all of such shares under Rule 144 promulgated under the Securities Act during any 90 day period.

Demand rights. At any time after six months after the completion of this offering, subject to specified limitations, the holders representing at least a majority of these registrable shares may require that we register all or a portion of these securities for sale under the Securities Act, which we refer to as a demand registration, if the anticipated aggregate offering price of such securities is at least $10,000,000. We may be required to effect up to two such registrations. Stockholders with these registration rights who are not part of an initial registration demand are entitled to notice and are entitled to include their shares of common stock in the registration. Under certain circumstances, the underwriters, if any, may limit the number of shares included in any such registration.

Piggyback rights. If we propose to register any of our equity securities under the Securities Act, other than in connection with (i) a registration relating solely to our employee benefit plans, (ii) a registration relating solely to a business combination or merger involving us, the holders of these registrable shares are entitled to notice of such registration and are entitled to include their shares of common stock in the registration or (iii) the initial public offering. Under certain circumstances, the underwriters, if any, may limit the number of shares included in any such registration.

Form S-3 rights. If we become eligible to file registration statements on Form S-3, subject to specified limitations, the holders of these registrable shares may require us to register all or a portion of their registrable shares on Form S-3, if the anticipated aggregate offering price of such securities is at least $2,000,000. Such requests for registration shall not be considered a demand registration pursuant to the “Demand rights” section above. We are not required to (i) effect more than two such registrations in any rolling 12-month period or (ii) keep effective at any one time more than one registration statement on Form S-3. Stockholders with these registration rights who are not part of an initial registration demand are entitled to notice and are entitled to include their shares of common stock in the registration. Under certain circumstances, the underwriters, if any, may limit the number of shares included in any such registration.

Anti-Takeover Effects of Delaware Law and Our Restated Certificate of Incorporation and Restated By-Laws

The provisions of Delaware law, our restated certificate of incorporation to be filed upon completion of this offering and our restated by-laws to be effective upon completion of this offering discussed below could discourage or make it more difficult to accomplish a proxy contest or other change in our management or the acquisition of control by a holder of a substantial amount of our voting stock. It is possible that these provisions could make it more difficult to accomplish, or could deter, transactions that stockholders may otherwise consider to be in their best interests or in our best interests. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and in the policies formulated by the board of directors and to discourage certain types of transactions that may involve an actual or threatened change of our control. These provisions are designed to reduce our vulnerability to an unsolicited acquisition

proposal and to discourage certain tactics that may be used in proxy fights. Such provisions also may have the effect of preventing changes in our management.

Delaware Statutory Business Combinations Provision

We are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. Section 203 prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. For purposes of Section 203, a "business combination" is defined broadly to include a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and, subject to certain exceptions, an "interested stockholder" is a person who, together with his or her affiliates and associates, owns, or within three years prior, did own, 15% or more of the corporation's voting stock.

Classified Board of Directors; Removal of Directors for Cause

Our restated certificate of incorporation and restated by-laws to be effective upon completion of this offering provide that upon completion of this offering, our board of directors will be divided into three classes, with the term of office of the first class to expire at the first annual meeting of stockholders following the initial classification of directors, the term of office of the second class to expire at the second annual meeting of stockholders following the initial classification of directors, and the term of office of the third class to expire at the third annual meeting of stockholders following the initial classification of directors. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire will be elected for a three-year term of office. All directors elected to our classified board of directors will serve until the election and qualification of their respective successors or their earlier resignation or removal. The board of directors is authorized to create new directorships and to fill such positions so created and is permitted to specify the class to which any such new position is assigned. The person filling such position would serve for the term applicable to that class. The board of directors, or its remaining members, even if less than a quorum, is also empowered to fill vacancies on the board of directors occurring for any reason for the remainder of the term of the class of directors in which the vacancy occurred. Members of the board of directors may only be removed for cause and only by the affirmative vote of 80% of our outstanding voting stock. These provisions are likely to increase the time required for stockholders to change the composition of the board of directors. For example, at least two annual meetings will be necessary for stockholders to effect a change in a majority of the members of the board of directors.

Advance Notice Provisions for Stockholder Proposals and Stockholder Nominations of Directors

Our restated by-laws provide that, for nominations to the board of directors or for other business to be properly brought by a stockholder before a meeting of stockholders, the stockholder must first have given timely notice of the proposal in writing to our Secretary. For an annual meeting, a stockholder's notice generally must be delivered not less than 45 days nor more than 75 days prior to the anniversary of the mailing date of the proxy statement for the previous year's annual meeting. For a special meeting, the notice must generally be delivered not earlier than the 90th day prior to the meeting and not later than the later of (1) the 60th day prior to the meeting or (2) the 10th day following the day on which public announcement of the meeting is first made. Detailed requirements as to the form of the notice and information required in the notice are specified in the restated by-laws. If it is determined that business was not properly brought before a meeting in accordance with our bylaw provisions, such business will not be conducted at the meeting.

Special Meetings of Stockholders

Special meetings of the stockholders may be called only by our board of directors pursuant to a resolution adopted by a majority of the total number of directors.

No Stockholder Action by Written Consent

Our restated certificate of incorporation and restated by-laws do not permit our stockholders to act by written consent. As a result, any action to be effected by our stockholders must be effected at a duly called annual or special meeting of the stockholders.

Super Majority Stockholder Vote Required for Certain Actions

The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless the corporation's certificate of incorporation or by-laws, as the case may be, requires a greater percentage. Our restated certificate of incorporation requires the affirmative vote of the holders of at least 80% of our outstanding voting stock to amend or repeal any of the provisions discussed in this section of this prospectus entitled "Anti-Takeover Effects of Delaware Law and Our Restated Certificate of Incorporation and Restated Bylaws" or to reduce the number of authorized shares of common stock or preferred stock. This 80% stockholder vote would be in addition to any separate class vote that might in the future be required pursuant to the terms of any preferred stock that might then be outstanding. In addition, an 80% vote is also required for any amendment to, or repeal of, our restated by-laws by the stockholders. Our restated by-laws may be amended or repealed by a simple majority vote of the board of directors.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is .

Stock Market Listing

We intend to apply to list our common stock on the NYSE under the symbol "ASPN."

DESCRIPTION OF CERTAIN INDEBTEDNESS

Set out below is a description of certain of our outstanding indebtedness and our revolving credit facility.

Subordinated Promissory Notes

In December 2010, we entered into a subordinated note and warrant purchase agreement with affiliates of Piper Capital LLC and other investors and issued an aggregate of $10.0 million principal amount of subordinated notes. In June 2011, we amended the subordinated note and warrant purchase agreement to revise the maturity date in connection with the issuance of our convertible notes. The subordinated notes bear interest at the rate of 12% annually and are required to be repaid upon the earlier of: (i) March 2, 2014, (ii) the first anniversary of the completion of this offering or (iii) the last business day prior to the date that any of our preferred stock is redeemed. The subordinated note and warrant purchase agreement contains standard restrictive covenants that impose significant operating and financial restrictions on our operations. As of March 31, 2011, the total outstanding principal and accrued interest under the subordinated notes was $10.3 million. In connection with the issuance of the subordinated notes, we issued warrants to purchase 1,496,107 shares of our common stock. These warrants have a seven-year term and are immediately exercisable at an exercise price of $0.001 per share. The holders of the warrants will be entitled to registration rights provided in our registration rights agreement with regard to the shares of common stock issued upon the exercise of the warrants.

The subordinated notes are subject to a negative pledge on our intellectual property and are secured by a first priority lien on all real property and equipment located at our East Providence facility and a second priority lien on all other assets, including all accounts, equipment, inventory and receivables, but excluding our intellectual property and deposit accounts.

Revolving Credit Facility

In March 2011, we entered into a $10.0 million revolving credit facility with Silicon Valley Bank, of which we could have drawn $8.0 million as of March 31, 2011 due to borrowing base limitations. In June 2011, we amended the agreement in connection with the issuance of our convertible notes. Interest on extensions of credit under the revolving credit facility is equal to the prime rate which at March 31, 2011 was 4.0% per annum, plus 1.0% per annum, provided that if we are at or above a certain liquidity threshold, interest on extensions of credit under the revolving credit facility is equal to the prime rate plus 0.5% per annum. In addition, we are required to pay a quarterly unused revolving line facility fee of 0.5% per annum of the average unused portion of the revolving credit facility. The revolving credit facility contains standard restrictive covenants that impose significant operating and financial restrictions on our operations and also contains events of default customary for credit facilities of this type, including, among other things, nonpayment of principal or interest when due. The revolving credit facility will mature on March 31, 2013. As of March 31, 2011, there were no amounts outstanding under the revolving credit facility.

The revolving credit facility is subject to a negative pledge on our intellectual property and is secured by a second priority lien on all real property and equipment located at our East Providence facility and a first priority lien on all other assets, including all accounts, equipment, inventory and receivables, but excluding our intellectual property.

Subordinated Convertible Promissory Notes

In June 2011, we entered into a note purchase agreement with certain affiliates of Fidelity Investments and BASF Venture Capital and issued $30.0 million aggregate principal amount of convertible notes, with a maturity date of June 1, 2014. Interest on the convertible notes accrues at

the rate of 8.0% per year. The unpaid principal amount of the convertible notes, together with any interest accrued but unpaid thereon, will be automatically converted into common stock upon the closing of the offering made hereby at a conversion price equal to 87.5% of the price to the public in this offering. The note purchase agreement contains standard restrictive covenants that impose significant operating and financial restrictions on our operations. The convertible notes are not secured. The holders of these convertible notes will be entitled to registration rights provided in our registration rights agreement with regard to the shares of common stock issued upon conversion of these convertible notes.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock, and a liquid public trading market for our common stock may not develop or be sustained after this offering. If a public market does develop, future sales of significant amounts of our common stock, including shares issued upon exercise of outstanding options or warrants, or the anticipation of those sales, could adversely affect the public market prices prevailing from time to time and could impair our ability to raise capital through sales of our equity securities. We intend to apply to list our common stock on the NYSE under the symbol "ASPN."

Upon the closing of the offering made hereby, we will have outstanding an aggregate of shares of common stock, assuming no exercise by the underwriters of their option to purchase additional shares and no exercise of outstanding options. Of these shares, all of the shares of our common stock sold in this offering will be freely tradable without restriction or further registration under the Securities Act, except for any shares of our common stock purchased by our "affiliates," as that term is defined in Rule 144 under the Securities Act, whose sales would be subject to the Rule 144 resale restrictions described below.

The remaining shares of common stock will be "restricted securities," as that term is defined in Rule 144 under the Securities Act. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under the Securities Act. One such safe-harbor exemption is Rule 144, which is summarized below.

Subject to the lock-up agreements described below and the provisions of Rule 144 under the Securities Act, these restricted securities and shares sold in this offering will be available for sale in the public market as follows:

Date Available for Sale	Shares Eligible for Sale	Comment
Date of prospectus		Shares sold in the offering and shares that can be sold under Rule 144 that are not subject to a lock-up
180 days* after date of prospectus		Lock-up released; shares can be sold under Rule 144

* 180 days corresponds to the lock-up period described below in "— Lock-up Agreements." This lock-up period may be extended or shortened under certain circumstances as described in that section. However, Goldman, Sachs & Co. and Morgan Stanley & Co. LLC, may in their sole discretion, at any time without prior notice, release all or any portion of the shares from the restrictions in any of these agreements.

In addition, of the 12,832,208 shares of our common stock that were issuable upon the exercise of stock options outstanding as of March 31, 2011, options to purchase 6,178,128 shares were exercisable as of March 31, 2011 and, upon exercise, these shares will be eligible for sale in the public markets, subject to the lock-up agreements and securities laws described below.

Rule 144

Affiliate Resales of Shares

Affiliates of ours must generally comply with Rule 144 if they wish to sell in the public market any shares of our common stock, whether or not those shares are "restricted securities." "Restricted securities" are any securities acquired from us or one of our affiliates in a transaction not involving a public offering. All shares of our common stock issued prior to the closing of the offering made hereby, and the shares of common stock issuable upon the conversion of our preferred stock and our convertible notes, are considered to be restricted securities. The shares of our common stock sold in this offering are not considered to be restricted securities.

In general, subject to the lock-up agreements described below, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is an

affiliate of ours, or who was an affiliate of ours at any time during the three months immediately before a sale can sell restricted shares of our common stock in compliance with the following requirements of Rule 144.

Holding Period. If the shares are restricted securities, an affiliate must have beneficially owned the shares of our common stock for at least six months.

Manner of Sale. An affiliate must sell its shares in "broker's transactions" or certain "riskless principal transactions" or to market makers, each within the meaning of Rule 144.

Limitation on Number of Shares Sold. An affiliate is only allowed to sell within any three-month period an aggregate number of shares of our common stock that does not exceed the greater of:

- one percent of the number of the total number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; and
- the average weekly trading volume in our common stock on the stock exchange where our common stock is traded during the four calendar weeks preceding either (i) to the extent that the seller is required to file a notice on Form 144 with respect to such sale, the date of filing such notice, (ii) date of receipt of the order to execute the transaction by the broker or (iii) the date of execution of the transaction with the market maker.

Current Public Information. An affiliate may only resell its restricted securities to the extent that adequate current public information, as defined in Rule 144, is available about us, which, in our case, means that we have been subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act for a period of at least 90 days prior to the date of the sale and we have filed all reports with the SEC required by those sections during the preceding twelve months (or such shorter period that we have been subject to these filing requirements).

Notice on Form 144. If the number of shares of our common stock being sold by an affiliate under Rule 144 during any three-month period exceeds 5,000 shares or has an aggregate sale price in excess of $50,000, then the seller must file a notice on Form 144 with the SEC and the stock exchange on which our common stock is traded concurrently with either the placing of a sale order with the broker or the execution directly with a market maker.

Non-Affiliate Resales of Restricted Shares

Any person or entity who is not an affiliate of ours and who has not been an affiliate of ours at any time during the three months preceding a sale is only required to comply with Rule 144 in connection with sales of restricted shares of our common stock. Subject to the lock-up agreements described below, those persons may sell shares of our common stock that they have beneficially owned for at least one year without any restrictions under Rule 144 immediately following the effective date of the registration statement of which this prospectus is a part.

Further, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is not an affiliate of ours at the time such person sells shares of our common stock, and has not been an affiliate of ours at any time during the three months preceding such sale, and who has beneficially owned such shares of our common stock, as applicable, for at least six months but less than a year, is entitled to sell such shares so long as there is adequate current public information, as defined in Rule 144, available about us.

Resales of restricted shares of our common stock by non-affiliates are not subject to the manner of sale, volume limitation or notice filing provisions of Rule 144, described above.

Rule 701

Rule 701 under the Securities Act applies to shares purchased from us by our employees, directors or consultants, in connection with a qualified compensatory stock plan or other written agreement, either prior to the date of this prospectus or pursuant to the exercise of options granted prior to the date of this prospectus. Shares issued in reliance on Rule 701 are "restricted securities," but may be sold in the public market beginning 90 days after the date of this prospectus (i) by our affiliates, subject to compliance with the provisions of Rule 144 other than its one-year holding period requirement, and (ii) by persons other than our affiliates, subject only to the manner of sale provisions of Rule 144.

Lock-up Agreements

Holders of outstanding shares of our common stock, including each of our officers and directors, have agreed with the underwriters, subject to certain exceptions, not to offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of any shares of our common stock, or any options or warrants to purchase any shares of our common stock, or any securities convertible into, exchangeable for or that represent the right to receive shares of our common stock for a period through the date 180 days after the date of this prospectus, as modified as described below, except with the prior written consent of Goldman, Sachs & Co. and Morgan Stanley & Co. LLC on behalf of the underwriters.

The 180-day restricted period will be automatically extended under the following circumstances:

- if, during the last 17 days of the 180-day restricted period, we release earnings results or announce material news or a material event, then the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the date of release of the earnings results or the announcement of the material news or material event, as applicable; or
- if, prior to the expiration of the 180-day restricted period, we announce that we will release earnings results during the 15-day period following the last day of the 180-day restricted period, then the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the date of release of the earnings results or the announcement of the material news or material event, as applicable.

Goldman, Sachs & Co. and Morgan Stanley & Co. LLC currently do not anticipate shortening or waiving any of the lock-up agreements and do not have any pre-established conditions for such modifications or waivers. Goldman, Sachs & Co. and Morgan Stanley & Co. LLC may, however, release for sale in the public market all or any portion of the shares subject to the lock-up agreement.

Stock Options

As of March 31, 2011, we had outstanding options to purchase 12,832,208 shares of our common stock at a weighted-average exercise price of $0.46 per share, of which options to purchase 6,178,128 shares were exercisable as of March 31, 2011. Following this offering, we intend to file a registration statement on Form S-8 under the Securities Act to register all of the shares subject to outstanding options and options and other awards issuable under the 2001 equity incentive plan and the 2011 equity incentive plan. See "Management — Compensation — Stock Option and Other Compensation Plans" for additional information regarding these plans.

Warrants

As of March 31, 2011, we had outstanding warrants to purchase an aggregate of 1,127,372 shares of our common stock at a weighted-average exercise price of $0.002 per share. Any shares purchased pursuant to these warrants will be "restricted shares" and may be sold in the public

market only if they are registered under the Securities Act or qualify for an exemption from such registration.

Registration Rights

Upon expiration of the lock-up period described above in "— Lock-Up Agreements," the holders of shares of common stock and 993,985 shares of common stock issuable pursuant to the exercise of warrants, or their transferees, will be entitled to various rights with respect to the registration of these shares under the Securities Act. See "Description of Capital Stock — Registration Rights." Registration of these shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration, except for shares held by affiliates.

MATERIAL U.S. FEDERAL TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following is a general discussion of the material U.S. federal income and estate tax considerations relating to the purchase, ownership and disposition of our common stock by a non-U.S. holder as of the date hereof. For purposes of this discussion, the term "non-U.S. holder" means a beneficial owner of our common stock (other than a partnership) that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or other entity treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust, if a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have authority to control all substantial decisions of the trust or if the trust has a valid election to be treated as a U.S. person under applicable U.S. Treasury Regulations.

An individual may be treated as a resident instead of a nonresident of the United States in any calendar year for U.S. federal income tax purposes if the individual was present in the United States for at least 31 days in that calendar year and for an aggregate of at least 183 days during the three-year period ending with the current calendar year. For purposes of this calculation, all of the days present in the current year, one-third of the days present in the immediately preceding year and one-sixth of the days present in the second preceding year are counted. Residents are taxed for U.S. federal income tax purposes as if they were U.S. citizens.

This discussion is based on current provisions of the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change could alter the tax consequences to non-U.S. holders described in this prospectus. In addition, the Internal Revenue Service, or the IRS, could challenge one or more of the tax consequences described in this prospectus.

We assume in this discussion that each non-U.S. holder holds shares of our common stock as a capital asset (generally, property held for investment). This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of U.S. state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt organizations;
- financial institutions;
- brokers or dealers in securities;
- regulated investment companies;
- pension plans;
- controlled foreign corporations;
- passive foreign investment companies;

- owners that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment; and
- certain U.S. expatriates.

In addition, this discussion does not address the tax treatment of partnerships or other entities which are transparent for U.S. federal income tax purposes, or persons who hold their common stock through a partnership or other transparent entity. A partner in a partnership or other transparent entity that will hold our common stock should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of our common stock through a partnership or other transparent entity, as applicable.

Prospective investors should consult their own tax advisors regarding the U.S. federal, state, local and non-U.S. income and other tax considerations of acquiring, holding and disposing of our common stock.

Dividends

If we pay distributions on our common stock, those distributions generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "Gain on Disposition of Common Stock."

Dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence. If we determine, at a time reasonably close to the date of payment of a distribution on our common stock, that the distribution will not constitute a dividend because we do not anticipate having current or accumulated earnings and profits, we intend not to withhold any U.S. federal income tax on the distribution as permitted by U.S. Treasury Regulations.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States, and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States (such income, "U.S. effectively connected income"), are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to United States persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN (or successor form) and satisfy applicable certification and other requirements. Non-U.S holders are urged to consult their own tax advisors regarding their entitlement to benefits under a relevant income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Gain on Disposition of Common Stock

A non-U.S. holder generally will not be subject to U.S. federal income tax on gain realized on a disposition of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder will be taxed on a net income basis at the regular graduated rates and in the manner applicable to United States persons (as defined in the Code), and, if the non-U.S. holder is a foreign corporation, an additional branch profits tax at a rate of 30%, or a lower rate as may be specified by an applicable income tax treaty, may also apply;
- the non-U.S. holder is an individual present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition (which may be offset by United States source capital losses, even though the individual is not considered a resident of the United States); or
- we are or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation" for U.S. federal income tax purposes, unless our common stock is regularly traded on an established securities market and the non-U.S. holder held no more than five percent of our outstanding common stock, directly or indirectly, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a "U.S. real property holding corporation" if the fair market value of its "U.S. real property interests" equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although valuations are inherently uncertain, and no assurance can be given that our valuations of our "U.S. real property interests" and our other assets used or held for use in a trade or business will not change, we nevertheless believe that we are not currently, and we do not anticipate becoming, a "U.S. real property holding corporation" for U.S. federal income tax purposes. Furthermore, even if we were to become a "U.S. real property holding corporation," so long as our common stock continues to be regularly traded on an established securities market, only a non-U.S. holder who holds or held at any time during the five year period preceding the date of disposition (or such non-U.S. holder's holding period, if shorter) more than 5% of our common stock will be subject to U.S. federal income tax on the disposition of our common stock.

Information Reporting and Backup Withholding Tax

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders may have to comply with specific certification procedures to establish that the holder is not a United States person (as defined in the Code) in order to avoid backup withholding at the applicable rate, currently 28%, with respect to dividends on our common stock. Generally, a holder will comply with such procedures if it certifies, under penalty of perjury, that it is a non-U.S. holder (by providing a properly executed IRS Form W-8BEN or otherwise meeting documentary evidence requirements for establishing that it is a non-U.S. holder) and the payor does not have actual knowledge or reason to know that such holder is a United States person (as defined in the Code) or otherwise establishes an exemption.

Information reporting and backup withholding generally will apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies under penalty of perjury its status as a non-U.S. holder (and the

payor does not have actual knowledge or reason to know that such holder is a United States person (as defined in the Code)) and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

Federal Estate Tax

Common stock owned or treated as owned by an individual who is a non-U.S. holder (as specially defined for U.S. federal estate tax purposes) at the time of death will be included in the individual's gross estate for U.S. federal estate tax purposes and, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

The preceding discussion of the material U.S. federal tax considerations is for general information only. It is not tax advice. Prospective investors should consult their own tax advisors regarding the particular U.S. federal, state, local and non-U.S. tax consequences of purchasing, holding and disposing of our common stock, including the consequences of any proposed changes in applicable laws.

UNDERWRITING

We and the underwriters named below have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman, Sachs & Co. and Morgan Stanley & Co. LLC are the representatives of the underwriters.

Underwriters	Number of Shares
Goldman, Sachs & Co.	
Morgan Stanley & Co. LLC	
Total	

The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

If the underwriters sell more shares than the total number set forth in the table above, the underwriters have an option to buy up to an additional shares from us. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by us. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	No Exercise	Full Exercise
Per Share	$	$
Total	$	$

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to $ per share from the initial public offering price. If all the shares are not sold at the initial public offering price, the representatives may change the offering price and the other selling terms. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

The underwriters do not expect sales to discretionary accounts to exceed five percent of the total number of shares offered.

We estimate that our total expenses for the offering, excluding underwriting discounts and commissions, will be approximately $.

We and our officers, directors and holders of substantially all of our common stock have agreed with the underwriters, subject to certain exceptions, not to offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of any shares of our common stock, or any options or warrants to purchase any shares of our common stock, or any securities convertible into, exchangeable for or that represent the right to receive shares of our common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of the representatives. This agreement does not apply to any existing employee benefit plans. See "Shares Eligible for Future Sale" for a discussion of certain transfer restrictions.

The 180-day restricted period described in the preceding paragraph will be automatically extended if: (1) during the last 17 days of the 180-day restricted period, we release earnings results or announce material news or a material event or (2) prior to the expiration of the 180-day restricted

period, we announce that we will release earnings results during the 15-day period following the last day of the 180-day restricted period, then the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the date of release of the earnings results or the announcement of the material news or material event, as applicable.

Prior to the offering, there has been no public market for the shares. The initial public offering price has been negotiated among us and the representatives. Among the factors to be considered in determining the initial public offering price of the shares, in addition to prevailing market conditions, will be our historical performance, estimates of our business potential and earnings prospects, an assessment of our management and the consideration of the above factors in relation to market valuation of companies in related businesses.

We intend to apply to list the common stock on the NYSE under the symbol “ASPN.” In order to meet one of the requirements for listing the common stock on the NYSE, the underwriters have undertaken to sell lots of 100 or more shares to a minimum of 2,000 beneficial holders.

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Shorts sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. “Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares from us in the offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the option granted to them. “Naked” short sales are any sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of our stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued at any time. These transactions may be effected on the NYSE, in the over-the-counter market or otherwise.

European Economic Area. In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”) an offer to the public of any shares of our common stock may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any shares of our common stock may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

(a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

(b) to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified

investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representatives for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of shares of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares of our common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares of our common stock to be offered so as to enable an investor to decide to purchase any shares of our common stock, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State, and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

United Kingdom. Each underwriter has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the shares of our common stock in circumstances in which Section 21(1) of the FSMA does not apply to us; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares of our common stock in, from or otherwise involving the United Kingdom.

Hong Kong. The shares may not be offered or sold by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Singapore. This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 by a relevant person which is: (a) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom

is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor, shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the shares under Section 275 except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA; (2) where no consideration is given for the transfer; or (3) by operation of law.

Japan. The securities have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (the Financial Instruments and Exchange Law) and each underwriter has agreed that it will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law and any other applicable laws, regulations and ministerial guidelines of Japan.

We have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act.

Certain underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

LEGAL MATTERS

The validity of the common stock being offered will be passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. The underwriters are represented by Simpson Thacher & Bartlett LLP, New York, New York, in connection with certain legal matters related to this offering.

EXPERTS

The consolidated financial statements of Aspen Aerogels, Inc. as of December 31, 2010 and 2009, and for the years ended December 31, 2008, 2009 and 2010, have been included herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of our common stock to be sold in this offering. This prospectus, which constitutes part of the registration statement, does not include all of the information contained in the registration statement and the exhibits, schedules and amendments to the registration statement. Some items are omitted in accordance with the rules and regulations of the SEC. For further information with respect to us and our common stock, we refer you to the registration statement and to the exhibits and schedules to the registration statement filed as part of the registration statement. Statements contained in this prospectus about the contents of any contract or any other document filed as an exhibit are not necessarily complete and in each instance we refer you to the copy of the contract or other documents filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You may read and copy the registration statement of which this prospectus is a part at the SEC's public reference room, which is located at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You can request copies of the registration statement by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the SEC's public reference room. In addition, the SEC maintains an Internet website, located at www.sec.gov, which contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. You may access the registration statement of which this prospectus is a part at the SEC's Internet website.

Upon the closing of the offering, we will become subject to the full informational and periodic reporting requirements of the Exchange Act. We will fulfill our obligations with respect to such requirements by filing periodic reports and other information with the SEC. These documents will also be publicly available, free of charge, on our website, www.aerogel.com. We intend to furnish our stockholders with annual reports containing consolidated financial statements certified by an independent registered public accounting firm.

Aspen Aerogels, Inc.

Index To Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm	F-2
Financial Statements:	
Consolidated Balance Sheets as of December 31, 2009 and December 31, 2010	F-3
Consolidated Statements of Operations for the Years Ended December 31, 2008, 2009 and 2010	F-4
Consolidated Statements of Stockholders' (Deficit) Equity And Comprehensive Loss for the Years Ended December 31, 2008, 2009 and 2010	F-5
Consolidated Statements of Cash Flows for the Years Ended December 31, 2008, 2009 and 2010	F-6
Notes to Consolidated Financial Statements	F-7

Index To Consolidated Financial Statements (unaudited)

Consolidated Balance Sheets as of December 31, 2010 and March 31, 2011	F-32
Consolidated Statements of Operations for the Three Months Ended March 31, 2010 and March 31, 2011	F-33
Consolidated Statements of Cash Flows for the Three Months Ended March 31, 2010 and March 31, 2011	F-34
Notes to Consolidated Financial Statements	F-35

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders
Aspen Aerogels, Inc.:

We have audited the accompanying consolidated balance sheets of Aspen Aerogels, Inc. and subsidiaries (the Company) as of December 31, 2009 and 2010, and the related consolidated statements of operations, stockholders' (deficit) equity and comprehensive income (loss), and cash flows for each of the years in the three-year period ended December 31, 2010. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Aspen Aerogels, Inc. and subsidiaries at December 31, 2009 and 2010, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2010, in conformity with U.S. generally accepted accounting principles.

/s/ KPMG LLP

Boston, Massachusetts
June 24, 2011

ASPEN AEROGELS, INC.

Consolidated Balance Sheets

	December 31	
	2009	2010
	(In thousands, except share and per share data)	
Assets		
Current assets:		
Cash and cash equivalents	$ 27,502	$ 26,800
Marketable securities	—	4,020
Accounts receivable, net of allowance for doubtful accounts	4,234	10,205
Costs in excess of billings	100	124
Inventories	1,601	2,253
Prepaid expenses and other current assets	354	419
Total current assets	33,791	43,821
Restricted cash	556	857
Property, plant, and equipment, net	29,763	42,622
Other assets	625	1,495
Total assets	$ 64,735	$ 88,795
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' (Deficit) Equity		
Current liabilities:		
Long-term debt, current portion	$ 262	$ 247
Capital leases, current portion	15	20
Accounts payable	2,927	5,597
Accrued expenses	791	5,987
Deferred revenue	630	447
Other current liabilities	7,400	6,800
Total current liabilities	12,025	19,098
Long-term debt, excluding current portion	247	7,820
Capital leases, excluding current portion	51	52
Other long-term liabilities	14,578	10,142
Total liabilities	26,901	37,112
Commitments and contingencies (Note 14)		
Series B redeemable convertible preferred stock, $0.001 par value; authorized 17,000,000 shares; issued and outstanding 0 and 16,010,292 shares at December 31, 2009 and 2010, at redemption and liquidation value	—	28,799
Series A redeemable convertible preferred stock, $0.001 par value; authorized, issued and outstanding 52,843,201 shares at December 31, 2009 and 2010, at redemption and liquidation value	31,681	80,987
Stockholders' (deficit) equity:		
Common stock, $0.001 par value; authorized 114,000,000 shares; issued and outstanding 25,567,499 and 25,574,570 shares at December 31, 2009 and 2010	26	26
Additional paid-in capital	192,392	138,038
Accumulated deficit	(186,265)	(196,175)
Accumulated other comprehensive income	—	8
Total stockholders' (deficit) equity	6,153	(58,103)
Total liabilities, redeemable convertible preferred stock and stockholders' (deficit) equity	$ 64,735	$ 88,795

See accompanying notes to consolidated financial statements.

ASPEN AEROGELS, INC.

Consolidated Statements of Operations

	Year Ended December 31		
	2008	2009	2010
	(In thousands, except share and per share data)		
Revenue:			
Product	$ 17,202	$ 24,752	$ 38,690
Research services	2,868	3,864	4,519
Total revenue	20,070	28,616	43,209
Cost of revenue:			
Product	32,160	30,462	35,399
Research services	1,169	1,788	2,119
Impairment charge	2,524	—	—
Gross profit (loss)	(15,783)	(3,634)	5,691
Operating expenses:			
Research and development	2,134	2,524	2,985
Sales and marketing	4,034	3,994	4,526
General and administrative	6,180	5,430	5,675
Total operating expenses	12,348	11,948	13,186
Income (loss) from operations	(28,131)	(15,582)	(7,495)
Other income (expense):			
Interest income	287	18	170
Interest expense	(7,400)	(3,075)	(2,585)
Total other expense, net	(7,113)	(3,057)	(2,415)
Net income (loss)	(35,244)	(18,639)	(9,910)
Dividends and accretion of redeemable convertible preferred stock	(2,351)	(2,984)	(57,007)
Net income (loss) attributable to common stockholders	$ (37,595)	$ (21,623)	$ (66,917)
Net income (loss) per common share attributable to common stockholders, basic and diluted	$(3,389.12)	$ (2.21)	$ (2.62)
Weighted-average common shares outstanding, basic and diluted	11,093	9,751,616	25,574,286

See accompanying notes to consolidated financial statements.

ASPEN AEROGELS, INC.

Consolidated Statements of Stockholders' (Deficit) Equity and Comprehensive Income (Loss)

	Common Stock $0.001 Par Value		Additional Paid-in	Accumulated	Accumulated Other Comprehensive	Total Stockholders'
	Shares	Value	Capital	Deficit	Income	(Deficit)/Equity
	(In thousands, except share and per share data)					
Balance at December 31, 2007	9,408	$ —	$ 9,327	$ (132,382)	$ —	$ (123,055)
Net income (loss) and total comprehensive income (loss)	—	—	—	(35,244)	—	(35,244)
Issuance of common stock warrants	—	—	73	—	—	73
Stock compensation expense	—	—	927	—	—	927
Dividends on redeemable convertible preferred stock	—	—	(2,512)	—	—	(2,512)
Exercise of common stock warrants	14,287	—	—	—	—	—
Exchange of redeemable convertible preferred stock	—	—	55,968	—	—	55,968
Accretion of redeemable convertible preferred stock to redemption value	—	—	(55,807)	—	—	(55,807)
Balance at December 31, 2008	23,695	—	7,976	(167,626)	—	(159,650)
Net income (loss) and total comprehensive income (loss)	—	—	—	(18,639)	—	(18,639)
Issuance of common stock	2,272	—	—	—	—	—
Stock compensation expense	—	—	831	—	—	831
Dividends on redeemable convertible preferred stock	—	—	(2,682)	—	—	(2,682)
Conversion of preferred stock and related dividends to common stock	25,541,532	26	186,084	—	—	186,110
Cancellation of warrant liability	—	—	485	—	—	485
Accretion of redeemable convertible preferred stock to redemption value	—	—	(302)	—	—	(302)
Balance at December 31, 2009	25,567,499	26	192,392	(186,265)	—	6,153
Comprehensive income (loss):						
Net income (loss)	—	—	—	(9,910)	—	(9,910)
Unrealized gain on available-for-sale securities	—	—	—	—	8	8
Total comprehensive income (loss)						(9,902)
Issuance of common stock	7,071	—	2	—	—	2
Issuance of common stock warrant	—	—	2,183	—	—	2,183
Stock compensation expense	—	—	468	—	—	468
Dividends on redeemable convertible preferred stock	—	—	(2,928)	—	—	(2,928)
Accretion of redeemable convertible preferred stock to redemption value	—	—	(54,079)	—	—	(54,079)
Balance at December 31, 2010	25,574,570	$ 26	$ 138,038	$ (196,175)	$ 8	$ (58,103)

See accompanying notes to consolidated financial statements.

ASPEN AEROGELS, INC.

Consolidated Statements of Cash Flows

	Year Ended December 31		
	2008	2009	2010
	(In thousands)		
Cash flows from operating activities:			
Net income (loss)	$(35,244)	$ (18,639)	$ (9,910)
Adjustments to reconcile net income (loss) to net cash used in operating activities:			
Depreciation and amortization	7,059	5,630	4,633
Asset impairment charge	2,524	—	—
Imputed interest	3,507	3,000	2,425
Paid-in-kind interest	3,446	—	—
Loss on sale of marketable securities	—	—	53
Stock compensation expense	927	831	468
Change in fair value of preferred stock warrant liability	165	—	—
Settlement of asset retirement obligation	—	—	(40)
Changes in operating assets and liabilities:			
Accounts receivable	(1,069)	232	(5,971)
Costs in excess of billings	209	(20)	(24)
Inventories	(1,812)	1,591	(652)
Prepaid expenses and other assets	(54)	47	(348)
Accounts payable	1,931	(1,295)	181
Accrued expenses	(41)	142	1,642
Deferred revenue	479	(91)	(183)
Other long-term liabilities	(4,000)	(4,400)	(7,400)
Net cash used in operating activities	(21,973)	(12,972)	(15,126)
Cash flows from investing activities:			
Capital expenditures	(1,121)	(1,644)	(11,341)
Proceeds from sale of equipment	31	—	—
Decrease (increase) in restricted cash	128	(139)	(301)
Purchase of marketable securities	—	—	(15,037)
Proceeds from maturities and sales of marketable securities	10	—	10,972
Net cash used in investing activities	(952)	(1,783)	(15,707)
Cash flows from financing activities:			
Proceeds from issuance of long-term debt	8,000	—	10,000
Repayment of borrowings under long-term debt	(483)	(249)	(265)
Deferred financing costs	—	—	(687)
Repayment of obligations under capital lease	(3)	(20)	(17)
Proceeds from issuance of preferred stock	26,605	30,538	21,098
Proceeds from issuance of common stock	—	—	2
Net cash provided by financing activities	34,119	30,269	30,131
Net increase (decrease) in cash	11,194	15,514	(702)
Cash at beginning of period	794	11,988	27,502
Cash at end of period	$ 11,988	$ 27,502	$ 26,800
Supplemental disclosures of cash flow information:			
Interest paid	$ 56	$ 41	$ 33
Income taxes paid	$ —	$ —	$ —
Supplemental disclosures of non-cash activities:			
Accrued dividends on preferred stock	$ 2,512	$ 2,682	$ 2,928
Accretion of preferred stock	$ 55,807	$ 302	$ 54,079
Issuance of common stock warrants	$ —	$ —	$ 2,183
Issuance of preferred stock warrants	$ 321	$ —	$ —
Exchange of preferred stock and related dividends	$ 55,968	$186,110	$ —
Conversion of debt	$ 92,771	$ —	$ —
Cancellation of preferred stock warrant liability	$ —	$ 485	$ —
Accrued capital expenditures	$ —	$ —	$ 6,044
Capital lease	$ —	$ 87	$ 23

See accompanying notes to consolidated financial statements.

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

(1) Description of Business

Nature of Business

Aspen Aerogels, Inc. (the Company) is an energy efficiency company that designs, develops, and manufactures innovative, high-performance aerogel insulation. The Company also conducts research and development related to aerogel technology supported by funding from several agencies of the U.S. government and other institutions in the form of research and development contracts.

The Company's predecessor was incorporated in Delaware on May 4, 2001, and the Company maintains its corporate offices in Northborough, Massachusetts. The Company maintains wholly owned subsidiaries in Rhode Island, Aspen Aerogels Rhode Island, LLC, and in Germany, Aspen Aerogels Germany, GmbH.

Liquidity

The Company has incurred operating losses and negative cash flow since inception, has an accumulated deficit of $196,175 as of December 31, 2010, and has significant ongoing cash flow commitments. The Company has invested significant resources to commercialize aerogel technology and to build a manufacturing infrastructure capable of supplying aerogel products at the volumes and costs required by its customers. At December 31, 2010, the Company markets a set of commercially viable products, serves a growing base of customers and is experiencing rapid revenue growth.

During 2010, the Company generated sufficient revenue to produce a positive annual gross profit. However, the Company has not yet generated net income or positive cash flow from operations. As more fully discussed in Note 12, the Company's Cross License Agreement with Cabot Corporation requires payments through 2013 in an aggregate of $18,800. In addition, as more fully discussed in Note 11, the Company has an aggregate of $10,000 of 12% Secured Subordinated Promissory Notes (the Subordinated Notes) outstanding to several investors at December 31, 2010. The Company's ability to achieve sufficient operating cash flows to generate net income, to fully fund operations and to meet upcoming commitments will require continued capacity expansions and related capital investments. Accordingly, the Company committed to expend up to $31,500 to expand its East Providence, Rhode Island, manufacturing facility during 2010 with completion expected during the second quarter of 2011. This expansion includes the addition of a second manufacturing line and is designed to double the Company's manufacturing capacity.

Since inception, the Company has funded its operating losses, capital investments, and other obligations principally through equity financings, bridge loans between equity financings and debt financings. As discussed in Note 7, the Company completed preferred equity financings in 2009 and 2010 that generated $30,538 and $21,098, respectively, in net proceeds. In addition, as discussed in Note 11, in December 2010, the Company issued the Subordinated Notes to several investors generating net proceeds of $9,788 in cash in connection with the funding of the second manufacturing line at its East Providence, Rhode Island, manufacturing facility.

2011 Outlook

The Company's current financial forecast anticipates increasing revenue levels and improving cash flow from operations throughout 2011. Based on current revenue and expense forecasts, the Company believes that its existing cash and cash equivalents and the net proceeds from its recent equity and debt financings will be sufficient to satisfy its anticipated cash requirements at least through 2011. If the Company's operating performance deteriorates from levels achieved during 2010,

it could have a significant effect on the Company's liquidity and its ability to continue in the future as a going concern.

However, the Company has continued to expand its financial resources and sources of available credit. As more fully described in Note 18, in March 2011, the Company entered into a senior, revolving line of credit agreement with a bank which provides up to $10,000 in borrowing capacity and issued notes payable to several investors in June 2011 generating gross proceeds of $30,000.

(2) Summary of Basis of Presentation and Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States of America, include the accounts of the Company and its wholly owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Reclassifications

Certain prior year amounts in the financial statements and corresponding footnotes have been reclassified to conform to the current year's presentation.

In September 2007, the Company enacted a 1-for-10,000 reverse stock split across all equity classes; in June 2008, the Company enacted an 18-for-1 conversion of all common stock, common stock options and common stock warrants; and in September 2009, the Company enacted a 1-for-3 reverse stock split across all equity shares. Par value remained unchanged as a result of these splits. All references to the number of issued shares in this report are references to the combined and split numbers of shares. All share, warrant, option and related information presented in these consolidated financial statements and accompanying notes has been retroactively adjusted for the stock splits and conversion.

In order to comply with Securities and Exchange Commission rules and regulations, the Company reclassified redeemable convertible preferred stock amounting to $30,538 and $105,411 at December 31, 2009 and 2010, respectively, and issuance costs amounting to $302 and $606, respectively, to remove them from permanent stockholders' (deficit) equity and classify them as temporary equity within the consolidated balance sheets. The Company also reclassified $841 and $3,769 in accrued dividends related to the redeemable convertible preferred stock from accrued expenses to temporary stockholders' equity within the consolidated balance sheets as of December 31, 2009 and 2010, respectively.

Use of Estimates

The preparation of the consolidated financial statements requires the Company to make a number of estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Significant items subject to such estimates and assumptions include the carrying amount of property and equipment, allowances for doubtful accounts, inventory, stock-based compensation, and deferred income taxes. These estimates and assumptions are based on the Company's best estimate and judgment. The Company evaluates its estimates and assumptions on an on-going basis using historical experience and other factors, including the current economic environment, which it believes to be reasonable under the circumstances. Management adjusts such estimates and assumptions when facts and circumstances dictate. Illiquid credit markets, volatile equity markets, and declines in consumer spending have combined to increase the uncertainty

inherent in such estimates and assumptions. As future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates. Changes in these estimates resulting from continuing changes in the economic environment will be reflected in the financial statements in future periods.

Revenue Recognition

The Company recognizes revenue from the sale of products and delivery of research and development services. Revenue is recognized when all of the following criteria are met: persuasive evidence of an arrangement exists, the price to the buyer is fixed or determinable, delivery has occurred or services have been provided and, collectability is reasonably assured.

Product Revenue

Product revenue is generally recognized upon transfer of title and risk of loss, which is generally upon shipment or delivery. The Company's customary shipping terms are FOB shipping point. Products are typically delivered without significant post-sale obligations to customers other than standard warranty obligations for product defects.

The Company provides warranties for its products and records the estimated cost within cost of sales in the period that the related revenue is recorded. The Company's standard warranty period extends one to two years from the date of sale, depending on the type of product purchased. The warranties provide that the Company's products will be free from defects in material and workmanship, and will, under normal use, conform to the specifications for the product. For the years ended December 31, 2008, 2009, and 2010, warranty claims and charges have been insignificant.

Research Services Revenue

The Company performs research services under contracts with various government agencies and other institutions. The Company records revenue earned on research services contracts using the percentage-of-completion method in two ways: (1) for firm-fixed-price contracts, the Company accrues that portion of the total contract price that is allocable, on the basis of the Company's estimates of costs incurred to date to total contract costs; (2) for cost-plus-fixed-fee contracts, the Company records revenue that is equal to total payroll cost incurred times a stated factor plus reimbursable expenses, to a stated upper limit. Revisions in cost estimates and fees during the course of the contract are reflected in the accounting period in which the facts that require the revisions become known.

Contract costs and rates used to allocate overhead to contracts are subject to audit by the respective contracting government agency. Adjustments to revenue as a result of audit are recorded in the period they become known. Provision is made for the entire amount of future estimated losses on contracts when the current contract estimate is a loss while claims for additional contract compensation are not reflected in the accounts until the year in which such claims are identifiable and receipt is probable.

Cost-Sharing Arrangements

The Company has entered into several cost-sharing arrangements with various agencies of the U.S. government. Funds paid to the Company under these agreements are not reported as revenues but are used to directly offset the Company's cost of revenues, research and development, sales and marketing and general and administrative expenses in support of its product revenue.

Costs incurred and the related cost of revenues, research and development, sales and marketing and general and administrative expenditures offset by cost sharing funding received under these contracts are as follows:

	Year Ended December 31		
	2008	2009	2010
Costs incurred	$3,193	$1,672	$2,005
Expenditures offset by cost sharing funding received:			
Cost of revenue:			
Product	43	20	33
Research services	1,227	637	1,124
Operating expenses:			
Research and development	1,214	620	475
Sales and marketing	342	193	170
General and administrative	367	202	203
Total expenditures offset by cost sharing	$3,193	$1,672	$2,005

Shipping and Handling Costs

Shipping and handling costs are classified as a component of cost of revenue. Customer payments of shipping and handling costs are recorded as product revenue.

Research and Development

Costs incurred in the research and development of the Company's products are expensed as incurred and include salaries, services provided by third-party contractors, materials, and supplies and are classified as research and development expenses. Research and development costs directly associated with research services revenue are classified as research services in cost of revenue.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

The Company recognizes the effect of income tax positions only if those positions are more likely than not of being sustained. The Company accounts for uncertain tax positions using a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. Differences between tax positions taken in a tax return and amounts recognized in the financial statements are recorded as adjustments to income taxes payable or receivable, or adjustments to deferred taxes, or both. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. The Company recognizes penalties and interest related to recognized tax positions, if any, as a component of income tax expense.

Stock-based Compensation

Stock-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as expense in the consolidated financial statements on a straight-line basis over the requisite service period. The Company uses the Black-Scholes option-pricing model to determine the fair value of stock-based awards, which requires a number of complex and subjective assumptions including fair value of the underlying security, the expected volatility of the underlying security, a risk-free interest rate, the expected term of the option, and the forfeiture rate for the award class. The Company engaged a third party independent valuation specialist to assist the Company in estimating the fair value of the underlying securities for all stock-based awards issued in 2008, 2009, and 2010. Stock-based compensation, which is included in cost of sales and operating expenses, consists of the following:

	Year Ended December 31		
	2008	2009	2010
Product cost of revenue	$178	$148	$ 81
Research and development expenses	67	96	57
Sales and marketing expenses	136	157	87
General and administrative expenses	546	430	243
Total stock-based compensation	$927	$831	$468

Cash and Cash Equivalents and Restricted Cash

Cash equivalents include short-term, highly-liquid instruments, which consist of money market accounts. The majority of cash and cash equivalents are maintained with major financial institutions in North America. Deposits with these financial institutions may exceed the amount of insurance provided on such deposits; however, these deposits typically may be redeemed upon demand and, therefore, bear minimal risk.

The Company is required to maintain cash balances as collateral for the lease of the Company's Northborough, Massachusetts, facility and performance obligations under specific commercial contracts. Restricted cash at December 31, 2009 and 2010 was $556 and $857, respectively.

Marketable Securities

Marketable securities consist primarily of marketable debt securities and U.S. government securities, which are classified as available-for-sale and are carried at fair market value at December 31, 2010. The unrealized gains and losses on available-for-sale securities are recorded in accumulated other comprehensive income. The Company considers all highly liquid investments with maturities of 90 days or less at the time of purchase to be cash equivalents and investments with maturities of greater than 90 days at the time of purchase to be marketable securities. When a marketable security incurs a significant unrealized loss for a sustained period of time, the Company reviews the instrument to determine if it is other-than-temporarily impaired. If it is determined that an instrument is other-than-temporarily impaired, the Company records the unrealized loss in the consolidated statement of operations.

Costs in Excess of Billings

Costs in excess of billings represent contract costs incurred that have not been billed to certain research services contracts. These amounts are expected to be billed and collected in the normal course of business.

Inventories

Inventory consists of finished products, work-in-process, and raw materials. Inventories are carried at lower of cost, determined using the first-in, first-out (FIFO) method, or market. Cost includes materials, labor, and manufacturing overhead. The Company includes products that have been delivered to customers for which the related revenue has been deferred in finished goods inventory.

The Company periodically reviews its inventories and makes provisions as necessary for estimated obsolescence or damaged goods to ensure values approximate lower of cost or market. The amount of such markdowns is equal to the difference between the cost of inventory and the estimated market value based upon assumptions about future demand, selling prices, and market conditions.

Fair Value of Financial Instruments

Fair value is an exit price, representing the amount that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. The Company discloses the manner in which fair value is determined for assets and liabilities based on a three-tiered fair value hierarchy. The hierarchy ranks the quality and reliability of the information used to determine the fair values. The three levels of inputs described in the standard are:

Level 1 Quoted prices in active markets for identical assets or liabilities.

Level 2 Observable inputs, other than Level 1 prices, that are observable for the assets or liabilities, either directly or indirectly, for substantially the full term of the assets or liabilities.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

At December 31, 2010, the Company held marketable securities classified as available-for-sale securities totaling $4,020, which were valued utilizing Level 1 inputs.

Concentration of Credit Risk

Financial instruments, which potentially expose the Company to concentrations of credit risk, consist principally of accounts receivable and cash equivalents. The Company's customers consist primarily of insulation distributors located throughout the world. The Company performs ongoing credit evaluations of its customers' financial condition and generally requires no collateral to secure accounts receivable. The Company maintains an allowance for doubtful accounts based on its assessment of the collectability of accounts receivable. The Company reviews the allowance for doubtful accounts monthly. The Company does not have any off-balance-sheet credit exposure related to its customers.

For the year ended December 31, 2008, one customer represented 12% of total revenues. For the year ended December 31, 2009, no customers represented 10% or more of the Company's total revenues, while for the year ended December 31, 2010, one customer represented 14% of total

revenues. At December 31, 2009, three customers accounted for 16%, 15% and 10% of accounts receivable, while at December 31, 2010, the Company had one customer that accounted for 32% of accounts receivable.

Property, Plant, and Equipment

Property, plant and equipment are stated at cost. Assets held under capital leases are stated at the lesser of the present value of future minimum payments, using the Company's incremental borrowing rate or the fair value of the property at the inception of the lease. Expenditures for maintenance and repairs are charged to expense as incurred, whereas major betterments are capitalized as additions to property, plant and equipment. The Company has capitalized interest costs as part of the historical cost of constructing manufacturing facilities. For the years ended December 31, 2008, 2009 and 2010, the Company did not capitalize any interest costs. Depreciation on plant and equipment is calculated on the straight-line method over the estimated useful lives of the assets. Capital leases are amortized on a straight-line basis over the shorter of the lease term or estimated useful life of the asset.

Impairment of Long-Lived Assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset exceeds the fair value of the asset. Fair value is determined through various valuation techniques including discounted cash flows models, quoted market values and third-party independent appraisals, as considered necessary.

Other Assets

Other assets primarily include long-term deposits and deferred financing costs which were incurred in connection with the issuance of debt. Deferred financing costs consist primarily of legal and banking fees and are amortized into interest expense using the effective interest rate method over the life of the related debt.

Deferred Revenue

The Company records deferred revenue for product sales when (i) the Company has delivered products but other revenue recognition criteria have not been satisfied or (ii) payments have been received in advance of products being delivered.

Asset Retirement Obligations

The Company records asset retirement obligations associated with its lease obligations and the retirement of tangible long-lived assets. The Company reviews legal obligations associated with the retirement of long-lived assets that result from contractual obligations or the acquisition, construction, development, and/or normal use of the assets. If it is determined that a legal obligation exists, regardless of whether the obligation is conditional on a future event, the fair value of the liability for an asset retirement obligation is recognized in the period in which it is incurred, if a reasonable estimate of fair value can be made. An amount equal to the fair value of the liability is also recorded as a long-term asset that is depreciated over the estimated life of the asset. The difference between the

gross expected future cash outflow and its present value is accreted over the life of the related lease as an operating expense.

Redeemable Convertible Preferred Stock

The Company's redeemable convertible preferred stock is classified as temporary equity and shown net of issuance costs. The Company recognizes changes in the redemption value immediately as they occur and adjusts the carrying amount of the redeemable convertible preferred stock to equal the redemption value at the end of each reporting period.

Accumulated Other Comprehensive Income

Accumulated other comprehensive income consists of changes in the fair market value of available-for-sale securities.

Segments

Operating segments are identified as components of an enterprise about which separate, discrete financial information is available for evaluation by the chief operating decision maker in making decisions on how to allocate resources and assess performance. The Company's chief operating decision maker is the Chief Executive Officer. The Company's chief operating decision maker reviews consolidated operating results to make decisions about allocating resources and assessing performance for the entire Company. The Company views its operations and manages its business as one operating segment.

Information about the Company's revenues, based on shipment destination or services location, is presented in the following table:

	Year Ended December 31		
	2008	2009	2010
Revenue:			
U.S.	10,427	12,668	20,056
International	9,643	15,948	23,153
	$20,070	$28,616	$43,209

Subsequent Events

Subsequent events have been evaluated through the date these consolidated financial statements were filed (See Note 18).

Recently Issued Accounting Standards

In October 2009, the FASB issued ASU No. 2009-13, *Multiple-Deliverable Revenue Arrangements* (ASU 2009-13). ASU 2009-13 supersedes certain guidance in FASB ASC Topic 605-25, *Multiple-Element Arrangements* and requires an entity to allocate arrangement consideration at the inception of an arrangement to all of its deliverables based on their relative selling prices (the relative-selling-price method). ASU 2009-13 eliminates the use of the residual method of allocation in which the undelivered element is measured at its estimated selling price and the delivered element is measured as the residual of the arrangement consideration, and requires the relative-selling-price method in all circumstances in which an entity recognizes revenue for an arrangement with multiple deliverables subject to ASU ASU 2009-13 must be adopted no later than the beginning of

the first fiscal year beginning on or after June 15, 2010, with early adoption permitted through either prospective application for revenue arrangements entered into, or materially modified, after the effective date or through retrospective application to all revenue arrangements for all periods presented. The Company has completed its evaluation of ASU 2009-13 and determined that it will not have a material impact on the Company's consolidated financial statements.

(3) Related Party Transactions

The Company had the following transactions with related parties:

The Company sold aerogel products to two shareholders of the Company, totaling $2,444, $1,627 and $3,448 for the years ended December 31, 2008, 2009 and 2010, respectively.

The Company had trade receivables outstanding with affiliates of approximately $440 and $0 at December 31, 2009 and 2010, respectively.

One of the Company's principal shareholders is a director of a company that owns an insurance broker from which the Company purchases insurance. The Company's yearly premiums for a comprehensive property and casualty insurance program were $400, $367 and $347 for the years ended December 31, 2008, 2009 and 2010, respectively.

The Company paid legal fees on behalf of certain of its principal shareholders of $40, $167 and $86 for the years ended December 31, 2008, 2009 and 2010, respectively.

As discussed in Note 6, the Company had demand notes payable to several of its principal shareholders through June 10, 2008.

(4) Property, Plant, and Equipment

Property, plant, and equipment consist of the following:

	December 31		
	2009	2010	Useful life
Construction in progress	$ 191	$ 13,215	—
Buildings	12,884	12,884	30 years
Machinery and equipment	31,237	35,606	5 — 7 years
Computer equipment and software	1,416	1,431	3 years
Total	45,728	63,136	
Accumulated depreciation and amortization	(15,965)	(20,514)	
Property, plant and equipment, net	$ 29,763	$ 42,622	

Plant and equipment under capital leases consist of the following:

	December 31	
	2009	2010
Office equipment, at cost	$ 62	$ 94
Vehicles, at cost	84	73
Total capital leases	146	167
Accumulated amortization	(70)	(88)
Capital leases, net	$ 76	$ 79

Depreciation expense for the years ended December 31, 2008, 2009 and 2010, was $6,479, $5,417 and $4,549, respectively. Depreciation associated with assets under capital lease for the years ended December 31, 2008, 2009 and 2010, was $3, $11, and $18, respectively.

Construction in progress at December 31, 2009 and 2010, included $191 and $13,215, respectively, related to capital projects in the Company's manufacturing facility located in East Providence, Rhode Island.

In an effort to reduce fixed costs and fully utilize the Company's manufacturing facility in East Providence, Rhode Island, during 2008 management decided to discontinue manufacturing operations in its demonstration scale facility in Northborough, Massachusetts. The Northborough facility ceased operations in July 2009. This event required an impairment analysis to be performed during 2008, and the carrying values of the related machinery and equipment were reduced to fair value as of December 31, 2008. This resulted in a pretax charge of $2,524 recorded in cost of revenue in the consolidated statement of operations for the year ended December 31, 2008.

(5) Inventories

Inventories consist of the following:

	December 31	
	2009	2010
Raw material	$1,288	$1,657
Finished goods	313	596
Total	$1,601	$2,253

(6) Recapitalization and Reorganization

2009 Recapitalization and Financing

On August 14, 2009, the Company approved and initiated a recapitalization and financing pursuant to which all outstanding Series A-3 Redeemable Convertible Preferred Stock (Series A-3), Series A-2 Redeemable Convertible Preferred Stock (Series A-2), Series A-1 Redeemable Convertible Preferred Stock (Series A-1), Series B-3 Redeemable Convertible Preferred Stock (Series B-3) and Series B-2 Redeemable Convertible Preferred Stock (Series B-2) were converted on a 1-for-1 basis, and the Series B-1 Redeemable Convertible Preferred Stock (Series B-1) was converted into two shares of common stock for each share of Series B-1, resulting in the issuance of 25,541,532 shares of common stock, par value $0.001. In addition, the holder of the Series B-1 warrant agreed to its cancellation and released the Company from all obligations with respect thereto. The Company then issued and sold 52,843,201 shares of its newly created Series A (2009) Redeemable Convertible Preferred Stock (Series A (2009)) for net proceeds of $30,538.

2008 Reorganization and Financing

On June 10, 2008, the Company undertook a reorganization pursuant to which an 18-for-1 conversion was affected for all issued common stock, common stock options, and common stock warrants. All outstanding shares of the Series A (2001) Redeemable Convertible Preferred Stock (Series A (2001)), Series C Redeemable Convertible Preferred Stock (Series C), and Series D Redeemable Convertible Preferred Stock (Series D) were exchanged into shares of Series A-3, Series A-2, and Series A-1 (collectively the Series A (2008)). All obligations under the then outstanding 14% notes and demand notes were converted into shares of Series B-3, Series B-2, and

Series B-1 (collectively the Series B (2008)). The Company then issued and sold 4,158,843 shares of Series B-1. The 2008 reorganization and financing resulted in the conversion of $93,047 of then outstanding debt into redeemable convertible preferred stock and the receipt of $26,605 of cash by the Company at closing. The net proceeds of the 2008 financing were used to fund the Company's ongoing operations and capital investments.

(7) Redeemable Convertible Preferred Stock

At December 31, 2010, the Company had 16,010,292 shares of Series B Redeemable Convertible Preferred Stock (Series B (2010)) outstanding and 52,843,201 shares of Series A Redeemable Convertible Preferred Stock (Series A (2009)) outstanding, and no other shares of redeemable convertible preferred stock were outstanding, including preferred stock issued in the 2008 reorganization and financing.

At December 31, 2007, the Company had 293.95, 1,116.18 and 1,024.74 shares of issued and outstanding Series A (2001), Series C and Series D with redemption values of $4,032, $23,648 and $35,183, respectively.

The following is a summary of the Company's Series A (2001), Series C and Series D for the years ended December 31, 2008, 2009 and 2010:

	Series A (2001)		Series C		Series D	
	Shares	Amount	Shares	Amount	Shares	Amount
Balance at December 31, 2007	293.95	$ 4,032	1,116.1831	$ 23,648	1,024.7362	$ 35,183
Dividends	—	—	—	—	—	850
Exchange of redeemable convertible preferred stock and related dividends	(293.95)	(4,032)	(1,116.1831)	(23,648)	(1,024.7362)	(36,033)
Balance at December 31, 2008, 2009 and 2010	—	$ —	—	$ —	—	$ —

On June 10, 2008, in conjunction with the 2008 reorganization and financing, all of the then outstanding Series A (2001), Series C and Series D and related dividends were exchanged for 80,454 shares of Series A-3, 498,303 shares of Series A-2 and 758,795 shares of Series A-1 with fair values at the date of exchange of $348, $2,048 and $5,349, respectively. The carrying amount of the redeemable convertible preferred stock exchanged exceeded the fair value of the consideration conveyed to the same preferred stockholders by $55,968. Holders of the Series A-3, Series A-2, and Series A-1 had the right to require the Company to redeem all such outstanding shares at a redemption price equal to the greater of the applicable liquidation amount, plus accrued but unpaid dividends or the fair market value, plus accrued but unpaid dividends. Accordingly, the Company recorded accretion to redemption value of $759, $4,456 and $12,410 relating to the Series A-3, Series A-2, and Series A-1, respectively, during the year ended December 31, 2008.

On June 10, 2008, the Company converted $31,098 of obligations, net of an original issue discount of $276, under the then outstanding 14% notes into 4,786,982 shares of Series B-2 and $61,949 of obligations under the then outstanding demand notes into 7,971,886 shares of Series B-3 and 1,563,681 shares of Series B-1. Additionally, the Company issued and sold 4,158,875 shares of Series B-1 to new and existing stockholders for net proceeds of $26,605. In the aggregate, the

Company received $37,177 in consideration from investors for the issuance of 5,722,556 shares of Series B-1.

In connection with the Series B-1, the Company issued a warrant to the lead investor to purchase shares of Series B-1 at $6.49653 per share (Series B-1 Warrant). The Series B-1 Warrant was exercisable upon issuance and set to expire on December 10, 2009. The Company estimated the initial fair value of the Series B-1 Warrant as of the date of grant to be $321 using the Black-Scholes option-pricing model with the following assumptions: (i) risk free interest rate of 3.66%, (ii) life of ten months, (iii) volatility of 33%, and (iv) no expected dividends. The warrant was accounted for as a liability because it was exercisable for the Company's Series B-1, which was redeemable, and changes in the fair value were recorded as interest expense. The fair value of the warrant as of December 31, 2008, was calculated to be $485 using the Black-Scholes option pricing model.

During the year ended December 31, 2008, the Company recorded accretion totaling $37,906 relating to the Series B-1 consisting of closing costs of $408, discount for the fair value of the Series B-1 Warrants of $321 and adjustment of the carrying value to redemption value of two times the original issuance price of Series B-1 totaling $37,177 relating to liquidation and redemption rights. At December 31, 2008, the redemption and liquidation value of the Series B-1 was $76,016, which included $1,662 in accrued but unpaid dividends.

The following is a summary of the Company's Series A (2008) and Series B (2008) for the years ended December 31, 2008, 2009 and 2010:

	Series A-1		Series A-2		Series A-3	
	Shares	Amount	Shares	Amount	Shares	Amount
Balance at December 31, 2007	—	$ —	—	$ —	—	$ —
Exchange of redeemable convertible preferred stock and related dividends at fair value	758,795	5,349	498,303	2,048	80,454	348
Accretion to redemption value	—	12,410	—	4,456	—	759
Balance at December 31, 2008	758,795	$ 17,759	498,303	$ 6,504	80,454	$ 1,107
Conversion of redeemable convertible preferred stock and related dividends	(758,795)	(17,759)	(498,303)	(6,504)	(80,454)	(1,107)
Balance at December 31, 2009 and 2010	—	$ —	—	$ —	—	$ —

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	Series B-1		Series B-2		Series B-3	
	Shares	Amount	Shares	Amount	Shares	Amount
Balance at December 31, 2007	—	$ —	—	$ —	—	$ —
Conversion of debt into redeemable convertible preferred stock	1,563,681	10,159	4,786,982	30,822	7,971,886	51,790
Issuance of Series B-1	4,158,875	26,284	—	—	—	—
Accretion to redemption value	—	37,906	—	276	—	—
Dividends	—	1,662	—	—	—	—
Balance at December 31, 2008	5,722,556	$ 76,011	4,786,982	$ 31,098	7,971,886	$ 51,790
Dividends	—	1,841	—	—	—	—
Conversion of redeemable convertible preferred stock and related dividends	(5,722,556)	(77,852)	(4,786,982)	(31,098)	(7,971,886)	(51,790)
Balance at December 31, 2009 and 2010	—	$ —	—	$ —	—	$ —

Holders of the Series A (2008) and Series B (2008) were entitled to receive dividends when and if declared by the Board of Directors. In addition, holders of Series B-1 were entitled to receive a cumulative 8% dividend payable upon redemption of the Series B-1, upon liquidation, or upon conversion of the Series B-1 into common stock. No dividends were declared or paid on the Series A (2008) or Series B (2008).

In the event of any liquidation, dissolution, or winding-up of the Company, and before any distribution payments were to be made to the holders of common stock, holders of the Series A (2008) and Series B (2008) were entitled to receive an amount equal to the original price paid per share of capital stock plus any accrued but unpaid dividends, except in the case of Series B-1 in which each holder was entitled to receive an amount equal to two times the original issue price paid per share plus any accrued but unpaid dividends. At any time after June 10, 2013, the holders of a majority of each of the Series A (2008) and Series B (2008) had the right to require the Company to redeem all such outstanding shares at a redemption price equal to the greater of the applicable liquidation amount, plus accrued but unpaid dividends or the fair market value, plus accrued but unpaid dividends.

On August 14, 2009, in conjunction with the 2009 recapitalization, all of the Company's 14,096,420 outstanding shares of Series A-1, Series A-2, Series A-3, Series B-2 and Series B-3 converted on a 1-for-1 basis, and each of the 5,722,556 outstanding shares of Series B-1 were converted into two shares of common stock, resulting in the issuance of 25,541,532 shares of common stock with corresponding increases to additional paid-in capital of $186,084 and common stock of $26. The Series B-1 Warrant was canceled upon agreement with the holder effective August 14, 2009, and the liability related to the warrant was reclassified to additional paid-in capital, as the cancellation of the warrant was negotiated as part of the overall equity recapitalization. At December 31, 2009, the Company had no Series A (2008) or Series B (2008) shares outstanding.

The following is a summary of the Company's currently outstanding redeemable convertible preferred stock:

	Series B (2010)		Series A (2009)	
	Shares	Amount	Shares	Amount
Balance at December 31, 2008	—	$ —	—	$ —
Issuance of Series A (2009)			52,843,201	30,538
Accretion to redemption value	—	—	—	302
Dividends	—	—	—	841
Balance at December 31, 2009	—	—	52,843,201	31,681
Issuance of Series B (2010)	16,010,292	21,098	—	—
Accretion to redemption value	—	7,240	—	46,839
Dividends	—	461	—	2,467
Balance at December 31, 2010	16,010,292	$ 28,799	52,843,201	$ 80,987

In August and September 2009, the Company issued 52,843,201 shares of its newly created Series A (2009) at $0.583602175 per share, for net proceeds of approximately $30,538 to a group of new and existing investors. Series A (2009) is redeemable and convertible into common stock of the Company.

In September and October 2010, the Company issued 16,010,292 shares of its newly created Series B (2010) at $1.336802380 per share, for net proceeds of $21,098 to a group of new and existing investors. Series B (2010) is redeemable and convertible into common stock of the Company.

At December 31, 2010, the Company had 16,010,292 Series B (2010) shares and 52,843,201 Series A (2009) shares outstanding. The rights and preferences of the Series B (2010) and Series A (2009) as of December 31, 2010 are as follows:

Voting Rights

Holders of Series B (2010) and Series A (2009) shares are entitled to vote on all matters and with a number of votes equal to the number of shares of common stock into which each share of preferred stock is then convertible.

Dividends

Holders of Series B (2010) and Series A (2009) shares are entitled to receive a cumulative 8% annual dividend. Accrued dividends are convertible into common stock or payable in cash upon redemption, liquidation or declaration by the Board of Directors. No dividends have been declared or paid on Series B (2010) or Series A (2009) shares.

Liquidation Rights

In the event of any liquidation, dissolution, or winding-up of the Company, and before any distribution payments are made to the holders of the Series A (2009) or common stock, holders of the Series B (2010) are entitled to receive an amount equal to the original price paid per share of capital stock plus any accrued but unpaid dividends at the date of liquidation. In addition, before any distribution payments are made to the holders of common stock, holders of the Series A (2009) are entitled to receive an amount equal to the original price paid per share of capital stock plus any accrued but unpaid dividends at the date of liquidation.

Participation

Holders of the Series B (2010) and Series A (2009) have the right to participate in distribution payments to the holders of common stock on an as-converted basis up to a maximum, inclusive of payments received pursuant to applicable liquidation rights, equal to two times the original price paid per share.

Conversion

Each holder of Series B (2010) and Series A (2009) has the right to convert such shares into common stock on a one for one basis at any time. In addition, each share of Series B (2010) and Series A (2009) will automatically convert into common stock, together with any accrued but unpaid dividends, immediately upon the completion of a public stock offering with aggregate net proceeds of at least $60,000 at a price per share of $0.583602175, or upon an election of the holders of a majority of the Series B (2010) and Series A (2009) voting together as a single class. The conversion price of the Series B (2010) is subject to adjustment in the event the price per share of stock in an initial public offering is below a specified amount.

Redemption

At any time on or after September 14, 2014, the holders of a majority of the Series B (2010) and Series A (2009), voting together as a single class, have the right to require the Company to redeem in three annual installments all then outstanding shares of Series B (2010) and Series A (2009) at a redemption price equal to the sum of i.) the greater of the applicable liquidation amount or fair market value of the shares and ii.) accrued but unpaid dividends. The Series B (2010) redemption payments are to be paid in full prior to the Series A (2009) redemption payments as part of any such annual redemption. During the year ended December 31, 2010, the Company recorded accretion relating to the increase in the redemption value of the Company's Series B (2010) and Series A (2009) shares of $7,240 and $46,839, respectively.

(8) Stockholders' (Deficit) Equity

Common Stock

At December 31, 2010, the Company's Board of Directors had the authority to issue 183,843,201 shares of stock, of which 114,000,000 were designated as common stock and 17,000,000 were designated as Series B (2010) and 52,843,201 were designated as Series A (2009).

Common Stock Warrants

On December 29, 2010, in connection with the issuance of the Subordinated Notes (see Note 11), the Company issued warrants to purchase 1,496,107 shares of common stock at an exercise price of $0.001 per share. The warrants are immediately exercisable and expire on December 29, 2017. The Company has estimated the initial fair value of the warrants and recorded $2,183 as a debt discount using the Black-Scholes option-pricing model and the following assumptions: (i) risk-free interest rate of 2.75%, (ii) life of 7.5 years, (iii) volatility of 50%, and (iv) no expected dividends.

Warrants to purchase 1,631,048 of the Company's common stock were outstanding at December 31, 2010.

(9) Employee Stock Options

The Company maintains the 2001 Equity Incentive Plan, as amended (the Plan) pursuant to which the Company's Board of Directors may grant qualified and nonqualified common stock options to officers, key employees, and others who provide or have provided service to the Company. The Company may also grant stock option performance grants to certain employees based on the achievement of specific written financial or operational milestones. At December 31, 2010, the Plan authorized grants of incentive stock options and nonqualified stock options to purchase up to 13,145,806 shares of common stock. Stock options are granted with an exercise price not less than the fair market value of the Company's common stock at the date of grant. All stock options issued have a 10-year term and generally vest over a three- to four-year period from the date of grant. Upon exercise, the Company issues shares of common stock. At December 31, 2008, 2009, and 2010, the Company determined the fair value of its common stock was $0.33, $0.22 and $1.46 per share, respectively. At December 31, 2010, there were 990,010 shares available for grant under the Plan.

Valuation and Amortization method

The Company does not maintain an external market for its shares. While it has issued new equity to unrelated third parties and uses such facts in the determination of the fair value of its shares, the Company believes that the lack of a secondary market for its common stock and its limited history of issuing stock to unrelated parties makes it impracticable to estimate the expected volatility of its common stock. Therefore, it is not possible to reasonably estimate the grant-date fair value of the Company's options using the Company's own historical price data. Accordingly, the Company used a peer group of companies to determine its volatility assumptions.

The fair value of each award was estimated on the date of grant using the Black-Scholes option pricing model. Key inputs into this formula include expected term, expected volatility, expected dividend yield, and the risk-free rate. Each assumption is discussed below. This fair value is amortized on a straight-line basis over the requisite service periods of the awards, which is generally a three- to four-year vesting period.

Expected term

The expected term represents the period that the Company's stock-based awards are expected to be outstanding and is determined using the simplified method for all grants. The Company believes this is a better representation of the estimated life than its actual limited historical exercise behavior.

Expected volatility

In 2008, 2009, and 2010, the expected volatility is based on the weighted average volatility of up to six companies within various industries that the Company believes are similar to its own.

Expected dividend

The Company uses an expected dividend yield of zero, since it does not intend to pay cash dividends on its common stock in the foreseeable future, nor has it paid dividends on its common stock in the past.

Risk-free interest rate

The risk-free interest rate is based on U.S. Treasury zero-coupon issues with a remaining term equal to the expected life assumed at the date of grant.

Estimated forfeitures

As share-based compensation expense recognized is based on awards ultimately expected to vest, it has been reduced for an estimated forfeiture rate of 7% for 2008 and 3% for 2009 and 2010. Forfeitures are required to be estimated at the time of grant and revised, if necessary, in subsequent periods, if actual forfeitures differ from those estimates. Forfeitures were estimated based on voluntary termination behavior as well as analysis of actual option forfeitures.

The following assumptions were used to estimate the fair value of the option awards:

	Year Ended December 31		
	2008	2009	2010
Weighted average assumptions:			
Expected term (in years)	6.08	5.60	6.04
Expected volatility	33.00%	57.00%	49.75%
Risk free rate	3.65%	2.64%	1.90%
Expected dividend yield	0.00%	0.00%	0.00%
Weighted average grant-date fair value of options granted	$ 0.14	$ 0.09	$ 0.61
Weighted average grant-date fair value of options vested	$ 0.43	$ 0.12	$ 0.12
Aggregate intrinsic value of options exercised	—	—	—

Modification

On June 10, 2008, in connection with the 2008 reorganization and financing, the Company canceled the majority of options under the 2001 equity incentive plan and granted new options with an extended contractual life. These awards were issued with an exercise price of $0.36, which was equal to the fair market value of the common stock on June 10, 2008. As a result of the cancellation and concurrent grant of options, the Company accounted for this transaction as a modification in determining the stock-based compensation expense to be recognized over the remaining service period. The total incremental compensation expense resulting from the modification was $914 at December 31, 2008, which will be recognized over the remaining service period.

On November 11, 2009, in connection with the 2009 recapitalization and financing, the Company canceled the majority of options under the 2001 equity incentive plan and granted new options with an extended contractual life. These awards were issued with an exercise price of $0.22, which was equal to the fair market value of the common stock on November 11, 2009. As a result of the cancellation and concurrent grant of options, the Company accounted for this transaction as a modification in determining the stock-based compensation expense to be recognized over the remaining service period. The total incremental compensation expense resulting from the modification was $917 at December 31, 2009, which will be recognized over the remaining service period.

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes information about stock options outstanding:

	Number of Shares	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Options outstanding at December 31, 2009	10,513,805	$ 0.12	$ 0.26	9.86	
Granted	1,721,163	$ 0.61	$ 1.25		
Forfeited	(79,172)	$ 0.24	$ 0.48		
Exercised	(7,071)	$ 0.12	$ 0.22		—
Options outstanding at December 31, 2010	12,148,725	$ 0.19	$ 0.40	8.97	$13,288,975
Exercisable at December 31, 2010	5,473,821	$ 0.12	$ 0.30	8.81	$ 6,730,867
Expected to vest at December 31, 2010	6,474,669	$ 0.24	$ 0.48	9.10	$ 6,361,370
Nonvested options at December 31, 2009	7,683,662	$ 0.12			
Granted	1,721,163				
Vested	(2,662,583)				$ 3,264,487
Forfeited	(67,338)				
Nonvested options at December 31, 2010	6,674,904	$ 0.24			

As of December 31, 2010, there was $1,723 of total unrecognized compensation cost related to nonvested options granted under the Plan. This compensation cost is expected to be recognized over a weighted-average period of 3.08 years. Cash received from common stock issued as a result of stock options exercised during 2010 amounted to $2. No stock options were exercised during 2008 or 2009.

(10) Net Income (Loss) Per Share

Basic net income (loss) per share attributable to common stockholders is computed by dividing net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding during the period. Diluted net income (loss) per share attributable to common stockholders is computed by giving effect to all potential dilutive common shares, including options, common stock subject to repurchase, warrants, and redeemable convertible preferred stock. Basic and diluted net income (loss) per share attributable to common stockholders was the same for all periods because the Company incurred losses, which would make potential dilutive common shares

anti-dilutive. The computation of basic and diluted net income (loss) per share attributable to common stockholders consists of the following:

	Year Ended December 31		
	2008	2009	2010
Net income (loss)	$ (35,244)	$ (18,639)	$ (9,910)
Deemed dividends on redeemable convertible preferred stock (inclusive of issuance costs and accretion to redemption value):			
Series D	(850)	—	—
Exchange of Series A (2001), C and D	55,968	—	—
Series A-1, A-2 and A-3	(17,625)	—	—
Series B-1 and B-2	(39,844)	(1,841)	—
Series A (2009)	—	(1,143)	(49,306)
Series B (2010)	—	—	(7,701)
Total deemed dividends	(2,351)	(2,984)	(57,007)
Net income (loss) attributable to common stockholders	$ (37,595)	$ (21,623)	$ (66,917)
Weighted average shares outstanding	11,093	9,751,616	25,574,286
Net income (loss) per share attributable to common stockholders, basic and diluted	$(3,389.12)	$ (2.21)	$ (2.62)

Potential dilutive common shares that were excluded from the computation of diluted net income (loss) per share attributable to common stockholders because they were anti-dilutive consist of the following:

	December 31		
	2008	2009	2010
Common stock options	3,444,077	10,513,805	12,148,725
Common stock warrants	137,213	134,941	1,631,048
Preferred stock warrant	384,721	—	—
Series A-1	758,795	—	—
Series A-2	498,303	—	—
Series A-3	80,455	—	—
Series B-1	11,445,112	—	—
Series B-2	4,786,982	—	—
Series B-3	7,971,886	—	—
Series A (2009)	—	52,843,201	52,843,201
Series B (2010)	—	—	16,010,292
Total	29,507,544	63,491,947	82,633,266

(11) Long-Term Debt

Long-term debt consists of the following:

	December 31	
	2009	2010
6% Term Loan	$ 509	$ 247
Subordinated Notes, net of discount	—	7,820
Total long-term debt	509	8,067
Current maturities of long-term debt	(262)	(247)
Long-term debt, less current maturities	$ 247	$7,820

The principal amount due for the 6% Term Loan is $247 in 2011. The principal amount due for the Subordinated Notes is $10,000 due on March 2, 2014 (see Note 18).

6% Term Loan

In January 2005, the Company executed a term loan with the Massachusetts Development Finance Agency (the Term Loan) for $1,500. The proceeds were used to build research and development lab space at the Company's facility in Northborough, Massachusetts. The Term Loan bears interest at 6% per annum, is to be repaid in monthly installments of principal and interest through January 2012 and is secured by lab equipment.

Subordinated Notes

On December 29, 2010, the Company issued 12% Secured Subordinated Promissory Notes (the Subordinated Notes) for aggregate proceeds of $10,000. The proceeds were used to fund the expansion of a second manufacturing line at the Company's facility in East Providence, Rhode Island. The Subordinated Notes are collateralized by certain of the Company's assets at the East Providence manufacturing facility. The Subordinated Notes bear interest at 12% per annum and all accrued interest on the Subordinated Notes is compounded by adding it to the principal semi-annually on June 30th and December 31st of each year, commencing June 30, 2011, and continuing until the last such date to occur prior to the maturity of the Subordinated Notes. Upon such compounding, the compound amount will itself bear interest. In addition, accrued and unpaid interest on the Subordinated Notes will be payable at maturity, which is March 2, 2014. The Subordinated Notes are subject to mandatory prepayment provisions, as defined. As such, the Company would be required to pay the aggregate principal amount of the Subordinated Notes outstanding no later than (i) the first anniversary of the consummation of the Company's first underwritten public offering and (ii) the last business day prior to the date any shares of Series B (2010) or Series A (2009) are redeemed by the Company, whichever occurs first. The Subordinated Notes are subject to certain financial covenants, which include a minimum tangible net worth calculation. As of December 31, 2010, the Company was in compliance with all financial covenants.

In conjunction with the financing, the Company issued 1,496,407 detachable stock warrants to purchase the Company's common stock at $0.001 per share. A portion of the debt proceeds totaling $2,183 has been allocated to the warrants based on the estimated fair value of the warrants at the time of issuance and has been recorded as additional paid-in capital and a debt discount. The debt discount is being amortized to interest expense utilizing the effective interest rate method over the term of the Subordinated Notes. The warrants are exercisable immediately and expire 10 years from the date of issuance.

(12) Other Long-term Liabilities

Other long-term liabilities consist of the following:

	December 31	
	2009	2010
ARO	$ 964	$ 953
Cross License Agreement	21,014	15,989
	21,978	16,942
Current maturities of other long-term liabilities	(7,400)	(6,800)
Other long-term liabilities, less current maturities	$14,578	$10,142

The Company has asset retirement obligations (ARO) arising from requirements to perform certain asset retirement activities upon the termination of its Northborough, Massachusetts, facility lease and upon disposal of certain machinery and equipment. The liability was initially measured at fair value and subsequently is adjusted for accretion expense and changes in the amount or timing of the estimated cash flows. The corresponding asset retirement costs are capitalized as part of the carrying amount of the related long-lived asset and depreciated over the asset's remaining useful life. The Company has restricted cash of $241 to settle part of this liability.

During 2009, the Company extended its facility lease containing the ARO. This extension resulted in a change to the assumptions used to estimate the expected cash flows required to settle the ARO. The change in the timing of the settlement resulted in a reduction of estimated cash flows of $145, which required the Company to decrease the liability by this amount. A summary of ARO activity consists of the following:

	Year Ended December 31	
	2009	2010
Balance at beginning of period	$1,085	$964
Revisions in the estimated cash flow	(145)	—
Accretion of discount expense	24	29
Settlement costs	—	(40)
Balance at end of period	$ 964	$953

On April 1, 2006, the Company and Cabot Corporation entered into a Cross License Agreement (CLA) to license certain intellectual property rights. Such licenses will expire on the last day of the life of each issued patent.

On September 21, 2007, the CLA was amended to modify the consideration payable to Cabot by the Company to $38,000 in cash in 28 installments over a seven-year period. The Company adjusted its obligation to Cabot to reflect a revised net present value of the consideration payable to Cabot of $19,300. The discount of $18,700 is being amortized to interest expense over the term of the payment schedule.

The consideration provided to Cabot was for the value of the licensed patents and patent applications, the avoidance of potential claims on prior use of Cabot issued patents and related costs. Of the total consideration, $1,000 was allocated to the fair market value of the patents and patent applications obtained from Cabot, $500 was allocated to the fair market value of the patents and patent applications provided to Cabot, and the remainder to administrative expenses.

Under the terms of the CLA, as amended, the remaining cash payments due to Cabot as of December 31, 2010, consist of the following:

Year	Payment
2011	$ 6,800
2012	6,000
2013	6,000
Total payments	$ 18,800

(13) Income Taxes

No provision for federal or state income taxes has been recorded as the Company incurred net operating losses and recorded a full valuation allowance against net deferred assets for all periods presented. Differences between income tax expense at the statutory federal tax rate and the Company's income tax expense from operations are attributable to changes in the valuation allowance, stock option expense, and other items. The reconciliation between the U.S. statutory income tax rate and the Company's effective rate consists of the following:

	December 31		
	2008	2009	2010
U.S. federal income tax statutory rate	34%	34%	34%
Changes in valuation allowance for deferred tax assets	15%	(33)%	(32)%
Debt forgiveness income	(47)%	0%	0%
Other	(2)%	(1)%	(2)%
Effective tax rate	0%	0%	0%

The tax effects of temporary differences between financial statement and tax accounting that gave rise to significant portions of the Company's deferred tax assets and deferred tax liabilities at December 31, 2009 and 2010, are presented below:

	December 31	
	2009	2010
Deferred tax assets:		
Net operating loss carryforwards	$ 45,165	$ 41,540
Other long-term liabilities	4,116	3,099
Property and equipment	1,010	561
Tax credit carryforwards	437	453
Other	1,087	1,199
Total gross deferred tax assets	51,815	46,852
Valuation allowance	(51,815)	(46,852)
Net deferred tax asset	$ —	$ —

The net change in the valuation allowance for the year ended December 31, 2010, was a decrease of $4,693. The Company has recorded a full valuation allowance against its deferred tax assets due to the uncertainty associated with the utilization of the net operating loss carryforwards. In assessing the realizability of deferred tax assets, the Company considers all available evidence, historical and prospective, with greater weight given to historical evidence, in determining whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of the Company's deferred tax assets generally is dependent upon generation of future taxable income.

At December 31, 2010, the Company has $112,022 of net operating losses available to offset future federal income, if any, and which expire on various dates through December 31, 2030. The Company has performed an analysis pursuant to Internal Revenue Code Section 382, as well as similar state provisions, in order to determine whether any limitations might exist on the utilization of net operating losses and other tax attributes. Based on this analysis, the Company has determined that it is more likely than not that an ownership change occurred on June 10, 2008, resulting in an annual limitation on the use of its net operating losses and other tax attributes as of such date. The Company also determined that it had certain built-in gains at the date of ownership change. Built-in gains increase the limitation under Internal Revenue Code Section 382 to the extent triggered during the five year period subsequent to the date of change. Absent the disposition of certain built-in gain assets within the five year period subsequent to the change in ownership, approximately $30,000 of net operating losses will expire unutilized in June 2013.

At December 31, 2010, the Company has $61,534 of apportioned net operating losses available to offset future state taxable income, if any, and which expire on various dates through December 31, 2030. Similar to the federal treatment above, absent the disposition of certain built in gains within the five year period subsequent to the change in ownership, a significant portion of the state net operating losses will not be able to be utilized after June 2013.

The Company has adopted the provisions of ASC Topic 740, *Income Taxes,* relating to accounting for uncertainty in income taxes effective January 1, 2009. No adjustments have been recognized in the Company's consolidated financial statements as a result of the implementation. For each of the years ended December 31, 2008 and December 31, 2009, and as of December 31, 2010, the Company did not have any material unrecognized tax benefits and thus no interest and penalties related to unrecognized tax benefits were recorded. In addition, the Company does not expect that the amount of unrecognized tax benefits will change significantly within the next twelve months.

The Company files a federal income tax return in the United States and in various state jurisdictions. The Company is subject to U.S. federal and state income tax examination by tax authorities for tax years beginning in 2007.

(14) Commitments and Contingencies

Capital Leases

The Company has entered into certain capital leases for computer equipment and automobiles. The leases are payable in monthly installments and expire at various dates through 2014. The

recorded balance of capital lease obligations as of December 31, 2009 and 2010, was $66 and $72, respectively. Future minimum payments under capital leases at December 31, 2010, are as follows:

Year	Capital Lease Obligations
2011	$ 26
2012	26
2013	21
2014	11
2015	2
Total	86
Less portion representing interest	(14)
Present value of future minimum payments	72
Current maturities of capital lease payments	(20)
Long-term capital lease obligations	$ 52

Operating Leases

The Company leases facilities and office equipment under operating leases expiring at various dates through 2013. Under these agreements, the Company is obligated to pay annual rentals, as noted below, plus real estate taxes, and certain operating expenses. Some operating leases contain rent escalation clauses whereby the rent payments increase over the term of the lease. In such cases, rent expense is recognized on a straight-line basis over the lease term.

Future minimum lease payments under operating leases at December 31, 2010 are as follows:

Year	Operating Leases
2011	$ 519
2012	540
2013	549
Total minimum lease payments	$ 1,608

The Company incurred rent expense under all operating leases of approximately $1,103, $1,019, and $806 for the years ended December 31, 2008, 2009, and 2010, respectively.

Letters of Credit

In connection with a lease, the Company has been required to pledge cash in order to provide the lessor with a letter of credit. As of December 31, 2009 and 2010, the Company had total letters of credit outstanding for $416. In addition, the Company has been required to pledge cash in order to provide certain customers with letters of credit relating to the on-time delivery of its products and that the products have been manufactured according to the contractual specifications. As of December 31, 2009 and 2010, the Company had letters of credit outstanding for $137 and $441, respectively. All of these amounts are included in restricted cash on the accompanying consolidated balance sheets as of December 31, 2009 and 2010.

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(15) Employee Benefit Plan

The Company sponsors the Aspen Aerogels, Inc. 401(k) Plan (the Plan). Under the terms of the Plan, the Company's employees may contribute a percentage of their pretax earnings. The Company has not provided matching contributions nor has it made any contributions to the Plan.

(16) Accrued Expenses

Accrued expenses consist of the following:

	December 31	
	2009	2010
Accrued capital expenditures	$ —	$3,554
Employee compensation and related taxes	567	1,860
Other accrued expenses	224	573
	$791	$5,987

(17) Marketable Securities

Marketable securities are available-for-sale securities and consist of the following:

	As of December 31, 2010			
Description	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Losses	Fair Value
Government agency bonds	$4,012	$8	$—	$4,020

Gross realized gains and losses on the sales of available-for-sale marketable securities were not material and have been included in the consolidated statements of operations for the year ended December 31, 2010. The Company held no marketable securities at December 31, 2009.

(18) Subsequent Events

In March 2011, the Company entered into a two-year, revolving line of credit agreement (LOC), with a bank, to borrow up to $10,000 secured by the then outstanding accounts receivable and inventory of the Company. Borrowings under the line of credit accrue interest at prime plus one half percent. The facility also includes fees based on unused portions of the line of credit, among others. The LOC is collateralized by all assets of the Company, with a negative pledge on intellectual property and fixed assets at the East Providence manufacturing facility. The Company is required to comply with financial covenants including minimum levels of tangible net worth and cash on hand.

In June 2011, the Company issued $30,000 in 8% subordinated convertible notes (the Convertible Notes) to several investors. The Convertible Notes accrue interest at 8% per annum and mature three years from the date of issuance. In the event of an initial public offering of the Company's common stock, the Convertible Notes will convert into the Company's common stock at varying discounts depending on if and when the Company completes an initial public offering. If not converted pursuant to the terms of the Convertible Notes, the Company's obligation at maturity will be equal to the product of 1.375 times the balance of principal and accrued interest at June 1, 2014. In connection with the issuance of the Convertible Notes, the holders of the Subordinated Notes amended the terms of their original agreement whereby the Subordinated Notes will be due March 2, 2014, prior to the maturity of the Convertible Notes.

ASPEN AEROGELS, INC.

Consolidated Balance Sheets

(Unaudited)

	December 31 2010	March 31 2011
	(In thousands, except share and per share data)	
Assets		
Current assets:		
Cash and cash equivalents	$ 26,800	$ 16,379
Marketable securities	4,020	—
Accounts receivable, net of allowance for doubtful accounts	10,205	9,782
Costs in excess of billings	124	226
Inventories	2,253	2,385
Prepaid expenses and other current assets	419	252
Total current assets	43,821	29,024
Restricted cash	857	858
Property, plant, and equipment, net	42,622	54,085
Other assets	1,495	1,729
Total assets	$ 88,795	$ 85,696
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit		
Current liabilities:		
Long-term debt, current portion	$ 247	$ 179
Capital leases, current portion	20	20
Accounts payable	5,597	6,846
Accrued expenses	5,987	5,251
Deferred revenue	447	121
Other current liabilities	6,800	6,000
Total current liabilities	19,098	18,417
Long-term debt, excluding current portion	7,820	7,901
Capital leases, excluding current portion	52	119
Other long-term liabilities	10,142	9,115
Total liabilities	37,112	35,552
Commitments and contingencies (Note 12)		
Series B redeemable convertible preferred stock, $0.001 par value; authorized 17,000,000 shares; issued and outstanding 16,010,292 shares at December 31, 2010 and March 31, 2011, at redemption and liquidation value	28,799	41,094
Series A redeemable convertible preferred stock, $0.001 par value; authorized, issued and outstanding 52,843,201 shares at December 31, 2010 and March 31, 2011, at redemption and liquidation value	80,987	131,132
Stockholders' deficit:		
Common stock, $0.001 par value; authorized 114,000,000 shares; issued and outstanding 25,574,570 and 26,106,535 shares at December 31, 2010 and March 31, 2011	26	26
Additional paid-in capital	138,038	75,788
Accumulated deficit	(196,175)	(197,896)
Accumulated other comprehensive income	8	—
Total stockholders' deficit	(58,103)	(122,082)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 88,795	$ 85,696

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.

Consolidated Statements of Operations

(Unaudited)

	Three Months Ended March 31	
	2010	2011
	(In thousands, except share and per share data)	
Revenue:		
Product	$ 7,681	$ 11,274
Research services	1,066	1,015
Total revenue	8,747	12,289
Cost of revenue:		
Product	7,647	9,473
Research services	456	544
Gross profit	644	2,272
Operating expenses:		
Research and development	917	731
Selling and marketing	1,194	1,224
General and administrative	1,504	1,587
Total operating expenses	3,615	3,542
Income (loss) from operations	(2,971)	(1,270)
Other income (expense):		
Interest income	10	48
Interest expense	(706)	(499)
Total other expense, net	(696)	(451)
Net income (loss)	(3,667)	(1,721)
Dividends and accretion of redeemable convertible preferred stock	(608)	(62,440)
Net income (loss) attributable to common stockholders	$ (4,275)	$ (64,161)
Net income (loss) per common share attributable to common stockholders, basic and diluted	$ (0.17)	$ (2.48)
Weighted-average common shares outstanding, basic and diluted	25,573,418	25,892,546

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.

Consolidated Statements of Cash Flows

(Unaudited)

	Three Months Ended March 31	
	2010	2011
	(In thousands)	
Cash flows from operating activities:		
Net income (loss)	$ (3,668)	$ (1,721)
Adjustments to reconcile net income (loss) to net cash used in operating activities:		
Depreciation and amortization	1,137	1,409
Imputed interest	684	490
Gain on sale of marketable securities	—	(14)
Stock compensation expense	96	190
Settlement of asset retirement obligation	—	(12)
Changes in operating assets and liabilities:		
Accounts receivable	(679)	423
Costs in excess of billings	(235)	(102)
Inventories	(1,311)	(132)
Other current assets	210	167
Accounts payable	747	137
Accrued expenses	836	(430)
Deferred revenue	(259)	(326)
Other long-term liabilities	(2,250)	(2,300)
Net cash used in operating activities	(4,692)	(2,221)
Cash flows from investing activities:		
Capital expenditures	(391)	(11,874)
Increase in restricted cash	—	(1)
Proceeds from maturities and sales of marketable securities	—	4,026
Net cash used in investing activities	(391)	(7,849)
Cash flows from financing activities:		
Repayment of borrowings under long-term debt	(65)	(69)
Deferred financing costs	(109)	(276)
Repayment of obligations under capital lease	(14)	(6)
Net cash used in financing activities	(188)	(351)
Net decrease in cash	(5,271)	(10,421)
Cash at beginning of period	27,502	26,800
Cash at end of period	$22,231	$ 16,379
Supplemental disclosures of cash flow information:		
Interest paid	$ 23	$ 5
Income taxes paid	$ —	$ —
Supplemental disclosures of non-cash activities:		
Accrued dividends on preferred stock	$ 608	$ 1,031
Accretion of preferred stock	$ —	$ 61,409
Accrued capital expenditures	$ 250	$ 806
Capital lease	$ —	$ 73

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

(In thousands, except share and per share data)

(1) Description of Business

Nature of Business

Aspen Aerogels, Inc. (the Company) is an energy efficiency company that designs, develops, and manufactures innovative, high-performance aerogel insulation. The Company also conducts research and development related to aerogel technology supported by funding from several agencies of the U.S. government and other institutions in the form of research and development contracts.

Liquidity

The Company has incurred operating losses and negative cash flow since inception, has an accumulated deficit of $197,896 as of March 31, 2011, and has significant ongoing cash flow commitments. The Company has invested significant resources to commercialize aerogel technology and to build a manufacturing infrastructure capable of supplying aerogel products at the volumes and costs required by its customers. At March 31, 2011, the Company markets a set of commercially viable products, serves a growing base of customers and is experiencing rapid revenue growth.

During the three months ended March 31, 2011, the Company generated sufficient revenue to produce a positive gross profit. However, the Company has not yet generated net income or positive cash flow from operations. The Company's Cross License Agreement with Cabot Corporation requires payments through 2013 in an aggregate of $16,500. In addition, the Company has an aggregate of $10,000 12% secured subordinated promissory notes (the Subordinated Notes) outstanding to several investors at March 31, 2011. The Company's ability to achieve sufficient operating cash flows to generate net income, to fully fund operations and to meet upcoming commitments will require continued capacity expansions and related capital investments. The Company has substantially completed the second manufacturing line at its manufacturing facility in East Providence, Rhode Island, in late March 2011 which is designed to double the Company's manufacturing capacity.

Since inception, the Company has funded its operating losses, capital investments, and other obligations principally through equity financings, bridge loans between equity financings and debt financings. As discussed in Note 8, in December 2010, the Company issued Subordinated Notes to several investors generating net proceeds of $9,788 in cash to complete the funding of the second manufacturing line at its East Providence, Rhode Island, manufacturing facility.

2011 Outlook

The Company's current financial forecast anticipates increasing revenue levels and improving cash flow from operations throughout 2011. Based on current revenue and expense forecasts, the Company believes that its existing cash and cash equivalents and the net proceeds from its recent equity and debt financings will be sufficient to satisfy its anticipated cash requirements at least through 2011. If the Company's operating performance deteriorates from levels achieved during the year ended December 31, 2010 and the quarter ended March 31, 2011, it could have a significant effect on the Company's liquidity and its ability to continue in the future as a going concern.

However, the Company has continued to expand its financial resources and sources of available credit. As more fully described in Note 8, in March 2011, the Company entered into a senior, revolving line of credit agreement with a bank which provides up to $10,000 in borrowing capacity and, as more fully described in Note 13, the Company issued Subordinated Convertible Notes (the Convertible Notes) to several investors in June 2011 generating gross proceeds of $30,000.

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(Unaudited)

(2) Significant Accounting Policies

Unaudited Interim Financial Information

The accompanying unaudited interim consolidated balance sheet as of March 31, 2011 and the consolidated statements of operations and cash flows for the three months ended March 31, 2010 and 2011 are unaudited and should be read in conjunction with the Company's most recently issued consolidated financial statements as of and for the year ended December 31, 2010. These unaudited interim consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America. In the opinion of the Company's management, the unaudited interim consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and include all adjustments necessary for the fair statement of the Company's financial position, as of March 31, 2011, and the results of operations and cash flows for the three months ended March 31, 2010 and 2011. The results of operations for the three months ended March 31, 2011 are not necessarily indicative of the results to be expected for the year ending December 31, 2011 or for any other period.

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Reclassifications

Certain prior period amounts in the financial statements and corresponding footnotes have been reclassified to conform to the current period's presentation.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires the use of estimates, judgments, and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and related disclosure of contingent assets and liabilities at the date of the financial statements and for the period then ended.

Redeemable Convertible Preferred Stock

The Company's redeemable convertible preferred stock is classified as temporary equity and shown net of issuance costs. The Company recognizes changes in the redemption value as they occur and adjusts the carrying amount of the redeemable convertible preferred stock to equal the redemption value at the end of each reporting period.

Subsequent Events

Subsequent events have been evaluated through the date these consolidated financial statements were filed (See Note 13).

Recently Issued Accounting Standards

In October 2009, the FASB issued ASU No. 2009-13, *Multiple-Deliverable Revenue Arrangements* (ASU 2009-13). ASU 2009-13 supersedes certain guidance in FASB ASC Topic 605-25, *Multiple-Element Arrangements* and requires an entity to allocate arrangement consideration

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(Unaudited)

at the inception of an arrangement to all of its deliverables based on their relative selling prices (the relative-selling-price method). ASU 2009-13 eliminates the use of the residual method of allocation in which the undelivered element is measured at its estimated selling price and the delivered element is measured as the residual of the arrangement consideration, and requires the relative-selling-price method in all circumstances in which an entity recognizes revenue for an arrangement with multiple deliverables subject to ASU 2009-13. ASU 2009-13 must be adopted no later than the beginning of the first fiscal year beginning on or after June 15, 2010, with early adoption permitted through either prospective application for revenue arrangements entered into, or materially modified, after the effective date or through retrospective application to all revenue arrangements for all periods presented. The Company has adopted ASU 2009-13 and determined that it does not have a material impact on the Company's consolidated financial statements.

(3) Related Party Transactions

The Company had the following transactions with related parties:

The Company sold aerogel products to two shareholders of the Company, totaling zero and $1,216 for the three months ended March 31, 2010 and 2011, respectively.

The Company had trade receivables outstanding with affiliates of approximately zero and $1,216 as of December 31, 2010 and March 31, 2011, respectively.

(4) Inventories

Inventories consist of the following:

	December 31 2010	March 31 2011
Raw material	$ 1,657	$ 1,988
Work in Process	—	25
Finished goods	596	372
Total	$ 2,253	$ 2,385

(5) Redeemable Convertible Preferred Stock

The following is a summary of the Company's currently outstanding redeemable convertible preferred stock:

	Series B (2010)		Series A (2009)	
	Shares	Amount	Shares	Amount
Balance at December 31, 2010	16,010,292	$ 28,799	52,843,201	$ 80,987
Accretion to redemption value	—	11,873	—	49,536
Dividends	—	422	—	609
Balance at March 31, 2011	16,010,292	$ 41,094	52,843,201	$131,132

At March 31, 2011 the Company had 16,010,292 shares of Series B Redeemable Convertible Preferred Stock (Series B (2010)) and 52,843,201 shares of Series A Redeemable Convertible

Preferred Stock (Series A (2009)) outstanding. The rights and preferences of the Series B (2010) and Series A (2009) as of March 31, 2011 are as follows:

Each holder of Series B (2010) and Series A (2009) has the right to convert such shares into common stock on a one for one basis at any time. In addition, each share of Series B (2010) and Series A (2009) will automatically convert into common stock immediately upon the completion of an initial public offering with aggregate net proceeds of at least $60,000 at a price per share of $0.583602175, or upon an election of the holders of a majority of the Series B (2010) and Series A (2009) voting together as a single class. The conversion price of the Series B (2010) is subject to adjustment in the event the price per share of stock in an initial public offering is below a specified amount.

At any time on or after September 14, 2014, the holders of a majority of the Series B (2010) and Series A (2009) voting together as a single class have the right to require the Company to redeem in three annual installments all then outstanding shares of Series B (2010) and Series A (2009) at a redemption price equal to the greater of the applicable liquidation amount or fair market value of the shares excluding accrued but unpaid dividends. The Series B (2010) redemption payments are to be paid in full prior to the Series A (2009) redemption payments as part of any such annual redemption. During the three months ended March 31, 2011, the Company recorded accretion relating to the increase in redemption value of the Company's Series B (2010) and Series A (2009) shares of $11,873 and $49,536, respectively.

(6) Employee Stock Options

The Company maintains the 2001 Equity Incentive Plan, as amended (the Plan) pursuant to which the Company's Board of Directors may grant qualified and nonqualified common stock options to officers, key employees, and others who provide or have provided service to the Company. The Company may also grant stock option performance grants to certain employees based on the achievement of specific written financial or operational milestones. At March 31, 2011, the Plan authorized grants of incentive stock options and nonqualified stock options to purchase up to 13,145,806 shares of common stock. Stock options are granted with an exercise price not less than the fair market value of the Company's common stock at the date of grant. All stock options issued have a 10-year term and generally vest over a three- to four-year period from the date of grant. Upon exercise, the Company issues shares of common stock. At March 31, 2011, there were 278,238 shares available for grant under the Plan.

Total stock-based compensation for the three months ended March 31, 2010 and 2011 was $96 and $190, respectively.

(7) Net Income (Loss) Per Share

Basic net income (loss) per share attributable to common stockholders is computed by dividing net income (loss) attributable to common stockholders by the weighted average number of common shares outstanding during the period. Diluted net income (loss) per share attributable to common stockholders is computed by giving effect to all potential dilutive common shares, including options, common stock subject to repurchase, warrants, and redeemable convertible preferred stock. Basic and diluted net income (loss) per share attributable to common stockholders was the same for all periods because the Company incurred losses, which would make potential dilutive common shares

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(Unaudited)

anti-dilutive. The computation of basic and diluted net income (loss) per share attributable to common stockholders consists of the following:

	Three Months Ended March 31	
	2010	2011
Net income (loss)	$ (3,667)	$ (1,721)
Deemed dividends on participating preferred stock (inclusive of issuance cost and accretion to redemption value):		
Series A (2009)	(608)	(50,145)
Series B (2010)	—	(12,295)
Total preferred stock deemed dividends	(608)	(62,440)
Net income (loss) attributable to common stockholders	$ (4,275)	$ (64,161)
Weighted average shares outstanding	25,573,418	25,892,546
Net income (loss) per share attributable to common stockholders, basic and diluted	$ (0.17)	$ (2.48)

Potentially dilutive common shares that were excluded from the computation of diluted net income (loss) per share attributable to common stockholders because they were anti-dilutive consist of the following:

	March 31	
	2010	2011
Common stock options	10,582,036	12,832,208
Common stock warrants	134,941	1,127,372
Series A (2009)	52,843,201	52,843,201
Series B (2010)	—	16,010,292
Total	63,560,178	82,813,073

(8) Long-Term Debt

Long-term debt consists of the following:

	December 31 2010	March 31 2011
6% Term Loan	$ 247	$ 179
Subordinated Notes, net of discount	7,820	7,901
Total long-term debt	8,067	8,080
Current maturities of long-term debt	(247)	(179)
Long-term debt, less current maturities	$ 7,820	$ 7,901

The principal amount due for the 6% Term Loan is $179 during 2011. The principal amount due for the Subordinated Notes is $10,000 due on March 2, 2014.

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(Unaudited)

Line of Credit

In March 2011, the Company entered into a two-year, revolving line of credit agreement (LOC), with a bank, to borrow up to $10,000 secured by the then outstanding accounts receivable and inventory of the Company. Borrowings under the line of credit would accrue interest at prime plus one half percent. The facility also includes fees based on unused portions of the line of credit, among others. The LOC is collateralized by all assets of the Company, with a negative pledge on intellectual property and fixed assets at the East Providence manufacturing facility. The Company is required to comply with financial covenants including minimum levels of tangible net worth and cash on hand, and is currently in compliance and expects to maintain compliance with said covenants. At March 31, 2011, the Company had no amounts outstanding on the LOC.

(9) Other Long-term Liabilities

Other long-term liabilities consist of the following:

	December 31 2010	March 31 2011
ARO	$ 953	$ 948
Cross License Agreement	15,989	14,167
	16,942	15,115
Current maturities of other long-term liabilities	(6,800)	(6,000)
Other long-term liabilities, less current maturities	$ 10,142	$ 9,115

The Company has asset retirement obligations (ARO) arising from requirements to perform certain asset retirement activities upon the termination of its Northborough, Massachusetts, facility lease and upon disposal of certain machinery and equipment. The liability was initially measured at fair value and subsequently is adjusted for accretion expense and changes in the amount or timing of the estimated cash flows. The corresponding asset retirement costs are capitalized as part of the carrying amount of the related long-lived asset and depreciated over the asset's remaining useful life. At December 31, 2010 and March 31, 2011, the Company maintains restricted cash of $241 to settle part of this liability.

A summary of ARO activity consists of the following:

	Three Months Ended March 31	
	2010	2011
Balance at beginning of period	$964	$953
Accretion of discount expense	7	7
Settlement costs	—	(12)
Balance at end of period	$971	$948

ASPEN AEROGELS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(Unaudited)

(10) Income Taxes

The Company has incurred net losses since inception and has not recorded provisions for U.S. federal income taxes or state income taxes since the tax benefits of its net losses have been offset by valuation allowances.

(11) Accrued Expenses

Accrued expenses consist of the following:

	December 31 2010	March 31 2011
Accrued capital expenditures	$ 3,554	$ 2,837
Employee compensation and related taxes	1,860	892
Other accrued expenses	573	1,522
	$ 5,987	$ 5,251

(12) Commitments and Contingencies

As part of its normal course of business, the Company has a supply agreement to purchase $5,259 of inventory through 2012 as of March 31, 2011.

(13) Subsequent Event

In June 2011, the Company issued $30,000 in Convertible Notes to several investors. The Convertible Notes accrue interest at 8% per annum and mature three years from the date of issuance. In the event of an initial public offering of the Company's common stock, the Convertible Notes will convert into the Company's common stock at varying discounts depending on if and when the Company completes an initial public offering. If not converted, the Company's obligation at maturity will be equal to the product of 1.375 times the balance of principal and accrued interest at June 1, 2014. In connection with the issuance of the Convertible Notes, the holders of the Subordinated Notes amended the terms of their original agreement whereby the Subordinated Notes will be due March 2, 2014, prior to the maturity of the Convertible Notes.

Shares

Common Stock

PROSPECTUS

Goldman, Sachs & Co. **Morgan Stanley**

Through and including , 2011 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealers' obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

, 2011

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. *Other Expenses of Issuance and Distribution.*

The following table indicates the expenses to be incurred in connection with the offering described in this registration statement, other than underwriting discounts and commissions, all of which will be paid by us. All of the amounts are estimated except the SEC registration fee, the FINRA filing fee and the NYSE listing fee.

	Amount to be paid
SEC registration fee	$ 13,352
NYSE listing fee	*
FINRA filing fee	12,000
Printing and mailing	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue sky fees and expenses	*
Transfer agent and registrar	*
Miscellaneous	*
Total	$ *

* *To be provided by amendment.*

Item 14. *Indemnification of Directors and Officers.*

Our restated certificate of incorporation and restated by-laws that will be effective upon completion of the offering provide that each person who was or is made a party or is threatened to be made a party to or is otherwise involved (including, without limitation, as a witness) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was one of our directors or officers or is or was serving at our request as a director, officer, or trustee of another corporation, or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan, whether the basis of such proceeding is alleged action in an official capacity as a director, officer or trustee or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by us to the fullest extent authorized by the Delaware General Corporation Law against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by such.

Section 145 of the Delaware General Corporation Law permits a corporation to indemnify any director or officer of the corporation against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with any action, suit or proceeding brought by reason of the fact that such person is or was a director or officer of the corporation, if such person acted in good faith and in a manner that he or she reasonably believed to be in, or not opposed to, the best interests of the corporation, and, with respect to any criminal action or proceeding, if he or she had no reasonable cause to believe his or her conduct was unlawful. In a derivative action (i.e., one brought by or on behalf of the corporation), indemnification may be provided only for expenses actually and reasonably incurred by any director or officer in connection with the defense or settlement of such an action or suit if such person acted in good faith and in a manner that he or she reasonably believed to be in, or not opposed to, the best interests of the corporation, except that no indemnification shall be provided if such person shall have been adjudged to be liable to the corporation, unless and only to the extent that the Delaware Chancery Court or the

court in which the action or suit was brought shall determine that such person is fairly and reasonably entitled to indemnity for such expenses despite such adjudication of liability.

Pursuant to Section 102(b)(7) of the Delaware General Corporation Law, Article VI of our restated certificate of incorporation eliminates the liability of a director to us or our stockholders for monetary damages for such a breach of fiduciary duty as a director, except for liabilities arising:

- from any breach of the director's duty of loyalty to us or our stockholders;
- from acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- under Section 174 of the Delaware General Corporation Law; and
- from any transaction from which the director derived an improper personal benefit.

We have entered into indemnification agreements with our non-employee directors and will enter into similar agreements with certain officers, in addition to the indemnification provided for in our restated certificate of incorporation and restated by-laws, and intend to enter into indemnification agreements with any new directors and executive officers in the future. We have purchased and intend to maintain insurance on behalf of any person who is or was a director or officer against any loss arising from any claim asserted against him or her and incurred by him or her in any such capacity, subject to certain exclusions.

The foregoing discussion of our restated certificate of incorporation, restated by-laws, indemnification agreements, and Delaware law is not intended to be exhaustive and is qualified in its entirety by such restated certificate of incorporation, restated by-laws, indemnification agreements, or law.

Reference is made to our undertakings in Item 17 with respect to liabilities arising under the Securities Act. Reference is also made to the form of underwriting agreement filed as Exhibit 1.1 to this registration statement for the indemnification agreements between us and the underwriters.

Item 15. ***Recent Sales of Unregistered Securities.***

Set forth below is information regarding shares of common stock and preferred stock issued, and options granted, by us within the past three years that were not registered under the Securities Act. Also included is the consideration, if any, received by us for such shares, options and warrants and information relating to the section of the Securities Act, or rule of the Securities and Exchange Commission, under which exemption from registration was claimed.

Stock Issuances

A. From January 30, 2008 through May 27, 2008, we issued $8.0 million promissory notes. The then outstanding principal amount and accrued but unpaid interest of the promissory notes converted into shares of our Series B-1 preferred stock on June 10, 2008, which in turn were converted into shares of our common stock on August 14, 2009. See Items C and I below.

B. On June 10, 2008, in connection with our reorganization, we issued 758,795 shares of Series A-1 preferred stock, 498,303 shares of Series A-2 preferred stock and 80,454 shares of Series A-3 preferred stock as a result of the conversion of our predecessor company's Series D preferred stock, Series C preferred stock and Series A preferred stock, respectively. These shares of preferred stock were converted into common stock in connection with a recapitalization in August 2009. See Item I below.

C. On June 10, 2008, in connection with our reorganization, we issued 1,563,681 shares of Series B-1 preferred stock, 4,786,982 shares of Series B-2 preferred stock and 7,971,886 shares of Series B-3 preferred stock as a result of the conversion of our predecessor company's outstanding

notes with aggregate accrued obligations of $93.0 million. These shares of preferred stock were converted into common stock in connection with a recapitalization in August 2009. See Item I below.

D. On June 10, 2008, in connection with our reorganization, we issued and sold 4,158,875 shares of its Series B-1 preferred stock for an aggregate purchase price of $26.6 million. These shares of preferred stock were converted into common stock in connection with a recapitalization in August 2009. See Item I below.

E. On June 10, 2008, in connection with our reorganization, we issued warrants to purchase 149,898 shares of our common stock to 54 private accredited investors with a weighted-average exercise price of $0.003 per share. These warrants are exercisable for a term of eight years.

F. On October 29, 2008, as part of the warrants issued in Item E above, we issued 42 shares of our common stock to one accredited investor upon the exercise of a warrant at an exercise price of $0.003 per share.

G. On November 18, 2008, as part of the warrants issued in Item E above, we issued 14,246 shares of our common stock to one accredited investor upon the exercise of a warrant at an exercise price of $0.003 per share.

H. On June 25, 2009, as part of the warrants issued in Item E above, we issued 2,272 shares of our common stock to one accredited investor upon the exercise of a warrant at an exercise price of $0.003 per share.

I. On August 14, 2009, we consummated a recapitalization and issued 25,541,532 shares of common stock, which reflects a 1-for-3 reverse stock split effected on September 25, 2009, in exchange for all of our outstanding Series A-1 preferred stock, Series A-2 preferred stock, Series A-3 preferred stock, Series B-1 preferred stock, Series B-2 preferred stock and Series B-3 preferred stock. The Series B-1 preferred stock converted at a ratio of 2-for-1 and all other series of preferred stock converted at a ratio of 1-for-1.

J. On August 14, 2009, we issued and sold 27,415,936 shares of Series A preferred stock, which reflects a 1-for-3 reverse stock split effected on September 25, 2009, to five accredited investors at a price of approximately $0.58 per share for an aggregate purchase price of approximately $16.0 million. Each share of Series A preferred stock will convert automatically into one share of common stock upon the completion of this offering and any accumulated dividends will be paid in shares of our common stock.

K. On September 10, 2009, we issued and sold 3,736,592 shares of Series A preferred stock, which reflects a 1-for-3 reverse stock split effected on September 25, 2009, to 37 accredited investors at a price of approximately $0.58 per share for an aggregate purchase price of approximately $2.2 million. Each share of Series A preferred stock will convert automatically into one share of common stock upon the completion of this offering and any accumulated dividends will be paid in shares of our common stock.

L. On September 14, 2009, we issued and sold 21,690,673 shares of Series A preferred stock, which reflects a 1-for-3 reverse stock split effected on September 25, 2009, to 17 accredited investors at a price of approximately $0.58 per share. Each share of Series A preferred stock will convert automatically into one share of common stock upon the completion of this offering and any accumulated dividends will be paid in shares of our common stock.

M. On September 22, 2010, we issued and sold 14,961,075 shares of Series B preferred stock to 13 accredited investors at a price of approximately $1.34 per share. Each share of Series B preferred stock will convert automatically into one share of common stock upon the completion of this offering and any accumulated dividends will be paid in shares of our common stock.

N. On October 20, 2010, we issued and sold 1,049,217 shares of Series B preferred stock to 33 accredited investors at a price of approximately $1.34 per share. Each share of Series B preferred stock will convert automatically into one share of common stock upon the completion of this offering and any accumulated dividends will be paid in shares of our common stock.

O. On December 29, 2010, in connection with a note financing, we issued warrants to purchase 1,496,107 shares of our common stock to four accredited investors with an exercise price of $0.001 per share. These warrants are exercisable for a term of seven years. As of March 31, 2011, of these warrants, warrants to purchase 502,692 shares of our common stock had been exercised.

P. On March 17, 2011, one of our principal stockholders exercised warrants to purchase 984 shares of our common stock at an exercise price of $0.003 per share.

Q. On June 1, 2011, we issued $26.0 million in aggregate principal amount of convertible notes to nine accredited investors. The unpaid principal amount plus accrued interest of the convertible notes will automatically convert upon the closing of the offering made hereby into a number of shares of our common stock equal to the quotient obtained by dividing the unpaid principal amount of the convertible notes plus interest accrued but unpaid thereon, by 87.5% of the initial public offering price. Assuming an initial public offering price of $ per share, which is the mid-point of the price range set forth on the cover page of this prospectus, the $26.0 million in principal amount of the outstanding convertible notes will convert into approximately shares of our common stock.

R. On June 15, 2011, we issued $4.0 million in convertible notes to four accredited investors on the same terms as those described above in Item Q.

Stock Option Grants

From January 1, 2008 through May 31, 2011, we granted stock options under our 2001 equity incentive plan, as amended, to purchase an aggregate of 14,120,062 shares of common stock, net of forfeitures, at a weighted-average exercise price of $0.62 per share, to certain of our employees, consultants and directors.

Securities Act Exemptions

Except as otherwise indicated above, we deemed the offers, sales and issuances of the securities described above to be exempt from registration under the Securities Act in reliance on Section 4(2) of the Securities Act, including Regulation S, Regulation D and Rule 506 promulgated thereunder, relative to transactions by an issuer not involving a public offering. All purchasers of securities, which included a combination of foreign and U.S. investors, in transactions exempt from registration pursuant to Regulation D and/or Regulation S represented to us that they were accredited investors and were acquiring the shares for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration statement or an available exemption from such registration.

We deemed the grants of stock options described above under "— Stock Option Grants" to be exempt from registration under the Securities Act in reliance on Rule 701 or Regulation S of the Securities Act as offers and sales of securities under compensatory benefit plans and contracts relating to compensation in compliance with Rule 701. Each of the recipients of securities in any transaction exempt from registration either received or had adequate access, through employment, business or other relationships, to information about us.

All certificates representing the securities issued in the transactions described in this Item 15 included appropriate legends setting forth that the securities had not been offered or sold pursuant to

a registration statement and describing the applicable restrictions on transfer of the securities. There were no underwriters employed in connection with any of the transactions set forth in this Item 15.

Item 16. *Exhibits and Financial Statement Schedules.*

(a) See the Exhibit Index on the page immediately preceding the exhibits for a list of exhibits filed as part of this registration statement on Form S-1, which Exhibit Index is incorporated herein by reference.

(b) Financial Statement Schedules

All other schedules have been omitted because they are not applicable.

Financial Statement Schedules

All schedules have been omitted because they are not required or are not applicable or the required information is shown in the financial statements or notes thereto.

Item 17. *Undertakings*

(a) The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 14 above, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(c) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497 (h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Northborough, Massachusetts, on June 24, 2011.

ASPEN AEROGELS, INC.

By: /s/ DONALD R. YOUNG
Donald R. Young
President and Chief Executive Officer

We, the undersigned officers and directors of Aspen Aerogels, Inc., hereby severally constitute and appoint Donald R. Young and John F. Fairbanks, and both or any one of them, our true and lawful attorneys-in-fact and agents, with full power of substitution and re-substitution in each of them for him and in his name, place and stead, and in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and any registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act, as amended, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing necessary or desirable to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ DONALD R. YOUNG **Donald R. Young**	President, Chief Executive Officer and Director (principal executive officer)	June 24, 2011
/s/ JOHN F. FAIRBANKS **John F. Fairbanks**	Chief Financial Officer, Vice President and Treasurer (principal financial and accounting officer)	June 24, 2011
/s/ MARK L. NOETZEL **Mark L. Noetzel**	Chairman of the Board	June 24, 2011
/s/ P. RAMSAY BATTIN **P. Ramsay Battin**	Director	June 24, 2011
/s/ ROBERT M. GERVIS **Robert M. Gervis**	Director	June 24, 2011
/s/ CRAIG A. HUFF **Craig A. Huff**	Director	June 24, 2011

Signature	Title	Date
/s/ STEVEN R. MITCHELL **Steven R. Mitchell**	Director	June 24, 2011
/s/ WILLIAM P. NOGLOWS **William P. Noglows**	Director	June 24, 2011
/s/ DAVID J. PREND **David J. Prend**	Director	June 24, 2011
/s/ RICHARD F. REILLY **Richard F. Reilly**	Director	June 24, 2011

EXHIBIT INDEX

Exhibit number	Description of Exhibit
1.1*	Form of underwriting agreement.
3.1.1	Third amended and restated certificate of incorporation of the Registrant, as amended.
3.1.2*	Certificate of amendment to the third amended and restated certificate of incorporation, as amended, of the Registrant.
3.2*	Form of restated certificate of incorporation of the Registrant to be filed with the Secretary of State of the State of Delaware upon completion of this offering.
3.3	By-laws of the Registrant, as amended.
3.4*	Form of restated by-laws of the Registrant to be effective upon completion of this offering.
4.1*	Form of common stock certificate.
4.2	Form of warrant to purchase common stock issued by the Registrant in connection with 2004 and 2005 financing arrangements, as amended and restated.
4.3	Form of warrant to purchase common stock issued by the Registrant in connection with the 2005 equity financing, as amended and restated.
4.4	Form of warrant to purchase common stock issued by the Registrant in connection with the 2008 reorganization.
4.5	Form of warrant to purchase common stock issued by the Registrant in connection with the 2008 financing.
4.6	Form of warrant to purchase common stock issued by the Registrant in connection with the 2010 subordinated note and warrant financing.
5.1*	Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to the Registrant, with respect to the legality of securities being registered.
10.1.1	2001 equity incentive plan, as amended.
10.1.2	Form of incentive stock option agreement granted under 2001 equity incentive plan, as amended.
10.1.3	Form of non-qualified stock option agreement granted under 2001 equity incentive plan, as amended.
10.2.1*	2011 employee, director and consultant equity incentive plan.
10.2.2*	Form of stock option agreement granted under 2011 employee, director and consultant equity incentive plan.
10.3	Multi-tenant industrial net lease, dated August 20, 2001, by and between the Registrant and Cabot II — MA1M03, LLC (as successor landlord to TMT290 Industrial Park, Inc.), as amended.
10.4	Loan and security agreement by and between the Registrant and Silicon Valley Bank, dated as of March 31, 2011, as amended.
10.5	Form of subordinated note issued by the Registrant in the 2010 subordinated note and warrant financing.
10.6*	Form of convertible note issued by the Registrant in the 2011 convertible note financing.
10.7*	Executive agreement by and between the Registrant and Donald R. Young.
10.8*	Executive agreement by and between the Registrant and John F. Fairbanks.
10.9*	Executive agreement by and between the Registrant and Harry R. Walkoff.
10.10*	Executive agreement by and between the Registrant and Kevin A. Schmidt.
10.11*	Executive agreement by and between the Registrant and George L. Gould, Ph.D.
10.12*	Executive agreement by and between the Registrant and Christopher L. Marlette.
10.13	2010 Corporate Bonus Plan.
10.14*	Director compensation policy.
10.15	Fifth amended and restated registration rights agreement, dated as of September 22, 2010, by and among the Registrant and Investors (as defined therein), as amended.
10.16#*	Joint development agreement dated as of March 1, 2010 by and between BASF Construction Chemicals GmbH and the Registrant, as amended.
21.1	Subsidiaries of the Registrant.

Exhibit number	Description of Exhibit
23.1	Consent of KPMG LLP.
23.2*	Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (see Exhibit 5.1).
24.1	Powers of Attorney (see signature page).

* *To be filed by amendment.*

\# Confidential treatment will be requested for portions of this exhibit.

Exhibit 3.1.1

THIRD AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

OF

ASPEN AEROGELS, INC.

Aspen Aerogels, Inc., a corporation organized and existing under the laws of the State of Delaware, hereby certifies as follows:

1. The name of the Corporation is Aspen Aerogels, Inc. (the " **Corporation** ").

2. The Corporation filed, with the Secretary of State of the State of Delaware, its original Certificate of Incorporation on May 16, 2008, as amended by its First Amendment to Amended and Restated Certificate of Incorporation filed with the Secretary of State of the State of Delaware on August 14, 2009 and as further amended by its Second Amended and Restated Certificate of Incorporation filed with the Secretary of State of the State of Delaware on August 14, 2009, as amended by an Amendment of Second Amended and Restated Certificate of Incorporation of Aspen Aerogels, Inc. filed with the Secretary of State of the State of Delaware on September 25, 2009 (as so amended, the " **Current Certificate of Incorporation** "). The Corporation was formerly known as Aspen Merger Sub, Inc. and changed its name to Aspen Aerogels, Inc. on June 10, 2008.

3. This Third Amended and Restated Certificate of Incorporation (the " **Certificate of Incorporation** ") amends, restates and integrates the provisions of the Current Certificate of Incorporation and (i) was duly adopted by the board of directors of the Corporation (the " **Board of Directors** ") in accordance with the provisions of Section 245 of the General Corporation Law of the State of Delaware (the " **DGCL** "), (ii) was declared by the Board of Directors to be advisable and in the best interests of the Corporation and was directed by the Board of Directors to be submitted to and be considered by the stockholders of the Corporation entitled to vote thereon for approval by the affirmative vote of such stockholders in accordance with Section 242 of the DGCL and (iii) was duly adopted by a stockholder consent in lieu of a meeting of the stockholders, with the holders of a majority of the outstanding shares of the Corporation's capital stock entitled to vote thereon, and a majority of the outstanding capital stock of each class entitled to vote thereon as a class, consenting to the adoption of this Certificate of Incorporation in writing in accordance with the provisions of Sections 228 and 242 of the DGCL and the terms of the Current Certificate of Incorporation.

4. Capitalized terms used and not otherwise defined upon first usage herein shall have the meanings set forth in Section 4.3.7 of this Certificate of Incorporation.

5. The text of the Current Certificate of Incorporation is hereby amended and restated in its entirety to provide as follows:

ARTICLE I — NAME

The name of the Corporation is Aspen Aerogels, Inc.

ARTICLE II — REGISTERED OFFICE

The registered office of the Corporation in the State of Delaware is located at Corporation Service Company, in the City of Wilmington, County of New Castle. The name and address of its registered agent is Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, Delaware 19808.

ARTICLE III — PURPOSE AND POWERS

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the DGCL. The Corporation shall have all power necessary or convenient to the conduct, promotion or attainment of such acts and activities.

ARTICLE IV — CAPITAL STOCK

4.1 AUTHORIZED SHARES .

The total number of shares of all classes of stock that the Corporation shall have the authority to issue is 179,843,201. Of such shares, 69,843,201 shall be Preferred Stock, having a par value of $0.001 per share (" **Preferred Stock** "), and 110,000,000 shall be Common Stock, all of one class, having a par value of $0.001 per share (" **Common Stock** "). The Preferred Stock may be issued from time to time in one or more series. The first series of Preferred Stock shall consist of 52,843,201 shares of Series A Convertible Preferred Stock (the " **Series A Preferred Stock** "). The second series of Preferred Stock shall consist of 17,000,000 shares of Series B Convertible Preferred Stock (the " **Series B Preferred Stock** "). The Common Stock, the Series A Preferred Stock and the Series B Preferred Stock shall each be referred to herein as a " **Series** " of Stock. Except as otherwise expressly provided herein or as required by law, the holders of Preferred Stock and the holders of Common Stock shall vote together and not as separate classes.

4.2 COMMON STOCK .

4.2.1 Relative Rights .

The Common Stock shall be subject to all of the rights, privileges, preferences and priorities of the Preferred Stock as set forth in this Certificate of Incorporation. Each share of Common Stock shall have the same relative rights as and be identical in all respects to all the other shares of Common Stock.

4.2.2 Dividends .

No dividend, whether in cash or property, shall be paid or declared, nor shall any other distribution be made, on the Common Stock, nor shall any shares of Common Stock be

repurchased, redeemed, or otherwise acquired for value by the Corporation (except for acquisitions of Common Stock by the Corporation pursuant to (i) the Stockholders' Agreement or any stock option agreement between the Corporation and its employees, (ii) agreements which permit the Corporation to repurchase such shares at cost upon termination of services to the Corporation, (iii) other agreements that are approved by a majority of the Board, or (iv) the exercise of the Corporation's contractual right of first refusal upon a proposed transfer (whether pursuant to the Stockholders' Agreement or otherwise), and in each case subject to the provisions of Section 4.3.4(c) , unless and until (x) a dividend is paid to each stockholder of the Corporation in cash in an amount equal to one percent (1%) of the par value paid for each share of capital stock of the Corporation held by such stockholder (the " **One Percent Return** ") (y) all accrued but unpaid dividends on the Preferred Stock are paid in full, and (z) a dividend is paid in full on all outstanding shares of Preferred Stock in an amount at least equal per share (on an as-if-converted to Common Stock basis) to the amount proposed to be paid, set aside or declared for each share of Common Stock, provided, that no dividends may be declared pursuant to this Section 4.2.2 so long as the Corporation shall have received a Redemption Notice and shall not have paid the full price required to be paid to the applicable holders of Preferred Stock under Section 4.3.3 .

4.2.3 Dissolution, Liquidation, Winding Up .

In the event of any Liquidation, the holders of the Common Stock shall become entitled to receive the assets of the Corporation available for distribution in accordance with Section 4.3.2 of this Certificate of Incorporation.

4.2.4 Voting Rights .

Each holder of shares of Common Stock shall be entitled to attend all special and annual meetings of the stockholders of the Corporation and, together with the holders of all other classes of stock entitled to attend such meetings and to vote (except as to any class or series of stock having special voting rights), to cast one (1) vote for each outstanding share of Common Stock so held upon any matter or thing (including, without limitation, the election of one or more directors) properly considered and acted upon by the stockholders.

4.2.5 Increase or Decrease of Authorized Common Stock .

The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares of Common Stock then outstanding and the number of shares of Common Stock reserved pursuant to Section 4.3.5(g)(x) below or if applicable, issuable pursuant to Article XI) by the affirmative vote of (i) the holders of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote (voting together on an as-if-converted-to Common Stock basis) and (ii) the Majority Holders, in each case irrespective of the provisions of Section 242(b)(2) of the DGCL.

4.2.6 Redemption .

The Common Stock shall not be redeemable at the option of the holders thereof.

4.3 PREFERRED STOCK .

The powers, designations, preferences and relative participating, optional or other rights of the Preferred Stock of the Corporation shall be as set forth in this Section 4.3 . The Series B Preferred Stock shall be senior to the Series A Preferred Stock and to the Common Stock, in all respects as to rights of payment and distribution (whether in cash, in kind or in other property or securities) whether by way of dividend, upon liquidation, redemption or otherwise. The Series A Preferred Stock shall be senior to the Common Stock, in all respects as to rights of payment and distribution (whether in cash, in kind or in other property or securities) whether by way of dividend, upon liquidation, redemption or otherwise. Each share of Series A Preferred Stock and each share of Series B Preferred Stock, respectively, shall have the same voting rights as all other shares of Series A Preferred Stock and all other shares of Series B Preferred Stock, respectively.

4.3.1 Dividends . Whenever a dividend is payable upon a redemption of Preferred Stock, upon a Liquidation, upon declaration by the Board or upon conversion of Preferred Stock into Common Stock, the dividends shall be allocated and distributed among the Corporation's stockholders as follows:

(a) First , the One Percent Return shall be paid (unless previously paid) to every stockholder of the Corporation.

(b) Second , the holders of shares of Series B Preferred Stock (the " **Series B Preferred Holders** ") shall be entitled to receive, out of any assets legally available therefor, cumulative dividends at the rate of eight percent (8%) per annum, accruing from day to day (whether or not declared) on the Original Issuance Price for the Series B Preferred Stock from the date on which the applicable share of Series B Preferred Stock was issued, payable only when, as, and if declared by the Board of Directors. Other than the One Percent Return, the foregoing dividends on the Series B Preferred Stock shall be paid prior and in preference to any declaration or payment of any dividend on the Common Stock, on the Series A Preferred Stock, or any other class of the Corporation's capital stock ranking junior to the Series B Preferred Stock with respect to the distribution of assets upon the liquidation, dissolution or winding up of the Corporation.

(c) Third , the holders of shares of Series A Preferred Stock (the " **Series A Preferred Holders** ") shall be entitled to receive, out of any assets legally available therefor, cumulative dividends at the rate of eight percent (8%) per annum, accruing from day to day (whether or not declared) on the Original Issuance Price for the Series A Preferred Stock from the date on which the applicable share of Series A Preferred Stock was issued, payable only when, as, and if declared by the Board of Directors. Other than the One Percent Return and the receipt by the Series B Preferred Holders of the dividends called for by Section 4.3.1(b) above, the foregoing dividends on the Series A Preferred Stock shall be paid prior and in preference to any declaration or payment of any dividend on the Common Stock, or any other class of the Corporation's capital stock ranking junior to the Series A Preferred Stock with respect to the distribution of assets upon the liquidation, dissolution or winding up of the Corporation.

(d) Additional Dividends. After the payment or setting aside for payment of the dividends described in Section 4.3.1(a) , Section 4.3.1 (b) and Section 4.3.1(c) , the Series A

Preferred Holders, the Series B Preferred Holders and the holders of Common Stock shall together receive any additional dividends declared or paid in any fiscal year to the Corporation's stockholders, ratably on an as-if-converted-to Common Stock basis.

4.3.2 Liquidation .

Upon any Liquidation, distributions to the Corporation's stockholders shall be made in the following manner:

(a) First , all of the stockholders of the Corporation shall be entitled to receive an amount per share equal to the par value paid for each share of capital stock of the Corporation held by such stockholder.

(b) Second , all of the stockholders of the Corporation shall be entitled to receive an amount per share equal to the One Percent Return (unless previously paid) (together with the payment set forth in Section 4.3.2(a) , the " **Senior Liquidation Preference** ").

(c) Third , following payment in full of the Senior Liquidation Preference, the Series B Preferred Holders shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Corporation (other than the Senior Liquidation Preference) to the holders of Common Stock, Series A Preferred Stock and/or any Other Stock, an amount per share of Series B Preferred Stock equal to the Liquidation Amount for the Series B Preferred Stock. If upon any Liquidation, the assets of the Corporation available for distribution to its stockholders are insufficient to pay the Series B Preferred Holders the full Liquidation Amount for the Series B Preferred Stock pursuant to this paragraph (c) , the Series B Preferred Holders shall share ratably in any distribution pursuant to this paragraph (c) in proportion to the aggregate Liquidation Amount for the Series B Preferred Stock to which each is entitled on account of the shares of Series B Preferred Stock then held by such Series B Preferred Holder.

(d) Fourth , following payment in full of the Senior Liquidation Preference and the Liquidation Amount payable to the Series B Preferred Holders as set forth in Section 4.3.2(c) , the Series A Preferred Holders shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Corporation (other than the Senior Liquidation Preference and the Liquidation Amount payable to the Series B Preferred Holders as set forth in Section 4.3.2(c)) to the holders of Common Stock and/or any Other Stock, an amount per share of Series A Preferred Stock equal to the Liquidation Amount for the Series A Preferred Stock. If upon any Liquidation, the assets of the Corporation available for distribution to its stockholders are insufficient to pay the Series A Preferred Holders the full Liquidation Amount for the Series A Preferred Stock pursuant to this paragraph (d) , the Series A Preferred Holders shall share ratably in any distribution pursuant to this paragraph (d) in proportion to the aggregate Liquidation Amount for the Series A Preferred Stock to which each is entitled on account of the shares of Series A Preferred Stock then held by such Series A Preferred Holder.

(e) Fifth , following payment in full to all of the stockholders of the Corporation of the Senior Liquidation Preference, to the Series B Preferred Holders of the Liquidation Amounts set forth in Section 4.3.2(c) and to the Series A Preferred Holders of the Liquidation Amounts set forth in Section 4.3.2(d) , the Series A Preferred Holders, the Series B

Preferred Holders and the holders of Common Stock shall together receive any remaining assets of the Corporation then available for distribution to the Corporation's stockholders, ratably on an as-if-converted-to Common Stock basis;

provided, however, that if the aggregate amount which the Series B Preferred Holders are entitled to receive under Section 4.3.2(c) and 4.3.2(e) shall exceed an amount per share equal to two times (2x) the Original Issuance Price for the Series B Preferred Stock (the " **Series B Maximum Participation Amount** "), each Series B Preferred Holder shall be entitled to receive upon such Liquidation on account of the shares of Series B Preferred Stock then held by such Series B Preferred Holder the greater of (i) the Series B Maximum Participation Amount and (ii) the amount such holder would have received on account of the shares of Series B Preferred Stock then held by such Series B Preferred Holder if all shares of Series B Preferred Stock had been converted into Common Stock immediately prior to such Liquidation.

and provided further, however, that if the aggregate amount which the Series A Preferred Holders are entitled to receive under Section 4.3.2(d) and 4.3.2(e) shall exceed an amount per share equal to two times (2x) the Original Issuance Price for the Series A Preferred Stock (the " **Series A Maximum Participation Amount** "), each Series A Preferred Holder shall be entitled to receive upon such Liquidation on account of the shares of Series A Preferred Stock then held by such Series A Preferred Holder the greater of (i) the Series A Maximum Participation Amount and (ii) the amount such holder would have received on account of the shares of Series A Preferred Stock then held by such Series A Preferred Holder if all shares of Series A Preferred Stock had been converted into Common Stock immediately prior to such Liquidation.

(f) The Corporation shall give each Preferred Holder written notice (a " **Proposal Notice** ") of any impending or proposed Liquidation not later than thirty (30) days prior to the stockholders' meeting called to approve such impending or proposed Liquidation, if applicable, or thirty (30) days prior to the closing or occurrence of such impending or proposed Liquidation, whichever is earlier. Such Proposal Notice shall describe the material terms and conditions of the impending or proposed Liquidation and the provisions of this Section 4.3.2 as they apply to the allocation of proceeds to stockholders from such impending or proposed Liquidation. Upon any material changes to the terms of such impending or proposed Liquidation after the date the Corporation has given a related Proposal Notice, the Corporation shall give each Preferred Holder prompt written notice of such material change(s) (a " **Supplemental Notice** "). The impending or proposed Liquidation shall in no event be consummated sooner than thirty (30) days after the Corporation has given a related Proposal Notice or sooner than ten (10) days after the Corporation has given such Supplemental Notice; provided, however, that such periods may be shortened by approval or consent of the Majority Holders, provided that in any case (absent the consent of the holders of two-thirds of the then outstanding Series B Preferred Stock) the notice periods may not be shorter than the later of (i) ten (10) days after the Proposal Notice, (ii) five (5) days after any Supplemental Notice and (iii) five (5) days after any such approval or consent. Any Proposal Notice or Supplemental Notice required by this Section 4.3.2 shall be deemed given (a) with respect to any holder of record having an address (as appearing on the books of the Corporation) within the United States or Canada only, if by nationally recognized overnight courier, on the next business day following such dispatch, (b) with respect to any holder of record having an address (as appearing on the books of the Corporation) outside the United States or Canada, if by commercially recognized international courier, on the third business day after the posting thereof and (c) with respect to any holder of record having an address (as appearing on the books of the Corporation) within the United States only, if by United States mail, on the third

business day after the posting thereof when deposited, postage prepaid, and addressed to the holder of record at its address appearing on the books of the Corporation. The rights conferred upon the Preferred Holders under this Section 4.3.2 are supplemental to and not in replacement of the provisions of Section 4.3.4(c) .

(g) If the consideration received by the Corporation in a Liquidation is other than cash, its value will be deemed its fair market value as reasonably determined in good faith by the Board of Directors. Any securities shall be valued as follows:

(i) Securities not subject to investment letter or other similar restrictions on free marketability covered by (ii) below:

(A) if traded on a securities exchange or through the Nasdaq National Market, the value shall be deemed to be the average of the closing prices of the securities on such exchange or quotation system over the thirty (30) day period ending three (3) days prior to the closing;

(B) if actively traded over-the-counter, the value shall be deemed to be the average of the closing bid or sale prices (whichever is applicable) over the thirty (30) day period ending three (3) days prior to the closing; and

(C) if there is no active public market, the value shall be the fair market value thereof, as reasonably determined in good faith by the Board of Directors.

(ii) The method of valuation of securities subject to investment letter or other restrictions on free marketability (other than restrictions arising solely by virtue of a shareholder's status as an affiliate or former affiliate) shall be to make an appropriate discount from the market value determined as above in clauses (i) (A) , (B) or (C) to reflect the approximate fair market value thereof, as reasonably determined in good faith by the Board of Directors.

(h) In the event the requirements of this Section 4.3.2 are not complied with, the Corporation shall forthwith either (i) cause the closing or consummation of the Liquidation to be postponed until such time as the requirements of this Section 4.3.2 shall have been complied with or (ii) cancel such transaction, in which event, the rights, preferences and privileges of the Preferred Holders shall in all respects be preserved.

4.3.3 Redemption .

(a) At any time after the fifth (5 th) anniversary of the Original Issuance Date, the Majority Holders shall have the right to require the Corporation to redeem all of the shares of Series A Preferred Stock and all of the shares of Series B Preferred Stock, by delivering written notice of the exercise of such right to the Corporation (" **Redemption Notice** ") and a copy thereof to all Preferred Stockholders at least fifteen (15) days (or such shorter period as permitted

hereunder) prior to the effective date of the proposed redemption (" **Redemption Date** ") provided that any holder of Preferred Stock shall have the right to individually and at its sole discretion opt out of the Redemption by delivering a written notice thereof to the Corporation within 15 days after receipt of a copy of the Redemption Notice.

(b) If the assets of the Corporation shall be insufficient to permit the payment of the full price required to be paid under this Section 4.3.3 , then the Series B Preferred Holders shall first, (in addition to their rights pursuant to Section 4.3.3(c) below and prior to and in preference to any payment to the Series A Preferred Holders under this Section 4.3.3) share ratably in any such redemption in proportion to the full Redemption Price each such holder is otherwise entitled to receive under this Section 4.3.3 on account of the shares of Series B Preferred Stock then held by such Series B Preferred Holder; and then the Series A Preferred Holders shall secondly, (in addition to their rights pursuant to Section 4.3.3(c) below) share ratably in any such redemption in proportion to the full Redemption Price each such holder is otherwise entitled to receive under this Section 4.3.3 on account of the shares of Series A Preferred Stock then held by such Series A Preferred Holder, provided, however, the failure to redeem all shares offered shall be deemed a default hereunder and shall not relieve the Corporation of its obligation to redeem any such shares subject to a Redemption Notice and not so redeemed.

(c) The price (the " **Redemption Price** ") at which each share of Series A Preferred Stock and each share of Series B Preferred Stock is to be redeemed by the Corporation pursuant to this Section 4.3.3 shall be equal to the greater of (i) the applicable Senior Liquidation Preference plus the applicable Liquidation Amount of such share of Series A Preferred Stock or Series B Preferred Stock, as applicable and (ii) the fair market value as at the Redemption Date (excluding accrued or declared but unpaid dividends) of a share of Series A Preferred Stock or Series B Preferred Stock, as applicable, calculated with reference to the then current fair market value of the Corporation (as determined below) plus accrued or declared but unpaid dividends on the stock being redeemed. The fair market value of the Corporation shall be determined for purposes of this Section 4.3.3(c) to be an amount determined by an appraiser, investment bank or similar valuation professional mutually acceptable to the Corporation and the Majority Holders; provided , that if such parties are unable to mutually agree on any such individual or entity within three (3) days following delivery of a Redemption Notice, such individual or entity shall be selected by the President of the American Arbitration Association as promptly as practicable.

(d) The Corporation shall pay the Redemption Price to the holders of the Preferred Stock being redeemed ratably over the three (3) year period starting on the Redemption Date. On and after any date that the Corporation actually redeems shares of Preferred Stock pursuant to this Section 4.3.3 , all rights in respect of the redeemed shares, except the right to receive the Redemption Price, shall cease and terminate, and such shares shall no longer be deemed to be outstanding, whether or not the certificates representing such shares have been received by the Corporation.

(e) Any communication or notice relating to redemption given pursuant to this Section 4.3.3 shall be sent to the Preferred Holders at their respective addresses as the same shall appear on the books of the Corporation, and shall be deemed given, in accordance with the provisions of Section 4.3.2(f) above, or to the Corporation at the address of its principal or

registered office. At any time on or after the date of any redemption, the holders of record of the shares of Preferred Stock being redeemed shall only be entitled to receive the Redemption Price upon actual delivery to the Corporation or its agents of the certificates representing the shares to be redeemed.

(f) Notwithstanding anything to the contrary in this Section 4.3.3 , no redemption of any shares of Preferred Stock shall be permitted or effected unless prior to such redemption the Corporation pays (or shall have previously paid) the One Percent Return to each stockholder of the Corporation.

(g) Except as otherwise provided under Section 4.3.4(c)(viii) , no redemption or repurchase of any shares of the Corporation's capital stock shall be permitted or effected until such time as the Preferred Stock has been redeemed in accordance with this Section 4.3.3 .

4.3.4 Voting Rights .

(a) In addition to the rights provided by law or in the Corporation's By-laws, each share of Preferred Stock shall entitle the holder thereof to such number of votes as shall equal the number of whole shares of Common Stock into which such share of Preferred Stock is then convertible pursuant to Section 4.3.5 at the record date for the determination of stockholders entitled to vote or, if no record date is established, at the date such vote is taken. The Preferred Holders shall be entitled to vote on all matters as to which holders of Common Stock shall be entitled to vote, in the same manner and with the same effect as such holders of Common Stock, voting together with the holders of Common Stock as one class. Except as specifically required by law or by this Certificate of Incorporation, with respect to any matter upon which the Preferred Holders shall be entitled to vote, there shall be no series voting and the Series A Preferred Stock and the Series B Preferred Stock shall vote together as one class.

(b) The Series A Preferred Holders, exclusively and as a separate class, shall be entitled to elect one director of the Corporation and the holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect one director of the Corporation. Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. The holders of record of the shares of Common Stock and of any Other Stock (including the Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation.

(c) At any time when shares of Series A Preferred Stock and/or Series B Preferred Stock are outstanding the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the affirmative vote or prior written consent of the Majority Holders:

(i) increase or decrease the number of authorized shares of Common Stock or Preferred Stock or increase the number of shares reserved under the

Corporation's equity incentive plans and other stock option agreements approved by the Board above 11,213,735 shares (including by adoption of a new equity incentive plan and as adjusted for stock dividends, stock splits and similar events);

(ii) create or authorize the creation of, or issue or obligate itself to issue, shares of any new class or series of stock, or any other equity securities, or any other securities convertible, exercisable or exchangeable into equity securities of the Corporation (including by way of reclassification of any existing securities), in each case having preference over, or being on parity with, the Series A Preferred Stock or the Series B Preferred Stock;

(iii) reclassify, alter or amend any existing security of the Corporation that is junior to or pari passu with the Series A Preferred Stock or the Series B Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Series A Preferred Stock or the Series B Preferred Stock in respect of any such right, preference or privilege;

(iv) declare or pay any dividends or make any other distributions on or with respect to the Common Stock or the Preferred Stock, other than dividends or distributions paid pursuant to Section 4.3.1 ;

(v) consummate a Liquidation or a Sale of the Company or consent to any of the foregoing;

(vi) declare a voluntary bankruptcy of the Corporation;

(vii) take any action that would modify, amend, alter or repeal any provision of, or add any provision to, the Corporation's Certificate of incorporation or the Corporation's Bylaws or take any action that would alter or change the powers, preferences or special rights of, or the restrictions provided for the benefit of, the Common Stock or the Preferred Stock;

(viii) redeem or repurchase any shares of its capital stock (other than (A) redemptions of shares of Preferred Stock pursuant to this Certificate of Incorporation, (B) redemptions pursuant to any stock option agreement between the Corporation and its employees or consultants approved by the Board, (C) the repurchase of capital stock, at cost, from a member of the Corporation's management in connection with the cessation of such employment pursuant to a duly adopted employment, management, restricted stock or stock repurchase agreement or (D) redemptions pursuant to the Amended and Restated Stockholder Agreement between the Corporation and Arcapita Ventures I Limited dated August 14, 2009;

(ix) change the number of directors authorized to serve on the Board;

(x) acquire all or substantially all of the business, properties, assets or equity securities of any Person;

(xi) assume or incur any indebtedness for borrowed money in excess of $500,000;

(xii) make a fundamental change to the business of the Corporation; or

(xiii) issue or obligate itself to issue any shares of Series B Preferred Stock other than under, and pursuant to the terms and conditions of, the 2010 Purchase Agreement.

(d) Notwithstanding anything in this Certificate of Incorporation to the contrary, at any time when shares of Series B Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, alter or change the powers, preferences or special rights of the shares of the Series B Preferred Stock set forth in this Certificate of Incorporation so as to affect them adversely without the affirmative vote or prior written consent of the holders of two-thirds of the then outstanding shares of the Series B Preferred Stock, consenting or voting separately as a class. This Section 4.3.4(d) shall be interpreted in accordance with Section 242(b)(2) of the DGCL, as in effect from time to time. In addition, at any time when shares of Series B Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following (in addition to any other vote required by law or the Certificate of Incorporation) without the affirmative vote or prior written consent of the holders of two-thirds of the then outstanding shares of the Series B Preferred Stock, consenting or voting (as the case may be) separately as a class:

(i) increase or decrease the number of authorized shares of Series B Preferred;

(ii) reclassify, alter or amend any existing security of the Corporation that is junior to or pari passu with the Series B Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Series B Preferred Stock in respect of any such right, preference or privilege;

(iii) declare or pay any dividends or make any other distributions on or with respect to the Common Stock or Series A Preferred Stock, other than dividends or distributions paid pursuant to Section 4.3.1 ; or

(iv) redeem or repurchase any shares of its capital stock (other than (A) redemptions of shares of Preferred Stock pursuant to this Certificate of Incorporation, (B) redemptions pursuant to any stock option agreement between the Corporation and its employees or consultants approved by the Board, (C) the repurchase of capital stock, at cost, from a member of the Corporation's management in connection with the cessation of such employment pursuant to a duly adopted employment, management, restricted stock or stock repurchase agreement or (D) redemptions pursuant to the Amended and Restated Stockholder Agreement between the Corporation and Arcapita Ventures I Limited dated August 14, 2009.

(v) issue or obligate itself to issue any shares of Series B Preferred Stock other than under, and pursuant to the terms and conditions of, the 2010 Purchase Agreement, except for shares of Common Stock or securities convertible into or exercisable for Common Stock issued in connection with equipment lease financings, debt financing transactions, strategic transactions, mergers or acquisitions approved in advance by a majority of the Board, provided that any such issuances may not exceed an aggregate of 333,333 shares of Common Stock on as as-converted basis and as adjusted for stock dividends, stock splits and similar events.

4.3.5 Conversion .

(a) Upon the terms set forth in this Section 4.3.5 , each Preferred Holder shall have the right, at such holder's option, at any time and from time to time, to convert such share of Preferred Stock into the number of fully paid and non-assessable shares of Common Stock equal to the quotient obtained by dividing (i) the Original Issuance Price of such share by (ii) the then-effective Conversion Price (as defined below) of such share. The conversion price per share at which shares of Common Stock shall be issuable upon conversion of shares of Preferred Stock (the " **Conversion Price** ") shall initially be the Original Issuance Price of such share, as subsequently adjusted pursuant to Section 4.3.5(g) . The Preferred Holders may exercise the conversion right pursuant to this Section 4.3.5(a) by delivering to the Corporation the certificate for the shares to be converted, duly endorsed or assigned in blank or to the Corporation (if required by it), accompanied by written notice stating that the holder elects to convert such shares and stating the name or names (with address(es)) in which the certificate or certificates for the shares of Common Stock are to be issued. Conversion shall be deemed to have been effected on the date when such delivery is made (the " **Conversion Date** "). Upon a conversion of any shares of Preferred Stock pursuant to this Section 4.3.5(a) , any accrued or declared and unpaid dividends on such shares of Preferred Stock shall be paid in accordance with the provisions of Section 4.3.5(e) below.

(b) All shares of Preferred Stock shall automatically be converted into shares of Common Stock (determined pursuant to Section 4.3.5 (a) above), based on the then-effective Conversion Price of such share, at any time (i) upon the affirmative election of the Majority Holders or (ii) immediately upon the closing of a QPO. A conversion of Preferred Stock into shares of Common Stock pursuant to this Section 4.3.5(b) shall be referred to as an " **Automatic Conversion** ".

(c) [Reserved]

(d) Notwithstanding any other provision herein to the contrary, upon the occurrence of an Automatic Conversion, the outstanding shares of Preferred Stock shall be converted automatically without any further action by the holders of such shares and whether or not the certificates representing such shares are surrendered to the Corporation or its transfer agent pursuant to Section 4.3.5(a) above; provided , however , that the Corporation shall not be obligated to issue certificates evidencing the shares of Common Stock issuable upon such conversion unless the certificates evidencing such shares of Preferred Stock are either delivered to the Corporation or its transfer agent as provided in Section 4.3.5 (a) , or the holder notifies the Corporation or its transfer agent that such certificates have been lost, stolen or destroyed and

executes an agreement satisfactory to the Corporation to indemnify the Corporation from any loss incurred by it in connection with such certificates. The Conversion Date for the shares of Preferred Stock converted pursuant to an Automatic Conversion shall be deemed to be the date of the consummation of the QPO or the date of the delivery of the applicable election notice. In the case of an Automatic Conversion effected by reason of a QPO, such conversion shall be conditioned upon the closing with the underwriters of the sale of securities pursuant to such offering, in which event the Person(s) entitled to receive the Common Stock upon conversion of the Preferred Stock shall not be deemed to have converted such Preferred Stock until immediately prior to the closing of such sale of securities. Upon an Automatic Conversion, any accrued or declared and unpaid dividends on the Preferred Stock shall be paid in accordance with the provisions of Section 4.3.5(e) below.

(e) At the time of the conversion of any shares of Preferred Stock into Common Stock under Section 4.3.5(a) or 4.3.5(b) , the Corporation shall issue and deliver to the holders of such shares, upon the written order of such holders, to the place designated by such holders, a certificate or certificates for the number of full shares of Common Stock to which such holders are entitled, together with, if applicable, (i) a cash amount in respect of any fractional interest in a share of Common Stock required pursuant to Section 4.3.5(f) below, and (ii) an equivalent value in Common Stock (at the Common Stock's fair market value as reasonably determined in good faith by the Board of Directors as of the date of such conversion; provided, that if such conversion is in connection with the IPO (including a QPO) then the fair market value shall be deemed to be the per share offering price to the public in the IPO), of any accrued or declared and unpaid dividends on such shares of Preferred Stock being converted. The Person in whose name the certificate or certificates for Common Stock are to be issued shall be deemed to have become a holder of Common Stock of record on the Conversion Date unless the transfer books of the Corporation are closed on that date, in which event such Person shall be deemed to have become a holder of Common Stock of record on the next succeeding date on which the transfer books are open, but the Conversion Price shall be that in effect on the Conversion Date, and the rights of the holder of the shares of Preferred Stock so converted shall cease on the Conversion Date. Upon conversion of only a portion of the number of shares covered by a certificate representing shares of Preferred Stock surrendered for conversion, the Corporation shall issue and deliver upon the written order of the holder of the certificate so surrendered for conversion, at the expense of the Corporation, a new certificate covering the number of shares of Preferred Stock representing the unconverted portion of the certificate so surrendered.

(f) Upon conversion, the Corporation shall not issue fractional shares of its Common Stock and shall distribute cash in lieu of such fractional shares in an amount equal to the product of (i) the price of one share of Common Stock as reasonably determined in good faith by the Board and (ii) such fractional interest. The number of shares of Common Stock issuable upon conversion of Preferred Stock shall be computed on the basis of the aggregate number of shares of Preferred Stock to be converted.

(g) The Conversion Price for the Series A Preferred Stock and for the Series B Preferred Stock shall be subject to adjustment from time to time as follows:

(i) If the Corporation shall, at any time or from time to time after the Original Issuance Date, issue any shares of Common Stock (or be deemed to have issued

shares of Common Stock as provided herein), other than Excluded Stock, without consideration or for a consideration per share less than the Conversion Price for the Series B Preferred Stock in effect immediately prior to the issuance of such Common Stock, then the Conversion Price for the Series B Preferred Stock, as in effect immediately prior to each such issuance, shall forthwith be lowered to a price equal to the quotient obtained by dividing (**x**) an amount equal to the sum of (I) the total number of shares of Common Stock Deemed Outstanding immediately prior to such issuance, *multiplied by* the Conversion Price for the Series B Preferred Stock in effect immediately prior to such issuance, and (II) the consideration received by the Corporation upon such issuance; by (**y**) the total number of shares of Common Stock Deemed Outstanding immediately after the issuance of such Common Stock. If the Corporation shall, at any time or from time to time after the Original Issuance Date, issue any shares of Common Stock (or be deemed to have issued shares of Common Stock as provided herein), other than Excluded Stock, without consideration or for a consideration per share less than the Conversion Price for the Series A Preferred Stock in effect immediately prior to the issuance of such Common Stock, then the Conversion Price for the Series A Preferred Stock, as in effect immediately prior to each such issuance, shall forthwith be lowered to a price equal to the quotient obtained by dividing (**x**) an amount equal to the sum of (I) the total number of shares of Common Stock Deemed Outstanding immediately prior to such issuance, *multiplied by* the Conversion Price for the Series A Preferred Stock in effect immediately prior to such issuance, and (II) the consideration received by the Corporation upon such issuance; by (**y**) the total number of shares of Common Stock Deemed Outstanding immediately after the issuance of such Common Stock.

(ii) For the purposes of any adjustment of the Conversion Price pursuant to clause (i) above, the following provisions shall be applicable:

(A) In the case of the issuance of Common Stock for cash in a public offering or private placement, the consideration shall be deemed to be the amount of cash paid therefor after deducting therefrom any discounts, commissions or placement fees payable by the Corporation to any underwriter or placement agent in connection with the issuance and sale thereof.

(B) In the case of the issuance of Common Stock for a consideration in whole or in part other than cash, the consideration other than cash shall be deemed to be the fair value per share thereof as reasonably determined in good faith by the Board, irrespective of any accounting treatment.

(C) In the case of the issuance of options to purchase or rights to subscribe for Common Stock, securities by their terms convertible into or exchangeable for Common Stock, or options to purchase or rights to subscribe for such convertible or exchangeable securities (except for options to acquire Excluded Stock):

(1) the aggregate maximum number of shares of Common Stock deliverable upon exercise of such options to purchase or rights to subscribe for Common Stock shall be deemed to have been issued at the

time such options or rights were issued and for a consideration equal to the consideration, if any, received by the Corporation upon the issuance of such options or rights plus the minimum purchase price provided in such options or rights for the Common Stock covered thereby;

(2) the aggregate maximum number of shares of Common Stock deliverable upon conversion of or in exchange for any such convertible or exchangeable securities or upon the exercise of options to purchase or rights to subscribe for such convertible or exchangeable securities and subsequent conversion or exchange thereof shall be deemed to have been issued at the time such securities, options or rights were issued and for a consideration equal to the consideration, if any, received by the Corporation for any such securities and related options or rights (excluding any cash received on account of accrued interest or accrued dividends), plus the additional consideration, if any, to be received by the Corporation upon the conversion or exchange of such securities or the exercise of any related options or rights (the consideration in each case to be determined in the manner provided in Sections 4.3.5(g)(ii)(A) and 4.3.5(g)(ii)(B) above);

(3) on any change in the number of shares or exercise price of Common Stock deliverable upon exercise of any such options or rights or conversions of or exchanges for such securities, other than a change resulting from the antidilution provisions thereof, the Conversion Price shall forthwith be readjusted to the Conversion Price as would have been obtained had the adjustment made upon the issuance of such options, rights or securities not converted prior to such change or options or rights related to such securities not converted prior to such change been made upon the basis of such change; and

(4) on the expiration of any such options or rights, the termination of any such rights to convert or exchange or the expiration of any options or rights related to such convertible or exchangeable securities, the Conversion Price shall forthwith be readjusted to the Conversion Price as would have been obtained had the adjustment made upon the issuance of such options, rights, securities or options or rights related to such securities been made upon the basis of the issuance of only the number of shares of Common Stock actually issued upon the exercise of such options or rights, upon the conversion or exchange of such securities, or upon the exercise of the options or rights related to such securities and subsequent conversion or exchange thereof.

(iii) If, at any time after the Original Issuance Date, the number of shares of Common Stock outstanding is increased by a stock dividend payable in shares of Common Stock or by a subdivision or split-up of shares of Common Stock, then, following the record date for the determination of holders of Common Stock entitled to receive such stock dividend, subdivision or split-up, the Conversion Price of such share

of the Preferred Stock shall be appropriately decreased so that the number of shares of Common Stock issuable on conversion of each such share of Preferred Stock shall be increased in proportion to such increase in outstanding shares.

(iv) If, at any time after the Original Issuance Date, the number of shares of Common Stock outstanding is decreased by a combination of the outstanding shares of Common Stock, then, following the record date for such combination, the Conversion Price of such share of the Preferred Stock shall be appropriately increased so that the number of shares of Common Stock issuable on conversion of each such share of Preferred Stock shall be decreased in proportion to such decrease in outstanding shares.

(v) In the event of any capital reorganization of the Corporation, any reclassification of the stock of the Corporation (other than a change in par value or from par value to no par value or from no par value to par value or as a result of a stock dividend or subdivision, split-up or combination of shares), or any consolidation or merger of the Corporation, each share of Preferred Stock shall after such reorganization, reclassification, consolidation or merger be convertible into the kind and number of shares of stock or other securities or property of the Corporation or of the corporation resulting from such consolidation or surviving such merger to which the holder of the number of shares of Common Stock deliverable (immediately prior to the time of such reorganization, reclassification, consolidation or merger) upon conversion of such share of Preferred Stock would have been entitled upon such reorganization, reclassification, consolidation or merger. The provisions of this clause (v) shall similarly apply to successive reorganizations, reclassifications, consolidations or mergers.

(vi) No adjustment in the Conversion Price of the Preferred Stock shall be required unless such adjustment would require an increase or decrease of at least 0.01% in the Conversion Price; provided , however , that any adjustments not required to be made by virtue of this sentence shall be carried forward and taken into account in any subsequent adjustment. All calculations under Sections 4.3.5(g)(i) through 4.3.5(g)(v) above shall be made to the nearest one thousandth (1/1000) of a cent or the nearest one one hundred thousandth (1/100,000) of a share, as the case may be.

(vii) In any case in which the provisions of this Section 4.3.5(g) shall require that an adjustment become effective immediately after a record date of an event, the Corporation may defer until the occurrence of such event (A) issuing to the holder of any share of Preferred Stock converted after such record date and before the occurrence of such event the shares of capital stock issuable upon such conversion by reason of the adjustment required by such event in addition to the shares of capital stock issuable upon such conversion before giving effect to such adjustments, and (B) if applicable, paying to such holder any amount in cash in lieu of a fractional share of capital stock pursuant to Section 4.3.5(e) above; provided , however , that the Corporation shall deliver to such holder an appropriate instrument evidencing such holder's right to receive such additional shares and such cash.

(viii) Whenever the Conversion Price of the Preferred Stock shall be adjusted as provided in Section 4.3.5(g) , the Corporation shall make available for

inspection during regular business hours, at its principal executive offices or at such other place as may be designated by the Corporation, a statement, signed by its chief executive officer, showing in detail the facts requiring such adjustment and the Conversion Price for the Preferred Stock that shall be in effect after such adjustment. The Corporation shall also cause a copy of such statement to be sent by first class certified mail, return receipt requested and postage prepaid, to each Preferred Holder affected by the adjustment at such holder's address appearing on the Corporation's records. Where appropriate, such copy may be given in advance and may be included as part of any notice required to be mailed under the provisions of Section 4.3.5(g)(ix) below.

(ix) if the Corporation shall propose to take any action of the types described in clauses (iii) , (iv) , (v) or (xi) of this Section 4.3.5 (g) , the Corporation shall give notice to each Preferred Holder, which notice shall specify the record date, if any, with respect to any such action and the date on which such action is to take place. Such notice shall also set forth such facts with respect thereto as shall be reasonably necessary to indicate the effect of such action (to the extent such effect may be known at the date of such notice) on the Conversion Price and the number, kind or class of shares or other securities or property which shall be deliverable or purchasable upon the occurrence of such action or deliverable upon conversion of shares of Preferred Stock. In the case of any action which would require the fixing of a record date, such notice shall be given at least twenty (20) days prior to the date so fixed, and in case of all other action, such notice shall be given at least thirty (30) days prior to the taking of such proposed action. Failure to give such notice, or any defect therein, shall not affect the legality or validity of any such action.

(x) The Corporation shall at all times keep reserved, free from preemptive rights, out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the Series A Preferred Stock and the Series B Preferred Stock or the conversion of any other securities issued pursuant to clauses (v) or (xi) of this Section 4.3.5(g) , sufficient shares of Common Stock to provide for the conversion of all outstanding shares of Series A Preferred Stock and the Series B Preferred Stock.

(xi) Without duplication of any other adjustment provided for in this Section 4.3.5 , at any time the Corporation makes or fixes a record date for the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in property or securities of the Corporation other than shares of Common Stock, then, and in each such case, the Conversion Price then in effect shall be adjusted (and any other appropriate action shall be taken by the Corporation) by multiplying the Conversion Price in effect immediately prior to the date of such dividend or distribution by a fraction, (i) the numerator of which shall be the fair market value (in all cases under this clause (xi) , as reasonably determined in good faith by the Board of Directors) of each share of Common Stock immediately prior to the date of such dividend or distribution, less the fair market value of the portion of the property or securities applicable to one share of Common Stock so dividended or distributed, and (ii) the denominator of which shall be the fair market value of the Common Stock immediately

prior to the date of such dividend or distribution (such fraction not to be greater than one).

(xii) Notwithstanding anything in this Agreement to the contrary, at any time when shares of any Series of Preferred Stock are outstanding, the consent in writing of the holders of two-thirds of the then outstanding shares of such Series of Preferred Stock, in each case voting separately as a class, shall be required to limit, or waive in its entirety, any antidilution adjustment to which the holders of such Series of Preferred Stock would otherwise be entitled hereunder. In the event such consent is obtained with regard to a Series of Preferred Stock, the Corporation shall not be required to make any adjustment whatsoever with respect to such Series of Preferred Stock in excess of such limit or at all, as the terms of such consent may dictate.

(xiii) The Corporation shall not, by amendment of its Certificate of Incorporation or through any reorganization, transfer of assets, spin-off, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action or inaction, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Corporation, but shall at all times in good faith assist in the carrying out of all the provisions of this Section 4.3.5(g) and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Preferred Holders against impairment.

(xiv) The computations of all amounts under this Section 4.3.5(g) shall be made assuming all other antidilution or similar adjustments to be made to the terms of all other securities resulting from the transaction causing an adjustment pursuant to this Section 4.3.5(g) have previously been made so as to maintain the relative economic interest of the Preferred Stock vis à vis all other securities issued by the Corporation.

(xv) The Corporation shall take or cause to be taken such steps as shall be necessary to ensure that the par value per share of Common Stock is at all times less than or equal to the Conversion Prices for the Series A Preferred Stock and the Series B Preferred Stock.

(xvi) In the event that, upon the consummation of the IPO, the IPO Equity Value is less than the IPO Target Value, the Conversion Price for the Series B Preferred Stock, as in effect immediately prior to the consummation of the IPO, shall automatically be lowered to a price equal to the product obtained by multiplying (x) the Conversion Price for the Series B Preferred Stock, as in effect immediately prior to the consummation of the IPO by (y) an amount equal to the quotient obtained by dividing the (I) the IPO Equity Value by (II) the IPO Target Value. The aggregate number of additional shares of Common Stock issuable upon conversion of the Series B Preferred Stock as a result of this Section 4.3.5(xvi) shall be the " **Conversion True-Up Shares** ." The Company shall not be required to register the Conversion True-Up Shares in an IPO.

(h) Upon conversion of all of the shares of the Series A Preferred Stock and all of the shares of the Series B Preferred Stock into Common Stock, all of the provisions herein

governing such shares of Preferred Stock, as applicable, shall terminate with respect to the Corporation.

4.3.6 [Reserved]

4.3.7 Definitions .

As used in this Certificate of Incorporation, the following terms have the following meanings:

(a) " **Affiliate** " means, (1) with respect to any Person, any of (a) a director, officer or stockholder holding 5% or more of the capital stock (on a fully diluted basis) of such Person, (b) a spouse, parent, sibling or descendant of such Person (or a spouse, parent, sibling or descendant of any director or officer of such Person) and (c) any other Person that, directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, another Person or (2) in any event, any Person meeting the definition of "Affiliate" set forth in Rule 405 under the Securities Act. The term "control" includes, without limitation, the possession, directly or indirectly, of the power to direct the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

(b) " **Board** " means the Board of Directors of the Corporation.

(c) " **Common Stock Deemed Outstanding** " means, at any given time, the sum of (i) the number of shares of Common Stock actually outstanding at such time, (ii) the number of shares of Common Stock issuable upon conversion of the Preferred Stock and (iii) the number of shares of Common Stock issuable upon the exercise in full of all Convertible Securities whether or not the Convertible Securities are convertible into Common Stock at such time (excluding any such Convertible Securities where the exercise price therefore is "out of the money" as of the date of determination), but shall exclude any shares of Common Stock or Convertible Securities in the treasury of the Corporation or held for the account of the Corporation or any of its subsidiaries.

(d) " **Conversion True-Up Shares"** is defined in Section 4.3.5(g)(xvi).

(e) " **Convertible Securities** " means securities or obligations that are exercisable for, convertible into or exchangeable for shares of Common Stock. The term includes options, warrants or other rights to subscribe for or purchase Common Stock or to subscribe for or purchase other securities that are convertible into, directly or indirectly, or exchangeable for Common Stock.

(f) " **Excluded Stock** " means (i) up to 11,220,806 shares (as adjusted equitably for stock dividends, stock splits, combinations and the like) of Common Stock issuable upon exercise of stock options granted to directors, officers, consultants, advisors, employees or former employees of the Corporation or its subsidiaries or Affiliates approved by the Board as such amount may be increased from time to time by a majority of the Board and approved by the Majority Holders pursuant to Section 4.3.4(c) , (ii) shares of Common Stock issued upon conversion of shares of Preferred Stock, (iii) shares of Common Stock or securities convertible into or exercisable for Common Stock issued in connection with any recapitalization,

reclassification, subdivision, stock split, stock dividend or combination of shares of Preferred Stock or Common Stock, (iv) shares of Common Stock or securities convertible into or exercisable for Common Stock issued in connection with equipment lease financings, debt financing transactions, strategic transactions, mergers or acquisitions approved in advance by a majority of the Board, (v) securities offered to the public pursuant to a QPO or other registered underwritten public offering, (vi) shares of Common Stock (as adjusted equitably for stock dividends, stock splits, combinations and the like) issuable upon exercise of stock purchase warrants outstanding on the Original Issuance Date, (vii) shares of Common Stock issued upon exercise, conversion or exchange of any Convertible Securities outstanding on the Original Issuance Date and not previously described above and (viii) shares of Series B Preferred Stock issued in accordance with the 2010 Purchase Agreement.

(g) " **IPO** " means the Company's first underwritten public offering of shares of Common Stock to the general public registered pursuant to the Securities Act.

(h) " **IPO Equity Value** " means the product of (i) the price per share at which shares of the Company's Common Stock are sold in the IPO multiplied by (ii) the number of shares of Common Stock Deemed Outstanding immediately prior to the consummation of the IPO.

(i) " **IPO Target Value** " means $250,000,000, provided that if the IPO is consummated on January 1, 2012 or thereafter, the IPO Target Value shall be $280,000,000.

(j) " **Liquidation** " means any single transaction or series of related transactions involving any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Corporation. A Sale of the Company shall be deemed to be a Liquidation for all purposes of Section 4.3.2 .

(k) " **Liquidation Amount** " means, (i) as to each share of Series A Preferred Stock, the Original Issuance Price for the Series A Preferred Stock, plus any dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon and (ii) as to each share of Series B Preferred Stock, the Original Issuance Price for the Series B Preferred Stock, plus any dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon.

(l) " **Majority Holders** " means the holders of at least a majority of the shares of Series A Preferred Stock then outstanding and the shares of Series B Preferred Stock then outstanding, calculated on an as-if-converted to Common Stock basis, consenting or voting (as the case may be) together as one class.

(m) " **One Percent Return** " is defined is Section 4.2.2 .

(n) " **Original Issuance Date** " means the date that the first share of Series B Preferred Stock is issued by the Corporation.

(o) " **Original Issuance Price** " means, (i) as to each share of Series A Preferred Stock, $.583602172 (as adjusted for stock splits, stock dividends, combinations or

other similar events) and (ii) as to each share of Series B Preferred Stock, $1.33680238 (as adjusted for stock splits, stock dividends, combinations or other similar events).

(p) " **Other Stock** " means Common Stock or any other class of the Corporation's capital stock ranking junior to the Series B Preferred Stock or the Series A Preferred Stock, as the case may be, with respect to the distribution of assets upon the liquidation, dissolution or winding up of the Corporation.

(q) " **Person** " shall be construed broadly and shall include an individual, a partnership, a corporation, a limited liability company, an association, a joint stock company, a trust, a joint venture, an unincorporated organization, or a governmental entity (or any department, agency, or political subdivision thereof).

(r) " **Preferred Holder** " means any holder of Preferred Stock.

(s) " **QPO** " means an underwritten public offering (underwritten by a reputable underwriter of national reputation) of shares of Common Stock registered pursuant to the Securities Act involving aggregate proceeds to the Corporation of at least $60,000,000 with an offering price per share of not less than five times (5x) the Original Issuance Price for the Series A Preferred Stock.

(t) " **Sale of the Company** " means (i) the sale, transfer or other disposition in one transaction or a series of related transactions of fifty percent (50%) or more of the then-outstanding voting power of the Corporation to a Person or group of Persons that is not an Affiliate of the Corporation or a permitted successor or transferee of any Stockholder, (excluding, for the avoidance of doubt, the sale of shares by the Company for capital raising purposes) other than a transaction or series of transactions (a) effected exclusively to change the domicile of the Corporation, (b) that merges or consolidates the Corporation with or into a wholly-owned subsidiary of the Corporation, or (c) in which the holders of the voting securities of the Corporation outstanding immediately before such transaction continue to retain (either by such voting securities remaining outstanding or by such voting securities being converted into voting securities of the surviving entity), on account of shares in the Corporation held by such holders immediately before such transaction, at least a majority of the total voting power represented by the voting securities of the Corporation or such surviving entity outstanding immediately after such transaction or series of transactions; (ii) a sale, transfer, lease, exclusive license or other conveyance or disposition, in one transaction or a series of related transactions, of all or substantially all of the assets of the Corporation and its subsidiaries taken as a whole, or (iii) the sale or disposition (whether by merger or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except in the case of clauses (ii) and (iii) where such sale, transfer, lease, exclusive license or other conveyance or disposition is to a wholly owned subsidiary of the Corporation.

(u) " **Securities Act** " means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

(v) " **Senior Liquidation Preference** " is defined in Section 4.3.2(b) .

(w) " **Stockholders' Agreement** " means the Fifth Amended and Restated Stockholders' Agreement dated as of the date of this Certificate of Incorporation, among the Corporation and certain stockholders of the Corporation, as the same may be further amended, modified or supplemented from time to time.

(x) " **2010 Purchase Agreement** " means that certain Series B Preferred Stock Purchase Agreement dated on or about September 22, 2010.

ARTICLE V — BOARD OF DIRECTORS

The number of directors of the Corporation shall be such number as from time to time shall be fixed by, or in the manner provided in, the By-laws of the Corporation. Unless and except to the extent that the By-laws of the Corporation shall otherwise require, the election of directors of the Corporation need not be by written ballot. Except as otherwise provided in this Certificate of Incorporation, each director of the Corporation shall be entitled to one vote per director on all matters voted or acted upon by the Board of Directors.

ARTICLE VI — LIABILITY OF DIRECTORS

No director of the Corporation shall be liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided , that this provision shall not eliminate or limit the liability of a director: (a) for any breach of the director's duty of loyalty to the Corporation or its stockholders; (b) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; (c) under Section 174 of the DGCL; or (d) for any transaction from which the director derived an improper personal benefit. If the DGCL is amended, at any time after approval by the stockholders of this Article VI , to authorize corporation action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended. Any repeal or modification of this Article VI shall be prospective only and shall not adversely affect any right or protection of, or any limitation on the liability of, a director of the Corporation existing at, or arising out of facts or incidents occurring prior to, the effective date of such repeal or modification. To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and, in its discretion, advancement of expenses to) agents of the Corporation (and any other persons to which DGCL permits the Corporation to provide indemnification) through bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the DGCL, subject only to limits created by applicable provisions of the DGCL (statutory or non-statutory), with respect to actions for breach of duty to the Corporation, its stockholders, and others. Any amendment, repeal or modification of the foregoing provisions of this Article VI shall not adversely affect any right or protection of a director, officer, agent, or other person existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director, officer or agent occurring prior to, such amendment, repeal or modification.

ARTICLE VII — DURATION OF CORPORATION

The Corporation is to have perpetual existence.

ARTICLE VIII — AMENDMENT OF BYLAWS

In furtherance and not in limitation of the powers conferred by the laws of Delaware, the Board of Directors of the Corporation is authorized and empowered to adopt, alter, amend and repeal the By-laws of the Corporation in any manner not inconsistent with the laws of Delaware or Section 4.3.4 of this Certificate of Incorporation.

ARTICLE IX — MEETINGS OF STOCKHOLDERS; CORPORATE BOOKS

Meetings of the stockholders may be held within or without the State of Delaware, as the By-laws may provide. The books of the Corporation may be kept (subject to any provision contained in the statutes) outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the By-Laws of the Corporation.

ARTICLE X — AMENDMENT OF CERTIFICATE OF INCORPORATION

This Certificate of Incorporation may be amended in the manner now or hereafter prescribed by statute and in accordance with the provisions hereof; provided, however that at any time when shares of Series B Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, alter or change the powers, preferences or special rights of the shares of the Series B Preferred Stock so as to affect them adversely without the affirmative vote or prior written consent of the holders of two-thirds of the then outstanding shares of the Series B Preferred Stock, consenting or voting separately as a class. This Article X shall be interpreted in accordance with Section 242(b)(2) of the DGCL, as in effect from time to time.

ARTICLE XI — CONTINGENT IPO VALUATION RIGHT

If (i) the Series B Preferred Stock is automatically converted into shares of Common Stock pursuant to Section 4.3.5(b)(i) without the written consent or affirmative vote of two-thirds of the then outstanding shares of the Series B Preferred Stock (an " **Early B Conversion** "), (ii) subsequent to the Early B Conversion, the Company closes an IPO, and (iii) the IPO Equity Value is less than the IPO Target Value, then immediately prior to the closing of the IPO, the Company shall issue, in a private placement of unregistered stock, to any holders of the outstanding shares of Common Stock issued upon conversion of the Series B Preferred Stock (the " **Series B Common Shares** "), new shares of Common Stock rounded down to the nearest whole share to which such holder is entitled (the " **True-Up Shares** ") according to the following formula:

X = (Y-Z) / Y; where:

X = the number of True-Up Shares issued per Series B Common Share

Y = the IPO Target Value

Z = the IPO Equity Value

The contingent right to Common Stock set forth in this Article XI shall be referred to herein as the " **Contingent IPO Valuation Right** ". For the avoidance of doubt, in no event will the holders of the Series B Preferred Stock receive the Contingent IPO Valuation Right in the event that the Early B Conversion triggers Section 4.3.5(g)(xvi) . The Company shall not be required to register the sale or re-sale of any True-Up Shares in an IPO. No fractional True-Up Shares shall be issued.

ARTICLE XII — CABOT SUBORDINATION

Notwithstanding any other provision hereof, all payments on account of any shares of the Company's capital stock, whether principal, interest, dividends, redemption payments or otherwise, and whether paid in cash or other property, are subject to the provisions of Article II of the Settlement Agreement and First Amendment to Cross License Agreement dated as of September 21, 2007 by and between Cabot Corporation and the Company, as in effect as of the date hereof, which provisions are hereby expressly incorporated by reference thereto.

[Remainder of the page intentionally left blank]

I, Donald R. Young, the President of the Corporation, for the purpose of amending and restating the Corporation's certificate of incorporation pursuant to the General Corporation Law of the State of Delaware, do make this certificate, hereby declaring and certifying that this is my act and deed on behalf of the Corporation, and the facts herein stated are true, and accordingly hereunto set my hand this 22 day of September, 2010.

ASPEN AEROGELS, INC.

By: /s/ Donald R. Young
Title: President

CERTIFICATE OF AMENDMENT
OF
THIRD AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
ASPEN AEROGELS, INC.

It is hereby certified that:

1. The name of the corporation (the " Corporation ") is Aspen Aerogels, Inc.

2. The Corporation's Third Amended and Restated Certificate of Incorporation, as amended (the " Certificate of Incorporation "), is hereby amended as follows:

(a) Article IV of the Certificate of Incorporation is hereby amended by deleting the introductory paragraph to Article IV in its entirety and inserting the following in lieu thereof:

"The total number of shares of all classes of stock that the Corporation shall have the authority to issue is 183,843,201. Of such shares, 69,843,201 shall be Preferred Stock, having a par value of $0.001 per share (" **Preferred Stock** "), and 114,000,000 shall be Common Stock, all of one class, having a par value of $0.001 per share (" **Common Stock** "). The Preferred Stock may be issued from time to time in one or more series. The first series of Preferred Stock shall consist of 52,843,201 shares of Series A Convertible Preferred Stock (the " **Series A Preferred Stock** "). The second series of Preferred Stock shall consist of 17,000,000 shares of Series B Convertible Preferred Stock (the " **Series B Preferred Stock** "). The Common Stock, the Series A Preferred Stock and the Series B Preferred Stock shall each be referred to herein as a " **Series** " of Stock. Except as otherwise expressly provided herein or as required by law, the holders of Preferred Stock and the holders of Common Stock shall vote together and not as separate classes."

(b) Article IV, Section 4.3.4(c)(i) of the Certificate of Incorporation is hereby amended by deleting the reference to "11,213,735" in the fourth line thereof and by inserting in lieu thereof "13,145,806".

3. The amendment of the Certificate of Incorporation herein certified has been duly adopted in accordance with the provisions of Sections 228, 242 and 141 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its President this 21st day of December 2010.

ASPEN AEROGELS, INC.

By: Donald R. Young
President

CERTIFICATE OF AMENDMENT
OF
THIRD AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
ASPEN AEROGELS, INC.

It is hereby certified that:

1. The name of the corporation (the " Corporation ") is Aspen Aerogels, Inc.

2. The Corporation's Third Amended and Restated Certificate of Incorporation, as amended (the " Certificate of Incorporation "), is hereby amended as follows:

(a) Article IV, Section 4.1 of the Certificate of Incorporation is hereby amended by deleting Section 4.1 of Article IV in its entirety and inserting the following in lieu thereof:

"The total number of shares of all classes of stock that the Corporation shall have the authority to issue is 186,543,201. Of such shares, 69,843,201 shall be Preferred Stock, having a par value of $0.001 per share (" **Preferred Stock** "), and 116,700,000 shall be Common Stock, all of one class, having a par value of $0.001 per share (" **Common Stock** "). The Preferred Stock may be issued from time to time in one or more series. The first series of Preferred Stock shall consist of 52,843,201 shares of Series A Convertible Preferred Stock (the " **Series A Preferred Stock** "). The second series of Preferred Stock shall consist of 17,000,000 shares of Series B Convertible Preferred Stock (the " **Series B Preferred Stock** "). The Common Stock, the Series A Preferred Stock and the Series B Preferred Stock shall each be referred to herein as a " **Series** " of Stock. Except as otherwise expressly provided herein or as required by law, the holders of Preferred Stock and the holders of Common Stock shall vote together and not as separate classes."

(b) Article IV, Section 4.3.4(c)(i) of the Certificate of Incorporation is hereby amended by deleting the reference to "13,145,806" in the fourth line thereof and by inserting in lieu thereof "15,845,806".

3. The amendment of the Certificate of Incorporation herein certified has been duly adopted in accordance with the provisions of Sections 228, 242 and 141 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its President this 18th day of May 2011.

ASPEN AEROGELS, INC.

By: Donald R. Young
President

Exhibit 3.3

ASPEN MERGER SUB, INC.

BY-LAWS

ARTICLE 1

OFFICES

SECTION 1.01 Registered Office . The registered office of Aspen Merger Sub, Inc., (the "Corporation") in the State of Delaware shall be at c/o Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, Delaware 19808. The name of the resident agent at such address is Corporation Service Company.

SECTION 1.02 Other Offices . The Corporation may also have an office at such other place or places either within or without the State of Delaware as the Board of Directors may from time to time determine or the business of the Corporation require.

ARTICLE 2

MEETINGS OF STOCKHOLDERS

SECTION 2.01 Place of Meetings . All meetings of the Stockholders of the Corporation shall be held at such place either within or without the State of Delaware as shall be fixed by the Board of Directors and specified in the respective notices or waivers of notice of said meetings.

SECTION 2.02 Annual Meetings . (a) The annual meeting of the stockholders for the election of directors and for the transaction of such other business as may come before the meeting shall be held at the principal office of the Corporation in the State of Delaware, or such place as shall be fixed by the Board of Directors, at two o'clock in the afternoon, local time, on the second Tuesday in February in each year, if not a legal holiday at the place where such meeting is to be held, and if a legal holiday, then on the next succeeding business day not a legal holiday at the same hour. (b) In respect of the annual meeting for any particular year the Board

of Directors may, by resolution fix a different day, time or place (either within or without the State of Delaware) for the annual meeting. (c) If the election of directors shall not be held on the day designated herein or the day fixed by the Board, as the case may be, for any annual meeting, or on the day of any adjourned session thereof, the Board of Directors shall cause the election to be held at a special meeting as soon thereafter as conveniently may be. At such special meeting the stockholders may elect the directors and transact other business with the same force and effect as at an annual meeting duly called and held.

SECTION 2.03 Special Meetings . A special meeting of the stockholders for any purpose or purposes may be called at any time by the President or Chairman, if any, or by order of the Board of Directors and must be called by the Secretary upon the request in writing of any stockholder holding of record at least twenty-five percent of the outstanding shares of stock of the Corporation entitled to vote at such meeting.

SECTION 2.04 Notice of Meetings . (a) Except as otherwise required by statute, notice of each annual or special meeting of the stockholders shall be given to each stockholder of record entitled to vote at such meeting not less than ten days nor more then fifty days before the day on which the meeting is to be held by delivering written notice thereof to him personally or by mailing such notice, postage prepaid, addressed to him at his post-office address last shown in the records of the Corporation or by transmitting notice thereof to him at such address by facsimile, electronic mail or any other available method. Every such notice shall state the time and place of the meeting and, in case of a special meeting, shall state briefly the purposes thereof. (b) Notice of any meeting of stockholders shall not be required to be given to any stockholder who shall attend such meeting in person or by proxy or who shall in person or by attorney thereunto authorized, waive such notice in writing or by facsimile, electronic mail, or

any other available method either before or after such meeting. Notice of any adjourned meeting of the stockholders shall not be required to be given except when expressly required by law.

SECTION 2.05 Quorum . (a) At each meeting of the stockholders, except where otherwise provided by statute, the Certificate of Incorporation or these By-Laws, the holders of record of a majority of the issued and outstanding shares of stock of the Corporation entitled to vote at such meeting, present in person or represented by proxy, shall constitute a quorum for the transaction of business. (b) In the absence of a quorum a majority in interest of the stockholders of the Corporation entitled to vote, present in person or represented by proxy or, in the absence of all such stockholders, any officer entitled to preside at, or act as secretary of, such meeting, shall have the power to adjourn the meeting from time to time, until stockholders holding the requisite amount of stock shall be present or represented. At any such adjourned meeting at which a quorum shall be present any business may be transacted which might have been transacted at the meeting as originally called.

SECTION 2.06 Organization . At each meeting of the stockholders the President, the Chairman, if any, any Vice President, or any other officer designated by the Board of Directors, shall act as chairman, and the Secretary or an Assistant Secretary of the Corporation, or in the absence of the Secretary and all Assistant Secretaries, a person whom the chairman of such meeting shall appoint shall act as secretary of the meeting and keep the minutes thereof.

SECTION 2.07 Voting . (a) Except as otherwise provided by law or by the Certificate of Incorporation or these By-Laws, at every meeting of the stockholders each stockholder shall be entitled to one vote, in person or by proxy, for each share of capital stock of the Corporation registered in his name on the books of the Corporation:

(i) on the date fixed pursuant to Section 9.03 of these By-Laws as the record date for the determination of stockholders entitled to vote at such meeting; or

(ii) if no such record date shall have been fixed, then the record date shall be at the close of business on the day next preceding the day on which notice of such meeting is given.

(b) Persons holding stock in a fiduciary capacity shall be entitled to vote the shares so held. In the case of stock held jointly by two or more executors, administrators, guardians, conservators, trustees or other fiduciaries, such fiduciaries may designate in writing one or more of their number to represent such stock and vote the shares so held, unless there is a provision to the contrary in the instrument, if any, defining their powers and duties. (c) Persons whose stock is pledged shall be entitled to vote thereon until such stock is transferred on the books of the Corporation to the pledgee, and thereafter only the pledgee shall be entitled to vote. (d) Any stockholder entitled to vote may do so in person or by his proxy appointed by an instrument in writing subscribed by such stockholder or by his attorney thereunto authorized, or by facsimile, electronic mail or any other available method delivered to the secretary of the meeting; provided, however, that no proxy shall be voted after three years from its date, unless said proxy provides for a longer period. (e) At all meetings of the stockholders, all matters (except where other provision is made by law or by the Certificate of Incorporation or these By-Laws) shall be decided by the vote of a majority in interest of the stockholders entitled to vote thereon, present in person or by proxy, at such meeting, a quorum being present.

SECTION 2.08 Inspectors . The chairman of the meeting may at any time appoint one or more inspectors to serve at a meeting of the stockholders. Such inspectors shall decide upon the qualifications of voters, accept and count the votes for and against the questions presented, report

the results of such votes, and subscribe and deliver to the secretary of the meeting a certificate stating the number of shares of stock issued and outstanding and entitled to vote thereon and the number of shares voted for and against the questions presented. The inspectors need not be stockholders of the Corporation, and any director or officer of the Corporation may be an inspector on any question other than a vote for or against his election to any position with the Corporation or on any other question in which he may be directly interested. Before acting as herein provided each inspector shall subscribe an oath faithfully to execute the duties of an inspector with strict impartiality and according to the best of his ability.

SECTION 2.09 List of Stockholders . (a) It shall be the duty of the Secretary or other officer of the Corporation who shall have charge of its stock ledger to prepare and make, or cause to be prepared and made, at least ten days before every meeting of the stockholders, a complete list of the stockholders entitled to vote thereat, arranged in alphabetical order and showing the address of each stockholder and the number of shares registered in the name of stockholder. Such list shall be open during ordinary business hours to the examination of any stockholder for any purpose germane to the meeting for a period of at least ten days prior to the election, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting or, if not so specified, at the place where the meeting is to be held. (b) Such list shall be produced and kept at the time and place of the meeting during the whole time thereof and may be inspected by any stockholder who is present. (c) Upon the willful neglect or refusal of the directors to produce such list at any meeting for the election of directors they shall be ineligible for election to any office at such meeting. (d) The stock ledger shall be conclusive evidence as to who are the stockholders entitled to examine the stock ledger and the

list of stockholders required by this Section 2.09 on the books of the Corporation or to vote in person or by proxy at any meeting of stockholders.

ARTICLE 3

BOARD OF DIRECTORS

SECTION 3.01 General Powers . The business, property and affairs of the Corporation shall be managed by the Board of Directors.

SECTION 3.02 Number, Qualifications and Term of Office . (a) The number of directors of the Corporation which shall constitute the whole Board of Directors shall be such number, not less than the minimum number allowed under the laws of the State of Delaware nor more than seven (7) as from time to time shall be fixed by the Board of Directors; (b) a director need not be a stockholder. Each director shall hold office until the annual meeting of the stockholders next following his election and until his successor shall have been elected and shall qualify, or until his death, or until he shall resign, or until he shall have been removed in the manner hereinafter provided.

SECTION 3.03 Election of Directors . At each meeting of the stockholders for the election of directors at which a quorum is present, the persons, not exceeding the authorized number of directors, receiving the greatest number of votes of the stockholders entitled to vote thereon, present in person or by proxy, shall be the directors. In the case of any increases in the number of directors, the additional director or directors may be elected either at the meeting of the Board of Directors or of the stockholders at which such increase is voted, or at any subsequent annual, regular or special meeting of the Board of Directors or stockholders.

SECTION 3.04 Quorum and Manner of Acting . (a) Except as otherwise provided by statute, by the Certificate of Incorporation or by an agreement among the holders of at least a

majority of the issued and outstanding stock of the Corporation, a majority of the directors at the time in office shall constitute a quorum for the transaction of business at any meeting and the affirmative action of a majority of the directors present at any meeting at which a quorum is present shall be required for the taking of any action by the Board of Directors. (b) In the event one or more of the directors shall be disqualified to vote at such meeting, then the required quorum shall be reduced by one for each such director so disqualified; provided, however, that in no event shall the quorum as adjusted be less than one third of the total number of directors. (c) In the absence of a quorum at any meeting of the Board such meeting need not be held; or a majority of the directors present thereat or, if no director be present, the Secretary may adjourn such meeting from time to time until a quorum shall be present. Notice of any adjourned meeting need not be given, except as otherwise required by statute or by the Certificate of Incorporation.

SECTION 3.05 Offices, Place of Meeting and Records . The Board of Directors may hold meetings, have an office or offices and keep the books and records of the Corporation at such place or places within or without the State of Delaware as the Board may from time to time determine. The place of meeting shall be specified or fixed in the respective notices or waivers of notice thereof, except where otherwise provided by statute, by the Certificate of Incorporation or these By-Laws.

SECTION 3.06 Annual Meeting . The Board of Directors shall meet for the purpose of organization, the election of officers and the transaction of other business, as soon as practicable following each annual election of directors. Such meeting shall be called and held at the place and time specified in the notice or waiver of notice thereof as in the case of a special meeting of the Board of Directors.

SECTION 3.07 Regular Meetings . Regular meetings of the Board of Directors shall be held at such places and at such times as the Board shall from time to time by resolution determine. If any day fixed for a regular meeting shall be a legal holiday at the place where the meeting is to be held, then the meeting which would otherwise be held on that day shall be held at said place at the same hour on the next succeeding business day. Notice of regular meetings need not be given.

SECTION 3.08 Special Meetings; Notice . Special meetings of the Board of Directors shall be held whenever called by the President or Chairman, if any, or by any two of the directors. Notice of each such meeting shall be mailed to each director, addressed to him at his residence or usual place of business, at least two days before the day on which the meeting is to be held, or shall be sent to him at his residence or at such place of business by facsimile, electronic mail, or other available means, or shall be delivered personally or by telephone, not later than one day before the day on which the meeting is to be held. Each such notice shall state the time and place of the meeting but need not state the purposes thereof except as otherwise herein expressly provided. Notice of any such meeting need not be given to any director, however, if waived by him in writing or by facsimile, electronic mail or otherwise, whether before or after such meeting shall be held, or if he shall be present at such meeting.

SECTION 3.09 Organization . At each meeting of the Board of Directors the President or Chairman, if any, or, in their absence, a director chosen by a majority of the directors present shall act as chairman. The Secretary or, in his absence an Assistant Secretary or, in the absence of the Secretary and all Assistant Secretaries, a person whom the chairman of such meeting shall appoint shall act as secretary of such meeting and keep the minutes thereof.

SECTION 3.10 Order of Business . At all meetings of the Board of Directors business shall be transacted in the order determined by the Board.

SECTION 3.11 Removal of Directors . Except as otherwise provided in the Certificate of Incorporation or in these By-Laws, any director may be removed, either with or without cause, at any time, by the affirmative vote of the holders of record of a majority of the issued and outstanding stock entitled to vote for the election of directors of the Corporation given at a special meeting of the stockholders called and held for the purpose; and the vacancy in the Board caused by any such removal may be filled by such stockholders at such meeting in the manner hereinafter provided or, if the stockholders at such meeting shall fail to fill such vacancy, as in these By-Laws provided.

SECTION 3.12 Resignation . Any director of the Corporation may resign at any time by giving written notice of his resignation to the Board of Directors, the President, the Chairman, if any, or the Secretary of the Corporation. Such resignation shall take effect at the date of receipt of such notice or at any later time specified therein; and, unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective.

SECTION 3.13 Vacancies . Any vacancy in the Board of Directors caused by death, resignation, removal, disqualification, an increase in the number of directors, or any other cause may be filled by majority action of the remaining directors then in office, though less than a quorum, or by the stockholders of the Corporation at the next annual meeting or any special meeting called for the purpose, and each director so elected shall hold office until the next annual election of directors and until his successor shall be duly elected and qualified or until his death or until he shall resign or shall have been removed in the manner herein provided.

SECTION 3.14 Compensation . Each director, in consideration of his serving as such, shall be entitled to receive from the Corporation such amount per annum or such fees for attendance at directors' meetings, or both, as the Board of Directors shall from time to time determine, together with reimbursement for the reasonable expenses incurred by him in connection with the performance of his duties; provided that nothing herein contained shall be construed to preclude any director from serving the Corporation or its subsidiaries in any other capacity and receiving proper compensation therefor.

ARTICLE 4

COMMITTEES

SECTION 4.01 Executive Committee . The Board of Directors may, by resolution or resolutions passed by a majority of the whole Board, appoint an Executive Committee to consist of not less than two members of the Board of Directors, including the President or Chairman, if any, and shall designate one of the members as its chairman. Notwithstanding any limitation on the size of the Executive Committee, the Committee may invite members of the Board to attend one at a time at its meetings. For the purpose of the meeting he so attends, the invited director shall be entitled to vote on matters considered at such meeting and shall receive the Executive Committee fee for such attendance. At any time one additional director may be invited to an Executive Committee meeting in addition to the rotational invitee and in such case such additional invitee shall also be entitled to vote on matters considered at such meeting and shall receive the Executive Committee fee for such attendance.

Each member of the Executive Committee shall hold office, so long as he shall remain a director, until the first meeting of the Board of Directors held after the next annual meeting of the Board of Directors held after the next annual election of directors and until his successor is duly

appointed and qualified. The chairman of the Executive Committee or, in his absence, a member of the Committee chosen by a majority of the members present shall preside at meetings of the Executive Committee and the Secretary or an Assistant Secretary of the Corporation, or such other person as the Executive Committee shall from time to time determine, shall act as secretary of the Executive Committee.

The Board of Directors, by action of the majority of the whole Board, shall fill vacancies in the Executive Committee.

SECTION 4.02 Powers . During the intervals between the meetings of the Board of Directors, the Executive Committee shall have and may exercise all of the powers of the Board of Directors in all cases in which specific directions shall not have been given by the Board of Directors.

SECTION 4.03 Procedure; Meetings; Quorum . The Executive Committee shall fix its own rules of procedure subject to the approval of the Board of Directors, and shall meet at such times and at such place or places as may be provided by such rules. At every meeting of the Executive Committee the presence of a majority of all the members shall be necessary to constitute a quorum and the affirmative vote of a majority of the members present shall be necessary for the adoption by it of any resolution. In the absence of a quorum at any meeting of the Executive Committee such meeting need not be held, or a majority of the members present thereat or, if no members be present, the secretary of the meeting may adjourn such meeting from time to time until a quorum be present.

SECTION 4.04 Compensation . Each member of the Executive Committee shall be entitled to receive from the Corporation such fee, if any, as shall be fixed by the Board of

Directors, together with reimbursement for the reasonable expenses incurred by him in connection with the performance of his duties.

SECTION 4.05 Other Board Committees . The Board of Directors may from time to time, by resolution passed by a majority of the whole Board, designate one or more committees in addition to the Executive Committee, each committee to consist of two or more of the directors of the Corporation. Any such committee, to the extent provided in the resolution or in the By-Laws of the Corporation, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the Corporation.

A majority of all the members of any such committee may determine its action and fix the time and place of its meetings, unless the Board of Directors shall otherwise provide. The Board of Directors shall have power to change the members of any committee at any time, to fill vacancies and to discharge any such committee, either with or without cause, at any time.

SECTION 4.06 Alternates . The President or Chairman, if any, may designate one or more directors as alternate members of any committee who may act in the place and stead of members who temporarily cannot attend any such meeting.

SECTION 4.07 Additional Committees . The Board of Directors may from time to time create such additional committees of directors, officers, employees or other persons designated by it (or any combination of such persons) for the purpose of advising the Board, the Executive Committee and the officers and employees of the Corporation in all such matters as the Board shall deem advisable and with such functions and duties as the Board shall by resolutions prescribe.

A majority of all the members of any such committee may determine its action and fix the time and place of its meetings, unless the Board of Directors shall otherwise provide. The

Board of Directors shall have the power to change the members of any committee at any time, to fill vacancies and to discharge any such committee, either with or without cause, at any time.

ARTICLE 5

ACTION BY CONSENT

SECTION 5.01 Consent by Directors . Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if prior to such action a written consent thereto is signed by all members of the Board or of such committee, as the case may be, and such written consent is filed with the minutes of the proceedings of the Board or such committee.

SECTION 5.02 Consent by Stockholders . Any action required or permitted to be taken at any meeting of the stockholders may be taken without a meeting upon the written consent of the holders of shares of stock entitled to vote who hold the number of shares which in the aggregate are at least equal to the percentage of the total vote required by statute or the Certificate of Incorporation or these By-Laws for the proposed corporate action.

ARTICLE 6

OFFICERS

SECTION 6.01 Number . The principal officers of the Corporation shall be a President, a Vice President, a Treasurer and a Secretary. In addition, there may be such other or subordinate officers, agents and employees as may be appointed in accordance with the provisions of Section 6.03. Any two or more offices may be held by the same person, except that if there are two or more officers of the Corporation, the office of Secretary shall be held by a person other than the person holding the office of President.

SECTION 6.02 Election, Qualifications and Term of Office . Each officer of the Corporation, except such officers as may be appointed in accordance with the provisions of Section 6.03, shall be elected annually by the Board of Directors and shall hold office until his successor shall have been duly elected and qualified, or until his death, or until he shall have resigned or shall have been removed in the manner herein provided.

SECTION 6.03 Other Officers . The Corporation may have such other officers, agents, and employees as the Board of Directors may deem necessary, including a Chairman, a Chief Executive Officer, a Chief Financial Officer, a Controller, one or more Assistant Controllers, one or more Assistant Treasurers and one or more Assistant Secretaries, each of whom shall hold office for such period, have such authority, and perform such duties as the Board of Directors, any committee of the Board designated by it to so act, or the President or Chairman, if any, may from time to time determine. The Board of Directors may delegate to any principal officer the power to appoint or remove any such subordinate officers, agents or employees.

SECTION 6.04 Removal . Any officer may be removed, either with or without cause, by the vote of a majority of the whole Board of Directors or, except in case of any officer elected by the Board of Directors, by any committee of officers upon whom the power of removal may be conferred by the Board of Directors.

SECTION 6.05 Resignation . Any officer may resign at any time by giving written notice to the Board of Directors or the President or Chairman, if any, or the Secretary of the Corporation. Any such resignation shall take effect at the date of receipt of such notice or at any later time specified therein; and, unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective.

SECTION 6.06 Vacancies . A vacancy in any office because of death, resignation, removal, disqualification or any other cause shall be filled for the unexpired portion of the term in the manner prescribed in these By-Laws for regular election or appointment to such office.

SECTION 6.07 Chairman of the Board . The Chairman of the Board, if any, shall be a director and shall preside at all meetings of the Board of Directors and shareholders. Subject to determination by the Board of Directors, the Chairman, if any, shall have general executive powers and such specific powers and duties as from time to time may be conferred or assigned by the Board of Directors.

SECTION 6.08 President . Subject to definition by the Board of Directors, the President shall have general executive powers and such specific powers and duties as from time to time may be conferred upon or assigned to him by the Board of Directors or any committee of the Board designated by it to so act. In the absence of the President, the Vice President shall preside at all meetings of the stockholders.

SECTION 6.09 Vice President . Each Vice President, if any, shall have such powers and perform such duties as from time to time may be conferred upon or assigned to him by the Board of Directors or any committee of the Board designated by it to so act, or by the President or Chairman, if any. In the absence of the President or Chairman, if any, a Vice President shall preside at all meetings of the stockholders.

SECTION 6.10 Treasurer . The Treasurer shall have charge and custody of, and be responsible for, all funds and securities of the Corporation, and shall deposit all such funds to the credit of the Corporation in such banks, trust companies or other depositories as shall be selected in accordance with the provisions of these By-Laws; he shall disburse the funds of the Corporation as may be ordered by the Board of Directors or any committee of the Board

designated by it so to act, or by the President or Chairman, if any, making proper vouchers for such disbursements, and shall render to the Board of Directors or the stockholders, whenever the Board may require him so to do, a statement of all his transactions as Treasurer and of the financial condition of the Corporation; and, in general, he shall perform all the duties as from time to time may be assigned to him by the Board of Directors or any committee of the Board designated by it so to act, or by the President or Chairman, if any.

SECTION 6.11 Secretary . The Secretary shall record or cause to be recorded in books provided for the purpose the minutes of the meetings of the stockholders, the Board of Directors, and all committees of which a secretary shall not have been appointed; shall see that all notices are duly given in accordance with the provisions of these By-Laws and as required by law; shall be custodian of all corporate records (other than financial) and of the seal of the Corporation and see that the seal is affixed to all documents the execution of which on behalf of the Corporation under its seal is duly authorized in accordance with the provisions of these By-Laws; shall keep, or cause to be kept, the list of stockholders as required by Section 2.09, which include the post-office addresses of the stockholders and the number of shares held by them, respectively, and shall make or cause to be made, all proper changes therein, shall see that the books, reports, statements, certificates and all other documents and records required by law are properly kept and filed; and, in general, shall perform all duties incident to the office of Secretary and such other duties as may from time to time be assigned to him by the Board of Directors or any committee of the Board designated by it so to act, or by the President or Chairman, if any.

SECTION 6.12 The Assistant Secretaries . At the request, or in absence or disability, of the Secretary, the Assistant Secretary, if any, designated by the Secretary or the Board of Directors shall perform all the duties of the Secretary and, when so acting, shall have all the

powers of the Secretary. The Assistant Secretaries shall perform such other duties as from time to time may be assigned to them by the Board of Directors or any committee of the Board designated by it so to act, or by the President or Chairman, if any, or the Secretary.

SECTION 6.13 Salaries . The salaries of the principal officers of the Corporation shall be fixed from time to time by the Board of Directors or a special committee thereof, and none of such officers shall be prevented from receiving a salary by reason of the fact that he is a director of the corporation.

ARTICLE 7

INDEMNIFICATION OF DIRECTORS AND OFFICERS

Each person who at any time is, or shall have been, a director or officer of the Corporation, and is threatened to be or is made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative by reason of the fact that he is, or was, a director, officer, employee or agent of the Corporation, or is or has served at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall be indemnified against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with any such action, suit or proceeding to the full extent permitted under subsections (a) through (e) of Section 145 of Title 8 of the Delaware Code, as from time to time amended. The foregoing right of indemnification shall in no way be exclusive of any other rights of indemnification to which such director, officer, employee or agent may be entitled, under any by-law, agreement, vote of shareholders or disinterested directors or otherwise, and shall continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

ARTICLE 8

CONTRACTS, CHECKS, DRAFTS, BANK ACCOUNTS, ETC .

SECTION 8.01 Execution of Contracts . Unless the Board of Directors shall otherwise determine, the President, the Chairman, if any, any Vice President, the Treasurer, the Secretary or any Assistant Secretary, may enter into any contract or execute any contract or other instrument, the execution of which is not otherwise specifically provided for, in the name and on behalf of the Corporation. The Board of Directors, or any committee designated thereby with power so to act, except as otherwise provided in these By-Laws, may authorize any other or additional officer or officers or agent or agents of the Corporation, and such authority may be general or confined to specific instances. Unless authorized so to do by these By-Laws or by the Board of Directors or by any such committee, no officer, agent or employee shall have any power or authority to bind the Corporation by any contract or engagement or to pledge its credit or to render it liable pecuniarily for any purpose or to any amount.

SECTION 8.02 Loans . No loan shall be contracted on behalf of the Corporation, and no evidence of indebtedness shall be issued, endorsed or accepted in its name, unless authorized by the Board of Directors or any committee of the Board designated by it so to act. Such authority may be general or confined to specific instances. When so authorized, the officer or officers thereunto authorized may effect loans and advances at any time for the Corporation from any bank, trust company or other institution, or from any firm, corporation or individual, and for such loans and advances may make, execute and deliver promissory notes or other evidences of indebtedness of the Corporation, and, when authorized as aforesaid, as security for the payment of any and all loans, advances, indebtedness and liabilities of the Corporation, may mortgage, pledge, hypothecate or transfer any real or personal property at any time owned or held by the

Corporation, and to that end execute instruments of mortgage or pledge or otherwise transfer such property.

SECTION 8.03 Checks, Drafts, etc . All checks, drafts, bills or exchange or other orders for the payment of money, obligations, notes, or other evidence of indebtedness, bills of lading, warehouse receipts and insurance certificates of the Corporation, shall be signed or endorsed by such officer or officers, agent or agents, attorney or attorneys, employee or employees, of the Corporation as shall from time to time be determined by resolution of the Board of Directors or any committee of the Board designated by it so to act.

SECTION 8.04 Deposits . All funds of the Corporation not otherwise employed shall be deposited from time to time to the credit of the Corporation in such banks, trust companies or other depositaries as the Board of Directors or any committee of the Board designated by it so to act may from time to time designate, or as may be designated by any officer or officers or agent or agents of the Corporation to whom such power may be delegated by the Board of Directors or any committee of the Board designated by it so to act and, for the purpose of such deposit and for the purposes of collection for the account of the Corporation may be endorsed, assigned and delivered by any officer, agent or employee of the Corporation or in such other manner as may from time to time be designated or determined by resolution of the Board of Directors or any committee of the Board designated by it so to act.

SECTION 8.05 Proxies in Respect of Securities of Other Corporations . Unless otherwise provided by resolution adopted by the Board of Directors or any committee of the Board designated by it to so act, the President or Chairman, if any, or any Vice President may from time to time appoint an attorney or attorneys or agent or agents of the Corporation, in the name and on behalf of the Corporation, to cast the votes which the Corporation may be entitled

to cast as the holder of stock or other securities in any other corporation, association or trust any of whose stock or other securities may be held by the Corporation, at meetings of the holders of the stock or other securities of such other corporation, association or trust, or to consent in writing, in the name of the Corporation as such holder, to any action by such other corporation, association or trust, and may instruct the person or persons so appointed as to the manner of casting such votes or giving such consent, and may execute or cause to be executed in the name and on behalf of the Corporation and under its corporate seal, or otherwise, all such written proxies or other instruments as he may deem necessary or proper in the premises.

ARTICLE 9

BOOKS AND RECORDS

SECTION 9.01 Place . The books and records of the Corporation may be kept at such places within or without the State of Delaware as the Board of Directors may from time to time determine. The stock record books and the blank stock certificate books shall be kept by the Secretary or by any other officer or agent designated by the board of Directors.

SECTION 9.02 Addresses of Stockholders . Each stockholder shall furnish to the Secretary of the Corporation or to the transfer agent of the Corporation an address at which notices of meetings and all other corporate notices may be served upon or mailed to him, and if any stockholder shall fail to designate such address, corporate notices may be served upon him by mail, postage prepaid, to him at his post-office address last known to the Secretary or to the transfer agent of the Corporation or by transmitting a notice thereof to him at such address by facsimile, electronic mail or other available method.

SECTION 9.03 Record Dates . The Board of Directors may fix in advance a date, not exceeding fifty days preceding the date of any meeting of stockholders, or the date for the payment of any dividend, or the date for the allotment of any rights, or the date when any change

or conversion or exchange of capital stock of the Corporation shall go into effect, or a date in connection with obtaining such consent, as a record date for the determination of the stockholders entitled to notice of, and to vote at, any such meeting or any adjournment thereof, or entitled to receive payment of any such dividend, or to any such allotment of rights, or to exercise the rights in respect of any change, conversion or exchange or capital stock of the Corporation, or to give such consent, and in each such case such stockholders and only such stockholders as shall be stockholders of record on the date so fixed shall be entitled to notice of, or to vote at, such meeting and any adjournment thereof, or to receive payment of such dividend, or to receive such allotment of rights, or to exercise such rights or to give such consent, as the case may be, notwithstanding any transfer of any stock on the books of the Corporation after any such record date fixed as aforesaid.

ARTICLE 10

SHARES AND THEIR TRANSFER

SECTION 10.01 Certificates of Stock . Every owner of stock of the Corporation shall be entitled to have a certificate certifying the number of shares owned by him in the Corporation and designating the class of stock to which such shares belong, which shall otherwise be in such form as the Board of Directors shall prescribe. Every such certificate shall be signed by the Chief Executive Officer, President or Chairman, if any, or a Vice President, and by the Treasurer or any Assistant Treasurer or the Secretary or any Assistant Secretary of the Corporation; provided, however, that where such certificate is signed or countersigned by a transfer agent or registrar the signatures of such officers of the Corporation and the seal of the Corporation may be in facsimile form. In case any officer or officers who shall have signed, or whose facsimile signature or signatures shall have been used on, any such certificate or certificates shall cease to be such officer or officers of the Corporation, whether because of death, resignation or

otherwise, before such certificate or certificates shall have been delivered by the Corporation, such certificate or certificates may nevertheless be issued and delivered by the Corporation as though the person or persons who signed such certificate or whose facsimile signature or signatures shall have been used thereof had not ceased to be such officer or officers of the Corporation.

SECTION 10.02 Record . A record shall be kept of the name of the person, firm or corporation owning the stock represented by each certificate for stock of the Corporation issued, the number of shares represented by each such certificate, and the date thereof, and, in case of cancellation, the date of cancellation. The person in whose name shares of stock stand on the books of the Corporation shall be deemed the owner thereof for all purposes as regards the Corporation.

SECTION 10.03 Transfer of Stock . Transfers of shares of the stock of the Corporation shall be made only on the books of the Corporation by the registered holder thereof, or by his attorney thereunto authorized, and on the surrender of the certificate or certificates for such shares properly endorsed.

SECTION 10.04 Transfer Agent and Registrar; Regulations . The Corporation shall, if and whenever the Board of Directors shall so determine, maintain one or more transfer offices or agencies, each in charge of a transfer agent designated by the Board of Directors, where the shares of the capital stock of the Corporation shall be directly transferable, and also if and whenever the Board of Directors shall so determine, maintain one or more registrar offices designated by the Board of Directors, where such shares of stock shall be registered. The Board of Directors may make such rules and regulations as it may deem expedient, not inconsistent

with these By-Laws, concerning the issue, transfer and registration of certificates for shares of the capital stock of the Corporation.

SECTION 10.05 Lost, Destroyed or Mutilated Certificates . In case of the alleged loss or destruction or the mutilation of a certificate representing capital stock of the Corporation, a new certificate may be issued in place thereof, in the manner and upon such terms as the Board of Directors may prescribe.

ARTICLE 11

SEAL

The Board of Directors shall provide a corporate seal, which shall be in the form of a circle and shall bear the name of the Corporation and the words and figures “Incorporated 2008, Delaware.”

ARTICLE 12

FISCAL YEAR

The fiscal year of the Corporation shall commence on the first day of November, except as otherwise provided from time to time by the Board of Directors.

ARTICLE 13

WAIVER OF NOTICE

Whenever any notice whatever is required to be given by statute, these By-Laws or the Certificate of Incorporation, a waiver thereof in writing, signed by the person or persons entitled to said notice, whether before or after the time stated therein, shall be deemed equivalent thereto.

ARTICLE 14

AMENDMENTS

These By-Laws may be altered, amended or repealed, in whole or in part, and new By-Laws may be adopted, in whole or in part, by the affirmative vote of a majority of the whole

Board of Directors given at a special Board of Directors meeting called and held for the purpose or by the affirmative vote of the holders of a majority of the issued and outstanding stock entitled to vote for the amendment of these By-Laws at a special meeting of the stockholders called and held for the purpose. Any such action by the Board of Directors may be changed by the affirmative vote of the holders of such a majority of the stockholders. No amendment may be made unless the By-Laws, as amended, are consistent with the requirements of law and of the Certificate of Incorporation.

AMENDMENT NO. 1

TO

ASPEN AEROGELS, INC.

(f/k/a ASPEN MERGER SUB, INC.)

BY-LAWS

Section 3.02(a) of the By-Laws shall be amended by deleting the words “seven (7)” therein and by substituting “nine (9)” in lieu thereof.

Effective Date: July 21, 2009

Attested:

ASPEN AEROGELS, INC.

By: /s/ Christopher W. Nelson
Christopher W. Nelson, Secretary

AMENDMENT NO. 2

TO

ASPEN AEROGELS, INC.

(f/k/a ASPEN MERGER SUB, INC.)

BY-LAWS

Section 3.02(a) of the By-Laws shall be amended by deleting the words “nine (9)” therein and by substituting “ten (10)” in lieu thereof.

Effective Date: January 18, 2011

Attested:

ASPEN AEROGELS, INC.

By: /s/ Christopher W. Nelson
Christopher W. Nelson, Secretary

Exhibit 4.2

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON THE EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY APPLICABLE STATE SECURITIES LAWS. NEITHER THIS WARRANT, SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE TRANSFERRED EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN APPLICABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE ACT AND APPLICABLE STATE SECURITIES LAWS.

THE SALE, ASSIGNMENT, HYPOTHECATION, PLEDGE, ENCUMBRANCE OR OTHER DISPOSITION AND VOTING OF ANY OF THE SHARES OF COMMON STOCK OF THE COMPANY ACQUIRED PURSUANT TO THE EXERCISE OF THIS WARRANT ARE RESTRICTED BY THE TERMS OF THE THIRD AMENDED AND RESTATED STOCKHOLDERS' AGREEMENT, DATED AS OF JUNE 10, 2008, AMONG THE COMPANY AND CERTAIN OF ITS STOCKHOLDERS. THE COMPANY WILL NOT REGISTER THE TRANSFER OF SUCH SHARES OF COMMON STOCK ON THE BOOKS OF THE COMPANY UNLESS AND UNTIL THE TRANSFER HAS BEEN MADE IN COMPLIANCE WITH THE TERMS OF THE STOCKHOLDERS AGREEMENT, A COPY OF WHICH WILL BE PROVIDED AT NO COST TO THE HOLDER HEREOF UPON WRITTEN REQUEST TO THE COMPANY.

ASPEN AEROGELS, INC.

COMMON STOCK PURCHASE WARRANT

This document (this **"Warrant"**) certifies that, for good and valuable consideration, Aspen Aerogels, Inc., a Delaware corporation (the **"Company"**), grants to **[IMPORT WARRANTHOLDER]** (the **"Warrantholder"**), the right to subscribe for and purchase from the Company, on or before **[IMPORT EXPIRATION TIME]** (the **"Expiration Time"**), an aggregate of **[IMPORT SHARE NUMBERS]** validly issued, fully paid and nonassessable shares of Common Stock (the **"Warrant Shares"**), at the exercise price per share of $4.423 (the **"Exercise Price"**), all subject to the terms, provisions, conditions and adjustments (including adjustments to number of shares and Exercise Price) herein set forth. The Company acknowledges that the cash consideration paid by Warrantholder for this Warrant is $10.00 for income tax purposes, that such amount has been duly received by the Company, and that this Warrant is issued in connection with that certain financial accommodation entered into by and between Company as the obligor and Warrantholder as the obligee thereunder (the " **Financing Arrangement** ") and that this Warrant amends and restates all warrants previously issued to the Warrantholder in connection with the Financing Arrangement. Capitalized terms used herein which are not specifically defined in other sections of this Warrant, shall have the meanings set forth in Section 11 .

1. Warrant Term . The purchase rights represented by this Warrant are exercisable, in whole or in part, at any time and from time to time, from and after the Warrant grant date of **[IMPORT GRANT DATE]** , and on or prior to the earlier of the (i) Expiration Time, or (ii) in the event of a Corporate Event.

2. Exercise of Warrant; Payment of Taxes .

2.1 Exercise of Warrant . The purchase rights represented by this Warrant may be exercised by the Warrantholder, in whole or in part and from time to time, by the surrender of this Warrant (with a duly executed notice of exercise form, the "Exercise Form", in the form attached hereto as Exhibit A) at the principal office of the Company and by the payment to the Company of an amount equal to the then applicable Exercise Price per share multiplied by the number of Shares then being purchased. If the Warrantholder is not already a party thereto, the Warrantholder shall also execute, upon request from the Company, a joinder agreement to the Stockholder's Agreement, as amended and restated, such joinder agreement to be in form and substance mutually agreeable to both Warrantholder and Company. The Warrantholder shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Shares represented thereby (and such Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised.

2.2 Non-Cash Exercise .

(a) In lieu of payment in cash, the rights represented by this Warrant may also be exercised at any time by a written notice of exercise in the form of Exhibit A attached hereto, providing for the non-cash exercise of this Warrant for the Shares equal to the value (as determined below) of this Warrant (or the portion thereof being exercised), specifying that this non-cash exercise election has been made, and the net number of Shares to be issued after giving effect to such non-cash exercise. In the event the Warrantholder makes such election, Company shall issue to the holder a number of shares computed using the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where:

X = the number of Shares to be issued to the holder

Y = the number of Shares purchasable under the Warrant or, if only a portion of the Warrant is being exercised, the portion of the Warrant being exercised (as of the date of such non-cash exercise)

A = the Fair Market Value of one Share of Common Stock (as of the date of such non-cash exercise)

B = Exercise Price of one Share of Common Stock (as adjusted to the date of such non-cash exercise)

(b) For purposes of this Section 2.2, the " Fair Market Value " of one share of the Company's Common Stock shall be equal to either (i) if the exercise of this Warrant occurs in connection with an initial public offering of the Company, then the Fair Market Value shall be equal to the "initial price to public" specified in the final prospectus with respect to the initial public offering, or (ii) if the exercise of this Warrant occurs after an initial public offering of the Company but not in connection therewith, then the Fair Market Value shall be equal to the average of the closing price(s) of the Company's Common Stock as quoted over the counter or on any exchange on which the Common Stock is listed as such closing prices are published in The Wall Street Journal for the fifteen trading days (or such

lesser number of trading days as the stock may have been actually trading) ending on the day prior to the date of determination of Fair Market Value. Notwithstanding the foregoing, if the Warrant is exercised in connection with a merger or sale of all or substantially all of the Company's assets, Fair Market Value shall mean the value that would have been allocable to or received in respect of a Warrant Share had the Warrant been exercised prior to such merger or sale. If the Common Stock is not traded Over The Counter or on an exchange, or if the Warrant is not exercised in connection with a merger or sale of all or substantially all of its assets, then the Fair Market Value shall be determined in good faith by the Company's board of directors. If the holder hereof does not agree with the determination of Fair Market Value as determined by the Company's board of directors, the Company and the holder hereof shall negotiate an appropriate Fair Market Value. If after ten (10) days, the Company and the holder cannot agree, then the holder may request that the Fair Market Value be determined by an investment banker of national reputation selected by the Company and reasonably acceptable to the Warrantholder. The fees and expenses of such investment banker shall be borne by the Company unless the Fair Market Value determined by such investment banker is equal to or less that the Fair Market Value as determined by the Company, in which event the fees and expenses of such investment banker shall be borne by the holder hereof.

2.3 Automatic Exercise. Immediately before the expiration or termination of this Warrant, to the extent this Warrant is not previously exercised, and if the Fair Market Value of one share of the Company's Common Stock subject to this Warrant is greater than the Exercise Price, then in effect as adjusted pursuant to this Warrant, this Warrant shall be deemed automatically exercised pursuant to Section 2.2 above, even if not surrendered. For purposes of such automatic exercise, the Fair Market Value of the Company's Common Stock upon such expiration shall be determined pursuant to Section 2.2 (b) above. To the extent this Warrant or any portion thereof is deemed automatically exercised pursuant to this Section, the Company agrees to promptly notify the Warrantholder of the number of Shares, if any, the holder hereof is to receive by reason of such automatic exercise.

2.4 Exercise in Connection with an Initial Public Offering, Sale or Merger . Notwithstanding any other provision hereof, if the exercise of all or any portion of this Warrant is made or to be made in connection with the occurrence of a public offering, sale or merger of the Company, the exercise of all or any portion of this Warrant shall, at the election of the Warrantholder, be conditioned upon the consummation of the public offering, sale or merger of the Company in which case such exercise shall not be deemed to be effective until the consummation of such transaction. In the event that transaction is not consummated within 45 days of the targeted date of the transaction, any such exercise shall, at the election of the Warrantholder, be deemed rescinded.

2.5 Warrant Shares Certificate . A stock certificate for the Warrant Shares specified in the Exercise Form shall be delivered to the Warrantholder within five (5) Business Days after receipt of the Exercise Form by the Company and payment by the Warrantholder of the aggregate Exercise Price (or non-cash exercise in lieu of payment as permitted in Section 2.2), along with a check from the Company in lieu of any fractional shares which the Warrantholder would be entitled to purchase under this Warrant. If this Warrant was exercised in part, the Company shall, at the time of delivery of the stock certificate, deliver to the Warrantholder a new Warrant evidencing the right to purchase the remaining Warrant Shares, which new Warrant shall in all other respects be identical with this Warrant.

2.6 Payment of Taxes . The Company shall pay all expenses, taxes and other governmental charges with respect to the issue or delivery of the Warrant Shares, unless such tax or charge is imposed by law upon the Warrantholder.

3. Restrictions on Transfer; Restrictive Legends .

3.1 Restrictions on Transfer . This Warrant and the Warrant Shares issuable upon exercise of all or part of this Warrant are unregistered securities that are subject to the restrictions on transfer imposed by the Securities Act and applicable state securities laws and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Securities Act and applicable state securities laws. The Warrant Shares issuable upon exercise of all or part of this Warrant are also subject to additional restrictions on transfer set forth in the Stockholders Agreement and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Stockholders Agreement.

3.2 Restrictive Legends . Until such time as the restrictions on transfer imposed on this Warrant by the Securities Act and applicable state securities laws shall no longer be effective, this Warrant, any Warrant issued to the Warrantholder upon the partial exercise of this Warrant pursuant to Section 2 , and any Warrant issued to the Warrantholder in substitution for this Warrant pursuant to Section 7 shall be stamped or otherwise imprinted with a legend in substantially the form as set forth on the cover of this Warrant. Until such time as the restrictions on transfer imposed on the Warrant Shares by the Securities Act, applicable state securities laws and the Stockholders Agreement shall no longer be effective, each stock certificate for Warrant Shares and each stock certificate issued upon the direct or indirect transfer of any such Warrant Shares shall be stamped or otherwise imprinted with a legend in substantially the form provided in the Stockholders' Agreement. Upon the termination of such restrictions on transfer, the Warrantholder may require the Company to issue a Warrant or a stock certificate for Warrant Shares, in each case without a legend, if and to the extent permitted by, and in accordance with, the Stockholders Agreement and applicable law.

4. Reservation and Registration of Shares . The Company covenants and agrees as follows:

4.1 Validly Issued and Free of Encumbrances . All Warrant Shares issued upon the exercise of all or any part of this Warrant shall, upon issuance and payment of the Exercise Price therefore (or upon non-cash exercise as permitted herein), be validly issued, fully paid and nonassessable, issued in compliance with all applicable federal and state securities laws, and free from all taxes, liens and charges with respect to the issue thereof, and not subject to any preemptive rights.

4.2 Sufficient Authorized Shares . During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved, for the purpose of issuance of Common Stock upon any exercise of the purchase rights evidenced by this Warrant, and shall keep available free from preemptive rights, a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

4.3 Noncontravention . The Company shall not, by amendment of its Certificate of Incorporation or through any reorganization, transfer of assets, spin-off, consolidation, merger, dissolution, issue or sale of securities or any other action or inaction, avoid or seek to avoid the observance or performance of any of the terms of this Warrant to be observed or performed hereunder, and shall at all times in good faith assist in performing, carrying out, and giving effect to the terms hereof and in the taking of all such actions as may be necessary or appropriate in order to protect the rights of the Warrantholder against dilution or other impairment.

5. Anti-Dilution Adjustments . From and after the date hereof and until the Expiration Date, notwithstanding the fact that no Warrant Shares shall be issued and outstanding, the Exercise Price, and the number and type of Warrant Shares or other securities to be received upon exercise of the Warrant, shall be subject to adjustment as follows:

5.1 Dividend, Subdivision, Combination or Reclassification of Common Stock . If the Company shall, at any time or from time to time, prior to exercise in full of this Warrant: (a) pay a dividend or otherwise make a distribution on the outstanding shares of Common Stock payable in Capital Stock; (b) subdivide the outstanding shares of Common Stock into a larger number of shares; (c) combine the outstanding shares of Common Stock into a smaller number of shares; or (d) issue any shares of its Capital Stock in a reclassification of the Common Stock (other than any such event for which an adjustment is made pursuant to another clause of this Section 5), then, and in each such case, the Exercise Price and the number of Warrant Shares exercisable hereunder in effect immediately prior to such event shall be adjusted (and any other appropriate actions shall be taken by the Company) so that the Warrantholder shall thereafter be entitled to receive, upon the exercise of the unexercised portion of this Warrant, the number of shares of Common Stock or other securities of the Company that such Warrantholder would have owned or would have been entitled to receive upon or by reason of any of the events described above, had this Warrant been exercised immediately prior to the occurrence of such event. An adjustment made pursuant to this Section 5.1 shall become effective retroactively: (x) in the case of any such dividend or distribution, to a date immediately following the close of business on the record date for the determination of holders of Common Stock entitled to receive such dividend or distribution; or (y) in the case of any such subdivision, combination or reclassification, to the close of business on the day upon which such corporate action becomes effective.

5.2 Issuance of Common Stock or Common Stock Equivalents below Exercise Price . If the Company shall, at any time or from time to time, prior to exercise in full of this Warrant, issue or sell any shares of Common Stock or Common Stock Equivalents at a "New Issue Price" (as defined below) per share of Common Stock or Common Stock Equivalent that is less than the Exercise Price then in effect as of the record date or Issue Date referred to in the following sentence, as the case may be (the **"Relevant Date"**), other than issuances of Excluded Stock, then, and in each such case, the Exercise Price then in effect shall be adjusted by multiplying the Exercise Price in effect immediately prior to the Relevant Date by a fraction:

(a) the numerator of which shall be the sum of the number of shares of Common Stock outstanding on the Relevant Date (assuming conversion or exercise of all Common Stock Equivalents into Common Stock) *plus* (i) in the case of Common Stock, the number of shares of Common Stock which the aggregate consideration received by the Company for the total number of such additional shares of Common Stock so issued would purchase at the Exercise Price on the Relevant Date, or (ii) in the case of Common Stock Equivalents, the number of shares of Common Stock which the aggregate amount of the consideration paid for, or the aggregate exercise price of, such Common Stock Equivalents, *plus* any additional consideration payable upon conversion, exchange or exercise of such Common Stock Equivalents, would purchase at the Exercise Price on the Relevant Date; and

(b) the denominator of which shall be the sum of (i) the number of shares of Common Stock outstanding on the Relevant Date (assuming conversion or exercise of all Common Stock Equivalents into Common Stock) *plus* (ii) the number of additional shares of Common Stock issued or to be issued or, in the case of Common Stock Equivalents, the maximum number of shares of Common Stock into which such Common Stock Equivalents initially may convert, exchange or be exercised.

Such adjustment shall be made whenever such shares of Common Stock or Common Stock Equivalents are issued, and shall become effective retroactively, in the case of an issuance to the stockholders of the Company, as such, to a date immediately following the close of business on the record date for the determination of stockholders entitled to receive such shares of Common Stock or Common Stock Equivalents, and, in all other cases, on the date of such issuance (the **"Issue Date"**); *provided* , *however* , that the determination as to whether an adjustment is required to be made pursuant to this Section 5.2 shall only be made upon the issuance of such shares of Common Stock or Common Stock Equivalents, and not upon the issuance of any security into which the Common Stock Equivalents convert, exchange or may be exercised. For purposes of this Section 5.2 , the **"New Issue Price"** of any shares of Common Stock shall be equal to the price per share received by the Company upon the consummation of such sale and the **"New Issue Price"** of any Common Stock Equivalents shall be equal to (x) the sum of (A) the price for such Common Stock Equivalent *plus* (B) any additional consideration payable (without regard to any anti-dilution adjustments) upon the conversion, exchange or exercise of such Common Stock Equivalent, *divided by* (y) the number of shares of Common Stock initially underlying such Common Stock Equivalent.

5.3 Certain Distributions . If the Company shall, at any time or from time to time, prior to exercise in full of this Warrant, distribute to all holders of shares of the Common Stock (including any such distribution made in connection with a merger or consolidation in which the Company is the resulting or surviving Person and the Common Stock is not changed or exchanged) cash, evidences of indebtedness of the Company or another issuer, securities of the Company or another issuer or other assets or rights or warrants to subscribe for or purchase securities of the Company (excluding those distributions in respect of which an adjustment in the Exercise Price is made pursuant to another paragraph of this Section 5), then, and in each such case:

(a) the Exercise Price then in effect shall be adjusted (and any other appropriate actions shall be taken by the Company) by multiplying the Exercise Price in effect immediately prior to the date of such distribution by a fraction, (i) the numerator of which shall be the Current Market Price of the Common Stock immediately prior to the date of distribution less the then fair market value (as determined by the Board of Directors in the exercise of their fiduciary duties) of the portion of the cash, evidences of indebtedness, securities or other assets so distributed or of such rights or warrants applicable to one share of Common stock, and (ii) the denominator of which shall be the Current Market Price of the Common Stock immediately prior to the date of distribution (but such fraction shall not be greater than one); *provided* , *however* , that no adjustment shall be made upon such distribution pursuant to this Section 5.3(a) if an adjustment is made upon such distribution pursuant to Section 6 ; and

(b) the number of Warrant Shares for which this Warrant is exercisable immediately prior to such distribution shall be adjusted (and any other appropriate actions shall be taken by the Company) by multiplying the then-current number of Warrant Shares in effect immediately prior to the date of such distribution by a fraction, (i) the numerator of which shall be the Exercise Price in effect immediately prior to immediately prior to the date of distribution, and (ii) the denominator of which shall be the adjusted Exercise Price as determined pursuant to clause (a) of this Section 5.3 (but such fraction shall not be less than one); *provided* , *however* , that no adjustment shall be made upon such distribution pursuant to this Section 5.3(b) if an adjustment is made upon such distribution pursuant to Section 6 .

Such adjustments shall be made whenever any such distribution is made and shall become effective retroactively to a date immediately following the close of business on the record date for the determination of stockholders entitled to receive such distribution.

5.4 Other Changes . INTENTIONALLY DELETED

5.5 De Minimus Adjustments . Notwithstanding anything herein to the contrary, no adjustment under this Section 5 need be made to the Exercise Price and the number of Warrant Shares unless such adjustment would require an increase or decrease of at least one percent (1%) of the Exercise Price then in effect. Any lesser adjustment shall be carried forward and shall be made at the time of and together with the next subsequent adjustment which, together with any adjustment or adjustments so carried forward, shall amount to an increase or decrease of at least one percent (1%) of such Exercise Price. Any adjustment to the Exercise Price and the number of Warrant Shares carried forward and not theretofore made shall be made immediately prior to the exercise of this Warrant.

5.6 Notice of Adjustment under Section 5 . The Company shall, no later than twenty (20) Business Days prior to the occurrence of any event that would result in an adjustment pursuant to this Section 5 , provide the Warrantholder with a written notice describing such event in reasonable detail and setting forth the Exercise Price and number of Warrant Shares, as adjusted as a result of such event.

5.7 Reclassification, Reorganization, Change or Conversion. In case of any reclassification, reorganization, change or conversion of securities of the class issuable upon exercise of this Warrant (other than a change in par value, or from par value to no par value, or from no par value to par value, or as a result of a subdivision or combination), then in any of these events, the Company shall execute a replacement warrant (a "New Warrant"), in form and substance reasonably satisfactory to the holder of this Warrant, upon the exercise of which (and at a total purchase price under the New Warrant not to exceed that payable upon the exercise in full of this Warrant) the holder of the New Warrant shall receive, in lieu of each Share receivable upon the exercise of this Warrant, the same kind and amount of shares of stock, other securities, money and property receivable by a holder of one share of Common Stock upon such reclassification, reorganization, change or conversion. Such New Warrant shall provide for adjustments that shall be as nearly equivalent as may be practicable to the adjustments provided for in this Section 5. The provisions of this section 5.7 shall similarly apply to successive reclassifications, reorganizations, changes, or conversions.

Whenever the Exercise Price shall be adjusted pursuant to the provisions of this Warrant, the Company shall within ten (10) days of such adjustment deliver a certificate signed on behalf of the Company by its chief financial officer to the Warrantholder setting forth, in reasonable detail, the event requiring the adjustment, the amount of the adjustment, the method by which such adjustment was calculated, and the Exercise Price after giving effect to such adjustment.

6. Intentionally Deleted .

7. Exercise or Termination upon Corporate Event . The Company shall, no later than twenty (20) Business Days prior to the anticipated consummation date of any Corporate Event, provide the Warrantholder with a written notice describing such Corporate Event in reasonable detail and setting forth the consideration (i.e., securities, cash and other property) receivable for each share of Common Stock pursuant to such Corporate Event. If the aggregate Exercise Price, as of such consummation date, is equal to or greater than the aggregate value of the securities, cash and other property that would have been received in connection with Corporate Event by a holder of the number of shares of Common Stock for which this Warrant was exercisable immediately prior to such Corporate Event (the **"Exercise Proceeds"**), then this Warrant shall terminate upon the consummation of such Corporate Event. If the aggregate Exercise Price, as of such consummation date, is less than the aggregate value of the Exercise Proceeds, then the Warrantholder shall be entitled to exercise this

Warrant in connection with such Corporate Event and shall automatically receive upon the consummation of such Corporate Event, in lieu of the Warrant Shares, the Exercise Proceeds.

8. Loss or Destruction of Warrant . Subject to the terms and conditions hereof, upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, of such bond or indemnification as the Company may reasonably require, and, in the case of such mutilation, upon surrender and cancellation of this Warrant, the Company will execute and deliver to the Warrantholder a new Warrant of like tenor.

9. Ownership of Warrant . The Company may deem and treat the person in whose name this Warrant is registered as the holder and owner hereof (notwithstanding any notations of ownership or writing hereon made by anyone other than the Company) for all purposes and shall not be affected by any notice to the contrary, until presentation of this Warrant for registration of transfer.

10. Amendments . Any provision of this Warrant may be amended and the observance thereof waived only with the written consent of the Company and the Warrantholder.

11. Definitions . As used herein, unless the context otherwise requires, the following terms have the following respective meanings:

" Affiliate " means, (1) with respect to any Person, any of (a) a director, officer or stockholder holding 5% or more of the capital stock (on a fully diluted basis) of such Person, (b) a spouse, parent, sibling or descendant of such Person (or a spouse, parent, sibling or descendant of any director or officer of such Person) and (c) any other Person that, directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, another Person or (2) in any event, any Person meeting the definition of "Affiliate" set forth in Rule 405 under the Securities Act. The term "control" includes, without limitation, the possession, directly or indirectly, of the power to direct the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

" Board of Directors " means the Board of Directors of the Company.

" Business Day " means any day other than a Saturday, Sunday or a day on which national banks are authorized by law to close in the Commonwealth of Massachusetts.

" Capital Stock " means, with respect to any Person, any and all shares, interests, participation, rights in, or other equivalents (however designated and whether voting or non-voting) of, such Person's capital stock and any and all rights, warrants or options exchangeable for or convertible into such capital stock (but excluding any debt security whether or not it is exchangeable for or convertible into such capital stock).

" Common Stock " means the Company's presently authorized Common Stock, and any stock into or for which such Common Stock may hereafter be converted or exchanged pursuant to the Certificate of Incorporation of the Company as amended from time to time as provided by law and in such Certificate of Incorporation.

" Common Stock Equivalent " means any security or obligation which is by its terms convertible into shares of Common Stock or another Common Stock Equivalent, including, without limitation, any option, warrant or other subscription or purchase right with respect to Common Stock.

" Corporate Event " means: (i) the sale, transfer, exchange or other disposition in one transaction or a series of related transactions of all or substantially all of the Company's assets; (ii) any merger, consolidation or other corporate reorganization in one transaction or a series of related transactions that results in the stockholders of the Company immediately prior to such transaction holding less than fifty percent (50%) of the voting power of the surviving entity of such transaction; (iii) the dissolution or liquidation of the Company; or (iv) the sale, transfer, exchange or other disposition in one transaction or a series of related transactions of all or substantially all of the Company's Common Stock, but does not include any one transaction or series of related transactions the sole purpose and effect of which is to change the state or type of organization of the Company (e.g., to change the Company from a Delaware corporation to a New York corporation or from a corporation to a limited liability company).

" Current Market Price " per share shall mean, as of the date of determination, (a) the average of the daily Market Price under clause (a) , (b) or (c) of the definition thereof of the Common Stock during the immediately preceding thirty (30) trading days ending on such date, and (b) if the Common Stock is not then listed or admitted to trading on any national securities exchange or quoted in the over-the-counter market, then the Market Price under clause (d) of the definition thereof on such date.

" Exchange Act " means the Securities Exchange Act of 1934, as amended.

" Excluded Stock " has the meaning set forth in the Stockholders Agreement.

" Market Price " shall mean, as of the date of determination, (a) the closing price per share of Common Stock on such date published in The Wall Street Journal or, if no such closing price on such date is published in The Wall Street Journal , the average of the closing bid and asked prices on such date, as officially reported on the principal national securities exchange (including, without limitation, The Nasdaq Stock Market, Inc.) on which the Common Stock is then listed or admitted to trading; or (b) if the Common Stock is not then listed or admitted to trading on any national securities exchange but is designated as a national market system security by the National Association of Securities Dealers, Inc., the last trading price of the Common Stock on such date; or (c) if there shall have been no trading on such date or if the Common Stock is not so designated, the average of the reported closing bid and asked prices of the Common Stock on such date as shown by the National Market System of the National Association of Securities Dealers, Inc. Automated Quotations System and reported by any member firm of the New York Stock Exchange selected by the Company; or (d) if none of clauses (a) , (b) or (c) is applicable, a market price per share determined at the Company's expense by an appraiser chosen by the Warrantholder, or, if no such appraiser is so chosen more than ten (10) Business Days after notice of the necessity of such calculation shall have been delivered by the Company to the Warrantholder, then by an appraiser chosen by the Company and reasonably satisfactory to the Warrantholder. Any determination of the Market Price by an appraiser shall be based on a valuation of the Company as an entirety without regard to any discount for minority interests or disparate voting rights among classes of Capital Stock.

" Person " means any individual, firm, corporation, partnership, limited liability company, trust, incorporated or unincorporated association, joint venture, joint stock company, governmental authority or other entity of any kind, and shall include any successor (by merger or otherwise) of such entity.

"QPO" means an underwritten public offering (underwritten by a reputable underwriter of national reputation) of shares of Common Stock registered pursuant to the Securities Act.

" Securities Act " means the Securities Act of 1933, as amended, and the rules and regulations of the United States Securities and Exchange Commission thereunder.

" Stockholders' Agreement " means the Third Amended and Restated Stockholders' Agreement, dated as of June 10, 2008, by and among the Company and each other stockholder of the Company party thereto, as amended from time to time.

12. Miscellaneous Provisions .

12.1 Entire Agreement . This Warrant constitutes the entire agreement between the Company and the Warrantholder with respect to this Warrant.

12.2 Binding Effect; Benefits . This Warrant shall inure to the benefit of and shall be binding upon the Company and the Warrantholder and their respective permitted successors and assigns. Nothing in this Warrant, expressed or implied, is intended to or shall confer on any person other than the Company and the Warrantholder, or their respective permitted successors or assigns, any rights, remedies, obligations or liabilities under or by reason of this Warrant.

12.3 Section and Other Headings . The section and other headings contained in this Warrant are for reference purposes only and shall not be deemed to be a part of this Warrant or to affect the meaning or interpretation of this Warrant.

12.4 Notices . All notices, demands and other communications provided for or permitted hereunder shall be made in writing and shall be by registered or certified first-class mail, return receipt requested, telecopier, courier service, overnight mail or personal delivery:

If to the Company :

Aspen Aerogels, Inc.
30 Forbes Road, Building B
Northborough, MA 01532
Telephone: (508) 691-1111
Facsimile: (508) 691-1200
Attention: Chief Executive Officer

with a copy (which shall not constitute notice) to:

Edwards Angell Palmer & Dodge LLP
111 Huntington Avenue
Boston, MA 02199
Telephone: (617) 951-2207
Facsimile: (888) 325-9513
Attention: Christopher W. Nelson, Esq.

If to the Warrantholder :

[IMPORT WARRANTHOLDER ADDRESS INFORMATION]

All such notices and communications shall be deemed to have been duly given when delivered by hand, if personally delivered; when delivered by courier or overnight mail, if delivered by commercial courier service or overnight mail; five (5) Business Days after being deposited in the mail,

postage prepaid, if mailed; and when receipt is mechanically acknowledged, if telecopied. Any party may, by notice given in accordance with this Section 12.4 , designate another address or Person for receipt of notices hereunder.

12.5 Issuance Tax, Attorneys' Fees, Notices, Successors

(a) Issuance Tax . The issuance of certificates for shares of Common Stock upon exercise of this Warrant shall be made without charge to the holder hereof for any issuance tax in respect hereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than that of the holder of this Warrant.

(b) Attorneys' Fees . In the event of an action, suit or proceeding brought under or in connection herewith, the prevailing party therein shall be entitled to recover from, and the other party hereto agrees to pay, the prevailing party's costs and expenses in connection therewith, including reasonably attorneys' fees.

(c) Registration Agreement. The Warrantholder shall be entitled to all of the rights (excluding demand registration rights) set forth in that certain Third Amended and Restated Registration Rights Agreement (as the same may be amended from time to time) dated as of June 10, 2008 (the "Registration Rights Agreement") among the Company and the parties thereto on the terms and conditions set forth therein, as if such terms and conditions were set forth in this Warrant. A copy of said Registration Rights Agreement has been provided to the Warrantholder. Simultaneously with the execution of this Warrant, the Warrantholder shall execute, at the option of the Company, either a counterpart signature page to such Registration Rights Agreement, or an amendment to the Registration Rights Agreement, either of which document shall add the Warrantholder as a party thereto and give the Warrantholder all registration and other rights (excluding demand registration rights) as and to the extent provided therein to "Investors" thereunder. Company and the Purchaser hereby further agree that for the purposes of the Registration Rights Agreement, the Shares issuable upon exercise of this Warrant are "Registrable Securities," as that term is defined in the Registration Rights Agreement.

(d) Stockholders' Agreement. The Warrantholder shall be entitled to all of the rights (excluding rights of first refusal) set forth in the Stockholders' Agreement, as if such terms and conditions were set forth in this Warrant. A copy of said Stockholders' Agreement has been provided to the Warrantholder. Simultaneously with the execution of this Warrant, the Warrantholder shall execute, at the option of the Company, either a counterpart signature page to such Stockholders' Agreement, or an amendment to the Stockholders' Agreement, either of which document shall add the Warrantholder as a party thereto and give the Warrantholder all rights and be subject to the obligations (excluding rights of first refusal) as and to the extent provided therein to "Investors" thereunder. Company and the Purchaser hereby further agree that for the purposes of the Stockholders' Agreement, the Shares issuable upon exercise of this Warrant will be deemed to be Stock as that term is defined in the Stockholders' Agreement.

12.6 Severability . Any term or provision of this Warrant which is invalid or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity or unenforceability without rendering invalid or unenforceable the terms and provisions of this Warrant or affecting the validity or enforceability of any of the terms or provisions of this Warrant in any other jurisdiction.

12.7 Governing Law . All issues concerning this Warrant shall be governed by and construed in accordance with the law of the State of Delaware, without regard to the conflicts of law principles thereof.

12.8 Rights as Shareholders . No holder of this Warrant, as such, shall be entitled to vote or receive dividends or be deemed the holder of Common Stock or otherwise be entitled to any voting or other rights as a shareholder of the Company, until this Warrant shall have been exercised and the Shares purchasable upon the exercise shall have become deliverable, as provided herein.

13. Disposition of Warrant or Shares of Common Stock

With respect to any offer, sale or other transfer or disposition of this Warrant or any shares of Common Stock acquired pursuant to the exercise of this Warrant prior to registration of such shares, the holder hereof and each subsequent holder of this Warrant agrees to give written notice to the Company prior thereto, describing briefly the manner thereof, together with a written opinion of such holder's counsel (if reasonably requested by the Company and reasonably satisfactory to the Company) to the effect that (i) such offer, sale or other transfer or disposition may be effected without registration or qualification of this Warrant or such shares of Common Stock under the Act as then in effect, and (ii) indicating whether or not under the Act this Warrant or the certificates representing such shares of Common Stock to be sold or otherwise transferred or disposed of require any restrictive legend thereon in order to ensure compliance with the Act; provided, however , that a written opinion of holder's counsel shall not be required in connection with any sale pursuant to Rule 144. This Warrant or the certificates representing the shares of Common Stock thus transferred (except a transfer pursuant to Rule 144) shall bear a legend as to the applicable restrictions on transferability in order to insure compliance with the Act, unless in the aforesaid opinion of counsel for the holder, such legend is not required in order to insure compliance with the Act. Upon any valid transfer of this Warrant or portion thereof, Company agrees to reissue the Warrant (or Warrants in the case of a partial transfer) and/or the Shares receivable upon the exercise hereof, and if the legend is not required, such re-issuance shall be without said legend. Nothing herein shall restrict the transfer of this Warrant (or any portion hereof) or the certificates representing the shares of Common Stock acquired pursuant to the exercise of this Warrant by the initial holder hereof or any successor holder to (i) any affiliate of such holder, including without limitation any partnership affiliated with such holder, any partner of any such partnership or any successor corporation to the holder hereof as a result of a merger or consolidation with or a sale of all or substantially all of the stock or assets of the holder, (ii) any Person in a public offering pursuant to an effective registration statement under the Act, (iii) to any other Person to the extent that the transfer to such Person is exempt from the registration requirements of the Act and such Person agrees in writing to be bound by all of the restrictions on transfer contained herein, or (iv) any Person or Persons if the holder hereof shall also transfer or assign all or part of its interest in the Financing Arrangement, and such Person agrees in writing to be bound by all of the restrictions on transfer contained herein provided, however, that no such transfer may be made to any direct competitor of the Company, which shall mean a Person engaged in the research, manufacture or sale of aerogels, aerogel based products or insulation products. Any transfer described above must be made in compliance with all applicable federal and state securities laws. The Company may issue stop transfer instructions to its transfer agent in connection with the foregoing restrictions.

14. Warrantholder's Representations

The Warrantholder acknowledges that it has had access to all material information concerning the Company which it has requested. The Warrantholder also acknowledges that it has had the opportunity to, and has to its satisfaction, questioned the officers of the Company with respect to its

investment hereunder. The Warrantholder represents that it understands that the Warrant and the Common Stock are speculative investments, that it is aware of the Company's business affairs and financial condition and that it has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Warrant. The Warrantholder is purchasing the Warrant and any Common Stock issued upon exercise thereof for investment for its own account only and not with a view to, or for resale in connection with, any "distribution" thereof in violation of the Act or applicable state securities laws. The Warrantholder further represents that it understands that the Warrant and Common Stock have not been registered under the Act or applicable state securities laws by reason of specific exemptions therefrom, which exemptions depend upon, among other things, the bona fide nature of the Warrantholder's investment intent as expressed herein. The Warrantholder is an "accredited investor" as defined in Regulation D promulgated under the Act.

15. Company's Representations.

As a material inducement to the Warrantholder to purchase this Warrant, the Company hereby represents and warrants that:

(a) The Company shall have made all filings under applicable federal and state securities laws necessary to consummate the issuance of this Warrant pursuant to this Agreement in compliance with such laws, except for such filings as may be made properly after the Grant Date.

(b) The copies of any existing stock purchase agreements and investor's rights agreements and the Company's charter documents and bylaws which have been furnished to Warrantholder or the Warrantholder's counsel reflect all amendments made thereto at any time prior to the date hereof and are correct and complete.

(c) With respect to the issuance of this Warrant or the issuance of the Common Stock upon exercise of the Warrant, there are no statutory or contractual stockholders preemptive rights or rights of refusal, except for any such rights contained in any stock purchase agreement and/or investor's rights agreements which have been waived. The Company has not violated any applicable federal or state securities laws in connection with the offer, sale or issuance of any of its capital stock, and the offer, sale and issuance of this Warrant does not require registration under the Act or any applicable state securities laws. To the best of the Company's knowledge, there are no agreements between the Company's stockholders with respect to the voting or transfer of the Company's capital stock or with respect to any other aspect of the Company's affairs.

(d) The execution, delivery and performance of this Warrant have been duly authorized by the Company. This Warrant constitutes a valid and binding obligation of the Company, enforceable in accordance with its terms. The execution and delivery by the Company of this Warrant, the issuance of the Common Stock upon exercise of the Warrant, and the fulfillment of and compliance with the respective terms hereof and thereof by the Company, do not and shall not (i) conflict with or result in a breach of the terms, conditions or provisions of, (ii) constitute a default under, (iii) result in the creation of any lien, security interest, charge or encumbrance upon the Company's capital stock or assets pursuant to, (iv) give any third party the right to modify, terminate or accelerate any obligation under, (v) result in a violation of, or (vi) require any authorization, consent, approval, exemption or other action by or notice or declaration to, or filing with, any court or administrative or governmental body or agency pursuant to, the charter or bylaws of the Company or any subsidiary, or any law, statute, rule or regulation to which the Company or any subsidiary is subject, or any agreement, instrument, order, judgment or decree to which the Company or any

subsidiary is subject, except for any such filings required under applicable “blue sky” or state securities laws or required under Regulation D promulgated under the Act.

16. Company Financial Information.

Until such time as the Company shall have satisfied all of its obligations under the Financing Arrangement, Company shall deliver to Warrantholder such financial information as is required under the terms of the Financing Arrangement. From and after the date that the Company shall have satisfied all of its obligations under the Financing Arrangement, and notwithstanding any other agreement to the contrary between the parties hereto, the Company shall deliver to the Warrantholder (so long as the Warrantholder holds all or any portion of the Warrant or any Preferred Stock or any shares of Common Stock issuable upon conversion of the Preferred Stock) all of the financial and other information delivered or required to be delivered by the Company to any of its stockholders, in their capacities as stockholders. All such financial and other information shall be delivered pursuant to this Section on a timely basis, but no later than 30 days after each fiscal quarter end for quarterly statements and no later than 120 days after each fiscal year end for annual statements.

* * * * *

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued By:	Accepted By:
ASPEN AEROGELS, INC.	**[IMPORT WARRANTHOLDER]**
By:	
Donald R. Young Chief Executive Officer	Name: Title:

Dated: **[IMPORT ISSUE DATE]**

Exhibit A : Exercise Form

(To be executed upon exercise of this Warrant)

To: Aspen Aerogels, Inc. ("Company")
30 Forbes Road, Northborough, MA 01532
Attention: Chief Financial Officer

[1. The undersigned hereby elects to purchase _____ shares of Common Stock of Company pursuant to the terms of the attached Warrants, and tenders herewith payment of the purchase price of such shares in full.]

[1. The undersigned hereby elects to purchase _____ shares of Common Stock of Company pursuant to a non-cash exercise of the Warrant as provided in Section 2 of the Warrant.]

2. Check here if applicable: ___ The undersigned confirms that this exercise is made in connection with the occurrence of a public offering, sale or merger of the Company, and the undersigned further elects to condition this exercise of the Warrant upon the consummation of said public offering, sale or merger of the Company. This exercise shall not be deemed to be effective until the consummation of such transaction. In the event that transaction is not consummated within 45 days of the targeted date of the transaction, the undersigned will advise Company whether or not this exercise should be deemed rescinded.

2. Please issue a certificate or certificates representing said shares in the name of the undersigned or in such other name or names as are specified below:

[IMPORT WARRANTHOLDER ADDRESS INFORMATION]

3. The undersigned represents that the aforesaid shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing such shares.

[IMPORT WARRANTHOLDER]

By: _____
(Signature)
Its: _____
Date: _____

Exhibit 4.3

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON THE EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY APPLICABLE STATE SECURITIES LAWS. NEITHER THIS WARRANT, SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE TRANSFERRED EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN APPLICABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE ACT AND APPLICABLE STATE SECURITIES LAWS.

THE SALE, ASSIGNMENT, HYPOTHECATION, PLEDGE, ENCUMBRANCE OR OTHER DISPOSITION AND VOTING OF ANY OF THE SHARES OF COMMON STOCK OF THE COMPANY ACQUIRED PURSUANT TO THE EXERCISE OF THIS WARRANT ARE RESTRICTED BY THE TERMS OF THE THIRD AMENDED AND RESTATED STOCKHOLDERS' AGREEMENT, DATED AS OF JUNE 10, 2008, AMONG THE COMPANY AND CERTAIN OF ITS STOCKHOLDERS. THE COMPANY WILL NOT REGISTER THE TRANSFER OF SUCH SHARES OF COMMON STOCK ON THE BOOKS OF THE COMPANY UNLESS AND UNTIL THE TRANSFER HAS BEEN MADE IN COMPLIANCE WITH THE TERMS OF THE STOCKHOLDERS AGREEMENT, A COPY OF WHICH WILL BE PROVIDED AT NO COST TO THE HOLDER HEREOF UPON WRITTEN REQUEST TO THE COMPANY.

ASPEN AEROGELS, INC.

COMMON STOCK PURCHASE WARRANT

This document (this " **Warrant** ") certifies that, for good and valuable consideration, Aspen Aerogels, Inc., a Delaware corporation (the " **Company** "), grants to **[IMPORT WARRANTHOLDER]** , or any successor or permitted assign of such Person (the " **Warrantholder** "), the right to subscribe for and purchase from the Company, on or before the Expiration Time (as defined below), up to **[IMPORT SHARE NUMBERS]** validly issued, fully paid and nonassessable shares of Common Stock of the Company (as may be adjusted, the " **Warrant Shares** ") at the exercise price per share of $0.001 (the " **Exercise Price** "), all subject to the terms, provisions, conditions and adjustments (including adjustments to number of shares and Exercise Price) herein set forth. The Company acknowledges that the cash consideration paid by Warrantholder for this Warrant is $10.00 for income tax purposes, that such amount has been duly received by the Company, and that this Warrant is one of the Warrants issued in connection with that Note Purchase Agreement dated February 24, 2005 entered into by and between Company as the obligor and certain purchasers named therein (the " **Financing Arrangement** ") and that this Warrant amends and restates all warrants previously issued to the Warrantholder in connection with the Financing Agreement. Capitalized terms used herein which are not specifically defined in other sections of this Warrant, shall have the meanings set forth in Section 10 .

1. Warrant Term . The purchase rights represented by this Warrant are exercisable, in whole or in part, at any time and from time to time, from and after the Warrant grant date and on or prior to the earlier of (i) **[IMPORT EXPIRATION TIME]** or (ii) the fourth (4 th) anniversary following the consummation of a QPO (such earlier date being the " **Expiration Time** ").

2. Exercise of Warrant; Payment of Taxes .

2.1 Exercise of Warrant . The purchase rights represented by this Warrant may be exercised by the Warrantholder, in whole or in part and from time to time, by the surrender of this Warrant (with a duly executed notice of exercise form, the "Exercise Form", in the form attached hereto as Exhibit A) at the principal office of the Company and by the payment to the Company of an amount equal to the then applicable Exercise Price per share multiplied by the number of Warrant Shares then being purchased. If the Warrantholder is not already a party thereto, the Warrantholder shall also execute, upon request from the Company, a joinder agreement as an Investor to the Stockholders' Agreement, as amended and restated, such joinder agreement to be in form and substance mutually agreeable to both the Warrantholder and the Company. The Warrantholder shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised.

2.2 Net Exercise .

(a) In lieu of payment in cash, the rights represented by this Warrant may also be exercised at any time by a written notice of exercise in the form of Exhibit A attached hereto, providing for the net exercise of this Warrant for the Warrant Shares equal to the value (as determined below) of this Warrant (or the portion thereof being exercised), specifying that this net exercise election has been made, and the net number of Warrant Shares to be issued after giving effect to such net exercise. In the event the Warrantholder makes such election, Company shall issue to the Warrantholder a number of Warrant Shares computed using the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where:

X = the number of Warrant Shares to be issued to the Warrantholder

Y = the number of Warrant Shares purchasable under the Warrant or, if only a portion of the Warrant is being exercised, the portion of the Warrant being exercised (as of the date of such net exercise)

A = the Fair Market Value of one Share of Common Stock (as of the date of such net exercise)

B = Exercise Price of one Share of Common Stock (as adjusted to the date of such net exercise)

(b) For purposes of this Section 2.2 , the " **Fair Market Value** " of one share of the Company's Common Stock shall be equal to either (i) if the exercise of this Warrant occurs in connection with an initial public offering of the Company, then the Fair Market Value shall be equal to the "initial price to public" specified in the final prospectus with respect to the initial public offering, or (ii) if the exercise of this Warrant occurs after an initial public offering of the Company but not in connection therewith, then the Fair Market Value shall be equal to the average of the closing price(s) of the Company's Common Stock as quoted over the counter or on any exchange on which the Common Stock is listed as such closing prices are published in The Wall Street Journal for the fifteen (15) trading days (or such lesser number of trading days as the stock may have been actually trading) ending on the day prior to the date of determination of Fair Market Value. Notwithstanding the foregoing, if the Warrant is exercised in connection with a merger or sale of all or substantially all of the Company's assets, Fair Market Value shall mean the value that would have been allocable to or received in respect of a Warrant Share had the Warrant been exercised prior to such merger or sale. If the Common Stock is not traded Over The Counter or on an exchange, or if the Warrant is not exercised in connection with a merger or sale of all or substantially all of its assets, then the Fair Market Value shall be reasonably determined in good faith by the Board of Directors. If the Warrantholder hereof does not agree with the determination of Fair Market Value as determined by the Board of Directors, the Company and the Warrantholder hereof shall negotiate an appropriate Fair Market Value. If after ten (10) days, the Company and the Warrantholder cannot agree, then the Warrantholder may request that the Fair Market Value be determined by an investment banker of national reputation selected by the Company and reasonably acceptable to the Warrantholder. The fees and expenses of such investment banker shall be borne by the Company unless the Fair Market Value determined by such investment banker is equal to or less than the Fair Market Value as determined by the Company, in which event the fees and expenses of such investment banker shall be borne by the Warrantholder hereof.

2.3 Automatic Exercise. Immediately before the expiration or termination of this Warrant, to the extent this Warrant is not previously exercised, and if the Fair Market Value of one share of the Company's Common Stock subject to this Warrant is greater than the Exercise Price, then in effect as adjusted pursuant to this Warrant, this Warrant shall be deemed automatically exercised pursuant to Section 2.2 above, even if not surrendered. For purposes of such automatic exercise, the Fair Market Value of the Company's Common Stock upon such expiration shall be determined pursuant to Section 2.2 (b) above. To the extent this Warrant or any portion thereof is deemed automatically exercised pursuant to this Section, the Company agrees to promptly notify the Warrantholder of the number of Warrant Shares, if any, the Warrantholder hereof is to receive by reason of such automatic exercise.

2.4 Exercise in Connection with an Initial Public Offering, Sale or Merger . Notwithstanding any other provision hereof, if the exercise of all or any portion of this Warrant is made or to be made in connection with the occurrence of a public offering, sale or merger of the Company, the exercise of all or any portion of this Warrant shall, at the election of the Warrantholder, be conditioned upon the consummation of the public offering, sale or merger of the Company in which case such exercise shall not be deemed to be effective until the consummation of such transaction. In the event that transaction is not consummated within forty-five (45) days of the targeted date of the transaction, any such exercise shall, at the election of the Warrantholder, be deemed rescinded.

2.5 Warrant Shares Certificate . A stock certificate for the Warrant Shares specified in the Exercise Form shall be delivered to the Warrantholder within five (5) Business Days after receipt of the Exercise Form by the Company and payment by the Warrantholder of the aggregate Exercise Price (or net exercise in lieu of payment as permitted in Section 2.2), along with a check from the Company in lieu of any fractional shares which the Warrantholder would be entitled to purchase under this Warrant. If this Warrant was exercised in part, the Company shall, at the time of delivery of the stock certificate, deliver to the Warrantholder a new Warrant evidencing the right to purchase the remaining Warrant Shares, which new Warrant shall in all other respects be identical with this Warrant.

2.6 Payment of Taxes . The Company shall pay all expenses, taxes and other governmental charges with respect to the issue or delivery of the Warrant Shares, unless such tax or charge is imposed by law upon the Warrantholder.

3. Restrictions on Transfer; Restrictive Legends .

3.1 Restrictions on Transfer . This Warrant and the Warrant Shares issuable upon exercise of all or part of this Warrant are unregistered securities that are subject to the restrictions on transfer imposed by the Securities Act and applicable state securities laws and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Securities Act and applicable state securities laws. The Warrant Shares issuable upon exercise of all or part of this Warrant are also subject to additional restrictions on transfer set forth in the Stockholders' Agreement and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Stockholders' Agreement.

3.2 Restrictive Legends . Until such time as the restrictions on transfer imposed on this Warrant by the Securities Act and applicable state securities laws shall no longer be effective, this Warrant, any Warrant issued to the Warrantholder upon the partial exercise of this Warrant pursuant to Section 2 shall be stamped or otherwise imprinted with a legend in substantially the form as set forth on the cover of this Warrant. Until such time as the restrictions on transfer imposed on the Warrant Shares by the Securities Act, applicable state securities laws and the Stockholders' Agreement shall no longer be effective, each stock certificate for Warrant Shares and each stock certificate issued upon the direct or indirect transfer of any such Warrant Shares shall be stamped or otherwise imprinted with a legend in substantially the form provided in the Stockholders' Agreement. Upon the termination of such restrictions on transfer, the Warrantholder may require the Company to issue a Warrant or a stock certificate for Warrant Shares, in each case without a legend, if and to the extent permitted by, and in accordance with, the Stockholders' Agreement and applicable law.

4. Reservation and Registration of Warrant Shares . The Company covenants and agrees as follows:

4.1 Validly Issued and Free of Encumbrances . All Warrant Shares issued upon the exercise of all or any part of this Warrant shall, upon issuance and payment of the Exercise Price therefore (or upon net exercise as permitted herein), be validly issued, fully paid

and nonassessable, issued in compliance with all applicable federal and state securities laws, and free from all taxes, liens and charges with respect to the issue thereof, and not subject to any preemptive rights.

4.2 Sufficient Authorized Shares . During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved, for the purpose of issuance of Common Stock upon any exercise of the purchase rights evidenced by this Warrant, and shall keep available free from preemptive rights, a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

4.3 Noncontravention . The Company shall not, by amendment of its Charter or through any reorganization, transfer of assets, spin-off, consolidation, merger, dissolution, issue or sale of securities or any other action or inaction, avoid or seek to avoid the observance or performance of any of the terms of this Warrant to be observed or performed hereunder, and shall at all times in good faith assist in performing, carrying out, and giving effect to the terms hereof and in the taking of all such actions as may be necessary or appropriate in order to protect the rights of the Warrantholder against dilution or other impairment.

5. Anti-Dilution Adjustments . From and after the date hereof and until the Expiration Date, notwithstanding the fact that no Warrant Shares shall be issued and outstanding, the Exercise Price, and the number and type of Warrant Shares or other securities to be received upon exercise of this Warrant, shall be subject to adjustment as follows:

5.1 Issuances of Common Stock Below Exercise Price .

(a) If the Company shall, at any time or from time to time after the Original Issuance Date, issue any shares of Common Stock (or be deemed to have issued shares of Common Stock as provided herein), other than Excluded Stock, without consideration or for a consideration per share less than the Exercise Price in effect immediately prior to the issuance of such Common Stock, then the Exercise Price, as in effect immediately prior to each such issuance, shall forthwith be lowered to:

(1) on or after the Operational Date, a price equal to the quotient obtained by dividing:

(A) an amount equal to the sum of (X) the total number of shares of Common Stock Deemed Outstanding immediately prior to such issuance, *multiplied by* the Exercise Price in effect immediately prior to such issuance, and (Y) the consideration received by the Company upon such issuance; by

(B) the total number of shares of Common Stock Deemed Outstanding immediately after the issuance of such Common Stock; or

(2) until the Operational Date, the lowest price per share at which any such shares of Common Stock have been issued or sold or deemed to have been issued or sold.

(b) for the purposes of any adjustment of the Exercise Price pursuant to paragraph (a) above, the following provisions shall be applicable:

(1) In the case of the issuance of Common Stock for cash in a public offering or private placement, the consideration shall be deemed to be the amount of cash paid therefor after deducting therefrom any discounts, commissions or placement fees payable by the Company to any underwriter or placement agent in connection with the issuance and sale thereof.

(2) In the case of the issuance of Common Stock for a consideration in whole or in part other than cash, the consideration other than cash shall be deemed to be the fair value per share thereof, as reasonably determined in good faith by the Board, irrespective of any accounting treatment.

(3) In the case of the issuance of options to purchase or rights to subscribe for Common Stock, securities by their terms convertible into or exchangeable for Common Stock, or options to purchase or rights to subscribe for such convertible or exchangeable securities (except for options or rights to acquire or subscribe for Excluded Stock):

(A) the aggregate maximum number of shares of Common Stock deliverable upon exercise of such options to purchase or rights to subscribe for Common Stock shall be deemed to have been issued at the time such options or rights were issued and for a consideration equal to the consideration (determined in the manner provided in Sections 5.1(b)(1) and 5.1(b)(2) above), if any, received by the Company upon the issuance of such options or rights plus the minimum purchase price provided in such options or rights for the Common Stock covered thereby;

(B) the aggregate maximum number of shares of Common Stock deliverable upon conversion of or in exchange for any such convertible or exchangeable securities or upon the exercise of options to purchase or rights to subscribe for such convertible or exchangeable securities and subsequent conversion or exchange thereof shall be deemed to have been issued at the time such securities, options or rights were issued and for a consideration equal to the consideration received by the Company for any such securities and related options or rights (excluding any cash received on account of accrued interest or accrued dividends), plus the additional consideration, if any, to be received by the Company upon the conversion or exchange of such securities or the exercise of any related options or rights (the consideration in each case to be determined in the manner provided in Sections 5.1(b)(1) and 5.1(b)(2) above);

(C) on any change in the number of shares or exercise price of Common Stock deliverable upon exercise of any such options or rights or conversions of or exchanges for such securities, other than a change resulting from the antidilution provisions thereof, the Exercise Price shall forthwith be readjusted to the Exercise Price as would have been obtained had the adjustment made upon the issuance of such options, rights or securities not converted prior to such change or options or rights related to such securities not converted prior to such change been made upon the basis of such change; and

(D) on the expiration of any such options or rights, the termination of any such rights to convert or exchange or the expiration of any options or rights related to such convertible or exchangeable securities, the Exercise Price shall forthwith be readjusted to the Exercise Price as would have been obtained had the adjustment made upon the issuance of such options, rights, securities or options or rights related to such securities been made upon the basis of the issuance of only the number of shares of Common Stock actually issued upon the exercise of such options or rights, upon the conversion or exchange of such securities, or upon the exercise of the options or rights related to such securities and subsequent conversion or exchange thereof.

(c) Whenever the Exercise Price is adjusted under this Section 5.1 , the number of Warrant Shares issuable on exercise hereof shall be multiplied by a fraction the numerator of which is the Exercise Price immediately before such adjustment and the denominator is the Exercise Price as so adjusted.

5.2 Stock Dividends and Combinations .

(a) If, at any time after the Original Issuance Date, the number of shares of Common Stock outstanding is increased by a stock dividend payable in shares of Common Stock or by a subdivision or split-up of shares of Common Stock, then, following the record date for the determination of holders of Common Stock entitled to receive such stock dividend, subdivision or split-up, the Exercise Price shall be decreased and the number of shares of Common Stock issuable on exercise of this Warrant shall be increased in proportion to such increase in outstanding shares.

(b) If, at any time after the Original Issuance Date, the number of shares of Common Stock outstanding is decreased by a combination of the outstanding shares of Common Stock, then, following the record date for such combination, the Exercise Price shall be increased and the number of shares of Common Stock issuable on exercise of this Warrant shall be decreased in proportion to such decrease in outstanding shares.

5.3 Recapitalization, Etc . In the event of any capital reorganization of the Company, any reclassification of the stock of the Company (other than a change in par value or from par value to no par value or from no par value to par value or as a result of a stock dividend or subdivision, split-up or combination of shares), or any consolidation or merger of the Company, this Warrant shall after such reorganization, reclassification, consolidation or merger be exercisable for the kind and number of shares of stock or other securities or property of the Company or of the company resulting from such consolidation or surviving such merger to which the holder of the number of shares of Common Stock deliverable (immediately prior to the time of such reorganization, reclassification, consolidation or merger) upon exercise of this Warrant would have been entitled upon such reorganization, reclassification, consolidation or merger. The provisions of this clause shall similarly apply to successive reorganizations, reclassifications, consolidations and mergers.

5.4 De Minimis Adjustments . No adjustment in the Exercise Price shall be required unless such adjustment would require an increase or decrease of at least 0.1% in the Exercise Price; *provided , however* that any adjustments not required to be made by virtue of this sentence shall be carried forward and taken into account in any subsequent adjustment. All

calculations under this Section 5 shall be made to the nearest one hundredth (1/100) of a cent or the nearest one tenth (1/10) of a share, as the case may be.

5.5 Statement of Adjustments . Whenever the Exercise Price shall be adjusted as provided in this Section 5 , the Company shall make available for inspection during regular business hours, at its principal executive offices or at such other place as may be designated by the Company, a statement, signed by its chief executive officer, showing in detail the facts requiring such adjustment and the Exercise Price that shall be in effect after such adjustment. The Company shall also cause a copy of such statement to be sent by first class certified mail, return receipt requested and postage prepaid, to the Warrantholder at such Warrantholder's address appearing on the Company's records. Where appropriate, such copy may be given in advance and may be included as part of any notice required to be mailed under the provisions of Section 5.6 below.

5.6 Notices . If the Company shall propose to take any action of the types described in Sections 5.2 , 5.3 , or 5.7 the Company shall give notice to each Warrantholder, which notice shall specify the record date, if any, with respect to any such action and the date on which such action is to take place. Such notice shall also set forth such facts with respect thereto as shall be reasonably necessary to indicate the effect of such action (to the extent such effect may be known at the date of such notice) on the Exercise Price and the number, kind or class of shares or other securities or property which shall be deliverable or purchasable upon the occurrence of such action or deliverable upon exercise of this Warrant. In the case of any action which would require the fixing of a record date, such notice shall be given at least twenty (20) days prior to the date so fixed, and in case of all other action, such notice shall be given at least thirty (30) days prior to the taking of such proposed action. Failure to give such notice, or any defect therein, shall not affect the legality or validity of any such action.

5.7 Dividends . Without duplication of any other adjustment provided for in this Section 5 , at any time the Company makes or fixes a record date for the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in property or securities of the Company other than shares of Common Stock, then, and in each such case,

(a) the Exercise Price then in effect shall be adjusted (and any other appropriate action shall be taken by the Company) by multiplying the Exercise Price in effect immediately prior to the date of such dividend or distribution by a fraction, (i) the numerator of which shall be the Fair Market Value (in all such cases under Section 5.7 , as shall be determined pursuant to Section 2.2) of Common Stock immediately prior to the date of such dividend or distribution, less the Fair Market Value of the portion of the property or securities applicable to one share of Common Stock so dividended or distributed, and (ii) the denominator of which shall be the Fair Market Value of the Common Stock immediately prior to the date of such dividend or distribution (such fraction not to be greater than one); and

(b) the number of Warrant Shares for which this Warrant is exercisable immediately prior to such dividend or distribution shall be adjusted (and any other appropriate actions shall be taken by the Company) by multiplying the then-current number of Warrant Shares in effect immediately prior to the date of such dividend or distribution by a fraction, (i) the numerator of which shall be the Exercise Price in effect immediately prior to the date of such

dividend or distribution, and (ii) the denominator of which shall be the adjusted Exercise Price as determined pursuant to Section 5.7(a) above (such fraction not to be less than one).

Such adjustments shall be made whenever the Company makes or fixes a record date for the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in property or securities of the Company (other than shares of Common Stock) and shall become effective retroactively to a date immediately following the close of business on the record date for the determination of stockholders entitled to receive such dividend or distribution.

5.8 Waiver . In the event that holders of at least sixty-six and two thirds percent (66⅔%) of the Warrants, as the case may be, consent in writing to limit, or waive in its entirety, any antidilution adjustment to which the Warrantholders would otherwise be entitled hereunder, the Company shall not be required to make any adjustment whatsoever in excess of such limit or at all, as the terms of such consent may dictate.

5.9 Computations . The computations of all amounts under this Section 5 shall be made assuming all other antidilution or similar adjustments to be made to the terms of all other securities resulting from the transaction causing an adjustment pursuant to this Section 5 have previously been made so as to maintain the relative economic interest of the Warrants vis à vis all other securities issued by the Company..

5.10 Par Value . The Company shall take or cause to be taken such steps as shall be necessary to ensure that the par value per share of Common Stock is at all times less than or equal to the Exercise Price.

6. Transfer and Exchange . If this Warrant is presented to the Company with a request to register a transfer or to exchange it for an equal number of Warrants of other denominations the Company will do so.

7. Loss or Destruction of Warrant . Subject to the terms and conditions hereof, upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, of such bond or indemnification as the Company may reasonably require, and, in the case of such mutilation, upon surrender and cancellation of this Warrant, the Company will execute and deliver to the Warrantholder a new Warrant of like tenor.

8. Ownership of Warrant . The Company may deem and treat the Person in whose name this Warrant is registered as the Warrantholder and owner hereof (notwithstanding any notations of ownership or writing hereon made by anyone other than the Company) for all purposes and shall not be affected by any notice to the contrary, until presentation of this Warrant for registration of transfer.

9. Amendments . Any provision of this Warrant may be amended and the observance thereof waived only with the written consent of the Company and the Warrantholder.

10. Definitions . As used herein, unless the context otherwise requires, the following terms have the following respective meanings:

“ **Affiliate** ” means, (1) with respect to any Person, any of (a) a director, officer or stockholder holding 5% or more of the capital stock (on a fully diluted basis) of such Person, (b) a spouse, parent, sibling or descendant of such Person (or a spouse, parent, sibling or descendant of any director or officer of such Person) and (c) any other Person that, directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, another Person or (2) in any event, any Person meeting the definition of “Affiliate” set forth in Rule 405 under the Securities Act. The term “control” includes, without limitation, the possession, directly or indirectly, of the power to direct the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

“ **Board of Directors** ” or “ **Board** ” means the Board of Directors of the Company.

“ **Business Day** ” means any day other than a Saturday, Sunday or a day on which national banks are authorized by law to close in the Commonwealth of Massachusetts.

“ **Charter** ” means the Amended and Restated Certificate of Incorporation of the Company, as amended from time to time.

“ **Common Stock** ” means the Company’s presently authorized Common Stock, and any stock into or for which such Common Stock may hereafter be converted or exchanged pursuant to the Charter of the Company as amended from time to time as provided by law and in such Charter.

“ **Common Stock Deemed Outstanding** ” means, at any given time, the sum of (i) the number of shares of Common Stock actually outstanding at such time, (ii) the number of shares of Common Stock issuable upon conversion of the Preferred Stock, and (iii) the number of shares of Common Stock issuable upon the exercise in full of all Convertible Securities whether or not the Convertible Securities are convertible into Common Stock at such time, but shall exclude any shares of Common Stock or Convertible Securities in the treasury of the Company or held for the account of the Company or any of its subsidiaries.

“ **Convertible Securities** ” means securities or obligations that are exercisable for, convertible into or exchangeable for shares of Common Stock. The term includes options, warrants or other rights to subscribe for or purchase Common Stock or to subscribe for or purchase other securities that are convertible into, directly or indirectly, or exchangeable for Common Stock.

“ **Excluded Stock** ” has the meaning set forth in the Stockholders Agreement.

“ **Operational Date** ” means the first date on which the Company’s operations for the production of the aerogel product meets each of the following criteria: (i) Quality — aerogel products meet the pre-established product specifications and are moved to inventory for sale; (ii) Quantity — one million square feet of aerogel product produced per calendar month for two consecutive months (based upon a 20 extractor plant and adjusted accordingly for any increase in plant capacity); and (iii) Variable costs — less than $.84 per square foot cast.

“ **Original Issuance Date** ” means the date and time that the first Warrant is issued by the Company.

" **Person** " means any individual, firm, corporation, partnership, limited liability company, trust, incorporated or unincorporated association, joint venture, joint stock company, governmental authority or other entity of any kind, and shall include any successor (by merger or otherwise) of such entity.

" **Preferred Stock** " has the meaning set forth in the Charter.

" **Purchase Agreement** " means the Stock Purchase Agreement under which the Series D Convertible Preferred Stock were issued.

" **QPO** " means an underwritten public offering (underwritten by a reputable underwriter of national reputation) of shares of Common Stock registered pursuant to the Securities Act involving aggregate proceeds to the Company of at least $50,000,000 with an offering price per share of at least $6.36.

" **Registration Rights Agreement** " means the Third Amended and Restated Registration Rights Agreement, dated as of June 10, 2008, as amended, among the Company and certain parties thereto, as the same may be amended, modified or supplemented from time to time.

" **Securities Act** " means the Securities Act of 1933, as amended, and the rules and regulations of the United States Securities and Exchange Commission thereunder.

" **Stockholders' Agreement** " means the Third Amended and Restated Stockholders' Agreement, dated as of June 10, 2008, by and among the Company and each other stockholder of the Company party thereto, as amended from time to time.

11. Miscellaneous Provisions .

11.1 Entire Agreement . This Warrant, the Financing Arrangement, the Stockholders' Agreement, the Registration Rights Agreement and the Purchase Agreement constitute the entire agreement between the Company and the Warrantholder with respect to this Warrant.

11.2 Binding Effect; Benefits . This Warrant shall inure to the benefit of and shall be binding upon the Company and the Warrantholder and their respective permitted successors and assigns. Nothing in this Warrant, expressed or implied, is intended to or shall confer on any person other than the Company and the Warrantholder, or their respective permitted successors or assigns, any rights, remedies, obligations or liabilities under or by reason of this Warrant.

11.3 Section and Other Headings . The section and other headings contained in this Warrant are for reference purposes only and shall not be deemed to be a part of this Warrant or to affect the meaning or interpretation of this Warrant.

11.4 Notices . All notices, demands and other communications provided for or permitted hereunder shall be made in writing and shall be by registered or certified first-class mail, return receipt requested, telecopier, courier service, overnight mail or personal delivery:

If to the Company :

Aspen Aerogels, Inc.
30 Forbes Road, Building B
Northborough, MA 01532
Telephone: (508) 691-1111
Facsimile: (508) 691-1200
Attention: Chief Executive Officer

with a copy (which shall not constitute notice) to:

Edwards Angell Palmer & Dodge LLP
111 Huntington Avenue
Boston, MA 02199
Telephone: (617) 951-2207
Facsimile: (888) 325-9513
Attention: Christopher W. Nelson, Esq.

If to the Warrantholder :

to the addressees reflected on the Warrant
register maintained by the Company

All such notices and communications shall be deemed to have been duly given when delivered by hand, if personally delivered; when delivered by courier or overnight mail, if delivered by commercial courier service or overnight mail; five (5) Business Days after being deposited in the mail, postage prepaid, if mailed; and when receipt is mechanically acknowledged, if telecopied. Any party may, by notice given in accordance with this Section 11.4 , designate another address or Person for receipt of notices hereunder.

11.5 Issuance Tax, Attorneys' Fees, Notices, Successors

(a) Issuance Tax . The issuance of certificates for shares of Common Stock upon exercise of this Warrant shall be made without charge to the Warrantholder hereof for any issuance tax in respect hereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than that of the Warrantholder.

(b) Attorneys' Fees . In the event of an action, suit or proceeding brought under or in connection herewith, the prevailing party therein shall be entitled to recover from, and the other party hereto agrees to pay, the prevailing party's costs and expenses in connection therewith, including reasonably attorneys' fees.

(c) Registration Agreement . The Warrantholder shall be entitled to all of the rights set forth in the Registration Rights Agreement, as if such terms and conditions were set forth in this Warrant. A copy of said Registration Rights Agreement has been provided to the Warrantholder. Simultaneously with the execution of this Warrant, the Warrantholder shall execute, at the option of the Company, either a counterpart signature page to such Registration Rights Agreement, or an amendment to the Registration Rights Agreement, either of which document shall add the Warrantholder as a party thereto and give the Warrantholder all registration and other rights (excluding demand registration rights) as and to the extent provided therein to "Investors" thereunder. The Company and the Warrantholder hereby further agree that for the purposes of the Registration Rights Agreement, the Warrant Shares are "Registrable Securities," as that term is defined in the Registration Rights Agreement.

(d) Stockholders' Agreement. The Warrantholder shall be entitled to all of the rights set forth in the Stockholders' Agreement, as if such terms and conditions were set forth in this Warrant. A copy of said Stockholders' Agreement has been provided to the Warrantholder. Simultaneously with the execution of this Warrant, the Warrantholder shall execute, at the option of the Company, either a counterpart signature page to such Stockholders' Agreement, or an amendment to the Stockholders' Agreement, either of which document shall add the Warrantholder as a party thereto and give the Warrantholder all rights and be subject to the obligations as and to the extent provided therein to "Investors" thereunder. Company and the Purchaser hereby further agree that for the purposes of the Stockholders' Agreement, the Warrant Shares will be deemed to be Stock as that term is defined in the Stockholders' Agreement.

11.6 Severability . Any term or provision of this Warrant which is invalid or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity or unenforceability without rendering invalid or unenforceable the terms and provisions of this Warrant or affecting the validity or enforceability of any of the terms or provisions of this Warrant in any other jurisdiction.

11.7 Governing Law . All issues concerning this Warrant shall be governed by and construed in accordance with the law of the State of Delaware, without regard to the conflicts of law principles thereof.

11.8 Rights as Shareholders . No Warrantholder, as such, shall be entitled to vote or receive dividends or be deemed the holder of Common Stock or otherwise be entitled to any voting or other rights as a shareholder of the Company, until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise shall have become deliverable, as provided herein.

12. Disposition of Warrant or Shares of Common Stock . With respect to any offer, sale or other transfer or disposition of this Warrant or any Warrant Shares acquired pursuant to the exercise of this Warrant prior to registration of such shares, the Warrantholder hereof and each subsequent holder of this Warrant agrees to give written notice to the Company prior thereto, describing briefly the manner thereof, together with a written opinion of such holder's counsel (if reasonably requested by the Company and reasonably satisfactory to the Company) to the effect that (i) such offer, sale or other transfer or disposition may be effected without registration or qualification of this Warrant or such shares of Common Stock under the Securities Act as then in effect, and (ii) indicating whether or not under the Securities Act this

Warrant or the certificates representing such shares of Common Stock to be sold or otherwise transferred or disposed of require any restrictive legend thereon in order to ensure compliance with the Securities Act; provided, however , that a written opinion of holder's counsel shall not be required in connection with any sale pursuant to Rule 144. This Warrant or the certificates representing the shares of Common Stock thus transferred (except a transfer pursuant to Rule 144) shall bear a legend as to the applicable restrictions on transferability in order to insure compliance with the Securities Act, unless in the aforesaid opinion of counsel for the holder, such legend is not required in order to insure compliance with the Securities Act. Upon any valid transfer of this Warrant or portion thereof, Company agrees to reissue the Warrant (or Warrants in the case of a partial transfer) and/or the Warrant Shares receivable upon the exercise hereof, and if the legend is not required, such re-issuance shall be without said legend. Nothing herein shall restrict the transfer of this Warrant (or any portion hereof) or the certificates representing the Warrant Shares acquired pursuant to the exercise of this Warrant by the initial Warrantholder hereof or any successor holder to (i) any affiliate of such holder, including without limitation any partnership affiliated with such holder, any partner of any such partnership or any successor corporation to the holder hereof as a result of a merger or consolidation with or a sale of all or substantially all of the stock or assets of the holder, (ii) any Person in a public offering pursuant to an effective registration statement under the Securities Act, (iii) to any other Person to the extent that the transfer to such Person is exempt from the registration requirements of the Securities Act and such Person agrees in writing to be bound by all of the restrictions on transfer contained herein, or (iv) any Person or Persons if the holder hereof shall also transfer or assign all or part of its interest in the Financing Arrangement, and such Person agrees in writing to be bound by all of the restrictions on transfer contained herein provided , however , that no such transfer may be made to any direct competitor of the Company, which shall mean a Person engaged in the research, manufacture or sale of aerogels, aerogel based products or insulation products. Any transfer described above must be made in compliance with all applicable federal and state securities laws. The Company may issue stop transfer instructions to its transfer agent in connection with the foregoing restrictions.

13. Warrantholder's Representations . The Warrantholder acknowledges that it has had access to all material information concerning the Company which it has requested. The Warrantholder also acknowledges that it has had the opportunity to, and has to its satisfaction, questioned the officers of the Company with respect to its investment hereunder. The Warrantholder represents that it understands that the Warrant and the Common Stock are speculative investments, that it is aware of the Company's business affairs and financial condition and that it has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Warrant. The Warrantholder is purchasing the Warrant and any Common Stock issued upon exercise thereof for investment for its own account only and not with a view to, or for resale in connection with, any "distribution" thereof in violation of the Securities Act or applicable state securities laws. The Warrantholder further represents that it understands that the Warrant and Common Stock have not been registered under the Securities Act or applicable state securities laws by reason of specific exemptions therefrom, which exemptions depend upon, among other things, the bona fide nature of the Warrantholder's investment intent as expressed herein. The Warrantholder is an "accredited investor" as defined in Regulation D promulgated under the Securities Act.

14. Company's Representations . As a material inducement to the Warrantholder to purchase this Warrant, the Company hereby represents and warrants that:

(a) The Company has made all filings under applicable federal and state securities laws necessary to consummate the issuance of this Warrant pursuant to this Agreement in compliance with such laws, except for such filings as may be made properly after the date hereof.

(b) The copies of any existing stock purchase agreements and investor's rights agreements and the Company's charter documents and bylaws which have been furnished to Warrantholder or the Warrantholder's counsel reflect all amendments made thereto at any time prior to the date hereof and are correct and complete.

(c) With respect to the issuance of this Warrant or the issuance of the Common Stock upon exercise of the Warrant, there are no statutory or contractual stockholders preemptive rights or rights of refusal, except for any such rights contained in any stock purchase agreement and/or investor's rights agreements which have been waived. The Company has not violated any applicable federal or state securities laws in connection with the offer, sale or issuance of any of its capital stock, and the offer, sale and issuance of this Warrant does not require registration under the Securities Act or any applicable state securities laws. To the best of the Company's knowledge, there are no agreements between the Company's stockholders with respect to the voting or transfer of the Company's capital stock or with respect to any other aspect of the Company's affairs.

(d) The execution, delivery and performance of this Warrant have been duly authorized by the Company. This Warrant constitutes a valid and binding obligation of the Company, enforceable in accordance with its terms. The execution and delivery by the Company of this Warrant, the issuance of the Common Stock upon exercise of the Warrant, and the fulfillment of and compliance with the respective terms hereof and thereof by the Company, do not and shall not (i) conflict with or result in a breach of the terms, conditions or provisions of, (ii) constitute a default under, (iii) result in the creation of any lien, security interest, charge or encumbrance upon the Company's capital stock or assets pursuant to, (iv) give any third party the right to modify, terminate or accelerate any obligation under, (v) result in a violation of, or (vi) require any authorization, consent, approval, exemption or other action by or notice or declaration to, or filing with, any court or administrative or governmental body or agency pursuant to, the charter or bylaws of the Company or any subsidiary, or any law, statute, rule or regulation to which the Company or any subsidiary is subject, or any agreement, instrument, order, judgment or decree to which the Company or any subsidiary is subject, except for any such filings required under applicable "blue sky" or state securities laws or required under Regulation D promulgated under the Securities Act.

15. Company Financial Information . Until such time as the Company shall have satisfied all of its obligations under the Financing Arrangement, Company shall deliver to Warrantholder such financial information as is required under the terms of the Financing Arrangement. From and after the date that the Company shall have satisfied all of its obligations under the Financing Arrangement, and notwithstanding any other agreement to the contrary

between the parties hereto, the Company shall deliver to the Warrantholder (so long as the Warrantholder holds all or any portion of the Warrant or any Preferred Stock or any shares of Common Stock issuable upon conversion of the Preferred Stock) all of the financial and other information delivered or required to be delivered by the Company to any of its stockholders, in their capacities as stockholders.

* * * * *

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued By:	Accepted By:
ASPEN AEROGELS, INC.	**[IMPORT WARRANTHOLDER]**
By:	
Donald R. Young Chief Executive Officer	Name: Title:
Dated: , 2005	

Exhibit A : Exercise Form

(To be executed upon exercise of this Warrant)

To: Aspen Aerogels, Inc. ("Company")
30 Forbes Road, Northborough, MA 01532
Attention: Chief Financial Officer

[1. The undersigned hereby elects to purchase _____ shares of Common Stock of Company pursuant to the terms of the attached Warrants, and tenders herewith payment of the purchase price of such shares in full.]

[1. The undersigned hereby elects to purchase _____ shares of Common Stock of Company pursuant to a net exercise of the Warrant as provided in Section 2 of the Warrant.]

2. Check here if applicable: ___ The undersigned confirms that this exercise is made in connection with the occurrence of a public offering, sale or merger of the Company, and the undersigned further elects to condition this exercise of the Warrant upon the consummation of said public offering, sale or merger of the Company. This exercise shall not be deemed to be effective until the consummation of such transaction. In the event that transaction is not consummated within 45 days of the targeted date of the transaction, the undersigned will advise Company whether or not this exercise should be deemed rescinded.

2. Please issue a certificate or certificates representing said shares in the name of the undersigned or in such other name or names as are specified below:

[name]
[address]

3. The undersigned represents that the aforesaid shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing such shares.

[name]

By: _____
(Signature)
Its: _____

Date: _____

Exhibit 4.4

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON THE EXERCISE OF THIS WARRANT HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER APPLICABLE U.S. OR NON-U.S. SECURITIES LAWS. NEITHER THIS WARRANT, SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE SOLD, TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT IN ACCORDANCE WITH THE PROVISIONS OF REGULATION S OF THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), UNDER THE REGISTRATION PROVISIONS OF THE ACT OR PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE ACT. HEDGING TRANSACTIONS INVOLVING THIS WARRANT, SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE CONDUCTED UNLESS IN COMPLIANCE WITH THE ACT.

THE SALE, ASSIGNMENT, HYPOTHECATION, PLEDGE, ENCUMBRANCE OR OTHER DISPOSITION AND VOTING OF ANY OF THE SHARES OF CAPITAL STOCK OF THE COMPANY ACQUIRED PURSUANT TO THE EXERCISE OF THIS WARRANT ARE RESTRICTED BY THE TERMS OF THE THIRD AMENDED AND RESTATED STOCKHOLDERS' AGREEMENT, DATED AS OF JUNE 10, 2008, AS AMENDED OR AMENDED AND RESTATED FROM TIME TO TIME, AMONG THE COMPANY AND CERTAIN OF ITS STOCKHOLDERS. THE COMPANY WILL NOT REGISTER THE TRANSFER OF SUCH SHARES OF CAPITAL STOCK ON THE BOOKS OF THE COMPANY UNLESS AND UNTIL THE TRANSFER HAS BEEN MADE IN COMPLIANCE WITH THE TERMS OF THE STOCKHOLDERS AGREEMENT, A COPY OF WHICH WILL BE PROVIDED AT NO COST TO THE HOLDER HEREOF UPON WRITTEN REQUEST TO THE COMPANY.

ASPEN AEROGELS, INC.

CAPITAL STOCK PURCHASE WARRANT

This document (this " **Warrant** ") dated as of June 10, 2008 certifies that, for good and valuable consideration, Aspen Aerogels, Inc., a Delaware corporation (the " **Company** "), grants to **[IMPORT WARRANTHOLDER]** , or any successor or permitted assign of such Person (the " **Warrantholder** "), the right to subscribe for and purchase from the Company, on or before the Expiration Time (as defined below), up to **[IMPORT SHARE NUMBERS]** validly issued, fully paid and nonassessable shares of Common Stock of the Company (as may be adjusted, the " **Warrant Shares** ") at the exercise price per share of $0.001 (the " **Exercise Price** "). The Company acknowledges that the cash consideration paid by Warrantholder for this Warrant is $10.00, that such amount has been duly received by the Company, and that this Warrant is one of the Warrants issued in connection with that Amended and Restated Letter Agreement dated January 19, 2007, as amended and supplemented from time to time (as so amended and supplemented, the " **Restated Letter Agreement** "), entered into by and between Company as the borrower and certain lenders named therein, and that this Warrant amends, restates **[and consolidates]** all warrants previously issued to the Warrantholder in connection with the Restated Letter Agreement. Capitalized terms used herein which are not specifically defined in other sections of this Warrant, shall have the meanings set forth in Section 10 .

1. Warrant Term . Subject to the provisions of Section 2.4 , the purchase rights represented by this Warrant are exercisable, in whole or in part, at any time and from time to time, from and after the Warrant grant date and on or prior to June 10, 2016 (the " **Expiration Time** ").

2. Exercise of Warrant; Payment of Taxes .

2.1 Exercise of Warrant . The purchase rights represented by this Warrant may be exercised by the Warrantholder, in whole or in part and from time to time, by the surrender of this Warrant (with a duly executed notice of exercise form, the "Exercise Form", in the form attached hereto as Exhibit A) at the principal office of the Company and by the payment to the Company of an amount equal to the then applicable Exercise Price per share multiplied by the number of Warrant Shares then being purchased. If the Warrantholder is not already a party thereto, the Warrantholder shall also execute, upon request from the Company, a joinder agreement as an Investor to the Stockholders' Agreement, as amended and restated, such joinder agreement to be in form and substance mutually agreeable to both the Warrantholder and the Company. The Warrantholder shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised.

2.2 Warrant Shares Certificate . A stock certificate for the Warrant Shares specified in the Exercise Form shall be delivered to the Warrantholder within five (5) Business Days after receipt of the Exercise Form by the Company and payment by the Warrantholder of the aggregate Exercise Price, along with a check from the Company in lieu of any fractional shares that the Warrantholder would be entitled to purchase under this Warrant. If this Warrant is exercised in part, the Company shall, at the time of delivery of the stock certificate, deliver to the Warrantholder a new Warrant evidencing the right to purchase the remaining Warrant Shares, which new Warrant shall in all other respects be identical to this Warrant.

2.3 Payment of Taxes . The Company shall pay all expenses, taxes and other governmental charges with respect to the issuance or delivery of the Warrant Shares, unless such expense, tax or charge is imposed by law upon the Warrantholder.

2.4 Exercise or Termination upon Corporate Event . If the aggregate Exercise Price, as of the consummation date of any Corporate Event, is equal to or greater than the aggregate value of the securities, cash and other property that would have been received in connection with a Corporate Event by a holder of the number of shares of Common Stock for which this Warrant was exercisable immediately prior to such Corporate Event (the **"Exercise Proceeds"**), then this Warrant shall automatically terminate upon the consummation of such Corporate Event. If the aggregate Exercise Price, as of such consummation date, is less than the aggregate value of the Exercise Proceeds, then the Warrantholder shall be entitled to exercise this Warrant in connection with such Corporate Event and shall automatically receive upon the consummation of such Corporate Event, in lieu of the Warrant Shares, the Exercise Proceeds, and this Warrant shall automatically terminate in connection therewith.

3. Restrictions on Transfer; Restrictive Legends .

3.1 Restrictions on Transfer . This Warrant and the Warrant Shares issuable upon exercise of all or part of this Warrant are unregistered securities that are subject to the restrictions on transfer imposed by the Securities Act and applicable state securities laws and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Securities Act and applicable state securities laws. The Warrant Shares issuable upon exercise of all or part of this Warrant are also subject to additional restrictions on transfer set forth in the Stockholders' Agreement and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Stockholders' Agreement. As a condition to the exercise of this Warrant and the purchase of the Warrant Shares, the Warrantholder will become a party to the Stockholders' Agreement pursuant to the form Joinder attached thereto.

3.2 Restrictive Legends . Until such time as the restrictions on transfer imposed on this Warrant by the Securities Act and applicable state securities laws shall no longer be effective, this Warrant, any Warrant issued to the Warrantholder upon the partial exercise of this Warrant pursuant to Section 2 shall be stamped or otherwise imprinted with a legend in substantially the form as set forth on the cover of this Warrant. Until such time as the restrictions on transfer imposed on the Warrant Shares by the Securities Act, applicable state securities laws and the Stockholders' Agreement shall no longer be effective, each stock certificate for Warrant Shares and each stock certificate issued upon the direct or indirect transfer of any such Warrant Shares shall be stamped or otherwise imprinted with a legend in substantially the form provided in the Stockholders' Agreement. Upon the termination of such restrictions on transfer, the Warrantholder may require the Company to issue a Warrant or a stock certificate for Warrant Shares, in each case without a legend, if and to the extent permitted by, and in accordance with, the Stockholders' Agreement and applicable law.

3.3 Lock-Up . The Warrantholder agrees not to effect any sale or distribution of Warrant Shares during the seven (7) days prior to and the one hundred eighty (180) days after any Public Offering or such longer period as may be prescribed at such time. For purposes of this Warrant, "Public Offering" shall mean an underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offering and sale by the Company of Common Stock.

4. Reservation and Registration of Warrant Shares . The Company covenants and agrees as follows:

4.1 Validly Issued and Free of Encumbrances . All Warrant Shares issued upon the exercise of all or any part of this Warrant shall, upon issuance and payment of the Exercise Price therefore (or upon net exercise as permitted herein), be validly issued, fully paid and nonassessable, issued in compliance with all applicable federal and state securities laws, and free from all taxes, liens and charges with respect to the issue thereof, and not subject to any preemptive rights.

4.2 Sufficient Authorized Shares . During the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved, for the purpose of issuance of Common Stock upon any exercise of the purchase rights evidenced by this Warrant, and shall keep available free from preemptive rights, a

sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

4.3 Noncontravention . The Company shall not, by amendment of its Charter or through any reorganization, transfer of assets, spin-off, consolidation, merger, dissolution, issue or sale of securities or any other action or inaction, avoid or seek to avoid the observance or performance of any of the terms of this Warrant to be observed or performed hereunder, and shall at all times in good faith assist in performing, carrying out, and giving effect to the terms hereof and in the taking of all such actions as may be necessary or appropriate in order to protect the rights of the Warrantholder against dilution or other impairment.

5. Anti-Dilution Adjustments . From and after the date hereof and until the Expiration Date, notwithstanding the fact that no Warrant Shares shall be issued and outstanding, the Exercise Price, and the number and type of Warrant Shares or other securities to be received upon exercise of this Warrant, shall be subject to adjustment as follows:

5.1 Stock Dividends and Combinations .

(a) If, at any time after the date hereof, the number of shares of Common Stock outstanding is increased by a stock dividend payable in shares of Common Stock or by a subdivision or split-up of shares of Common Stock, then, following the record date for the determination of holders of Common Stock entitled to receive such stock dividend, subdivision or split-up, the Exercise Price shall be decreased and the number of shares of Common Stock issuable on exercise of this Warrant shall be increased in proportion to such increase in outstanding shares.

(b) If, at any time after the date hereof, the number of shares of Common Stock outstanding is decreased by a combination of the outstanding shares of Common Stock, then, following the record date for such combination, the Exercise Price shall be increased and the number of shares of Common Stock issuable on exercise of this Warrant shall be decreased in proportion to such decrease in outstanding shares.

5.2 Recapitalization, Etc . In the event of any capital reorganization of the Company, any reclassification of the stock of the Company (other than a change in par value or from par value to no par value or from no par value to par value or as a result of a stock dividend or subdivision, split-up or combination of shares), or any consolidation or merger of the Company, this Warrant shall after such reorganization, reclassification, consolidation or merger be exercisable for the kind and number of shares of stock or other securities or property of the Company or of the company resulting from such consolidation or surviving such merger to which the holder of the number of shares of Common Stock deliverable (immediately prior to the time of such reorganization, reclassification, consolidation or merger) upon exercise of this Warrant would have been entitled upon such reorganization, reclassification, consolidation or merger. The provisions of this clause shall similarly apply to successive reorganizations, reclassifications, consolidations and mergers.

5.3 Waiver . In the event that holders of at least sixty-six and two thirds percent (66⅔%) of the Warrants, as the case may be, consent in writing to limit, or waive in its entirety, any antidilution adjustment to which the Warrantholders would otherwise be entitled

hereunder, the Company shall not be required to make any adjustment whatsoever in excess of such limit or at all, as the terms of such consent may dictate.

5.4 Computations . The computations of all amounts under this Section 5 shall be made assuming all other antidilution or similar adjustments to be made to the terms of all other securities resulting from the transaction causing an adjustment pursuant to this Section 5 have previously been made so as to maintain the relative economic interest of the Warrants vis à vis all other securities issued by the Company.

5.5 Par Value . The Company shall take or cause to be taken such steps as shall be necessary to ensure that the par value per share of Common Stock is at all times less than or equal to the Exercise Price.

6. Transfer and Exchange . If this Warrant is presented to the Company with a request to register a transfer or to exchange it for an equal number of Warrants of other denominations the Company will do so.

7. Loss or Destruction of Warrant . Subject to the terms and conditions hereof, upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, of such bond or indemnification as the Company may reasonably require, and, in the case of such mutilation, upon surrender and cancellation of this Warrant, the Company will execute and deliver to the Warrantholder a new Warrant of like tenor.

8. Ownership of Warrant . The Company may deem and treat the Person in whose name this Warrant is registered as the Warrantholder and owner hereof (notwithstanding any notations of ownership or writing hereon made by anyone other than the Company) for all purposes and shall not be affected by any notice to the contrary, until presentation of this Warrant for registration of transfer.

9. Amendments . Any provision of this Warrant may be amended and the observance thereof waived only with the written consent of the Company and the Warrantholder.

10. Definitions . As used herein, unless the context otherwise requires, the following terms have the following respective meanings:

" **Affiliate** " means, whether or not capitalized, (1) with respect to any Person, any of (a) a director, officer or stockholder holding five percent (5%) or more of the capital stock (on a fully diluted basis) of such Person, (b) a spouse, parent, sibling or descendant of such Person (or a spouse, parent, sibling or descendant of any director or officer of such Person) and (c) any other Person that, directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, another Person or (2) in any event, any Person meeting the definition of "Affiliate" set forth in Rule 405 under the Securities Act. The term "control" includes, without limitation, the possession, directly or indirectly, of the power to direct the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

" **Business Day** " means any day other than a Saturday, Sunday or a day on which national banks are authorized by law to close in the Commonwealth of Massachusetts.

" **Charter** " means the Amended and Restated Certificate of Incorporation of the Company, as amended from time to time.

" **Common Stock** " means the Company's presently authorized Common Stock, par value $.001 per share, and any stock into or for which such Common Stock may hereafter be converted or exchanged pursuant to the Charter of the Company as amended from time to time as provided by law and in such Charter.

" Corporate Event " means: (i) the sale, transfer, lease, license or other conveyance or disposition of all or substantially all of the Company's assets; (ii) the Liquidation of the Company; or (iii) the sale, transfer or other disposition of all or substantially all of the Company's capital stock to a Person or group of Persons that is not an Affiliate of the Company, but does not include any one transaction or series of related transactions the sole purpose and effect of which is to change the state or type of organization of the Company (e.g., to change the Company from a Delaware corporation to a New York corporation or from a corporation to a limited liability company).

" **Liquidation** " has the meaning defined in the Charter.

" Person " shall be construed broadly and shall include an individual, a partnership, a corporation, a limited liability company, an association, a joint stock company, a trust, a joint venture, an unincorporated organization, or a governmental entity (or any department, agency, or political subdivision thereof).

" **Securities Act** " means the Securities Act of 1933, as amended, and the rules and regulations of the United States Securities and Exchange Commission thereunder.

" **Stockholders' Agreement** " means the Third Amended and Restated Stockholders' Agreement, dated as of the date hereof, as amended, among the Company and certain stockholders of the Company, as the same may be amended, modified or restated from time to time.

11. Miscellaneous Provisions .

11.1 Entire Agreement . This Warrant and the Stockholders' Agreement constitute the entire agreement between the Company and the Warrantholder with respect to this Warrant.

11.2 Binding Effect; Benefits . This Warrant shall inure to the benefit of and shall be binding upon the Company and the Warrantholder and their respective permitted successors and assigns. Nothing in this Warrant, expressed or implied, is intended to or shall confer on any Person other than the Company and the Warrantholder, or their respective permitted successors or assigns, any rights, remedies, obligations or liabilities under or by reason of this Warrant.

11.3 Section and Other Headings . The section and other headings contained in this Warrant are for reference purposes only and shall not be deemed to be a part of this Warrant or to affect the meaning or interpretation of this Warrant.

11.4 Notices . All notices, demands and other communications provided for or permitted hereunder shall be made in writing and shall be by registered or certified first-class mail, return receipt requested, telecopier, courier service, overnight mail or personal delivery:

If to the Company :

Aspen Aerogels, Inc.
30 Forbes Road, Building B
Northborough, MA 01532
Telephone: (508) 691-1111
Facsimile: (508) 691-1200
Attention: Chief Executive Officer

with a copy (which shall not constitute notice) to:

Edwards Angell Palmer & Dodge LLP
111 Huntington Avenue
Boston, MA 02199
Telephone: (617) 951-2207
Facsimile: (888) 325-9513
Attention: Christopher W. Nelson, Esq.

If to the Warrantholder :

to the addressees reflected on the Warrant
register maintained by the Company

All such notices and other communications shall be deemed to have been given and received (i) in the case of personal delivery, on the date of such delivery, (ii) in the case of delivery by telecopy, on the date of such delivery, (iii) in the case of delivery by nationally recognized overnight courier, on the next business day following dispatch and (iv) in the case of mailing, on the third business day following such mailing.

11.5 Issuance Tax . The issuance of certificates for shares of Common Stock upon exercise of this Warrant shall be made without charge to the Warrantholder hereof for any issuance tax in respect hereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than that of the Warrantholder.

11.6 Severability . Any term or provision of this Warrant which is invalid or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity or unenforceability without rendering invalid or unenforceable the terms and provisions of this Warrant or affecting the validity or enforceability of any of the terms or provisions of this Warrant in any other jurisdiction.

11.7 Governing Law . All issues concerning this Warrant shall be governed by and construed in accordance with the law of the State of Delaware, without regard to the conflicts of law principles thereof.

11.8 Rights as Shareholders . The Warrantholder shall not be entitled to vote or receive dividends or be deemed the holder of Common Stock or otherwise be entitled to any voting or other rights as a shareholder of the Company, until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise shall have become deliverable, as provided herein.

11.9 Counterparts . This Warrant may be executed in counterparts, each of which, when executed and delivered, shall be an original, but all counterparts shall be of and constitute one instrument.

12. Disposition of Warrant or Shares of Common Stock . With respect to any offer, sale or other transfer or disposition of this Warrant or any Warrant Shares acquired pursuant to the exercise of this Warrant prior to registration of such shares, the Warrantholder hereof and each subsequent holder of this Warrant agrees to give written notice to the Company prior thereto, describing briefly the manner thereof, together with a written opinion of such holder's counsel (if reasonably requested by the Company and reasonably satisfactory to the Company) to the effect that (i) such offer, sale or other transfer or disposition may be effected without registration or qualification of this Warrant or such shares of Common Stock under the Securities Act as then in effect, and (ii) indicating whether or not under the Securities Act this Warrant or the certificates representing such shares of Common Stock to be sold or otherwise transferred or disposed of require any restrictive legend thereon in order to ensure compliance with the Securities Act; provided , however , that a written opinion of holder's counsel shall not be required in connection with any sale pursuant to Rule 144. This Warrant or the certificates representing the shares of Common Stock thus transferred (except a transfer pursuant to Rule 144) shall bear a legend as to the applicable restrictions on transferability in order to insure compliance with the Securities Act, unless in the aforesaid opinion of counsel for the holder, such legend is not required in order to insure compliance with the Securities Act. Upon any valid transfer of this Warrant or portion thereof, Company agrees to reissue the Warrant (or Warrants in the case of a partial transfer) and/or the Warrant Shares receivable upon the exercise hereof, and if the legend is not required, such re-issuance shall be without said legend. Nothing herein shall restrict the transfer of this Warrant (or any portion hereof) or the certificates representing the Warrant Shares acquired pursuant to the exercise of this Warrant by the initial Warrantholder hereof or any successor holder to (i) any affiliate of such holder, including without limitation any partnership affiliated with such holder, any partner of any such partnership or any successor corporation to the holder hereof as a result of a merger or consolidation with or a sale of all or substantially all of the stock or assets of the holder, (ii) any Person in a public offering pursuant to an effective registration statement under the Securities Act, or (iii) to any other Person to the extent that the transfer to such Person is exempt from the registration requirements of the Securities Act and such Person agrees in writing to be bound by all of the restrictions on transfer contained herein, provided , however , that no such transfer may be made to any direct competitor of the Company, which shall mean a Person engaged in the research, manufacture or sale of aerogels, aerogel based products or insulation products. Any transfer described above must be made in compliance with all applicable federal and state

securities laws. The Company may issue stop transfer instructions to its transfer agent in connection with the foregoing restrictions.

13. Warrantholder's Representations . The Warrantholder acknowledges that it has had access to all material information concerning the Company which it has requested. The Warrantholder also acknowledges that it has had the opportunity to, and has to its satisfaction, questioned the officers of the Company with respect to its investment hereunder. The Warrantholder represents that it understands that the Warrant and the Common Stock are speculative investments, that it is aware of the Company's business affairs and financial condition and that it has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Warrant. The Warrantholder is purchasing the Warrant and any Common Stock issued upon exercise thereof for investment for its own account only and not with a view to, or for resale in connection with, any "distribution" thereof in violation of the Securities Act or applicable state securities laws. The Warrantholder further represents that it understands that the Warrant and Common Stock have not been registered under the Securities Act or applicable state securities laws by reason of specific exemptions therefrom, which exemptions depend upon, among other things, the bona fide nature of the Warrantholder's investment intent as expressed herein. The Warrantholder is an "accredited investor" as defined in Regulation D promulgated under the Securities Act.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued By:	Accepted By:
ASPEN AEROGELS, INC.	**[IMPORT WARRANTHOLDER NAME]**
By: _____	By: _____
Donald R. Young	Name:
Chief Executive Officer	Title:

Exhibit A : Exercise Form

(To be executed upon exercise of this Warrant)

To: Aspen Aerogels, Inc. ("Company")
30 Forbes Road, Northborough, MA 01532
Attention: Chief Financial Officer

1. The undersigned hereby elects to purchase _____ shares of Common Stock of Company pursuant to the terms of the attached Warrants, and tenders herewith payment of the purchase price of such shares in full.

2. Please issue a certificate or certificates representing said shares in the name of the undersigned or in such other name or names as are specified below:

[name]
[address]

3. The undersigned represents that the aforesaid shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing such shares.

[name]

By: _____
(Signature)
Its: _____

Date: _____

Exhibit 4.5

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON THE EXERCISE OF THIS WARRANT HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER APPLICABLE U.S. OR NON-U.S. SECURITIES LAWS. NEITHER THIS WARRANT, SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE SOLD, TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT IN ACCORDANCE WITH THE PROVISIONS OF REGULATION S OF THE SECURITIES ACT, UNDER THE REGISTRATION PROVISIONS OF THE SECURITIES ACT OR PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE ACT. HEDGING TRANSACTIONS INVOLVING THIS WARRANT, SUCH SECURITIES OR ANY INTEREST THEREIN MAY NOT BE CONDUCTED UNLESS IN COMPLIANCE WITH THE SECURITIES ACT.

THE SALE, ASSIGNMENT, HYPOTHECATION, PLEDGE, ENCUMBRANCE OR OTHER DISPOSITION AND VOTING OF ANY OF THE SHARES OF CAPITAL STOCK OF THE COMPANY ACQUIRED PURSUANT TO THE EXERCISE OF THIS WARRANT ARE RESTRICTED BY THE TERMS OF THE THIRD AMENDED AND RESTATED STOCKHOLDERS' AGREEMENT, DATED AS OF JUNE 10, 2008, AS AMENDED OR AMENDED AND RESTATED FROM TIME TO TIME, AMONG THE COMPANY AND CERTAIN OF ITS STOCKHOLDERS. THE COMPANY WILL NOT REGISTER THE TRANSFER OF SUCH SHARES OF CAPITAL STOCK ON THE BOOKS OF THE COMPANY UNLESS AND UNTIL THE TRANSFER HAS BEEN MADE IN COMPLIANCE WITH THE TERMS OF THE STOCKHOLDERS AGREEMENT, A COPY OF WHICH WILL BE PROVIDED AT NO COST TO THE HOLDER HEREOF UPON WRITTEN REQUEST TO THE COMPANY.

ASPEN AEROGELS, INC.

CAPITAL STOCK PURCHASE WARRANT

This document (this " **Warrant** ") dated as of June 10, 2008 certifies that, for good and valuable consideration, Aspen Aerogels, Inc., a Delaware corporation (the " **Company** "), grants to **[_____]** or any successor or permitted assign of such Person (the " **Warrantholder** "), the right to subscribe for and purchase from the Company, on or before the Expiration Time (as defined below), up to **[_____]** validly issued, fully paid and nonassessable shares of Common Stock of the Company (as may be adjusted, the " **Warrant Shares** ") at the exercise price per share of $0.001 (the " **Exercise Price** "). Capitalized terms used herein which are not specifically defined in other sections of this Warrant, shall have the meanings set forth in Section 10 .

1. Warrant Term . Subject to the provisions of Section 2.4 , the purchase rights represented by this Warrant are exercisable, in whole or in part, at any time and from time to time, from and after the Warrant grant date and on or prior to June 10, 2016 (the "Expiration Time").

2. Exercise of Warrant; Payment of Taxes .

2.1 Exercise of Warrant . The purchase rights represented by this Warrant may be exercised by the Warrantholder, in whole or in part and from time to time, by the surrender of this Warrant (with a duly executed notice of exercise form, the "Exercise Form", in the form attached hereto as Exhibit A) at the principal office of the Company and by the payment to the Company of an amount equal to the then applicable Exercise Price per share multiplied by the number of Warrant Shares then being purchased. The Warrantholder shall be deemed to have become the holder of record of, and shall be treated for all purposes as the record holder of, the Warrant Shares represented thereby (and such Warrant Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised.

2.2 Warrant Shares Certificate . A stock certificate for the Warrant Shares specified in the Exercise Form shall be delivered to the Warrantholder within five (5) Business Days after receipt of the Exercise Form by the Company and payment by the Warrantholder of the aggregate Exercise Price, along with a check from the Company in lieu of any fractional shares that the Warrantholder would be entitled to purchase under this Warrant. If this Warrant is exercised in part, the Company shall, at the time of delivery of the stock certificate, deliver to the Warrantholder a new Warrant evidencing the right to purchase the remaining Warrant Shares, which new Warrant shall in all other respects be identical to this Warrant.

2.3 Payment of Taxes . The Company shall pay all expenses, taxes and other governmental charges with respect to the issuance or delivery of the Warrant Shares, unless such expense, tax or charge is imposed by law upon the Warrantholder.

2.4 Exercise or Termination upon Corporate Event . If the aggregate Exercise Price, as of the consummation date of any Corporate Event, is equal to or greater than the aggregate value of the securities, cash and other property that would have been received in connection with a Corporate Event by a holder of the number of shares of Common Stock for which this Warrant was exercisable immediately prior to such Corporate Event (the **"Exercise Proceeds"**), then this Warrant shall automatically terminate upon the consummation of such Corporate Event. If the aggregate Exercise Price, as of such consummation date, is less than the aggregate value of the Exercise Proceeds, then the Warrantholder shall be entitled to exercise this Warrant in connection with such Corporate Event and shall automatically receive upon the consummation of such Corporate Event, in lieu of the Warrant Shares, the Exercise Proceeds, and this Warrant shall automatically terminate in connection therewith.

3. Restrictions on Transfer; Restrictive Legends .

3.1 Restrictions on Transfer . This Warrant and the Warrant Shares issuable upon exercise of all or part of this Warrant are unregistered securities that are subject to the restrictions on transfer imposed by the Securities Act and applicable state securities laws and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person other than in accordance with the Securities Act and applicable state securities laws. The Warrant Shares issuable upon exercise of all or part of this Warrant are also subject to additional restrictions on transfer set forth in the Stockholders' Agreement and may not be offered, sold, transferred, pledged or otherwise disposed of, in whole or in part, to any Person

other than in accordance with the Stockholders' Agreement. As a condition to the exercise of this Warrant and the purchase of the Warrant Shares, the Warrantholder will become a party to the Stockholders' Agreement pursuant to the form Joinder attached thereto.

3.2 Restrictive Legends . Until such time as the restrictions on transfer imposed on this Warrant by the Securities Act and applicable state securities laws shall no longer be effective, this Warrant, any Warrant issued to the Warrantholder upon the partial exercise of this Warrant pursuant to Section 2 shall be stamped or otherwise imprinted with a legend in substantially the form as set forth on the cover of this Warrant. Until such time as the restrictions on transfer imposed on the Warrant Shares by the Securities Act, applicable state securities laws and the Stockholders' Agreement shall no longer be effective, each stock certificate for Warrant Shares and each stock certificate issued upon the direct or indirect transfer of any such Warrant Shares shall be stamped or otherwise imprinted with a legend in substantially the form provided in the Stockholders' Agreement. Upon the termination of such restrictions on transfer, the Warrantholder may require the Company to issue a Warrant or a stock certificate for Warrant Shares, in each case without a legend, if and to the extent permitted by, and in accordance with, the Stockholders' Agreement and applicable law.

3.3 Lock-Up . The Warrantholder agrees not to effect any sale or distribution of Warrant Shares during the seven (7) days prior to and the one hundred eighty (180) days after any Public Offering or such longer period as may be prescribed at such time. For purposes of this Warrant, " **Public Offering** " shall mean an underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offering and sale by the Company of Common Stock.

4. Reservation and Registration of Warrant Shares . The Company covenants and agrees that during the period within which the rights represented by this Warrant may be exercised, the Company shall at all times have authorized and reserved, for the purpose of issuance of Common Stock upon any exercise of the purchase rights evidenced by this Warrant, and shall keep available free from preemptive rights, a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

5. Anti-Dilution Adjustments . From and after the date hereof and until the Expiration Date, notwithstanding the fact that no Warrant Shares shall be issued and outstanding, the Exercise Price, and the number and type of Warrant Shares or other securities to be received upon exercise of this Warrant, shall be subject to adjustment as follows:

5.1 Stock Dividends and Combinations .

(a) If, at any time after the date hereof, the number of shares of Common Stock outstanding is increased by a stock dividend payable in shares of Common Stock or by a subdivision or split-up of shares of Common Stock, then, following the record date for the determination of holders of Common Stock entitled to receive such stock dividend, subdivision or split-up, the Exercise Price shall be decreased and the number of shares of Common Stock issuable on exercise of this Warrant shall be increased in proportion to such increase in outstanding shares.

(b) If, at any time after the date hereof, the number of shares of Common Stock outstanding is decreased by a combination of the outstanding shares of Common Stock, then, following the record date for such combination, the Exercise Price shall be increased and the number of shares of Common Stock issuable on exercise of this Warrant shall be decreased in proportion to such decrease in outstanding shares.

5.2 Recapitalization, Etc . In the event of any capital reorganization of the Company, any reclassification of the stock of the Company (other than a change in par value or from par value to no par value or from no par value to par value or as a result of a stock dividend or subdivision, split-up or combination of shares), or any consolidation or merger of the Company, this Warrant shall after such reorganization, reclassification, consolidation or merger be exercisable for the kind and number of shares of stock or other securities or property of the Company or of the company resulting from such consolidation or surviving such merger to which the holder of the number of shares of Common Stock deliverable (immediately prior to the time of such reorganization, reclassification, consolidation or merger) upon exercise of this Warrant would have been entitled upon such reorganization, reclassification, consolidation or merger. The provisions of this clause shall similarly apply to successive reorganizations, reclassifications, consolidations and mergers.

5.3 Computations . The computations of all amounts under this Section 5 shall be made assuming all other antidilution or similar adjustments to be made to the terms of all other securities resulting from the transaction causing an adjustment pursuant to this Section 5 have previously been made so as to maintain the relative economic interest of the Warrants vis à vis all other securities issued by the Company.

5.4 Par Value . The Company shall take or cause to be taken such steps as shall be necessary to ensure that the par value per share of Common Stock is at all times less than or equal to the Exercise Price.

6. Transfer and Exchange . If this Warrant is presented to the Company with a request to register a transfer or to exchange it for an equal number of Warrants of other denominations the Company will do so.

7. Loss or Destruction of Warrant . Subject to the terms and conditions hereof, upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, of such bond or indemnification as the Company may reasonably require, and, in the case of such mutilation, upon surrender and cancellation of this Warrant, the Company will execute and deliver to the Warrantholder a new Warrant of like tenor.

8. Ownership of Warrant . The Company may deem and treat the Person in whose name this Warrant is registered as the Warrantholder and owner hereof (notwithstanding any notations of ownership or writing hereon made by anyone other than the Company) for all purposes and shall not be affected by any notice to the contrary, until presentation of this Warrant for registration of transfer.

9. Amendments . Any provision of this Warrant may be amended and the observance thereof waived only with the written consent of the Company and the Warrantholder.

10. Definitions . As used herein, unless the context otherwise requires, the following terms have the following respective meanings:

" **Affiliate** " means, (1) with respect to any Person, any of (a) a director, officer or stockholder holding 5% or more of the capital stock (on a fully diluted basis) of such Person, (b) a spouse, parent, sibling or descendant of such Person (or a spouse, parent, sibling or descendant of any director or officer of such Person) and (c) any other Person that, directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, another Person or (2) in any event, any Person meeting the definition of "Affiliate" set forth in Rule 405 under the Securities Act. The term "control" includes, without limitation, the possession, directly or indirectly, of the power to direct the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

" **Business Day** " means any day other than a Saturday, Sunday or a day on which national banks are authorized by law to close in the Commonwealth of Massachusetts.

" **Charter** " means the Amended and Restated Certificate of Incorporation of the Company, as amended from time to time.

" **Common Stock** " means the Company's presently authorized Common Stock, par value $.001 per share, and any stock into or for which such Common Stock may hereafter be converted or exchanged pursuant to the Charter of the Company as amended from time to time as provided by law and in such Charter.

" Corporate Event " means: (i) the sale, transfer, lease, license or other conveyance or disposition of all or substantially all of the Company's assets; (ii) the Liquidation of the Company; or (iii) the sale, transfer or other disposition of all or substantially all of the Company's capital stock to a Person or group of Persons that is not an Affiliate of the Company, but does not include any one transaction or series of related transactions the sole purpose and effect of which is to change the state or type of organization of the Company (e.g., to change the Company from a Delaware corporation to a New York corporation or from a corporation to a limited liability company).

" **Liquidation** " has the meaning set forth in the Charter.

" **Person** " shall be construed broadly and shall include an individual, a partnership, a corporation, a limited liability company, an association, a joint stock company, a trust, a joint venture, an unincorporated organization, or a governmental entity (or any department, agency, or political subdivision thereof).

" **Securities Act** " means the Securities Act of 1933, as amended, and the rules and regulations of the United States Securities and Exchange Commission thereunder.

" **Stockholders' Agreement** " means the Third Amended and Restated Stockholders' Agreement, dated as of the date hereof, as amended, among the Company and certain stockholders of the Company, as the same may be amended, modified or restated from time to time.

11. Miscellaneous Provisions .

11.1 Entire Agreement . This Warrant and the Stockholders' Agreement constitute the entire agreement between the Company and the Warrantholder with respect to this Warrant.

11.2 Binding Effect; Benefits . This Warrant shall inure to the benefit of and shall be binding upon the Company and the Warrantholder and their respective permitted successors and assigns. Nothing in this Warrant, expressed or implied, is intended to or shall confer on any Person other than the Company and the Warrantholder, or their respective permitted successors or assigns, any rights, remedies, obligations or liabilities under or by reason of this Warrant.

11.3 Section and Other Headings . The section and other headings contained in this Warrant are for reference purposes only and shall not be deemed to be a part of this Warrant or to affect the meaning or interpretation of this Warrant.

11.4 Notices . All notices, demands and other communications provided for or permitted hereunder shall be made in writing and shall be by registered or certified first-class mail, return receipt requested, telecopier, courier service, overnight mail or personal delivery:

If to the Company :

Aspen Aerogels, Inc.
30 Forbes Road, Building B
Northborough, MA 01532
Telephone: (508) 691-1111
Facsimile: (508) 691-1200
Attention: Chief Executive Officer

with a copy (which shall not constitute notice) to:

Edwards Angell Palmer & Dodge LLP
111 Huntington Avenue
Boston, MA 02199
Telephone: (617) 951-2207
Facsimile: (888) 325-9513
Attention: Christopher W. Nelson, Esq.

If to the Warrantholder :

to the addressees reflected on the Warrant
register maintained by the Company

All such notices and other communications shall be deemed to have been given and received (i) in the case of personal delivery, on the date of such delivery, (ii) in the case of delivery by telecopy, on the date of such delivery, (iii) in the case of delivery by nationally recognized overnight courier, on the next business day following dispatch and (iv) in the case of mailing, on the third business day following such mailing.

11.5 Issuance Tax . The issuance of certificates for shares of Common Stock upon exercise of this Warrant shall be made without charge to the Warrantholder hereof for any issuance tax in respect hereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than that of the Warrantholder.

11.6 Severability . Any term or provision of this Warrant which is invalid or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity or unenforceability without rendering invalid or unenforceable the terms and provisions of this Warrant or affecting the validity or enforceability of any of the terms or provisions of this Warrant in any other jurisdiction.

11.7 Governing Law . All issues concerning this Warrant shall be governed by and construed in accordance with the law of the State of Delaware, without regard to the conflicts of law principles thereof.

11.8 Rights as Shareholders . The Warrantholder shall not be entitled to vote or receive dividends or be deemed the holder of Common Stock or otherwise be entitled to any voting or other rights as a shareholder of the Company, until this Warrant shall have been exercised and the Warrant Shares purchasable upon the exercise shall have become deliverable, as provided herein.

12. Disposition of Warrant or Shares of Common Stock . With respect to any offer, sale or other transfer or disposition of this Warrant or any Warrant Shares acquired pursuant to the exercise of this Warrant prior to registration of such shares, the Warrantholder hereof and each subsequent holder of this Warrant agrees to give written notice to the Company prior thereto, describing briefly the manner thereof, together with a written opinion of such holder's counsel (if reasonably requested by the Company and reasonably satisfactory to the Company) to the effect that (i) such offer, sale or other transfer or disposition may be effected without registration or qualification of this Warrant or such shares of Common Stock under the Securities Act as then in effect, and (ii) indicating whether or not under the Securities Act this Warrant or the certificates representing such shares of Common Stock to be sold or otherwise transferred or disposed of require any restrictive legend thereon in order to ensure compliance with the Securities Act; provided , however , that a written opinion of holder's counsel shall not be required in connection with any sale pursuant to Rule 144. This Warrant or the certificates representing the shares of Common Stock thus transferred (except a transfer pursuant to Rule 144) shall bear a legend as to the applicable restrictions on transferability in order to insure compliance with the Securities Act, unless in the aforesaid opinion of counsel for the holder, such legend is not required in order to insure compliance with the Securities Act. Upon any valid transfer of this Warrant or portion thereof, Company agrees to reissue the Warrant (or Warrants in the case of a partial transfer) and/or the Warrant Shares receivable upon the exercise hereof, and if the legend is not required, such re-issuance shall be without said legend. Nothing herein shall restrict the transfer of this Warrant (or any portion hereof) or the certificates representing the Warrant Shares acquired pursuant to the exercise of this Warrant by the initial Warrantholder hereof or any successor holder to (i) any Affiliate of such holder, including without limitation any partnership Affiliated with such holder, any partner of any such partnership or any successor corporation to the holder hereof as a result of a merger or

consolidation with or a sale of all or substantially all of the stock or assets of the holder, (ii) any Person in a public offering pursuant to an effective registration statement under the Securities Act, (iii) to any other Person to the extent that the transfer to such Person is exempt from the registration requirements of the Securities Act and such Person agrees in writing to be bound by all of the restrictions on transfer contained herein, provided , however , that no such transfer may be made to any direct competitor of the Company, which shall mean a Person engaged in the research, manufacture or sale of aerogels, aerogel based products or insulation products. Any transfer described above must be made in compliance with all applicable federal and state securities laws. The Company may issue stop transfer instructions to its transfer agent in connection with the foregoing restrictions.

13. Warrantholder's Representations . The Warrantholder acknowledges that it has had access to all material information concerning the Company which it has requested. The Warrantholder also acknowledges that it has had the opportunity to, and has to its satisfaction, questioned the officers of the Company with respect to its investment hereunder. The Warrantholder represents that it understands that the Warrant and the Common Stock are speculative investments, that it is aware of the Company's business affairs and financial condition and that it has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Warrant. The Warrantholder is purchasing the Warrant and any Common Stock issued upon exercise thereof for investment for its own account only and not with a view to, or for resale in connection with, any "distribution" thereof in violation of the Securities Act or applicable state securities laws. The Warrantholder further represents that it understands that the Warrant and Common Stock have not been registered under the Securities Act or applicable state securities laws by reason of specific exemptions therefrom, which exemptions depend upon, among other things, the bona fide nature of the Warrantholder's investment intent as expressed herein. The Warrantholder is an "accredited investor" as defined in Regulation D promulgated under the Securities Act.

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

Issued By:

ASPEN AEROGELS, INC.

By: _____
John F. Fairbanks
Chief Financial Officer

Accepted By:

[_____]

By: _____
Its:

SIGNATURE PAGE TO ASPEN AEROGELS, INC.
COMMON STOCK PURCHASE WARRANT

Exhibit A : Exercise Form

(To be executed upon exercise of this Warrant)

To: Aspen Aerogels, Inc. ("Company")
30 Forbes Road, Northborough, MA 01532

Attention: Chief Financial Officer

1. The undersigned hereby elects to purchase _____ shares of Common Stock of Company pursuant to the terms of the attached Warrants, and tenders herewith payment of the purchase price of such shares in full.

2. Please issue a certificate or certificates representing said shares in the name of the undersigned or in such other name or names as are specified below:

[name]
[address]

3. The undersigned represents that the aforesaid shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing such shares.

[name]

By: _____
(Signature)

Date: _____

Its: _____

Exhibit 4.6

THIS INSTRUMENT AND THE COMMON STOCK OF ASPEN AEROGELS, INC., A DELAWARE CORPORATION (THE " COMPANY "), ISSUABLE UPON EXERCISE OF THIS INSTRUMENT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 OR APPLICABLE STATE LAWS AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED, OFFERED, PLEDGED OR OTHERWISE DISTRIBUTED FOR VALUE UNLESS THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND/OR SUCH LAWS COVERING THIS INSTRUMENT OR SUCH STOCK OR THE COMPANY, UPON ITS REQUEST, RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THIS INSTRUMENT OR SUCH STOCK STATING THAT SUCH SALE, TRANSFER, ASSIGNMENT, OFFER, PLEDGE OR OTHER DISTRIBUTION FOR VALUE IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SUCH ACT AND APPLICABLE STATE LAWS.

THIS INSTRUMENT IS ALSO SUBJECT TO FURTHER RESTRICTIONS ON TRANSFER AS PROVIDED IN THAT CERTAIN SUBORDINATED NOTE AND WARRANT PURCHASE AGREEMENT, DATED AS OF DECEMBER 29, 2010, BY AND AMONG THE COMPANY, THE PURCHASERS NAMED ON EXHIBIT A THERETO, AND PJC CAPITAL LLC, AS COLLATERAL AGENT, AS THE SAME MAY BE AMENDED, RESTATED OR MODIFIED FROM TIME TO TIME (THE " PURCHASE AGREEMENT ").

THIS WARRANT AND THE SECURITIES ISSUABLE UPON EXERCISE HEREOF ARE SUBJECT TO THE TERMS AND PROVISIONS OF THE PURCHASE AGREEMENT. A COPY OF THE PURCHASE AGREEMENT IS AVAILABLE AT THE EXECUTIVE OFFICES OF THE COMPANY.

[_____] Shares of the Company Warrant No. __

WARRANT

To Subscribe for and Purchase Common Stock of

ASPEN AEROGELS, INC.

THIS CERTIFIES THAT, for value received, [_____], a [_____] (" Purchaser ") or registered permitted assigns (Purchaser and/or any Person (as defined in the Purchase Agreement referred to below) or Persons to whom Purchaser has assigned this Warrant herein called " Holder "), is entitled to subscribe for and purchase from Aspen Aerogels, Inc., a corporation organized and existing under the laws of the State of Delaware (the " Company "), at any time from and after the date hereof to and including December 29, 2017, subject to the early termination provisions of Section 4(d) below, [_____] ([_____]) fully paid and nonassessable shares (subject to adjustment from time to time pursuant to the provisions below) of Common Stock at the price per share as specified below and to exercise the other rights, powers, and privileges provided for herein, all on the terms and subject to the conditions specified in this Warrant. Capitalized terms used herein and not defined shall have the meaning ascribed to them in the Subordinated Note and Warrant Purchase Agreement, dated as of December 29, 2010, by and among the Company and the Purchasers named therein (as such agreement may be supplemented, modified, amended or restated from time to time, the " Purchase Agreement ").

This Warrant is subject to the following provisions, terms and conditions:

1. Exercise and Payment of Purchase Price .

(a) The rights represented by this Warrant may be exercised by Holder at any time on or prior to the applicable termination or expiration date, in whole or in part, by delivery to the Company of a completed Subscription Form in the form attached hereto ten (10) days prior to the intended date of exercise and by the surrender of this Warrant (properly endorsed if required) at the principal office of the Company and upon payment to it of the Exercise Price as provided in paragraph 1(b) below. The Company agrees that the shares so purchased shall be and are deemed to be issued to Holder as the record owner of such shares as of the close of business on the date that is ten (10) days after the date on which this Warrant shall have been surrendered and payment made for such shares as aforesaid. Subject to the provisions of paragraph 2 , certificates for the shares of Common Stock so purchased shall be delivered to Holder within a reasonable time, not exceeding ten (10) days, after the rights represented by this Warrant shall have been so exercised, and, unless this Warrant has expired or all of the rights to receive shares of Common Stock under this Warrant have been exercised, a new Warrant representing the number of shares of Common Stock with respect to which this Warrant shall not then have been exercised shall also be delivered to Holder within such time. The issuance of certificates for shares of Common Stock upon exercise of this Warrant shall be made without charge to the Holder for any issuance tax in respect thereof or other cost incurred by the Company in connection with such exercise and the related issuance of shares of Common Stock.

(b) The warrant purchase price (subject to adjustment as noted below) shall be $0.001 per share, payable by delivery of any of the following (1) a check payable to the Company in an amount equal to the product of the warrant purchase price per share multiplied by the number of shares of Common Stock being purchased upon such exercise (the " Exercise Price "), (2) the surrender to the Company of equity securities of the Company having a Fair Market Value equal to the Exercise Price of the Common Stock being purchased upon such exercise, (3) a written notice to the Company that Holder is exercising this Warrant (or a portion thereof) by reducing the outstanding principal balance of any debt instrument of the Company and/or any of its Subsidiaries held by Holder by an amount equal to the Exercise Price of the Common Stock being purchased upon such exercise, (4) a written notice to the Company that Holder is exercising this Warrant (or a portion thereof) by authorizing the Company to withhold from issuance a number of shares of Common Stock issuable upon such exercise of this Warrant which when multiplied by the Fair Market Value of such Common Stock is equal to the Exercise Price (and such withheld shares shall no longer be issuable under such Warrant) or (5) any combination of the foregoing.

(c) As a condition to the exercise of this Warrant, the Holder shall execute and deliver to the Company a Joinder Agreement whereby the Holder agrees to join as a "Stockholder" party and be bound by the terms and conditions of the Company's Fifth Amended and Restated Stockholders' Agreement dated as of September 22, 2010, as amended from time to time (the " Stockholders Agreement "). The foregoing shall be inapplicable in the event that the Stockholders Agreement has been terminated in accordance with the terms thereof, or if such Stockholders Agreement is amended to uniquely and adversely affect the rights of the Holders of the Warrants.

2. Compliance with Transfer Restrictions . Notwithstanding the foregoing paragraph 1 , the Company shall not be required to deliver any certificate for shares of Common Stock upon exercise of this Warrant except in accordance with the provisions, and subject to the limitations, of paragraph 7 hereof and the legends in paragraph 6 and on the first page hereof.

3. Covenants . The Company covenants and agrees as follows:

(a) All shares of Common Stock which may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be duly authorized and validly issued, fully paid and nonassessable.

(b) During the period within which the rights represented by this Warrant may be exercised, the Company will at all times have authorized, and reserved for the purpose of issue or transfer upon exercise of the subscription rights evidenced by this Warrant, a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

(c) The Company shall not close its books against the transfer of this Warrant or of any shares of Common Stock issuable upon exercise of this Warrant in any manner which interferes with the timely exercise of this Warrant in accordance with the express terms hereof. The Company shall from time to time take all such action as may be necessary to assure that the par value per share of the Common Stock issuable upon exercise of this Warrant is at all times equal to or less than the warrant purchase price then in effect.

(d) The Company shall assist and cooperate with Holder in making any required governmental filings or obtaining any required governmental approvals prior to or in connection with any exercise of this Warrant (including, without limitation, making any filings required to be made by the Company).

(e) Notwithstanding any other provision hereof, if an exercise of any portion of this Warrant is to be made in connection with a registered public offering, the exercise of all or any portion of this Warrant may, at the election of Holder and upon written notice to the Company of such election, be conditioned upon the consummation of the public offering, in which case such exercise shall not be deemed to be effective unless and until the consummation of such transaction occurs, so long as such exercise occurs on or prior to the applicable termination or expiration date.

4. Adjustments to Warrant Purchase Price and Number of Shares . The above provisions are subject to the following:

(a) The warrant purchase price shall, from and after the date of issuance of this Warrant, be subject to adjustment from time to time as hereinafter provided. Upon each adjustment of the warrant purchase price, the holder of this Warrant shall thereafter be entitled to purchase, at the warrant purchase price resulting from such adjustment, the number of shares of Common Stock obtained by multiplying the warrant purchase price in effect immediately prior to such adjustment by the number of shares of Common Stock purchasable pursuant hereto immediately prior to such adjustment and dividing the product thereof by the warrant purchase price resulting from such adjustment.

(b) If the Company declares or pays a dividend upon the Common Stock, then the following provisions shall apply:

(i) If such dividend is payable in Common Stock (other than a dividend declared to effect a subdivision of the outstanding shares of Common Stock, as described in paragraph (c) below), any Convertible Securities, or in any rights or options to purchase any Common Stock or Convertible Securities, then the Holder of this Warrant upon exercise hereof will be entitled to receive the number of shares of Common Stock, Convertible Securities, or other rights or options to purchase any Common Stock or Convertible Securities, as applicable, to which the Holder would be entitled upon such exercise, and in addition and without further payment therefor, such number of shares of Common Stock, Convertible Securities, or other rights or options to purchase any Common Stock or Convertible Securities, as applicable, such that upon exercise hereof, the Holder would receive such number of shares of Common Stock, Convertible Securities, or other rights or options to purchase any Common Stock or Convertible Securities, as applicable, as a result of each dividend described above.

(ii) If such dividend is payable otherwise than in cash out of earnings or earned surplus (determined in accordance with GAAP), except for a stock dividend payable in shares of Common Stock as provided above (a " Liquidating Dividend "), then the Company shall pay to the Holder of this Warrant at the time of payment thereof the Liquidating Dividend which would have been paid to such Holder on the Common Stock issuable upon exercise of this Warrant had the Warrants been fully exercised immediately prior to the date on which a record is taken for such Liquidating Dividend, or, if no record is taken, the date as of which the record holders of Common Stock entitled to such dividends are to be determined.

(ii) If such dividend is payable in cash out of earnings or earned surplus (determined in accordance with GAAP) (a " Dividend "), then (A) such Dividend shall be allocated proportionately to the holders of outstanding Common Stock and holders of all Warrants as though all Warrants (and, to the extent required by the terms thereof, any other warrants, options, Convertible Securities or other rights to acquire shares of Common Stock) had been fully exercised immediately prior to the date on which a record was taken for such Dividend, or, if no record was taken, the date as of which the record holders of Common Stock entitled to such dividends were determined, (B) the amount allocable to the Warrants shall be deposited by the Company in a separate interest-bearing account concurrently with the payment of such Dividend to the holders of Common Stock and (C) promptly after the exercise of this Warrant, the amount allocable to the Common Stock obtained by the Holder upon such exercise, plus all accrued interest thereon, shall be paid to the Holder.

(c) In case the Company shall at any time subdivide its outstanding shares of Common Stock into a greater number of shares, the warrant purchase price in effect immediately prior to such subdivision shall be proportionately reduced, and conversely, in case the outstanding shares of Common Stock of the Company shall be combined into a smaller number of shares, the warrant purchase price in effect immediately prior to such combination shall be proportionately increased.

(d) If any capital reorganization or reclassification of the capital stock of the Company, or consolidation or merger of the Company with another corporation or other entity, or the sale of all or substantially all of its assets to another corporation or other entity shall be effected in such a way that holders of Common Stock shall be entitled to receive stock, securities or assets with respect to or in exchange for Common Stock, then, as a condition of such reorganization, reclassification, consolidation, merger or sale, lawful and adequate provision shall be made whereby the Holder shall thereafter have the right to purchase and receive, upon the basis and upon the terms and conditions specified in this Warrant (and in lieu of the shares of Common Stock purchasable upon the exercise of this Warrant), an amount of shares of stock, securities or assets as may be issued or payable with respect to or in exchange for such Common Stock that are equal to the number of shares of such stock immediately purchasable and receivable upon exercise of this Warrant had such reorganization, reclassification, consolidation, merger or sale not taken place. In any such case, appropriate provision shall be made with respect to the rights and interests of the Holder of this Warrant to the end that the provisions hereof (including without limitation provisions for adjustments of the warrant purchase price and of the number of shares of Common Stock purchasable upon the exercise of this Warrant) shall thereafter be applicable, as nearly as may be possible, in relation to any shares of stock, securities or assets thereafter deliverable upon the exercise hereof. The Company shall not effect any such consolidation, merger or sale, unless prior to the consummation thereof the successor corporation or other entity (if other than the Company) resulting from such consolidation or merger or the corporation or other entity purchasing such assets shall assume, by written instrument executed and mailed to the Holder of this Warrant at the last address of such Holder appearing on the books of the Company, the obligation to deliver to such Holder such shares of stock, securities or assets as, in accordance with the foregoing provisions, such Holder may be entitled to purchase. Notwithstanding anything to the contrary herein, if any consolidation or merger of the Company with another corporation or other entity, or the sale of all or substantially all of its assets to another corporation or other entity, shall be effected in such a way that all holders of Common Stock shall be entitled to receive shares of stock, securities, cash or assets with respect to or in exchange for Common Stock, then at its election the Company may provide the Holder of this Warrant with written notice of such proposed transaction, in reasonable detail, no less than ten (10) days prior to the consummation thereof, and, upon the Holder receiving an amount of shares of stock, securities, cash or assets that may be payable with respect to or in exchange for such Common Stock that is equal to the number of shares of such stock immediately purchasable and receivable upon the exercise of this Warrant had such consolidation, merger or sale not taken place less an amount of such consideration payable in the proposed transaction with a Fair Market Value equal to the aggregate Exercise Price, this Warrant shall terminate.

(e) Upon any adjustment of the warrant purchase price, then and in each such case the Company shall give written notice thereof, by first-class mail, postage prepaid, addressed to the Holder of this Warrant at the address of such Holder as shown on the books of the Company, which notice shall state the warrant purchase price resulting from such adjustment and the increase or decrease, if any, in the number of shares of Common Stock purchasable at such price upon the exercise of this Warrant, setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based.

(f) In case any time:

(i) the Company shall declare any cash dividend on its Common Stock;

(ii) the Company shall pay any dividend payable in stock upon its Common Stock or make any distribution (other than regular cash dividends) to the holders of its Common Stock;

(iii) the Company shall offer for subscription pro rata to the holders of its Common Stock any additional shares of stock of any class or other rights;

(iv) there shall be any capital reorganization, or reclassification of the capital stock of the Company, or consolidation or merger of the Company with, or sale of all or substantially all of its assets to, another corporation or other entity; or

(v) there shall be a voluntary or involuntary dissolution, liquidation or winding up of the Company;

then, in any one or more of said cases, the Company shall give written notice, by first-class mail, postage prepaid, addressed to the Holder of this Warrant at the address of such Holder as shown on the books of the Company, of the date on which (A) the books of the Company shall close or a record shall be taken for such dividend, distribution or subscription rights, or (B) such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation or winding up shall take place, as the case may be. Such notice shall also specify the date as of which the holders of Common Stock of record shall participate in such dividend, distribution or subscription rights, or shall be entitled to exchange their Common Stock for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation or winding up, as the case may be. Such written notice shall be given at least ten (10) days prior to the action in question and not less than ten (10) days prior to the record date or the date on which the Company's transfer books are closed in respect thereto.

(g) If any event occurs as to which in the opinion of the Board of Directors of the Company the other provisions of this paragraph 4 are not strictly applicable or if strictly applicable would not fairly protect the purchase rights of the Holder of this Warrant or of Common Stock issuable upon exercise of this Warrant in accordance with the essential intent and principles of such provisions, then the Board of Directors shall make an adjustment in the application of such provisions, in accordance with such essential intent and principles, so as to protect such purchase rights as aforesaid.

(h) No fractional shares of Common Stock shall be issued upon the exercise of this Warrant, but, instead of any fraction of a share which would otherwise be issuable, the Company shall pay a cash adjustment (which may be effected as a reduction of the amount to be paid by the Holder hereof upon such exercise) in respect of such fraction in an amount equal to the same fraction of the Fair Market Value per share of Common Stock as of the close of business on the date of the notice of exercise required by paragraph 1 above.

5. Voting Rights . This Warrant shall not entitle the Holder hereof to any voting rights or, except as expressly provided herein, other rights as a stockholder of the Company.

6. Limitations on Transfer .

(a) The Holder, by acceptance hereof, agrees that this Warrant shall not be transferable except to an Affiliate of the Holder or with the Company's prior written consent (not to be unreasonably withheld.) In the event of a permitted transfer, the Holder agrees to give written notice to the Company before transferring this Warrant or any Warrant Stock and to comply with the legend at the top hereof (the " Legend "). Upon receipt by the Company of such notice and satisfaction of the requirements of the Legend, such Holder shall be entitled to transfer this Warrant, or to exercise this Warrant in accordance with its terms and dispose of the shares of Common Stock received upon such exercise or to dispose of shares of Common Stock received upon the previous exercise of the Warrant, all in accordance with the terms of hereof.

(b) All certificates representing shares of Common Stock issued upon exercise of this Warrant shall be endorsed with the following legend:

"THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 OR APPLICABLE STATE LAWS AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED, OFFERED, PLEDGED OR OTHERWISE DISTRIBUTED FOR VALUE UNLESS THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND/OR SUCH LAWS COVERING SUCH SECURITIES OR THE COMPANY, UPON ITS REQUEST, RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THIS CERTIFICATE STATING THAT SUCH SALE, TRANSFER, ASSIGNMENT, OFFER, PLEDGE OR OTHER DISTRIBUTION FOR VALUE IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SUCH ACT AND APPLICABLE STATE LAWS."

(c) The restrictions imposed by the Legend and by the legend referred to in paragraph 6(b) shall cease and terminate as provided in Section 9.19(F) of the Purchase Agreement.

7. Warrant Transferable . Subject to the provisions of Section 9.19 of the Purchase Agreement and paragraph 6 hereof, this Warrant and all rights hereunder are transferable, in whole or in part, at the principal office of the Company by the Holder hereof in person or by duly authorized attorney, upon surrender of this Warrant properly endorsed. Each Holder of this Warrant, by holding the same, consents and agrees that the registered holder of this Warrant may be treated by the Company and all other Persons dealing with this Warrant as the absolute owner thereof for any purpose and as the Person entitled to exercise the rights represented by this Warrant, or to the transfer thereof on the books of the Company, any notice to the contrary notwithstanding.

8. Registration Rights Agreement . Contemporaneously with the issuance to Purchaser of this Warrant, the Purchaser and the Company shall execute and deliver a joinder to, and be bound by and entitled to the benefits of, the Registration Rights Agreement.

9. Exchange of Warrant . This Warrant is exchangeable, upon the surrender thereof at the principal office of the Company, for new Warrants of like tenor representing in the

aggregate the right to subscribe for and purchase the number of shares of Common Stock which may be subscribed for and purchased hereunder, each of such new Warrants to represent the right to subscribe for and purchase such number of shares of Common Stock as shall be designated by the Holder hereof at the time of such surrender.

10. Replacement of Warrant . Upon receipt of evidence reasonably satisfactory to the Company (an affidavit of Holder shall be satisfactory) of the ownership and the loss, theft, destruction or mutilation of this Warrant, and in the case of any such loss, theft or destruction, upon receipt of indemnity reasonably satisfactory to the Company (provided that if Holder is a Purchaser or qualifies as an "accredited investor" under the Securities Act, its own agreement regarding indemnity shall be satisfactory), or, in the case of any such mutilation upon surrender of this Warrant, the Company shall (at its expense) execute and deliver, in lieu thereof, a new Warrant of like kind representing the same rights represented by such lost, stolen, destroyed or mutilated Warrant and dated the date of such lost, stolen, destroyed or mutilated Warrant.

11. Certain Definitions . The following terms have the respective meanings set forth below:

" Average Market Value " means the average of the Closing Price for the security in question for the thirty (30) trading days immediately preceding the date of determination.

" Closing Price " means

(a) If the primary market for the security in question is a securities exchange or other market or quotation system in which last sale transactions are reported on a contemporaneous basis, then the last reported sales price, regular way, of such security for such day, or, if there has not been a sale on such trading day, then the highest closing or last bid quotation therefor on such trading day (excluding, in any case, any price that is not the result of bona fide arm's length trading); or

(b) If the primary market for such security is not a securities exchange or other market or quotation system in which last sale transactions are contemporaneously reported, then the highest closing or last bona fide bid or asked quotation by disinterested Persons in the over-the-counter market on such trading day as reported by such generally accepted source of publicly reported bid quotations as the Holder designates.

" Common Stock " shall mean and include the Company's Common Stock, par value $.001 per share, and shall also include, in the case of any reclassification of the outstanding shares thereof, the stock, securities or assets provided for in paragraph 4(d) above.

" Convertible Securities " means obligations or any shares of stock of the Company which are convertible into or exchangeable for Common Stock.

" Exchange Act " means the Securities Exchange Act of 1934, as the same may be amended from time to time.

" Exercise Price " shall have the meaning ascribed thereto in paragraph 1(b).

" Fair Market Value " means:

(a) As to securities regularly traded in the organized securities markets, the Average Market Value; and

(b) As to all securities not regularly traded in the securities markets and all other property, the fair market value of such securities or property as determined in good faith by the Board of Directors of the Company at the time the rights represented by this Warrant have been exercised in accordance herewith or at the time such Board authorizes the transaction requiring a determination of Fair Market Value under this Warrant, as the case may be.

" Securities Act " means the Securities Act of 1933, as the same may be amended from time to time.

12. Choice of Law . All questions concerning this Warrant will be governed by and construed in accordance with the internal laws of the State of New York, without reference to principles of conflicts of law other than Sections 5-1401 and 5-1402 of the New York General Obligations Law.

13. Headings . Section and subsection headings are included herein for convenience of reference only and shall not constitute a part of this Warrant for any other purposes or be given substantive effect.

14. Severability . The invalidity, illegality, or unenforceability in any jurisdiction of any provision under this Warrant shall not affect or impair the remaining provisions of this Warrant or render any such provision invalid, illegal or unenforceable in any other jurisdiction.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer and this Warrant to be dated as of _____.

ASPEN AEROGELS, INC.

By: _____
Name: _____
Title: _____

[Signature Page to Warrant for [_____] Shares]

FORM OF ASSIGNMENT
(To Be Signed Only Upon Assignment)

FOR VALUE RECEIVED, the undersigned hereby sells, assigns and transfers unto _____ this Warrant, and appoints _____ to transfer this Warrant on the books of Aspen Aerogels, Inc. with the full power of substitution in the premises.

Dated:

In the presence of:

_____

(Signature must conform in all respects to the name of the holder as specified on the face of this Warrant without alteration, enlargement or any change whatsoever, and the signature must be guaranteed in the usual manner)

SUBSCRIPTION FORM

To be Executed by the Holder of this Warrant if such Holder
Desires to Exercise this Warrant in Whole or in Part:

To: Aspen Aerogels, Inc.

The undersigned _____

Please insert Social Security or other
identifying number of Subscriber:

_____

hereby irrevocably elects to exercise the right of purchase represented by this Warrant for, and to purchase thereunder, _____ shares of the Common Stock provided for therein and tenders payment herewith to the order of Aspen Aerogels, Inc. in the amount of $_____, in one or more of the forms permitted by this Warrant.

The undersigned requests that certificates for such shares of Common Stock be issued as follows:

Name: _____

Address: _____

Deliver to: _____

Address: _____

and, if such number of shares of Common Stock shall not be all the shares of Common Stock purchasable hereunder, that a new Warrant for the balance remaining of the shares of Common Stock purchasable under this Warrant be registered in the name of, and delivered to, the undersigned at the address stated above.

Dated:

Signature _____

Note: The signature on this Subscription Form must correspond with the name as written upon the face of this Warrant in every particular, without alteration or enlargement or any change whatever.

Exhibit 10.1.1

ASPEN AEROGELS, INC.
2001 EQUITY INCENTIVE PLAN, AS AMENDED THROUGH May 16, 2011

SECTION 1. Purpose; Definitions . The purposes of the Aspen Aerogels, Inc. 2001 Equity Incentive Plan (the "Plan") are to: (a) assist Aspen Aerogels, Inc., a Delaware corporation (the "Company"), and its affiliated companies in recruiting and retaining highly qualified employees, directors and consultants; (b) provide those employees, directors and consultants with an incentive for productivity; and (c) provide those employees, directors and consultants with an opportunity to share in the growth and value of the Company.

For purposes of the Plan, the following initially capitalized words and phrases will be defined as set forth below, unless the context clearly requires a different meaning:

a. " Affiliate " means, with respect to a person or entity, a person that directly or indirectly controls, or is controlled by, or is under common control with such person or entity.

b. " Award " means a grant of Options or Restricted Shares pursuant to the provisions of this Plan.

c. " Award Agreement " means, with respect to any particular Award, the written document that sets forth the terms of that particular Award.

d. " Board " means the Board of Directors of the Company, as constituted from time to time; *provided*, *however* , that if the Board appoints a Committee to perform some or all of the Board's administrative functions hereunder pursuant to Section 2 , references in this Plan to the "Board" will be deemed to also refer to that Committee in connection with administrative matters to be performed by that Committee.

e. " Cause " exists when the Participant (as determined by the Board, in its sole discretion):

(i) engages in any type of disloyalty to the Company or any of its Affiliates, including without limitation, fraud, embezzlement, theft, or dishonesty in the course of his employment or engagement, or otherwise breaches any fiduciary duty owed to the Company or any of its Affiliates;

(ii) is convicted of a felony or a misdemeanor involving moral turpitude;

(iii) enters a plea of guilty or *nolo contendere* to a felony or a misdemeanor involving moral turpitude;

(iv) discloses any confidential, proprietary, business or technical information or trade secret of the Company or of any of its Affiliates; or

(v) breaches any agreement with or duty to the Company.

"Cause" is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Board's finding of "Cause" occur prior to termination. If the Board determines, subsequent to a Participant's termination of service but prior to the exercise of an Option, that either prior or subsequent to the Participant's termination the Participant engaged in conduct which would constitute "Cause," then the right to exercise any Option is forfeited.

f. " Code " means the Internal Revenue Code of 1986, as amended from time to time, and any successor thereto.

g. " Committee " will mean a committee appointed by the Board in accordance with Section 2 of this Plan.

h. " Common Stock " means the Company's Common Stock, $0.001 par value.

i. " Director " means a member of the Board.

j. " Disability " will mean a disability which renders an individual unable to perform the full extent of his duties and responsibilities to the Company or its subsidiaries by reason of his illness or incapacity which would entitle that employee or Director to receive Social Security Disability Income under the Social Security Act, as amended, and the regulations promulgated thereunder. "Disabled" will mean having a Disability. The determination of whether a Participant is Disabled will be made by the Board, whose determination will be conclusive; *provided, however* , that if a Participant is bound by the terms of an employment or consulting agreement between the Participant and the Company, whether the Participant is "Disabled" for purposes of the Plan will be determined in accordance with the procedures set forth in said employment agreement, if such procedures are therein provided.

k. " Exchange Act " means the Securities Exchange Act of 1934, as amended.

l. " Fair Market Value " means, as of any date: (i) if the Shares are not listed or admitted to unlisted trading privileges on a nationally recognized stock exchange, the value of such Shares on that date, as determined by the Board in good faith; or (ii) if the Shares are listed or admitted to unlisted trading privileges on a nationally recognized stock exchange, the closing price of the Shares as reported on the principal nationally recognized stock exchange on which the Shares are traded on such date, or if no Share prices are reported on such date, the closing price of the Shares on the next preceding date on which there were reported Share prices.

m. " Incentive Stock Option " means any Option intended to be and designated as an "Incentive Stock Option" within the meaning of Section 422 of the Code.

n. " Non-Employee Director " will have the meaning set forth in Rule 16b-3(b)(3)(i) promulgated by the Securities and Exchange Commission under the Exchange Act, or any successor definition adopted by the Securities and Exchange Commission; *provided, however* , that the Board or the Committee may, to the extent that it deems necessary to comply with Section 162(m) of the Code or regulations thereunder, require that each "Non-Employee Director" also be an "outside director" as that term is defined in regulations under Section 162 (m).

o. " Non-Qualified Stock Option " means any Option that is not an Incentive Stock Option.

p. " Option " means any option to purchase Shares (including Restricted Shares, if the Committee so determines) granted pursuant to Section 5 hereof.

q. " Participant " means an employee, consultant or Director of the Company or any of its Affiliates to whom an Award is granted.

r. " Person " means an individual, partnership, corporation, limited liability company, trust, joint venture, unincorporated association, or other entity or association.

s. " Restricted Shares " means Shares that are subject to restrictions pursuant to Section 9 hereof.

t. " Share " means a share of Common Stock, $0.001 par value, of the Company, subject to substitution or adjustment as provided in Section 3(c) hereof.

u. " Subsidiary " means, in respect of the Company, a subsidiary company, whether now or hereafter existing, as defined in Sections 424 (f) and (g) of the Code.

v. " Survivors " means a deceased Participant's legal representatives and/or any person or persons who acquired the Participant's rights to an Option by will or by the laws of descent and distribution.

SECTION 2. Administration . The Plan will be administered by the Board; *provided, however* , that the Board may at any time appoint a Committee to perform some or all of the Board's administrative functions hereunder; *and provided further* , that the authority of any Committee appointed pursuant to this Section 2 will be subject to such terms and conditions as the Board may prescribe and will be coextensive with, and not in lieu of, the authority of the Board hereunder.

Any Committee established under this Section 2 will be composed of not fewer than two members, each of whom will serve for such period of time as the Board determines; *provided, however*, that if the Company has a class of securities required to be registered under Section 12 of the Securities Exchange Act of 1934, all members of any Committee established pursuant to this Section 2 will be Non-Employee Directors. From time to time the Board may increase the size of the Committee and appoint additional members thereto, remove members (with or without cause) and appoint new members in substitution therefor, fill vacancies however caused, or remove all members of the Committee and thereafter directly administer the Plan.

Members of the Board who are eligible for Awards or have received Awards may vote on any matters affecting the administration of the Plan or the grant of Awards, except that no such member will act upon the grant of an Award to himself or herself, but any such member may be counted in determining the existence of a quorum at any meeting of the Board during which action is taken with respect to the grant of Awards to himself or herself.

The Board will have full authority to grant Awards under this Plan. In particular, the Board will have the authority:

a. to select the persons to whom Awards may from time to time be granted hereunder (consistent with the eligibility conditions set forth in Section 4);

b. to determine the type of Award to be granted to any person hereunder;

c. to determine the number of Shares, if any, to be covered by each such Award;

d. to establish the terms and conditions of each Award Agreement;

e. to determine whether and under what circumstances an Option may be exercised without a payment of cash under Section 5(d) ; and

f. to determine whether, to what extent and under what circumstances Shares and other amounts payable with respect to an Award may be deferred either automatically or at the election of the Participant.

The Board will have the authority to adopt, alter and repeal such administrative rules, guidelines and practices governing the Plan as it, from time to time, deems advisable; to interpret the terms and provisions of the Plan and any Award issued under the Plan (and any Award Agreement); to amend the terms of any Award Agreement, provided that the Participant consents to such amendment; and to otherwise supervise the administration of the Plan. The Board may correct any defect, supply any omission or reconcile any inconsistency in the Plan or in any Award in the manner and to the extent it deems necessary to carry out the intent of the Plan.

All decisions made by the Board pursuant to the provisions of the Plan will be final and binding on all persons, including the Company and Participants. No member of the Board will be liable for any good faith determination, act or omission in connection with the Plan or any Award.

SECTION 3. Shares Subject to the Plan.

a. Shares Subject to the Plan . The Shares to be subject to Options or Restricted Shares under the Plan will be authorized and unissued Shares of the Company, whether or not previously issued and subsequently acquired by the Company. The maximum number of Shares that may be subject to Options or Restricted Shares under the Plan is 15,845,806 subject to adjustment by the Board, and the Company will reserve for the purposes of the Plan, out of its authorized but unissued Shares, such number of Shares. Notwithstanding anything to the contrary in this Section 3(a) or this Plan, upon exercise of any Option the Shares issuable therefore shall be issued from the treasury stock of the Company.

b. Effect of the Expiration or Termination of Awards . If and to the extent that an Option expires, terminates or is canceled or forfeited for any reason without having been exercised in full, the Shares associated with that Option will again become available for grant

under the Plan. Similarly, if and to the extent that any Restricted Share is canceled, repurchased or forfeited for any reason, that Share will again become available for grant under the Plan.

c. Other Adjustment . Upon the occurrence of any of the following events, a Participant's rights with respect to any Option granted to him or her hereunder which has not previously been exercised in full shall be adjusted as hereinafter provided, unless otherwise specifically provided in the pertinent Award Agreement:

(i) Stock Dividends and Stock Splits . If the Shares shall be subdivided or combined into a greater or smaller number of shares or if the Company shall issue any shares of Common Stock as a stock dividend on its outstanding Common Stock, the number of Shares deliverable upon the exercise of such Option shall be appropriately increased or decreased proportionately, and appropriate adjustments shall be made in the purchase price per share to reflect such subdivision, combination or stock dividend.

(ii) Consolidations or Mergers . If the Company is to be consolidated with or acquired by another entity in a merger, sale of all or substantially all of the Company's assets or otherwise (an "Acquisition"), the Board or the board of directors of any entity assuming the obligations of the Company hereunder (the "Successor Board"), shall, as to outstanding Options, either (i) make appropriate provision for the continuation of such Options by substituting on an equitable basis for the Shares then subject to such Options either the consideration payable with respect to the outstanding shares of Common Stock in connection with the Acquisition or securities of any successor or acquiring entity; or (ii) upon written notice to the Participants, provide that all Options must be exercised (either to the extent then exercisable or, at the discretion of the Board, all Options being made fully exercisable for purposes of this Subparagraph), within a specified number of days of the date of such notice, at the end of which period the Options shall terminate; or (iii) terminate all Options in exchange for a cash payment equal to the excess of the Fair Market Value of the shares subject to such Options (either to the extent then exercisable or, at the discretion of the Board, all Options being made fully exercisable for purposes of this Subparagraph) over the exercise price thereof.

(iii) Recapitalization or Reorganization . In the event of a recapitalization or reorganization of the Company (other than a transaction described in Subparagraph (ii) above) pursuant to which securities of the Company or of another corporation are issued with respect to the outstanding shares of Common Stock, a Participant upon exercising an Option shall be entitled to receive for the purchase price paid upon such exercise the securities which would have been received if such Option had been exercised prior to such recapitalization or reorganization.

(iv) Modification of Incentive Stock Options . Notwithstanding the foregoing, any adjustments made pursuant to Subparagraph (i), (ii) or (iii) with respect to Incentive Stock Options shall be made only after the Board, after consulting with counsel for the Company, determines whether such adjustments would constitute a "modification" of such Options (as that term is defined in Section 424(h) of the Code) or would cause any adverse tax consequences for the holders of such Incentive Stock Options. If the Board determines that such adjustments made with respect to Incentive Stock Options would constitute a modification of such Options, it may refrain from making such adjustments, unless the holder of an Incentive

Stock Options specifically requests in writing that such adjustment be made and such writing indicates that the holder has full knowledge of the consequences of such "modification" on his or her income tax treatment with respect to the Incentive Stock Options.

SECTION 4. Eligibility . Employees, directors, consultants, and other individuals who provide services to the Company or its Affiliates are eligible to be granted Awards under the Plan. Persons who are not employees of the Company or a Subsidiary are eligible to be granted Awards, but are not eligible to be granted Incentive Stock Options.

SECTION 5. Options . Options granted under the Plan may be of two types: (i) Incentive Stock Options or (ii) Non-Qualified Stock Options. Options may be granted alone or in addition to other Awards. Any Option granted under the Plan will be in such form as the Board may from time to time approve.

The Award Agreement evidencing any Option will incorporate the following terms and conditions and will contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Board deems appropriate in its sole and absolute discretion:

a. Option Price . The exercise price per Share purchasable under a Non-Qualified Stock Option will be determined by the Board. The exercise price per Share purchasable under an Incentive Stock Option will be not less than 100% of the Fair Market Value of the Share on the date of the grant. However, any Incentive Stock Option granted to any Participant who, at the time the Option is granted, owns more than 10% of the voting power of all classes of shares of the Company or of a Subsidiary will have an exercise price per Share of not less than 110% of Fair Market Value per Share on the date of the grant.

b. Option Term . The term of each Option will be fixed by the Board, but no Option will be exercisable more than ten (10) years after the date the Option is granted. However, any Incentive Stock Option granted to any Participant who, at the time such Option is granted, owns more than 10% of the voting power of all classes of shares of the Company or of a Subsidiary may not have a term of more than five (5) years. No Option may be exercised by any person after expiration of the term of the Option.

c. Exercisability . Options will vest and be exercisable at such time or times and subject to such terms and conditions as determined by the Board at the time of grant. If the Board provides, in its discretion, that any Option is exercisable only in installments, the Board may waive such installment exercise provisions at any time at or after grant, in whole or in part, based on such factors as the Board determines, in its sole and absolute discretion.

d. Method of Exercise . Subject to the exercise provisions under Section 5(c) and the termination provisions set forth in Section 6 , Options may be exercised in whole or in part at any time and from time to time during the term of the Option, by giving written notice of exercise to the Company specifying the number of Shares to be purchased. Such notice will be accompanied by payment in full of the purchase price, either by certified or bank check, or such other means as the Board may accept. As determined by the Board, in its sole discretion, at or after grant, payment in full or in part of the exercise price of an Option may be made in the form of previously acquired Shares based on the Fair Market Value of the Shares on the date the

Option is exercised; *provided, however* , that unless the Company's accountants advise it that no adverse accounting treatment will result from the payment of the exercise price in the form of previously acquired Shares, previously acquired Shares may not be used to pay such exercise price with respect to any Shares issued pursuant to this Agreement until six months have elapsed from the issuance of such previously acquired Shares; and *provided, further* , that, in the case of an Incentive Stock Option, the right to make a payment in the form of previously acquired Shares may be authorized only at the time the Option is granted.

No Shares will be issued upon exercise of an Option until full payment therefor has been made. A Participant will not have the right to distributions or dividends or any other rights of a shareholder with respect to Shares subject to the Option until the Participant has given written notice of exercise, has paid in full for such Shares, and, if requested, has given the representation described in Section 10(a) hereof.

e. Incentive Stock Option Limitations .. In the case of an Incentive Stock Option, the aggregate Fair Market Value (determined as of the time of grant) of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Participant during any calendar year under the Plan and/or any other plan of the Company, its parent or any Subsidiary of the Company will not exceed $100,000. For purposes of applying the foregoing limitation, Incentive Stock Options will be taken into account in the order granted. Any Option not meeting such limitation will be treated for all purposes as a Non-Qualified Stock Option.

f. Termination of Employment . Unless otherwise specified in the Award Agreement, Options will be subject to the terms of Section 6 with respect to exercise upon termination of employment.

SECTION 6. Termination of Service. Unless otherwise specified with respect to a particular Award, Options granted hereunder will remain exercisable after termination of employment only to the extent specified in this Section 6 .

a. Termination by Reason of Death . In the event of the death of the Participant while an employee of the Company or of an Affiliate, the Option shall be exercisable by the Participant's Survivors within one (1) year after the date of death of the Participant or, if earlier, within the originally prescribed term of the Option.

b. Termination by Reason of Disability . In the event of the Disability of the Participant, as determined in accordance with the Plan, the Option shall be exercisable within one (1) year after the Participant's termination of employment or, if earlier, within the term originally prescribed by the Option.

c. Cause . In the event a Participant's service to the Company or one of its Affiliates is terminated by the Company or such an Affiliate for "Cause", the Participant's right to exercise any unexercised portion of Options shall cease as of such termination, and such Options shall thereupon terminate. Notwithstanding anything herein to the contrary, if subsequent to the Participant's termination of service to the Company or one of its Affiliates for "Cause", but prior to the exercise of the Option, the Board determines that, either prior or subsequent to the Participant's termination, the Participant engaged in conduct which would

constitute “Cause,” then the Participant shall immediately cease to have any right to exercise the Option and this Option shall thereupon terminate.

d. Other Termination . If a Participant’s service with the Company or any Affiliate terminates for any reason other than death, Disability or Cause, any Option held by such Participant may thereafter be exercised by the Participant, to the extent it was exercisable at the time of such termination, or on such accelerated basis as the Board may determine at or after grant, for a period expiring (i) at such time as may be specified by the Board at or after the time of grant, or (ii) if not specified by the Board, then 90 days from the date of termination of service, or (iii) if sooner than the applicable period specified under (i) or (ii) above, then upon the expiration of the stated term of such Option.

SECTION 7. Restricted Shares.

a. Issuance . Restricted Shares may be issued either alone or in conjunction with other Awards. The Board will determine the time or times within which Restricted Shares may be subject to forfeiture, and all other conditions of such Awards.

b. Awards and Certificates . The Award Agreement evidencing the grant of any Restricted Shares will contain such terms and conditions, not inconsistent with the terms of the Plan, as the Board deems appropriate in its sole and absolute discretion. The prospective recipient of an Award of Restricted Shares will not have any rights with respect to such Award, unless and until such recipient has executed an Award Agreement and has delivered a fully executed copy thereof to the Company, and has otherwise complied with the applicable terms and conditions of such Award. The purchase price for Restricted Shares may, but need not, be zero.

A share certificate will be issued in connection with each Award of Restricted Shares. Such certificate will be registered on the Company’s books in the name of the Participant receiving the Award, and will bear the following legend as well as any other legend required by this Plan, the Award Agreement, the Company’s shareholders’ agreement, or by applicable law:

> THE TRANSFERABILITY OF THIS CERTIFICATE AND THE SHARES REPRESENTED HEREBY ARE SUBJECT TO THE TERMS AND CONDITIONS (INCLUDING FORFEITURE) OF THE ASPEN AEROGELS, INC. 2001 EQUITY INCENTIVE PLAN AND AN AGREEMENT ENTERED INTO BETWEEN THE REGISTERED OWNER AND ASPEN AEROGELS, INC. COPIES OF SUCH PLAN AND AGREEMENT ARE ON FILE IN THE PRINCIPAL OFFICES OF ASPEN AEROGELS, INC. AND WILL BE MADE AVAILABLE TO ANY SHAREHOLDER WITHOUT CHARGE UPON REQUEST TO THE SECRETARY OF THE COMPANY.

Share certificates evidencing Restricted Shares be held in custody by the Company or in escrow by an Escrow Agent until the restrictions thereon have lapsed, and that, as

a condition of any Restricted Share Award, the Participant deliver to the Company a share power, endorsed in blank, relating to the Shares covered by such Award.

c. Restrictions and Conditions . The Restricted Shares awarded pursuant to this Section 7 will be subject to the following restrictions and conditions:

(i) During a period commencing with the date of grant of an Award of Restricted Shares and ending at such time or times as specified by the Board (the " Restriction Period "), the Participant will not be permitted to sell, transfer, pledge, assign or otherwise encumber Restricted Shares awarded under the Plan. The Board may condition the lapse of restrictions on Restricted Shares upon the continued employment or service of the recipient, the attainment of specified individual or corporate performance goals, or such other factors as the Board may determine, in its sole and absolute discretion.

(ii) Prior to the expiration of the Restriction Period, the Participant will not be entitled to receive any cash distributions or dividends paid with respect to Restricted Shares and will not be entitled to vote such Restricted Shares. A Participant will be entitled to receive any distributions or dividends paid in the form of securities with respect to Restricted Shares, but such securities will be subject to the same terms and conditions as the Restricted Shares with respect to which they were paid, including, without limitation, the same Restriction Period.

(iii) Subject to the applicable provisions of the Award Agreement, if a Participant's service with the Company terminates prior to the expiration of the Restriction Period for reasons other than death or Disability, all of that Participant's Restricted Shares which then remain subject to forfeiture will be forfeited.

(iv) Upon the death or Disability of a Participant during the Restriction Period:

(A) restrictions based on continued employment will lapse with respect to a percentage of the Restricted Shares granted to the Participant that is equal to the percentage of the Restriction Period that has elapsed as of the date of death or the date on which such Disability commenced (as determined by the Board in its sole discretion), and

(B) restrictions based on individual or corporate performance will lapse to the extent determined by the Board in its sole discretion.

(v) In the event of hardship or other special circumstances of a Participant whose service with the Company is involuntarily terminated (other than for Cause), the Board may, in its sole discretion, waive in whole or in part any or all remaining restrictions with respect to such Participant's Restricted Shares, based on such factors as the Board may deem appropriate.

(vi) If and when the Restriction Period expires without a prior forfeiture of the Restricted Shares subject to such Restriction Period (or if and when the restrictions applicable to Restricted Shares lapse pursuant to Sections 7(c)(iv) or 7(c)(v)) , the certificates for such Shares will be replaced with new certificates, without the restrictive legend

described in Section 7(b) , and such new certificates will be promptly delivered to the Participant, the Participant's representative (if the Participant has suffered a Disability), or the Participant's Survivors (if the Participant has died).

SECTION 8. Amendments and Termination. The Board may amend, alter or discontinue the Plan at any time, but no amendment, alteration or discontinuation will be made which would impair the rights of a Participant with respect to an Award that is outstanding under the Plan, without the Participant's consent, or which, without the approval of such amendment within one year (365 days) of its adoption by the Board, by a majority of the votes cast at a duly held shareholder meeting at which a quorum representing a majority of the Company's outstanding voting shares is present (either in person or by proxy), would: (i) increase the total number of Shares reserved for the purposes of the Plan (except as otherwise provided in Section 3(c)), or (ii) change the persons or class of persons eligible to receive Awards.

SECTION 9. Unfunded Status of Plan. The Plan is intended to be "unfunded." With respect to any payments not yet made to a Participant by the Company, nothing contained herein will give any such Participant any rights that are greater than those of a general creditor of the Company. In its sole discretion, the Board may authorize the creation of grantor trusts or other arrangements to meet the obligations created under the Plan to deliver Shares or payments in lieu of Shares or with respect to other Awards hereunder.

SECTION 10. General Provisions.

a. The Board may require each Participant to represent to and agree with the Company in writing that the Participant is acquiring securities of the Company for investment purposes and without a view to distribution thereof and as to such other matters as the Board believes are appropriate. The certificate evidencing any Award and any securities issued pursuant thereto may include any legend which the Board deems appropriate to reflect any restrictions on transfer and compliance with securities laws.

All certificates for Shares or other securities delivered under the Plan will be subject to such share-transfer orders and other restrictions as the Board may deem advisable under the rules, regulations, and other requirements of the Securities Act of 1933, as amended, the Exchange Act, any stock exchange upon which the Shares are then listed, and any other applicable Federal or state securities laws, and the Board may cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions.

b. Nothing contained in the Plan will prevent the Board from adopting other or additional compensation arrangements, subject to shareholder approval if such approval is required; and such arrangements may be either generally applicable or applicable only in specific cases.

c. The adoption of the Plan will not confer upon any employee of the Company or a Subsidiary any right to continued employment with the Company or such Subsidiary, nor will it interfere in any way with the right of the Company or such Subsidiary to terminate the employment of any of its employees at any time.

d. No later than the date as of which an amount first becomes includible in the gross income of the Participant for Federal income tax purposes with respect to any Award under the Plan, the Participant will pay to the Company, or make arrangements satisfactory to the Board regarding the payment of, any Federal, state or local taxes of any kind required by law to be withheld with respect to such amount. Unless otherwise determined by the Board, the minimum required withholding obligations may be settled with Shares, including Shares that are part of the Award that gives rise to the withholding requirement. The obligations of the Company under the Plan will be conditioned on such payment or arrangements and the Company will, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the Participant.

e. The Board will establish such procedures as it deems appropriate for a Participant to designate a beneficiary to whom any amounts payable in the event of the Participant's death are to be paid.

f. Except as may otherwise be specifically determined by the Board with respect to a particular Award, no Award will be transferable by the Participant otherwise than by will or by the laws of descent and distribution, and all Awards will be exercisable, during the Participant's lifetime, only by the Participant or, in the event of his Disability, by his personal representative.

SECTION 11. Effective Date of Plan . This Plan will become effective on the date that it is approved by a majority of the votes cast at a duly held shareholder meeting at which a quorum representing a majority of Company's outstanding voting shares is present, either in person or by proxy.

SECTION 12. Term of Plan . This Plan will continue in effect until terminated in accordance with Section 8; *provided, however,* that no Incentive Stock Option will be granted hereunder on or after the tenth (10th) anniversary of the date of shareholder approval of the Plan; *but provided further,* that Incentive Stock Options granted prior to such tenth anniversary may extend beyond that date.

SECTION 13. Invalid Provisions . In the event that any provision of this Plan is found to be invalid or otherwise unenforceable under any applicable law, such invalidity or unenforceability will not be construed as rendering any other provisions contained herein as invalid or unenforceable, and all such other provisions will be given full force and effect to the same extent as though the invalid or unenforceable provision was not contained herein.

SECTION 14. Governing Law . This Plan and all Awards granted hereunder will be governed by and construed in accordance with the laws and judicial decisions of the State of Delaware, without regard to the application of the principles of conflicts of laws.

SECTION 15. Board Action . Notwithstanding anything to the contrary set forth in this Plan, any and all actions of the Board or Committee, as the case may be, taken under or in connection with this Plan and any agreements, instruments, documents, certificates or other writings entered into, executed, granted, issued and/or delivered pursuant to the terms hereof,

will be subject to and limited by any and all votes, consents, approvals, waivers or other actions of all or certain stockholders of the Company or other persons required by:

a. the Company's governing documents (as the same may be amended and/or restated from time to time); and

b. any other agreement, instrument, document or writing now or hereafter existing, between or among the Company and its stockholders or other persons (as the same may be amended from time to time).

SECTION 16. Notices . Any notice to be given to the Company pursuant to the provisions of the Plan shall be addressed to the Company in care of its Secretary (or such other person as the Company may designate from time to time) at its principal executive office, and any notice to be given to a Participant shall be delivered personally or addressed to him or her at the address given beneath his or her signature on his or her Award Agreement, or at such other address as such Participant may hereafter designate in writing to the Company. Any such notice shall be deemed duly given on the date and at the time delivered via personal, courier or recognized overnight delivery service or, if sent via telecopier, on the date and at the time telecopied with confirmation of delivery or, if mailed, on the date five (5) days after the date of the mailing (which shall be by regular, registered or certified mail). Delivery of a notice by telecopy (with confirmation) shall be permitted and shall be considered delivery of a notice notwithstanding that it is not an original that is received.

SECTION 17. Dissolution or Liquidation of the Company . Upon the dissolution or liquidation of the Company, all Options granted under this Plan which as of such date shall not have been exercised will terminate and become null and void; provided, however, that if the rights of a Participant or a Participant's Survivors have not otherwise terminated and expired, the Participant or the Participant's Survivors will have the right immediately prior to such dissolution or liquidation to exercise any Option to the extent that the Option is exercisable as of the date immediately prior to such dissolution or liquidation.

SECTION 18. Issuances of Securities . Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares subject to Options. Except as expressly provided herein, no adjustments shall be made for dividends paid in cash or in property (including without limitation, securities) of the Company.

SECTION 19. Fractional Shares . No fractional shares shall be issued under the Plan and the person exercising such right shall receive from the Company cash in lieu of such fractional shares equal to the Fair Market Value thereof.

SECTION 20. Conversion of Incentive Stock Options into Non-Qualified Stock Options; Termination of Incentive Stock Options . The Board, at the written request of any Participant, may in its discretion take such actions as may be necessary to convert such Participant's Incentive Stock Options (or any portions thereof) that have not been exercised on the date of conversion into Non-Qualified Stock Options at any time prior to the expiration of

such Incentive Stock Options, regardless of whether the Participant is an employee of the Company or an Affiliate at the time of such conversion. Such actions may include, but not be limited to, extending the exercise period or reducing the exercise price of the appropriate installments of such Options. At the time of such conversion, the Board (with the consent of the Participant) may impose such conditions on the exercise of the resulting Non-Qualified Stock Options as the Board in its discretion may determine, provided that such conditions shall not be inconsistent with this Plan. Nothing in the Plan shall be deemed to give any Participant the right to have such Participant's Incentive Stock Options converted into Non-Qualified Stock Options, and no such conversion shall occur until and unless the Board takes appropriate action. The Board, with the consent of the Participant, may also terminate any portion of any Incentive Stock Option that has not been exercised at the time of such conversion.

SECTION 21. Notice to Company of Disqualifying Disposition . Each Participant who receives an Incentive Stock Option must agree to notify the Company in writing immediately after the Key Employee makes a "Disqualifying Disposition" of any Shares acquired pursuant to the exercise of an Incentive Stock Option. A "Disqualifying Disposition" is any disposition (including any sale) of such shares before the later of (a) two years after the date the Participant was granted the Incentive Stock Option, or (b) one year after the date Participant acquired Shares by exercising the Incentive Stock Option. If the Participant has died before such stock is sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.

Exhibit 10.1.2

Aspen Aerogels, Inc.
2001 Equity Incentive Plan (as amended through May 18, 2011)
Incentive Stock Option Certificate

Aspen Aerogels, Inc., a Delaware corporation (the " Company "), hereby grants to the person named below (the " Optionee ") an option (the " Option ") to purchase shares of its Common Stock (the " Shares ") under and for the purposes set forth in the Company's 2001 Equity Incentive Plan, as amended through May 18, 2011 (the " Plan "), exerciseable on the following terms and conditions and those set forth in the Incentive Stock Option Agreement (the " Agreement ") attached to this Incentive Stock Option Certificate (this " Certificate ").

Name of Optionee:	_____
Address:	_____
Social Security Number:	_____
Number of Shares:	_____
Purchase Price:	$[___] per share
Date of Grant:	_____
Exercisability Schedule:	25% of the Shares will vest and become exerciseable on the first anniversary of the Date of Grant, and the remaining 75% shall vest and become exerciseable in equal monthly installments over the 36 months following the first anniversary of the Date of Grant.
Expiration Date:	_____

This Option is intended to be treated as an Incentive Stock Option under section 422 of the Internal Revenue Code of 1986, as amended (the " Code "). By acceptance of this Option, the Optionee agrees to the terms and conditions set forth in this Certificate, the Agreement, and the Plan. This Certificate shall serve as the signature page of the Optionee and the Company to the Agreement.

OPTIONEE	ASPEN AEROGELS, INC.
By: _____	By: _____
Name:	Name: Donald R. Young Title: President & Chief Executive Officer

INCENTIVE STOCK OPTION AGREEMENT
ASPEN AEROGELS, INC.

AGREEMENT made as of the Date of Grant (as defined in the Incentive Stock Option Certificate to which this Incentive Stock Option Agreement is attached (the " Certificate ")) between Aspen Aerogels, Inc., a Delaware corporation (the " Company "), and the Optionee (as defined in the Certificate).

WHEREAS, the Company desires to grant to the Optionee an option (the " Option ") to purchase shares of its Common Stock (the " Shares "), under and for the purposes set forth in the Company's 2001 Equity Incentive Plan, as amended through May 18, 2011 (the " Plan "); and

WHEREAS, the Company and the Optionee understand and agree that any terms used and not defined herein have the same meanings as in the Plan; and

WHEREAS, the Company and the Optionee each intend that the Option granted herein qualify as an Incentive Stock Option.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth and for other good and valuable consideration, the parties hereto agree as follows:

1. GRANT OF OPTION . The Company hereby grants to the Optionee the right and option to purchase all or any part of that number of Shares set forth in the Certificate, on the terms and conditions and subject to all the limitations set forth herein and in the Certificate and the Plan, which are incorporated herein by reference. The Optionee acknowledges receipt of a copy of the Certificate and the Plan.

2. PURCHASE PRICE . The purchase price of the Shares covered by the Option is set forth in the Certificate. Payment shall be made in accordance with Section 5(d). of the Plan.

3. EXERCISABILITY OF OPTION . Subject to the terms and conditions set forth in this Agreement and the Plan, the Option granted hereby shall become exercisable only with respect to Shares that have vested as set forth in the Certificate.

4. TERM OF OPTION . The Option shall terminate ten (10) years from the date of this Agreement or, if the Optionee owns as of the date hereof more than 10% of the total combined voting power of all classes of capital stock of the Company or an Affiliate, five (5) years from the date of this Agreement, but shall be subject to earlier termination as provided herein or in the Plan. If the Optionee ceases to be an employee of the Company or of an Affiliate (for any reason other than the death or Disability of the Optionee or termination by the Optionee's employer for Cause), the Option may be exercised, if it has not previously terminated, within ninety (90) days after the date the Optionee ceases to be an employee of the Company or an Affiliate, at such time as may be specified by the Board at or after the time of grant or within the originally prescribed term of the Option, whichever is earlier, but may not be exercised thereafter

In the event the Optionee's employment is terminated by the Optionee's employer for Cause, the Optionee's right to exercise any unexercised portion of this Option shall cease as of such termination, and this Option shall thereupon terminate. Notwithstanding anything herein to the contrary, if subsequent to the Optionee's termination as an employee, but prior to the exercise of the Option, the Board determines that, either prior or subsequent to the Optionee's termination, the Optionee engaged in conduct which would constitute Cause, then the Optionee shall immediately cease to have any right to exercise the Option and this Option shall thereupon terminate.

In the event of the Disability of the Optionee, as determined in accordance with the Plan, or if the Optionee is determined to be disabled under the Company's long-term disability plan, the Option shall be exercisable within one (1) year after the termination of Optionee's employment or, if earlier, within the term originally prescribed by the Option.

In the event of the death of the Optionee while an employee of the Company or of an Affiliate, the Option shall be exercisable by the Optionee's Survivors within one (1) year after the date of death of the Optionee or, if earlier, within the originally prescribed term of the Option.

5. METHOD OF EXERCISING OPTION .

(a) Subject to the terms and conditions of this Agreement, the Option may be exercised by written notice to the Company at its principal executive office in substantially the form of Exhibit A attached hereto. Such notice shall state the number of Shares with respect to which the Option is being exercised and shall be signed by the person so exercising the Option. Payment of the purchase price for such Shares shall be made in accordance with Section 5(d). of the Plan. The Company shall deliver a certificate or certificates representing such Shares to the Escrow Agent as set forth below as soon as practicable after the notice shall be received, provided, however, that the Company may delay issuance of such Shares until completion of any action or obtaining of any consent, which the Company deems necessary under any applicable law (including, without limitation, state securities or "blue sky" laws). The certificate or certificates for the Shares as to which the Option shall have been so exercised shall be registered in the name of the person or persons so exercising the Option (or, if the Option shall be exercised by the Optionee and if the Optionee shall so request in the notice exercising the Option, shall be registered in the name of the Optionee and another person jointly, with right of survivorship) and shall be delivered to the Escrow Agent as provided below. In the event the Option shall be exercised, pursuant to Section 5 hereof, by any person or persons other than the Optionee, such notice shall be accompanied by appropriate proof of the right of such person or persons to exercise the Option. All Shares that shall be purchased upon the exercise of the Option as provided herein shall be fully paid and non-assessable.

(b) As security for the faithful performance of the terms of this Agreement and to insure the availability for delivery of the Optionee's Shares pursuant to this Agreement, the Optionee agrees to deliver to and deposit with the Secretary of the Company, or such other person designated by the Company, as escrow agent (the " Escrow Agent "), a stock assignment duly endorsed (with date and number of Shares in blank) in the form prescribed by the Escrow Agent together with any certificate or certificates evidencing Shares. The Escrow Agent shall

hold such documents in escrow pursuant to the terms of this Agreement, including without limitation this Section 5(b) .

6. PARTIAL EXERCISE . Exercise of this Option to the extent above stated may be made in part at any time and from time to time within the above limits, except that no fractional share shall be issued pursuant to this Option.

7. NON-ASSIGNABILITY . The Option shall not be transferable by the Optionee other than (i) by will or by the laws of descent and distribution, (ii) to such Optionee's spouse or children (or step-children) or to a trust the sole beneficiaries of which are the Optionee's spouse and/or children (or step-children), provided that all voting rights with respect to any Shares remain with the Optionee, or (iii) to irrevocable trusts or other estate planning entities for tax or estate planning purposes; provided that in each case the transferee(s) shall hold the Option or any Shares subject to the same restrictions applicable hereunder to the Optionee and shall agree in writing to be bound by the terms of the Stockholders' Agreement. Except as provided in the preceding sentence, the Option shall be exercisable, during the Optionee's lifetime, only by the Optionee (or, in the event of legal incapacity or incompetency, by the Optionee's guardian or representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of the Option or of any rights granted hereunder contrary to the provisions of this Section 7 , or the levy of any attachment or similar process upon the Option shall be null and void.

8. NO RIGHTS AS STOCKHOLDER UNTIL EXERCISE . The Optionee shall have no rights as a stockholder with respect to Shares subject to this Agreement until registration of the Shares in the Company's share register in the name of the Optionee. Except as is expressly provided in the Plan with respect to certain changes in the capitalization of the Company, no adjustment shall be made for dividends or similar rights for which the record date is prior to the date of such registration.

9. CAPITAL CHANGES AND BUSINESS SUCCESSIONS . The Plan contains provisions covering the treatment of Options in a number of contingencies such as stock splits and mergers. Provisions in the Plan for adjustment with respect to stock subject to Options and the related provisions with respect to successors to the business of the Company are hereby made applicable hereunder and are incorporated herein by reference **.**

10. TAXES . The Optionee acknowledges that any income or other taxes due from him or her with respect to this Option or the Shares issuable pursuant to this Option shall be the Optionee's responsibility. In the event of a Disqualifying Disposition (as defined in Section 15 below) or if the Option is converted into a Non-Qualified Stock Option and such Non-Qualified Stock Option is exercised, the Company may withhold from the Optionee's remuneration, if any, the minimum required federal, state and local withholding taxes attributable to such amount that is considered compensation includable in such person's gross income. At the Company's discretion, the amount required to be withheld may be withheld in cash from such remuneration, or in kind from the Shares otherwise deliverable to the Optionee on exercise of the Option. The Optionee further agrees that, if the Company does not withhold an amount from the Optionee's

remuneration sufficient to satisfy the Company's income tax withholding obligation, the Optionee will reimburse the Company on demand, in cash, for the amount under-withheld.

11. PURCHASE FOR INVESTMENT . Unless the offering and sale of the Shares to be issued upon the particular exercise of the Option shall have been effectively registered under the Securities Act of 1933, as now in force or hereafter amended (the " 1933 Act "), the Company shall be under no obligation to issue the Shares covered by such exercise unless and until the following conditions have been fulfilled:

(a) The person(s) who exercise the Option shall warrant to the Company, at the time of such exercise, that such person(s) are acquiring such Shares for their own respective accounts, for investment, and not with a view to, or for sale in connection with, the distribution of any such Shares, in which event the person(s) acquiring such Shares shall be bound by the provisions of the following legend which shall be endorsed upon the certificate(s) evidencing the Shares issued pursuant to such exercise:

"THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN TAKEN FOR INVESTMENT AND THEY MAY NOT BE SOLD OR OTHERWISE TRANSFERRED BY ANY PERSON, INCLUDING A PLEDGEE, UNLESS (1) EITHER (A) A REGISTRATION STATEMENT WITH RESPECT TO SUCH SHARES SHALL BE EFFECTIVE UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR (B) THE COMPANY SHALL HAVE RECEIVED AN OPINION OF COUNSEL SATISFACTORY TO IT THAT AN EXEMPTION FROM REGISTRATION UNDER SUCH ACT IS THEN AVAILABLE, AND (2) THERE SHALL HAVE BEEN COMPLIANCE WITH ALL APPLICABLE STATE SECURITIES LAWS;" and

(b) If the Company so requires, the Company shall have received an opinion of its counsel that the Shares may be issued upon such particular exercise in compliance with the 1933 Act without registration thereunder. Without limiting the generality of the foregoing, the Company may delay issuance of the Shares until completion of any action or obtaining of any consent, which the Company deems necessary under any applicable law (including without limitation state securities or "blue sky" laws).

12. RESTRICTIONS ON TRANSFER OF SHARES .

(a) The Shares acquired by the Optionee pursuant to the exercise of the Option granted hereby shall not be transferred by the Optionee except as permitted under the terms of the Fifth Amended and Restated Stockholders' Agreement among the Company and the Stockholders (as defined therein) dated as of September 22, 2010, and all amendments, modifications, substitutions and replacements thereto (the " Stockholders' Agreement "). The Optionee agrees to become a party to the Stockholders' Agreement upon acquiring any Shares by exercise of the Option.

(b) In the event of the Optionee's termination of employment for any reason, the Company shall have the option, but not the obligation, to repurchase all or any part of the Shares issued pursuant to this Agreement (including, without limitation, Shares purchased after

termination of employment, Disability or death in accordance with Section 4 hereof). In the event the Company does not exercise its option pursuant to this Section 12(b) , the restrictions set forth in the balance of this Agreement shall not thereby lapse, and the Optionee for himself or herself, his or her heirs, legatees, executors, administrators and other successors in interest, agrees that the Shares shall remain subject to such restrictions. The following provisions shall apply to a repurchase under this Section 12(b) :

(i) The per share repurchase price of the Shares to be sold to the Company upon exercise of its option under this Section 12(b) shall be equal to the Fair Market Value of each such Share determined in accordance with the Plan as of the date of the Company's notice of repurchase;

(ii) The Company's option to repurchase the Optionee's Shares in the event of termination of employment shall be valid for a period ending on the later of twelve (12) months commencing with the date of such termination of employment; or thirteen (13) months following such Optionee's exercise of the Option.

(iii) In the event the Company shall be entitled to and shall elect to exercise its option to repurchase the Optionee's Shares under this Section 12(b) , the Company shall notify the Optionee, or in case of death, his or her representative, in writing of its intent to repurchase the Shares. Such written notice may be mailed by the Company up to and including the last day of the time period provided for in Section 12(b) (ii) for exercise of the Company's option to repurchase.

(iv) The written notice to the Optionee shall specify the address at, and the time and date on, which payment of the repurchase price is to be made (the " Closing "). The date specified shall not be less than ten (10) days nor more than sixty (60) days from the date of the mailing of the notice, and the Optionee or his or her successor in interest with respect to the Shares shall have no further rights as the owner thereof from and after the date specified in the notice. At the Closing, the repurchase price shall be delivered to the Optionee or his or her successor in interest and the Shares being purchased, duly endorsed for transfer, shall, to the extent that they are not then in the possession of the Company, be delivered to the Company by the Optionee or his or her successor in interest.

(c) The provisions of Sections 12(a) and 12(b) shall terminate upon the consummation of a public offering of the securities of the Company pursuant to a registration statement filed with the Securities and Exchange Commission pursuant to the 1933 Act.

(d) The Optionee acknowledges and agrees that neither the Company, its shareholders nor its directors and officers, has any duty or obligation to disclose to the Optionee any material information regarding the business of the Company or affecting the value of the Shares before, at the time of, or following a termination of the employment of the Optionee by the Company, including, without limitation, any information concerning plans for the Company to make a public offering of its securities or to be acquired by or merged with or into another firm or entity.

13. NO OBLIGATION TO EMPLOY . The Company is not by the Plan or this Option obligated to continue the Optionee as an employee of the Company.

14. OPTION IS INTENDED TO BE AN INCENTIVE STOCK OPTION . The parties each intend that the Option be an Incentive Stock Option so that the Optionee (or in the event of Optionee's death, Optionee's legal representatives and/or any person who acquired Optionee's rights to an Option in accordance with Section 7 hereof) may qualify for the favorable tax treatment provided to holders of Options that meet the standards of Section 422 of the Code. Nonetheless, if all or any part of the Option is determined not to be an Incentive Stock Option, the Optionee understands that neither the Company nor any Affiliate is responsible to compensate him or her or otherwise make up for the treatment of the Option as a Non-qualified Stock Option and not as an Incentive Stock Option. The Optionee should consult with the Optionee's own tax advisors regarding the tax effects of the Option and the requirements necessary to obtain favorable tax treatment under Section 422 of the Code, including, but not limited to, holding period requirements.

15. NOTICE TO COMPANY OF DISQUALIFYING DISPOSITION . The Optionee agrees to notify the Company in writing immediately after the Optionee makes a Disqualifying Disposition of any of the Shares acquired pursuant to the exercise of the Option. A Disqualifying Disposition is defined in Section 424(c) of the Code and includes any disposition (including any sale) of such Shares before the later of (a) two years after the date the Optionee was granted the Option or (b) one year after the date the Optionee acquired Shares by exercising the Option, except as otherwise provided in Section 424(c) of the Code. If the Optionee has died before the Shares are sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.

16. HOLDBACK AGREEMENT . The Optionee agrees, if so requested by the managing underwriter in each underwritten registration of the Company's capital stock or other securities, not to effect (except as part of such underwritten registration if included therein) any sale, distribution, short sale, loan, grant of options for the purchase of, or otherwise dispose of, any Shares for such period as such underwriter requests, such period in no event to commence earlier than ten (10) days prior to, or to end more than 180 days after, the effective date of such registration. If the managing underwriter advises the Company that, in its opinion, no sale, distribution, short sale, loan, grant of options for the purchase of, or after disposition of, any shares of the Company's common stock should be effected for a period of not more than 180 days after the effective date of such underwritten registration in order to complete the sale and distribution of the securities included therein and the Company gives notice to such effect to the Optionee, the Optionee shall not (except as part of such underwritten registration if included therein) effect any sale, distribution, short sale, loan, grant of options for the purchase of or otherwise dispose of shares of the Company's common stock for such period as such managing underwriter advises, such period in no event to commence earlier than ten (10) days prior to, or to end more than 180 days after, the effective date of such registration. The Optionee further agrees that the Company may instruct its transfer agent to place stop transfer notations in its records to enforce the provisions of this Section 16 .

17. NOTICES . Any notices required or permitted by the terms of this Agreement or the Plan shall be given by recognized courier service, facsimile, registered or certified mail, return receipt requested, addressed as follows:

If to the Company: Aspen Aerogels, Inc.
30 Forbes Road, Bldg B
Northborough, MA 01532
Telephone: (508) 691-1150
Facsimile: (508) 691-1200
Attention: Chief Financial Officer

If to the Optionee: At the address of the Optionee as set forth in the records of the Company

or to such other address or addresses of which notice in the same manner has previously been given. Any such notice shall be deemed to have been given upon the earlier of receipt, one business day following delivery to a recognized courier service or five (5) business days following mailing by registered or certified mail.

18. GOVERNING LAW . This Agreement shall be construed and enforced in accordance with the law of the State of Delaware **,** without giving effect to the conflict of law principles thereof.

19. BENEFIT OF AGREEMENT . Subject to the provisions of the Plan and the other provisions hereof, this Agreement shall be for the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

20. ENTIRE AGREEMENT . This Agreement, together with the Plan, embodies the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement not expressly set forth in this Agreement shall affect or be used to interpret, change or restrict the express terms and provisions of this Agreement, provided, however, in any event, this Agreement shall be subject to and governed by the Plan.

21. MODIFICATIONS AND AMENDMENTS . The terms and provisions of this Agreement may be modified or amended as provided in the Plan or in Section 22 below.

22. WAIVERS AND CONSENTS . Except as provided in the Plan, the terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. Notwithstanding anything to the contrary in the preceding sentence, holders representing a majority of the Shares subject to an Option under the Plan may waive or grant a consent to the departure from the provisions of this Agreement so long as such waiver or consent applies to all holders of Shares subject to an Option under the Plan in the same fashion. No such waiver or consent shall be deemed to be or shall constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or

consent shall be effective only in the specific instance and for the purpose for which it was given, and shall not constitute a continuing waiver or consent.

[remainder of page intentionally left blank]

EXHIBIT A

NOTICE OF EXERCISE OF INCENTIVE STOCK OPTION
[Form For Unregistered Shares]

To: Aspen Aerogels, Inc.
30 Forbes Road, Bldg B
Northborough, MA 01532
Attention: Chief Financial Officer

Ladies and Gentlemen:

I hereby exercise my Incentive Stock Option to purchase _____shares (the " Shares ") of the common stock, par value $.001 per share, of Aspen Aerogels, Inc. (the " Company ") at the exercise price of $0.22 per share, pursuant to and subject to the terms of that certain Incentive Stock Option Agreement between the undersigned and the Company dated as of _____, 2011.

I am aware that the Shares have not been registered under the Securities Act of 1933, as amended (the " 1933 Act "), or any state securities laws. I understand that the reliance by the Company on exemptions under the 1933 Act is predicated in part upon the truth and accuracy of the statements by me in this Notice of Exercise.

I hereby represent and warrant that (1) I have been furnished with all information which I deem necessary to evaluate the merits and risks of the purchase of the Shares; (2) I have had the opportunity to ask questions concerning the Shares and the Company and all questions posed have been answered to my satisfaction; (3) I have been given the opportunity to obtain any additional information I deem necessary to verify the accuracy of any information obtained concerning the Shares and the Company; and (4) I have such knowledge and experience in financial and business matters that I am able to evaluate the merits and risks of purchasing the Shares and to make an informed investment decision relating thereto.

I hereby represent and warrant that I am purchasing the Shares for my own personal account for investment and not with a view to the sale or distribution of all or any part of the Shares. I understand that because the Shares have not been registered under the 1933 Act, I must continue to bear the economic risk of the investment for an indefinite time and the Shares cannot be sold unless the Shares are subsequently registered under applicable federal and state securities laws or an exemption from such registration requirements is available.

I agree that I will in no event sell or distribute or otherwise dispose of all or any part of the Shares unless (1) there is an effective registration statement under the 1933 Act and applicable state securities laws covering any such transaction involving the Shares or (2) the Company receives an opinion of my legal counsel (concurred in by legal counsel for the Company) stating that such transaction is exempt from registration or the Company otherwise satisfies itself that such transaction is exempt from registration.

I consent to the placing of a legend on my certificate for the Shares stating that the Shares have not been registered and setting forth the restriction on transfer contemplated hereby and to the placing of a stop transfer order on the books of the Company and with any transfer agents against the Shares until the Shares may be legally resold or distributed without restriction. I understand that at the present time Rule 144 of the Securities and Exchange Commission (the " SEC ") may not be relied on for the resale or distribution of the Shares by me. I understand that the Company has no obligation to me to register the sale of the Shares with the SEC and has not represented to me that it will register the sale of the Shares. I understand the terms and restrictions on the right to dispose of the Shares set forth in the 2001 Equity Incentive Plan, the Incentive Stock Option Agreement and the Fifth Amended and Restated Stockholders' Agreement among the Company and the Stockholders (as defined therein) dated as of September 22, 2010, and all amendments, modifications, substitutions and replacements thereto (the " Stockholders' Agreement "), all of which I have carefully reviewed. I agree to become a party to the Stockholders' Agreement by executing the Joinder attached hereto as Annex 1 . I consent to the placing of a legend on my certificate for the Shares referring to such restrictions and the placing of stop transfer orders until the Shares may be transferred in accordance with the terms of such restrictions.

I have considered the Federal, state and local income tax implications of the exercise of my Option and the purchase and subsequent sale of the Shares.

I am paying the option exercise price for the Shares as follows: _____

Please issue the stock certificate for the Shares in the name of _____, and deliver to the Escrow Agent.

My mailing address for shareholder communications is:_____.

Very truly yours,

_____

Optionee (signature)

_____

Print Name

_____

Date

_____

Social Security Number

ANNEX 1

JOINDER TO FIFTH AMENDED AND RESTATED STOCKHOLDERS' AGREEMENT OF ASPEN AEROGELS, INC.

As of _____ ___, _____

The undersigned, _____, having a principal business address of _____, hereby acknowledges that the undersigned has become a Stockholder of Aspen Aerogels, Inc., a Delaware corporation (the " Company "), as of the date first written above, and hereby joins in the execution of that certain Fifth Amended and Restated Stockholders' Agreement of the Company, dated as of September 22, 2010 (the " Stockholders Agreement ").

By executing this Joinder, the undersigned hereby:

1. Agrees and acknowledges that the undersigned is a Stockholder of the Company, as such term is defined and used in the Stockholders Agreement, a copy of which has been furnished to the undersigned, with the same force and effect as if originally named therein as a Stockholder and that each reference to a Stockholder in the Stockholders Agreement shall be deemed to include the undersigned; and

2. Agrees to be bound by, and agrees that the undersigned is bound by, all of the terms and provisions of the Stockholders Agreement for all purposes.

_____
Name:
Title:

ACKNOWLEDGED AND ACCEPTED:

ASPEN AEROGELS, INC.

By: _____
Name:
Title:

Exhibit 10.1.3

Aspen Aerogels, Inc.
2001 Equity Incentive Plan
(as amended through May 18, 2011)
Non-Qualified Stock Option Certificate

Aspen Aerogels, Inc., a Delaware corporation (the " Company "), hereby grants to the person named below (the " Optionee ") an option (the " Option ") to purchase shares of its Common Stock (the " Shares ") under and for the purposes set forth in the Company's 2001 Equity Incentive Plan, as amended through May 18, 2011 (the " Plan "), exerciseable on the following terms and conditions and those set forth in the Non-Qualified Stock Option Agreement (the " Agreement ") attached to this Non-Qualified Stock Option Certificate (this " Certificate ").

Name of Optionee:	_____
Address:	_____
Social Security Number:	_____
Number of Shares:	_____
Purchase Price:	_____
Date of Grant:	_____, 2011
Exercisability Schedule:	The options will vest quarterly while the individual is serving as a Director at the rate of 6.25% per quarter. The first 6.25% will vest three (3) months from the Date of Grant.
Expiration Date:	_____, 2021

By acceptance of this Option, the Optionee agrees to the terms and conditions set forth in this Certificate, the Agreement, and the Plan. This Certificate shall serve as the signature page of the Optionee and the Company to the Agreement.

OPTIONEE	ASPEN AEROGELS, INC.
_____	By: _____
Name:	Name:
	Title:

NON-QUALIFIED STOCK OPTION AGREEMENT
ASPEN AEROGELS, INC.

AGREEMENT made as of the Date of Grant (as defined in the Non-Qualified Stock Option Certificate to which this Non-Qualified Stock Option Agreement is attached (the " Certificate ")) between Aspen Aerogels, Inc., a Delaware corporation (the " Company "), and the Optionee (as defined in the Certificate).

WHEREAS, the Company desires to grant to the Optionee an option (the " Option ") to purchase shares of its Common Stock (the " Shares "), under and for the purposes set forth in the Company's 2001 Equity Incentive Plan, as amended through May 18, 2011 (the " Plan "); and

WHEREAS, the Company and the Optionee understand and agree that any terms used and not defined herein have the same meanings as in the Plan; and

WHEREAS, the Company and the Optionee each intend that the Option granted herein shall be a Non-Qualified Stock Option.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth and for other good and valuable consideration, the parties hereto agree as follows:

1. GRANT OF OPTION . The Company hereby grants to the Optionee the right and option to purchase all or any part of that number of Shares set forth in the Certificate, on the terms and conditions and subject to all the limitations set forth herein and in the Certificate and the Plan, which are incorporated herein by reference. The Optionee acknowledges receipt of a copy of the Certificate and the Plan.

2. PURCHASE PRICE . The purchase price of the Shares covered by the Option is set forth in the Certificate. Payment shall be made in accordance with Section 5(d) of the Plan.

3. EXERCISABILITY OF OPTION . Subject to the terms and conditions set forth in this Agreement and the Plan, the Option granted hereby shall become exercisable only with respect to Shares that have vested as set forth in the Certificate.

4. TERM OF OPTION . The Option shall terminate ten (10) years from the date of this Agreement, but shall be subject to earlier termination as provided herein or in the Plan.

5. METHOD OF EXERCISING OPTION . Subject to the terms and conditions of this Agreement, the Option may be exercised by written notice to the Company at its principal executive office in substantially the form of Exhibit A attached hereto. Such notice shall state the number of Shares with respect to which the Option is being exercised and shall be signed by the person so exercising the Option. Payment of the purchase price for such Shares shall be made in accordance with Section 5(d) of the Plan. The Company shall deliver a certificate or certificates representing such Shares as soon as practicable after the notice shall be received, provided, however, that the Company may delay issuance of such Shares until completion of any action or obtaining of any consent, which the Company deems necessary under any applicable law (including, without limitation, state securities or "blue sky" laws). The certificate or

certificates for the Shares as to which the Option shall have been so exercised shall be registered in the name of the person or persons so exercising the Option (or, if the Option shall be exercised by the Optionee and if the Optionee shall so request in the notice exercising the Option, shall be registered in the name of the Optionee and another person jointly, with right of survivorship) and shall be delivered as provided above to or upon the written order of the person or persons exercising the Option. In the event the Option shall be exercised, pursuant to Section 5 hereof, by any person or persons other than the Optionee, such notice shall be accompanied by appropriate proof of the right of such person or persons to exercise the Option. All Shares that shall be purchased upon the exercise of the Option as provided herein shall be fully paid and non-assessable.

6. PARTIAL EXERCISE . Exercise of this Option to the extent above stated may be made in part at any time and from time to time within the above limits, except that no fractional share shall be issued pursuant to this Option.

7. NON-ASSIGNABILITY . The Option shall not be transferable by the Optionee other than (i) by will or by the laws of descent and distribution, (ii) to such Optionee's spouse or children (or step-children) or to a trust the sole beneficiaries of which are the Optionee's spouse and/or children (or step-children), provided that all voting rights with respect to any Shares remain with the Optionee, or (iii) to irrevocable trusts or other estate planning entities for tax or estate planning purposes; provided that in each case the transferee(s) shall hold the Option or any Shares subject to the same restrictions applicable hereunder to the Optionee and shall agree in writing to be bound by the terms of the Stockholders' Agreement. Except as provided in the preceding sentence, the Option shall be exercisable, during the Optionee's lifetime, only by the Optionee (or, in the event of legal incapacity or incompetency, by the Optionee's guardian or representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of the Option or of any rights granted hereunder contrary to the provisions of this Section 7 , or the levy of any attachment or similar process upon the Option shall be null and void.

8. NO RIGHTS AS STOCKHOLDER UNTIL EXERCISE . The Optionee shall have no rights as a stockholder with respect to Shares subject to this Agreement until registration of the Shares in the Company's share register in the name of the Optionee. Except as is expressly provided in the Plan with respect to certain changes in the capitalization of the Company, no adjustment shall be made for dividends or similar rights for which the record date is prior to the date of such registration.

9. CAPITAL CHANGES AND BUSINESS SUCCESSIONS . The Plan contains provisions covering the treatment of Options in a number of contingencies such as stock splits and mergers. Provisions in the Plan for adjustment with respect to stock subject to Options and the related provisions with respect to successors to the business of the Company are hereby made applicable hereunder and are incorporated herein by reference **.**

10. TAXES . The Optionee acknowledges that upon exercise of the Option the Optionee will be deemed to have taxable income measured by the difference between the then fair market value of the Shares received upon exercise and the price paid for such Shares

pursuant to this Agreement. The Optionee acknowledges that any income or other taxes due from him or her with respect to this Option or the Shares issuable pursuant to this Option shall be the Optionee's responsibility. In the event the Option is exercised, the Company may withhold from the Optionee's remuneration, if any, the minimum required federal, state and local withholding taxes attributable to such amount that is considered compensation includable in such person's gross income. At the Company's discretion, the amount required to be withheld may be withheld in cash from such remuneration, or in kind from the Shares otherwise deliverable to the Optionee on exercise of the Option. The Optionee further agrees that, if the Company does not withhold an amount from the Optionee's remuneration sufficient to satisfy the Company's income tax withholding obligation, the Optionee will reimburse the Company on demand, in cash, for the amount under-withheld.

11. PURCHASE FOR INVESTMENT . Unless the offering and sale of the Shares to be issued upon the particular exercise of the Option shall have been effectively registered under the Securities Act of 1933, as now in force or hereafter amended (the " 1933 Act "), the Company shall be under no obligation to issue the Shares covered by such exercise unless and until the following conditions have been fulfilled:

(a) The person(s) who exercise the Option shall warrant to the Company, at the time of such exercise, that such person(s) are acquiring such Shares for their own respective accounts, for investment, and not with a view to, or for sale in connection with, the distribution of any such Shares, in which event the person(s) acquiring such Shares shall be bound by the provisions of the following legend which shall be endorsed upon the certificate(s) evidencing the Shares issued pursuant to such exercise:

"THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN TAKEN FOR INVESTMENT AND THEY MAY NOT BE SOLD OR OTHERWISE TRANSFERRED BY ANY PERSON, INCLUDING A PLEDGEE, UNLESS (1) EITHER (A) A REGISTRATION STATEMENT WITH RESPECT TO SUCH SHARES SHALL BE EFFECTIVE UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR (B) THE COMPANY SHALL HAVE RECEIVED AN OPINION OF COUNSEL SATISFACTORY TO IT THAT AN EXEMPTION FROM REGISTRATION UNDER SUCH ACT IS THEN AVAILABLE, AND (2) THERE SHALL HAVE BEEN COMPLIANCE WITH ALL APPLICABLE STATE SECURITIES LAWS;" and

(b) If the Company so requires, the Company shall have received an opinion of its counsel that the Shares may be issued upon such particular exercise in compliance with the 1933 Act without registration thereunder. Without limiting the generality of the foregoing, the Company may delay issuance of the Shares until completion of any action or obtaining of any consent, which the Company deems necessary under any applicable law (including without limitation state securities or "blue sky" laws).

12. RESTRICTIONS ON TRANSFER OF SHARES .

(a) The Shares acquired by the Optionee pursuant to the exercise of the Option granted hereby shall not be transferred by the Optionee except as permitted under the terms of

the Fifth Amended and Restated Stockholders' Agreement among the Company and the Stockholders (as defined therein) dated as of September 22, 2010, and all amendments, modifications, substitutions and replacements thereto (the " Stockholders' Agreement "). The Optionee agrees to become a party to the Stockholders' Agreement upon acquiring any Shares by exercise of the Option.

(b) The Optionee acknowledges and agrees that neither the Company, its shareholders nor its directors and officers, has any duty or obligation to disclose to the Optionee any material information regarding the business of the Company or affecting the value of the Shares before, at the time of, or following a termination of the Optionee's relationship with the Company or an Affiliate by the Company or such Affiliate, including, without limitation, any information concerning plans for the Company to make a public offering of its securities or to be acquired by or merged with or into another firm or entity.

13. NO OBLIGATION TO EMPLOY . The Company is not by the Plan or this Option obligated to employ or retain the services of the Optionee.

14. OPTION IS INTENDED TO BE A NON-QUALIFIED STOCK OPTION . The parties each intend that the Option be a Non-Qualified Stock Option. The Optionee understands that neither the Company nor any Affiliate is responsible to compensate him or her or otherwise make up for the treatment of the Option as a Non-qualified Stock Option and not as an Incentive Stock Option. The Optionee should consult with the Optionee's own tax advisors regarding the tax effects of the Option.

15. HOLDBACK AGREEMENT . The Optionee agrees, if so requested by the managing underwriter in each underwritten registration of the Company's capital stock or other securities, not to effect (except as part of such underwritten registration if included therein) any sale, distribution, short sale, loan, grant of options for the purchase of, or otherwise dispose of, any Shares for such period as such underwriter requests, such period in no event to commence earlier than ten (10) days prior to, or to end more than 180 days after, the effective date of such registration. If the managing underwriter advises the Company that, in its opinion, no sale, distribution, short sale, loan, grant of options for the purchase of, or after disposition of, any shares of the Company's common stock should be effected for a period of not more than 180 days after the effective date of such underwritten registration in order to complete the sale and distribution of the securities included therein and the Company gives notice to such effect to the Optionee, the Optionee shall not (except as part of such underwritten registration if included therein) effect any sale, distribution, short sale, loan, grant of options for the purchase of or otherwise dispose of shares of the Company's common stock for such period as such managing underwriter advises, such period in no event to commence earlier than ten (10) days prior to, or to end more than 180 days after, the effective date of such registration. The Optionee further agrees that the Company may instruct its transfer agent to place stop transfer notations in its records to enforce the provisions of this Section 15 .

16. NOTICES . Any notices required or permitted by the terms of this Agreement or the Plan shall be given by recognized courier service, facsimile, registered or certified mail, return receipt requested, addressed as follows:

If to the Company:	Aspen Aerogels, Inc. 30 Forbes Road, Bldg B Northborough, MA 01532 Telephone: (508) 691-1150 Facsimile: (508) 691-1200 Attention: Chief Financial Officer
If to the Optionee:	At the address of the Optionee as set forth in the records of the Company

or to such other address or addresses of which notice in the same manner has previously been given. Any such notice shall be deemed to have been given upon the earlier of receipt, one business day following delivery to a recognized courier service or five (5) business days following mailing by registered or certified mail.

17. GOVERNING LAW . This Agreement shall be construed and enforced in accordance with the law of the State of Delaware **,** without giving effect to the conflict of law principles thereof.

18. BENEFIT OF AGREEMENT . Subject to the provisions of the Plan and the other provisions hereof, this Agreement shall be for the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

19. ENTIRE AGREEMENT . This Agreement, together with the Plan, embodies the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement not expressly set forth in this Agreement shall affect or be used to interpret, change or restrict, the express terms and provisions of this Agreement, provided, however, in any event, this Agreement shall be subject to and governed by the Plan.

20. MODIFICATIONS AND AMENDMENTS . The terms and provisions of this Agreement may be modified or amended as provided in the Plan or in Section 21 below.

21. WAIVERS AND CONSENTS . Except as provided in the Plan, the terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. Notwithstanding anything to the contrary in the preceding sentence, holders representing a majority of the Shares subject to an Option under the Plan may waive or grant a consent to the departure from the provisions of this Agreement so long as such waiver or consent applies to all holders of Shares subject to an Option under the Plan in the same fashion. No such waiver or consent shall be deemed to be or shall constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or

consent shall be effective only in the specific instance and for the purpose for which it was given, and shall not constitute a continuing waiver or consent.

[remainder of page intentionally left blank]

EXHIBIT A

NOTICE OF EXERCISE OF NON-QUALIFIED STOCK OPTION

[Form For Unregistered Shares]

To: Aspen Aerogels, Inc.
30 Forbes Road, Bldg B
Northborough, MA 01532
Attention: Chief Financial Officer

Ladies and Gentlemen:

I hereby exercise my Non-Qualified Stock Option to purchase _____ shares (the " Shares ") of the common stock, par value $.001 per share, of Aspen Aerogels, Inc. (the " Company ") at the exercise price of $0.22 per share, pursuant to and subject to the terms of that certain Non-Qualified Stock Option Agreement between the undersigned and the Company dated as of _____, 2011.

I am aware that the Shares have not been registered under the Securities Act of 1933, as amended (the " 1933 Act "), or any state securities laws. I understand that the reliance by the Company on exemptions under the 1933 Act is predicated in part upon the truth and accuracy of the statements by me in this Notice of Exercise.

I hereby represent and warrant that (1) I have been furnished with all information which I deem necessary to evaluate the merits and risks of the purchase of the Shares; (2) I have had the opportunity to ask questions concerning the Shares and the Company and all questions posed have been answered to my satisfaction; (3) I have been given the opportunity to obtain any additional information I deem necessary to verify the accuracy of any information obtained concerning the Shares and the Company; and (4) I have such knowledge and experience in financial and business matters that I am able to evaluate the merits and risks of purchasing the Shares and to make an informed investment decision relating thereto.

I hereby represent and warrant that I am purchasing the Shares for my own personal account for investment and not with a view to the sale or distribution of all or any part of the Shares. I understand that because the Shares have not been registered under the 1933 Act, I must continue to bear the economic risk of the investment for an indefinite time and the Shares cannot be sold unless the Shares are subsequently registered under applicable federal and state securities laws or an exemption from such registration requirements is available.

I agree that I will in no event sell or distribute or otherwise dispose of all or any part of the Shares unless (1) there is an effective registration statement under the 1933 Act and applicable state securities laws covering any such transaction involving the Shares or (2) the Company receives an opinion of my legal counsel (concurred in by legal counsel for the Company) stating that such transaction is exempt from registration or the Company otherwise satisfies itself that such transaction is exempt from registration.

I consent to the placing of a legend on my certificate for the Shares stating that the Shares have not been registered and setting forth the restriction on transfer contemplated hereby and to the placing of a stop transfer order on the books of the Company and with any transfer agents against the Shares until the Shares may be legally resold or distributed without restriction. I understand that at the present time Rule 144 of the Securities and Exchange Commission (the " SEC ") may not be relied on for the resale or distribution of the Shares by me. I understand that the Company has no obligation to me to register the sale of the Shares with the SEC and has not represented to me that it will register the sale of the Shares. I understand the terms and restrictions on the right to dispose of the Shares set forth in the 2001 Equity Incentive Plan, the Non-Qualified Stock Option Agreement and the Fifth Amended and Restated Stockholders' Agreement among the Company and the Stockholders (as defined therein) dated as of September 22, 2010, and all amendments, modifications, substitutions and replacements thereto (the " Stockholders' Agreement "), all of which I have carefully reviewed. I agree to become a party to the Stockholders' Agreement by executing the Joinder attached hereto as Annex 1 . I consent to the placing of a legend on my certificate for the Shares referring to such restrictions and the placing of stop transfer orders until the Shares may be transferred in accordance with the terms of such restrictions.

I have considered the Federal, state and local income tax implications of the exercise of my Option and the purchase and subsequent sale of the Shares.

I am paying the option exercise price for the Shares as follows: _____

Please issue the stock certificate for the Shares (check one): ☐ to me; or ☐ to me and _____, as joint tenants with right of survivorship and mail the certificate to me at the following address: _____

My mailing address for shareholder communications, if different from the address listed above is: _____

Very truly yours,

_____

Optionee (signature)

_____

Print Name

_____

Date

_____

Social Security Number

ANNEX 1

JOINDER TO FIFTH AMENDED AND RESTATED STOCKHOLDERS' AGREEMENT OF ASPEN AEROGELS, INC.

As of _____ _____,_____

The undersigned, _____, having a principal business address of _____, hereby acknowledges that the undersigned has become a Stockholder of Aspen Aerogels, Inc., a Delaware corporation (the " Company "), as of the date first written above, and hereby joins in the execution of that certain Fifth Amended and Restated Stockholders' Agreement of the Company, dated as of September 22, 2010 (the " Stockholders Agreement ").

By executing this Joinder, the undersigned hereby:

1. Agrees and acknowledges that the undersigned is a Stockholder of the Company, as such term is defined and used in the Stockholders Agreement, a copy of which has been furnished to the undersigned, with the same force and effect as if originally named therein as a Stockholder and that each reference to a Stockholder in the Stockholders Agreement shall be deemed to include the undersigned; and

2. Agrees to be bound by, and agrees that the undersigned is bound by, all of the terms and provisions of the Stockholders Agreement for all purposes.

_____

Name:
Title:

ACKNOWLEDGED AND ACCEPTED:

ASPEN AEROGELS, INC.

By: _____
Name:
Title:

Exhibit 10.3

LEASE

TMT 290 INDUSTRIAL PARK, INC.,

Landlord,

and

ASPEN AEROGELS, INC.,

Tenant

TABLE OF CONTENTS

1.	USE AND RESTRICTIONS ON USE	1
2.	TERM	4
3.	RENT	4
4.	RENT ADJUSTMENTS	5
5.	SECURITY DEPOSIT	7
6.	ALTERATIONS	9
7.	REPAIR	10
8.	LIENS	11
9.	ASSIGNMENT AND SUBLETTING	11
10.	INDEMNIFICATION	13
11.	INSURANCE	14
12.	WAIVER OF SUBROGATION	14
13.	SERVICES AND UTILITIES	14
14.	HOLDING OVER	14
15.	SUBORDINATION	15
16.	RULES AND REGULATIONS	15
17.	REENTRY BY LANDLORD	15
18.	DEFAULT	16
19.	REMEDIES	16
20.	TENANT’S BANKRUPTCY OR INSOLVENCY	19
21.	QUIET ENJOYMENT	19
22.	DAMAGE BY FIRE, ETC.	19
23.	EMINENT DOMAIN	21
24.	SALE BY LANDLORD	21
25.	ESTOPPEL CERTIFICATES	21
26.	SURRENDER OF PREMISES	21
27.	NOTICES	22
28.	TAXES PAYABLE BY TENANT	22
29.	RELOCATION OF TENANT	22
30.	DEFINED TERMS AND HEADINGS	22
31.	TENANT’S AUTHORITY	23

32. COMMISSIONS 23

33. TIME AND APPLICABLE LAW 23

34. SUCCESSORS AND ASSIGNS 23

35. ENTIRE AGREEMENT 23

36. EXAMINATION NOT OPTION 23

37. RECORDATION 23

38. RENT SCHEDULE 23

39. RENEWAL OPTION 24

40. PARKING AND LOADING 24

41. LIMITATION OF LANDLORD'S LIABILITY 25

EXHIBIT A — PREMISES

EXHIBIT B — INITIAL ALTERATIONS

EXHIBIT C — RULES AND REGULATIONS

EXHIBIT D — HAZARDOUS MATERIALS EXHIBIT

EXHIBIT E — FORM OF LETTER OF CREDIT

EXHIBIT F — ROOFTOP LICENSE AGREEMENT

MULTI-TENANT INDUSTRIAL NET LEASE

REFERENCE PAGE

BUILDING:	30 Forbes Road I-290 Industrial Park, Northborough, MA
LANDLORD:	**TMT 290 INDUSTRIAL PARK, INC.** , a Delaware nonprofit corporation
LANDLORD'S ADDRESS:	c/o RREEF Management Company 600 Unicorn Park Drive, Woburn, MA 01801
LEASE REFERENCE DATE:	August 20, 2001
TENANT:	**ASPEN AEROGELS, INC.** , a Delaware corporation
TENANT'S ADDRESS: (a) As of beginning of Term: (b) Prior to beginning of Term (if different):	184 Cedar Hill Street, Marlborough, MA 10752
PREMISES IDENTIFICATION:	Suite Number _____ (for outline of Premises see Exhibit A)
PREMISES RENTABLE AREA:	Approximately 31,119 sq. ft.
USE:	Manufacture of aerogel related products, and related storage and office. Tenant is responsible to obtain any necessary business licenses or permits.
SCHEDULED COMMENCEMENT DATE:	October 1, 2001
RENT COMMENCEMENT DATE:	October 15, 2001
TERMINATION DATE:	October 31, 2006
TERM OF LEASE:	Five (5) years and one (1) month beginning on the Commencement Date and ending on the Termination Date (unless sooner terminated pursuant to the Lease)
INITIAL ANNUAL RENT (Article 3):	See Rent Schedule, Article 38
INITIAL MONTHLY INSTALLMENT OF ANNUAL RENT (Article 3):	See Rent Schedule, Article 38
INITIAL ESTIMATED RENT ADJUSTMENTS (Article 4)	$1.70 psf/yr
TENANT'S PROPORTIONATE SHARE:	27.74%
SECURITY DEPOSIT:	Letter of Credit in initial amount of $171,154.50; see Article 5
ASSIGNMENT/SUBLETTING FEE	$750.00

REAL ESTATE BROKER DUE COMMISSION: Spaulding & Slye Colliers and CB Richard Ellis/Whittier

The Reference Page information is incorporated into and made a part of the Lease. In the event of any conflict between any Reference Page information and the Lease, the Lease shall control. This Lease includes Exhibits A through F, all of which are made a part of this Lease.

LANDLORD:

TMT 290 INDUSTRIAL PARK, INC. , a Delaware nonprofit corporation

By: RREEF Management Company, a Delaware corporation

By: /s/ Eric Berke
Eric Berke, District Manager

Dated: 10/11, 2001

TENANT:

ASPEN AEROGELS, INC., a Delaware corporation

By: /s/ Patrick J. Piper

Title: CFO

Date: 10/9, 2001

LEASE

By this Lease Landlord leases to Tenant and Tenant leases from Landlord the Premises in the Building as set forth and described on the Reference Page. The Reference Page, including all terms defined thereon, is incorporated as part of this Lease.

1. USE AND RESTRICTIONS ON USE.

1.1 The Premises are to be used solely for the purposes stated on the Reference Page. Tenant shall not do or permit anything to be done in or about the Premises which will in any way obstruct or interfere with the rights of other tenants or occupants of the Building or injure, annoy, or disturb them or allow the Premises to be used for any improper, immoral, unlawful, or objectionable purpose. Tenant shall not do, permit or suffer in, on, or about the Premises the sale of any alcoholic liquor without the written consent of Landlord first obtained, or the commission of any waste. Tenant shall comply with all governmental laws, ordinances and regulations applicable to the use of the Premises and its occupancy and shall promptly comply with all governmental orders and directions for the correction, prevention and abatement of any violations in or upon, or in connection with, the Premises, all at Tenant's sole expense. Tenant shall not do or permit anything to be done on or about the Premises or bring or keep anything into the Premises which will in any way increase the rate of, invalidate or prevent the procuring of any insurance protecting against loss or damage to the Building or any of its contents by fire or other casualty or against liability for damage to property or injury to persons in or about the Building or any part thereof.

1.2 Hazardous Materials.

1.2.1 Tenant agrees that Tenant, its agents and contractors, licensees, or invitees shall not handle, use, manufacture, store or dispose of any flammables, explosives, radioactive materials, hazardous wastes or materials, toxic wastes or materials, or other similar substances, petroleum products or derivatives (collectively "Hazardous Materials") on, under, or about the Premises, without Landlord's prior written consent (which consent shall not be unreasonably withheld as long as Tenant demonstrates and documents to Landlord's reasonable satisfaction (i) that such Hazardous Materials (A) are necessary or useful to Tenant's business; and (B) will be used, kept, and stored in compliance with all laws relating to any Hazardous Materials so brought or used or kept in or about the Premises; and (ii) that Tenant will give all required notices concerning the presence in or on the Premises or the release of such Hazardous Materials from the Premises). In addition, without limiting Paragraph 1.2.3.1 below, and without the necessity of Landlord's consent, Tenant may handle, store, use or dispose of products containing small quantities of Hazardous Materials, which products are of a type customarily found in offices and households (such as aerosol cans containing insecticides, toner for copies, paints, paint remover, and the like), provided that Tenant shall handle, store, use and dispose of any such Hazardous Materials in a safe and lawful manner and shall not allow such Hazardous Materials to contaminate the Premises or the environment.

1.2.2 Tenant further agrees that Tenant will not permit any substance to come into contact with groundwater under the Premises. Any such substance coming into contact with groundwater shall, regardless of its inherent hazardous characteristics, be considered a Hazardous Material for purposes of this Paragraph 1.2.

1.2.3

1.2.3.1 Notwithstanding the provisions of Paragraph 1.2.1, Tenant may at any time handle, store, and use Hazardous Materials, limited to the types, amounts, and use identified in the Hazardous Materials Exhibit D attached hereto. If no Hazardous Materials Exhibit is attached to this Lease, then this Paragraph 1.2.3.1 shall be of no force and effect. Tenant hereby certifies to Landlord that the information provided by Tenant pursuant to this Paragraph is true, correct, and complete. Tenant covenants to comply with the use restrictions shown on the attached Hazardous Materials Exhibit. Tenant's business and operations, and more especially its handling, storage, use and disposal of Hazardous Materials shall at all times comply with all applicable laws pertaining to Hazardous Materials. Tenant shall secure and abide by all permits necessary for Tenant's operations

on the Premises. Tenant shall give or post all notices required by all applicable laws pertaining to Hazardous Materials. If Tenant shall at any time knowingly fail to comply with this Paragraph, Tenant shall immediately notify Landlord in writing of such noncompliance.

1.2.3.2 Tenant shall provide Landlord with copies of any Material Safety Data Sheets (as required by the Occupational Safety and Health Act) relating to any Hazardous Materials to be used, kept, or stored at or on the Premises, at least 30 days prior to the first use, placement, or storage of such Hazardous Material on the Premises. Landlord shall have 10 days following delivery of such Material Safety Data Sheets to approve or forbid, in its sole discretion subject to the limitation contained in Paragraph 1.2 above, such use, placement, or storage of a Hazardous Material on the Premises. Landlord warrants that it has received Material Data Sheets for the Materials listed on the Hazardous Materials Exhibit and has approved such materials.

1.2.3.3 Tenant shall not store hazardous wastes on the Premises for more than 90 days; "hazardous waste" has the meaning given it by the Resource Conservation and Recovery Act of 1976, as amended. The forgoing restriction shall in no way impair or limit the Tenant's ability to store the Hazardous Materials listed on Exhibit D on the Premises for any length of time during the Term, in compliance with all laws and regulations. Tenant shall not install any underground storage tanks on the Premises. Tenant shall not dispose of any Hazardous Material or solid waste on the Premises. It is agreed by Landlord that the Tenant will install storage containers or "storage tanks" for those Hazardous Materials listed on Exhibit D [Alterations], in compliance with all applicable statutes, codes and ordinances. In performing any alterations of the Premises permitted by the Lease, Tenant shall not install any Hazardous Material in the Premises without the specific consent of Landlord attached as an exhibit to this Lease.

1.2.3.4 Any increase in the premiums for necessary insurance on the Property which directly arises from Tenant's use and/or storage of Hazardous Materials shall be solely at Tenant's expense. Tenant shall procure and maintain at its sole expense such additional insurance as may be necessary to comply with any requirement of any Federal, State or local governmental agency with jurisdiction.

1.2.4 If Landlord, in its reasonable discretion, believes that the Premises or the environment have become contaminated with Hazardous Materials or similar materials that must be removed under the laws of the state where the Premises are located, in breach of the provisions of this Lease, Landlord, in addition to its other rights under this Lease, may enter upon the Premises and obtain samples from the Premises, including without limitation the soil and groundwater under the Premises, for the purposes of analyzing the same to determine whether and to what extent the Premises or the environment have become so contaminated. Tenant shall reimburse Landlord for the costs of any inspection, sampling and analysis that discloses contamination for which Tenant is liable under the terms of this Paragraph 1.2. Tenant may not perform any sampling, testing, or drilling to locate any Hazardous Materials on the Premises without Landlord's prior written consent, not to be unreasonably withheld or delayed.

1.2.5 Without limiting the above, Tenant shall reimburse, defend, indemnify and hold Landlord harmless from and against any and all claims, losses, liabilities, damages, costs and expenses, including without limitation, loss of rental income, loss due to business interruption, and attorneys fees and costs, arising out of or in any way connected with the use, manufacture, storage, or disposal of Hazardous Materials by Tenant, its agents or contractors on, under or about the Premises including, without limitation, the costs of any required or necessary investigation, repair, cleanup or detoxification and the preparation of any closure or other required plans in connection herewith, whether voluntary or compelled by governmental authority. The indemnity obligations of Tenant under this clause shall survive any termination of the Lease. At Landlord's option, Tenant shall perform any required or necessary investigation, repair, cleanup, or detoxification of the Premises. In such case, Landlord shall have the right, in its reasonable discretion, to approve all plans, consultants, and cleanup standards. Tenant shall provide Landlord on a timely basis with (i) copies of all documents, reports, and communications with governmental authorities; and (ii) notice and an opportunity to attend all meetings with regulatory authorities. Tenant shall comply with all notice requirements and Landlord and Tenant agree to cooperate with governmental authorities seeking access to the Premises for purposes of sampling or inspection. Absent Landlord's gross negligence or willful misconduct, no disturbance of Tenant's use of the Premises resulting from activities conducted pursuant to this Paragraph shall constitute an actual or constructive eviction of Tenant from the Premises. In the event that such cleanup extends beyond the termination of the Lease, Tenant's obligation to pay rent (including additional rent and

percentage rent, if any) shall continue until (x) such cleanup is completed and any certificate of clearance or similar document has been delivered to Landlord, or (y) the Premises is re-leased and the replacement tenant has taken occupancy and has commenced the payment of rent, whichever is earlier. Rent during such holdover period shall be at market rent; if the parties are unable to agree upon the amount of such market rent, then Landlord shall have the option of (a) increasing the rent for the period of such holdover based upon the increase in the cost-of-living from the third month preceding the commencement date to the third month preceding the start of the holdover period, using such indices and assumptions and calculations as Landlord in its sole reasonable judgment shall determine are necessary; or (b) having Landlord and Tenant each appoint a qualified MAI appraiser doing business in the area; in turn, these two independent MAI appraisers shall appoint a third MAI appraiser and the majority shall decide upon the fair market rental for Premises as of the expiration of the then current term. Landlord and Tenant shall equally share in the expense of this appraisal except that in the event the rent is found to be within fifteen percent of the original rate quoted by Landlord, then Tenant shall bear the full cost of all the appraisal process. In no event shall the rent be subject to determination or modification by any person, entity, court, or authority other than as set forth expressly herein, and in no event shall the rent for any holdover period be less that the rent due in the preceding period.

1.2.6 Notwithstanding anything set forth in this Lease, Tenant shall only be responsible for contamination of Hazardous Materials or any cleanup resulting directly therefrom, resulting directly from matters occurring or Hazardous Materials deposited (other than by contractors, agents or representatives controlled by Landlord) during the Lease term as a result of the act of omission of Tenant, its agents, employees, representatives or contractors, and any other period of time during which Tenant is in actual or constructive occupancy of the Premises. Tenant shall take reasonable precautions to prevent the contamination of the Premise with Hazardous Materials by third parties.

1.2.7 It shall not be unreasonable for Landlord to withhold its consent to any proposed Assignment or Sublease if (i) the proposed Assignee's or Sublessee's anticipated use of the Premises involves the generation, storage, use, treatment or disposal of Hazardous Materials different from Tenant's use; (ii) the proposed Assignee or Sublessee has been required by any prior landlord, lender, or governmental authority to take remedial action in connection with Hazardous Materials contaminating a property if the contamination resulted from such Assignee's or Sublessee's actions or use of the property in question; or (iii) the proposed Assignee or Sublessee is subject to a violation order issued by any governmental authority in connection with the use, disposal, or storage of a hazardous material.

1.2.8 Any of Tenant's insurance insuring against claims of the type dealt with in this Paragraph 1.2 shall be considered primary coverage for claims against the Property arising out of or under this paragraph.

1.2.9 In the event of (i) any transfer of Tenant's interest under this Lease; or (ii) the termination of this Lease, by lapse of time or otherwise, Tenant shall be solely responsible for compliance with any and all then effective federal, state or local laws concerning (i) the presence of hazardous or toxic materials in or on the Premises, Building, or Property (for example, the New Jersey Environmental Cleanup Responsibility Act, the Illinois Responsible Property Transfer Act, or similar applicable state laws), including but not limited to any reporting or filing requirements imposed by such laws. Tenant's duty to pay rent, additional rent, and percentage rent shall continue until the obligations imposed by such laws are satisfied in full and any certificate of clearance or similar document has been delivered to Landlord.

1.2.10 All consents given by Landlord pursuant to this Paragraph 1.2 shall be in writing and shall be attached as amendments to this Lease.

1.2.11 Landlord represents to Tenant that, to Landlord's knowledge, the Premises and Building do not contain any Hazardous Materials. The foregoing representation is wholly subject to and qualified by (i) any matters disclosed in any materials (e.g., existing environmental reports) made available by Landlord for Tenant's inspection, (ii) any matters disclosed in any environmental reports or studies obtained by Tenant prior to the Commencement Date, and (iii) any other matters known to Tenant. "Landlord's knowledge" means the actual knowledge, without duty of investigation, of the employees of

Landlord's property manager having day-to-day responsibility for the management and leasing of the Premises. The breach or inaccuracy of such representation shall in no event give rise to any right of termination.

2. TERM.

2.1 The Term of this Lease shall begin on the date ("Commencement Date") which shall be the later of the Scheduled Commencement Date as shown on the Reference Page or the date that Landlord shall tender possession of the Premises to Tenant. Landlord shall tender possession of the Premises free of any tenants or occupants and in broom clean condition, with all the work, if any, to be performed by Landlord pursuant to Exhibit B to this Lease substantially completed. Tenant shall deliver a punch list of items not completed within 30 days after Landlord tenders possession of the Premises and Landlord agrees to proceed with due diligence to perform its obligations regarding such items. Landlord and Tenant shall execute a memorandum setting forth the actual Commencement Date and Termination Date.

2.2 Tenant agrees that in the event of the inability of Landlord to deliver possession of the Premises on the Scheduled Commencement Date, Landlord shall not be liable for any damage resulting from such inability, but Tenant shall not be liable for any rent until the time when Landlord can, after notice to Tenant, deliver possession of the Premises to Tenant. No such failure to give possession on the Scheduled Commencement Date shall affect the other obligations of Tenant under this Lease, except that if Landlord is unable to deliver possession of the Premises within sixty (60) days of the Scheduled Commencement Date (other than as a result of strikes, shortages of materials or similar matters beyond the reasonable control of Landlord and Tenant is notified by Landlord in writing as to such delay), Tenant shall have the option to terminate this Lease unless said delay is as a result of: (a) Tenant's failure to agree to plans and specifications; (b) Tenant's request for materials, finishes or installations other than Landlord's standard except those, if any, that Landlord shall have expressly agreed to furnish without extension of time agreed by Landlord; (c) Tenant's change in any plans or specifications; or, (d) performance or completion by a party employed by Tenant. If any delay is the result of any of the foregoing, the Commencement Date and the payment of rent under this Lease shall be accelerated by the number of days of such delay.

2.3 In the event Landlord shall permit Tenant to occupy the Premises prior to the Commencement Date, such occupancy shall be subject to all the provisions of this Lease. Said early possession shall not advance the Termination Date.

3. RENT.

3.1 Effective as of the Rent Commencement Date, Tenant agrees to pay to Landlord the Annual Rent in effect from time to time by paying the Monthly Installment of Rent then in effect on or before the first day of each full calendar month during the Term, except that the first month's rent shall be paid upon the execution of this Lease. The Monthly Installment of Rent in effect at any time shall be one-twelfth of the Annual Rent in effect at such time. Rent for any period during the Term which is less than a full month shall be a prorated portion of the Monthly Installment of Rent based upon a thirty (30) day month. Said rent shall be paid to Landlord, without deduction or offset and without notice or demand, at the Landlord's address, as set forth on the Reference Page, or to such other person or at such other place as Landlord may from time to time designate in writing.

3.2 Tenant recognizes that late payment of any rent or other sum due under this Lease will result in administrative expense to Landlord, the extent of which additional expense is extremely difficult and economically impractical to ascertain. Tenant therefore agrees that if rent or any other sum is not paid when due and payable pursuant to this Lease, a late charge shall be imposed in an amount equal to the greater of: (a) Fifty Dollars ($50.00), or (b) a sum equal to five percent (5%) per month of the unpaid rent or other payment. The amount of the late charge to be paid by Tenant shall be reassessed and added to Tenant's obligation for each successive monthly period until paid. The provisions of this Section 3.2 in no way relieve Tenant of the obligation to pay rent or other payments on or before the date on which they are due, nor do the terms of this Section 3.2 in any way affect Landlord's remedies pursuant to Article 19 in the event said rent or other payment is unpaid after date due.

Notwithstanding the foregoing, Tenant shall be entitled, not more than once per calendar year, to a notice of non-payment and a five-day grace period thereafter before a late charge may be assessed.

4. RENT ADJUSTMENTS.

4.1 For the purpose of this Article 4, the following terms are defined as follows:

4.1.1 **Lease Year** : Each calendar year falling partly or wholly within the Term.

4.1.2 **Direct Expenses** : All direct costs of operation, maintenance, repair and management of the Building (including the amount of any credits which Landlord may grant to particular tenants of the Building in lieu of providing any standard services or paying any standard costs described in this Section 4.1.2 for similar tenants), as determined in accordance with generally accepted accounting principles, including the following costs by way of illustration, but not limitation: water and sewer charges; insurance charges of or relating to all insurance policies and endorsements deemed by Landlord to be reasonably necessary or desirable and relating in any manner to the protection, preservation, or operation of the Building or any part thereof; utility costs, including, but not limited to, the cost of heat, light, power, steam, gas, and waste disposal; the cost of janitorial services; the cost of security and alarm services (including any central station signaling system); window cleaning costs; labor costs; costs and expenses of managing the Building including management fees; air conditioning maintenance costs; elevator maintenance fees and supplies; material costs; equipment costs including the cost of maintenance, repair and service agreements and rental and leasing costs; purchase costs of equipment other than capital items; current rental and leasing costs of items which would be amortizable capital items if purchased; tool costs; licenses, permits and inspection fees; wages and salaries; employee benefits and payroll taxes; accounting and legal fees; any sales, use or service taxes incurred in connection therewith. Direct Expenses shall not include depreciation or amortization of the Building or equipment in the Building except as provided herein, loan principal payments, costs of alterations of tenants' premises, leasing commissions, interest expenses on long-term borrowings, advertising costs or management salaries for executive personnel other than personnel located at the Building. If, during the Term of this Lease, Landlord shall make a capital expenditure, the total cost of which is not properly includable in Direct Expenses for the Lease Year in which it was made, there shall nevertheless be included in such Direct Expenses for the Lease Year in which it was made and in Direct Expenses for each succeeding Lease Year an annual amount which would amortize such cost over the useful life of the expenditure in question. All such costs shall be amortized over the reasonable life of such expenditures in accordance with such reasonable life and amortization schedules as shall be determined by Landlord in accordance with generally accepted accounting principles, with interest on the unamortized amount at one percent (1%) in excess of the prime lending rate announced from time to time as such by The Northern Trust Company of Chicago, Illinois. Without limiting the generality of the foregoing, Landlord shall be entitled to amortize and include as an additional rental adjustment: (i) an allocable portion of the cost of capital improvement items which are reasonably calculated to reduce operating expenses; (ii) fire sprinklers and suppression systems and other life safety systems; and (iii) other capital expenses which are required under any governmental laws, regulations or ordinances which were not applicable to the Building at the time it was constructed. The following items are not included in Direct Expenses:

4.1.2.1 Cost of permits, licenses and inspection fees incurred by Landlord to prepare, renovate, repaint, or redecorate any space leased to any existing tenant or prospective tenant of the Building;

4.1.2.2 Advertising and promotional expenditures incurred to lease space to new tenants or retain existing tenants;

4.1.2.3 Legal fees and expenses incurred by Landlord to resolve disputes with tenants;

4.1.2.4 Cost of replacement of any items covered under warranty;

4.1.2.5 Cost to correct or any penalty or fine incurred by Landlord due to Landlord's violation of any federal, stated or local law or regulation;

4.1.2.6 The Landlord's general corporate overhead and administrative expenses;

4.1.2.7 Any cost to test, survey, cleanup, contain, abate, remove or otherwise remedy hazardous waste or asbestos containing materials unless they are in or on the Premises due to tenant's negligence or intentional act;

4.1.2.8 Cost of repairs caused by the Landlord's negligence;

4.1.2.9 Interest or penalties for any late payments by Landlord;

4.1.2.10 Costs (including, without limitation, attorneys' fees and disbursements) incurred in connection with any judgment, settlement or arbitration award resulting from any tort liability;

4.1.2.11 Compensation paid to any Building employee to the extent that the same is not fairly allocable to the work or service provided by such employee to the Building;

4.1.2.12 Costs of repairs or replacements incurred by reason of fire or other casualty or caused by the exercise of the right of eminent domain, whether or not insurance proceeds or a condemnation award are recovered or adequate for such purposes (however, deductibles are includable in Direct Expenses);

4.1.2.13 Costs of any heating, ventilating, air conditioning, janitorial or other Building services provided to other tenants during other than Building business hours;

4.1.2.14 Rent or other charges payable under any ground or underlying lease;

4.1.2.15 Costs of any item which are reimbursable to Landlord by other tenants or third parties other than through operating costs pass-through provisions in the leases of other tenants in the Building (if any);

4.1.2.16 Except for normal office equipment and short-term rentals of machines or equipment, lease payments for rented equipment, the cost of which equipment would constitute a capital expenditure if the equipment were to have been purchased (except to the extent that amortization of any such capital expenditure would be permitted as a Direct Expense pursuant to the Lease);

4.1.2.17 The cost of furnishing and installing replacement light bulbs and ballasts in any tenant areas of the Building, excluding the Premises;

4.1.2.18 An amount equal to all amounts received by Landlord through proceeds of insurance to the extent the proceeds are compensation for expenses which (i) previously were included in operating costs hereunder, (ii) are included in operating costs for the comparative year in which the insurance proceeds are received or (iii) will be included as operating costs in a subsequent comparative year;

4.1.2.19 Costs and expenses of governmental licenses and permits, or renewals thereof, unless the same are for governmental licenses or permits normal to the operation or maintenance of the building project;

4.1.2.20 Costs of any work or service performed for any facility or property other than the Building;

4.1.2.21 Any expenses related exclusively to any retail or storage space in, on or about the Building or appurtenant or adjacent thereto; and

4.1.2.22 Costs of electrical energy furnished directly to any Premises of other tenants, or to other rentable areas, of the Building, other than costs of electrical energy for the Building's HVAC system.

All Direct Expenses shall be entirely net of rebates, credits and similar items of which Landlord receives the benefit."

4.1.3 **Taxes** : Real estate taxes and any other taxes, charges and assessments which are levied with respect to the Building or the land appurtenant to the Building, or with respect to any improvements, fixtures and equipment or other property of Landlord, real or personal, located in the Building and used in connection with the operation of the Building and said land, any payments to any ground lessor in reimbursement of tax payments made by such lessor; and all fees, expenses and costs incurred by Landlord in investigating, protesting, contesting or in any way seeking to reduce or avoid increase in any assessments, levies or the tax rate pertaining to any Taxes to be paid by Landlord in any Lease Year. Taxes shall not include any corporate franchise, or estate, inheritance or net income tax, or tax imposed upon any transfer by Landlord of its interest in this Lease or the Building.

4.2 Tenant shall pay as additional rent for each Lease Year Tenant's Proportionate Share of Direct Expenses and Taxes incurred for such Lease Year.

4.3 The annual determination of Direct Expenses shall be made by Landlord and, if certified by a nationally recognized firm of public accountants selected by Landlord, shall be binding upon Landlord and Tenant. Tenant may review the books and records supporting such determination in the office of Landlord, or Landlord's agent, during normal business hours, upon giving Landlord five (5) days advance written notice within sixty (60) days after receipt of such determination, but in no event more often than once in any one year period. In the event that during all or any portion of any Lease Year, the Building is not fully rented and occupied Landlord may make any appropriate adjustment in occupancy-related Direct Expenses for such year for the purpose of avoiding distortion of the amount of such Direct Expenses to be attributed to Tenant by reason of variation in total occupancy of the Building, by employing sound accounting and management principles to determine Direct Expenses that would have been paid or incurred by Landlord had the Building been fully rented and occupied, and the amount so determined shall be deemed to have been Direct Expenses for such Lease Year.

4.4 Prior to the actual determination thereof for a Lease Year, Landlord may from time to time reasonably estimate, using the prior year's costs and expenses as a guide, Tenant's liability for Direct Expenses and/or Taxes under Section 4.2, Article 6 and Article 29 for the Lease Year or portion thereof. Landlord will give Tenant written notification of the amount of such estimate and Tenant agrees that it will pay, by increase of its Monthly Installments of Rent due in such Lease Year, additional rent in the amount of such estimate. Any such increased rate of Monthly Installments of Rent pursuant to this Section 4.4 shall remain in effect until further written notification to Tenant pursuant hereto.

4.5 When the above mentioned actual determination of Tenant's liability for Direct Expenses and/or Taxes is made for any Lease Year and when Tenant is so notified in writing, then:

4.5.1 If the total additional rent Tenant actually paid pursuant to Section 4.3 on account of Direct Expenses and/or Taxes for the Lease Year is less than Tenant's liability for Direct Expenses and/or Taxes, then Tenant shall pay such deficiency to Landlord as additional rent in one lump sum within thirty (30) days of receipt of Landlord's bill therefor; and

4.5.2 If the total additional rent Tenant actually paid pursuant to Section 4.3 on account of Direct Expenses and/or Taxes for the Lease Year is more than Tenant's liability for Direct Expenses and/or Taxes, then Landlord shall credit the difference against the then next due payments to be made by Tenant under this Article 4.

4.6 If the Commencement Date is other than January 1 or if the Termination Date is other than December 31, Tenant's liability for Direct Expenses (estimated or otherwise) and Taxes for the Lease Year in which said Date occurs shall be prorated based upon a three hundred sixty-five (365) day year.

5. SECURITY DEPOSIT.

5.1 Tenant shall deposit the Security Deposit with Landlord upon the execution of this Lease. Said sum shall be held by Landlord as security for the faithful performance by Tenant of all the terms, covenants and conditions of this Lease to be kept and performed by Tenant and not as an advance rental deposit or as a measure of

Landlord's damage in case of Tenant's default. If an Event of Default occurs with respect to any provision of this Lease, Landlord may use any part of the Security Deposit for the payment of any rent or any other sum in default, or for the payment of any amount which Landlord may spend or become obligated to spend by reason of Tenant's default, or to compensate Landlord for any other loss or damage which Landlord may suffer by reason of Tenant's default. If any portion is so used, Tenant shall within five (5) days after written demand therefor, deposit with Landlord an amount sufficient to restore the Security Deposit to its original amount and Tenant's failure to do so shall be a material breach of this Lease unless Tenant provides a good faith basis to dispute the charge to be applied against the Security Deposit, but this right to dispute shall not apply where the Security Deposit is applied against unpaid amounts of the Monthly Installment of Rent. Except to such extent, if any, as shall be required by law, Landlord shall not be required to keep the Security Deposit separate from its general funds, and Tenant shall not be entitled to interest on such deposit. If Tenant shall fully and faithfully perform every provision of this Lease to be performed by it, the Security Deposit or any balance thereof shall be returned to Tenant at such time within thirty (30) days after termination of this Lease when Landlord shall have determined that all of Tenant's obligations under this Lease have been fulfilled.

5.2 The Security Deposit provided for above shall be in the form of a letter of credit consistent with the terms of this paragraph 5.2. Simultaneously with the execution and delivery of this Lease, Tenant shall deliver to Landlord an Irrevocable Standby Letter of Credit (the "letter of credit") in the amount of $171,154.50 (eleven months of rent) and in favor of Landlord as beneficiary. Upon occurrence of an Event of Default under this Lease, Landlord, in addition to all other rights and remedies provided under the Lease, shall have the right draw down the full balance of the letter of credit, retain the proceeds and/or apply said proceeds as provided in said paragraph 5.1. The following terms and conditions shall govern the letter of credit:

5.2.1 Provided that Tenant is not then in default, the amount of the letter of credit may be reduced (or a replacement letter of credit may be issued in such lesser amount) as follows:

5.2.1.1 The letter of credit amount may be reduced to $93,357 (six months of rent) when Tenant has achieved $10,000,000 in revenue and a 10% net operating margin, and has sustained same for a twelve (12) consecutive month period.

5.2.1.2 The letter of credit amount may be reduced to $46,678.50 (three months of rent) when Tenant has achieved $50,000,000 in revenue and a 10% net operating margin, and has sustained same for a twelve (12) consecutive month period.

5.2.1.3 If Tenant requests a reduction in the letter of credit amount per the foregoing, it must present audited financial statements confirming that the above requirements have been satisfied.

5.2.2 The letter of credit shall be in favor of Landlord, shall be issued by a commercial bank reasonably acceptable to Landlord having a Standard & Poors rating of "A" or better, shall comply with all of the terms and conditions of this paragraph 5.2 and shall otherwise be in form reasonably acceptable to Landlord. The initial letter of credit shall have an expiration date not earlier than eighteen (18) months after the Commencement Date.

5.2.3 The letter of credit or any replacement letter of credit shall be irrevocable for the term thereof and shall automatically renew on a year to year basis until a period ending not earlier than three (3) months after the Termination Date ("End Date") without any action whatsoever on the part of Landlord; provided that the issuing bank shall have the right not to renew the letter of credit by giving written notice to Landlord not less than sixty (60) days prior to the expiration of the then current term of the letter of credit that it does not intend to renew the letter of credit. Tenant understands that the election by the issuing bank not to renew the letter of credit shall not, in any event, diminish the obligation of Tenant to maintain such an irrevocable letter of credit in favor of Landlord through such date.

5.2.4 Landlord, or its then managing agent, shall have the right from time to time to make one or more draws on the letter of credit at any time that an Event of Default has occurred. Funds may be drawn

down on the letter of credit upon presentation to the issuing bank of Landlord's (or Landlord's then managing agent's) certificate stating as follows:

"The Landlord is entitled to draw on this Credit pursuant to that certain Lease dated for reference August 20, 2001, between TMT 290 INDUSTRIAL PARK, INC., Landlord, and ASPEN AEROGELS, INC.., Tenant, as amended from time to time."

5.2.5 It is understood that if Landlord or its managing agent be a corporation, partnership or other entity, then such statement shall be signed by an officer (if a corporation), a general partner (if a partnership), or any authorized party (if another entity). Tenant acknowledges and agrees (and the letter of credit shall so state) that the letter of credit shall be honored by the issuing bank without inquiry as to the truth of the statements set forth in such draw request and regardless of whether the Tenant disputes the content of such statement.

5.2.6 In the event of a transfer of Landlord's interest in the Premises, Landlord shall have the right to transfer the letter of credit to the transferee and thereupon the Landlord shall, without any further agreement between the parties, be released by Tenant from all liability therefor, and it is agreed that the provisions hereof shall apply to every transfer or assignment of said letter of credit to a new landlord. The letter of credit must specifically provide that it is transferable by Landlord.

5.2.7 Without limiting the generality of the foregoing, if the letter of credit expires earlier than the End Date, or the issuing bank notifies Landlord that it shall not renew the letter of credit, Landlord shall accept a renewal thereof or substitute letter credit (such renewal of substitute letter of credit to be in effect not later than thirty (30) days prior to the expiration thereof), irrevocable and automatically renewable as above provided to the End Date upon the same terms as the expiring letter of credit or upon such other terms as may be acceptable to Landlord. However, if (i) the letter of credit is not timely renewed, or (ii) a substitute letter of credit, complying with all of the terms and conditions of this paragraph 5.2 is not timely received, Landlord may present such letter of credit to the issuing bank, and the entire sum so obtained shall be paid to Landlord, to be held by Landlord until Tenant would otherwise be entitled to the return of the letter of credit, and to be retained by as a Security Deposit under paragraph 5.1. So long as no Event of Default occurs, the amount so retained by Landlord will be reduced as set forth in paragraph 5.2.1 above, with the final balance to be released when Tenant is entitled to the return of its Security Deposit.

5.2.8 The letter of credit form attached hereto as Exhibit E is hereby approved.

6. ALTERATIONS.

6.1 Except for those, if any, specifically provided for in Exhibit B to this Lease, Tenant shall not make or suffer to be made any alterations, additions, or improvements, including, but not limited to, the attachment of any fixtures or equipment in, on, or to the Premises or any part thereof or the making of any improvements as required by Article 7, without the prior written consent of Landlord. When applying for such consent, Tenant shall, if requested by Landlord, furnish complete plans and specifications for such alterations, additions and improvements. Landlord's consent shall not be required (but notice to Landlord shall be required) with respect to de minimus alterations which (i) are not structural in nature, (ii) are not visible from the exterior of the Building, (iii) do not affect or require modification of the Building's electrical, mechanical, plumbing, HVAC or other systems, and (iv) do not cost more than $10,000 in aggregate in any calendar year.

6.2 Except for those alterations listed on Exhibit B, in the event Landlord consents to the making of any such alteration, addition or improvement by Tenant, the same shall be made using a licensed contractor reasonably approved by Landlord at Tenant's sole cost and expense. If Tenant shall employ any Contractor and such Contractor or any Subcontractor of such Contractor shall employ any non-union labor or supplier, Tenant shall be responsible for any and all delays, damages and extra costs suffered by Landlord as a result of any dispute with any labor unions concerning the wage, hours, terms or conditions of the employment of any such labor. In any event Landlord may charge Tenant a reasonable charge to cover its direct out-of-pocket overhead as it relates to such proposed work.

6.3 All alterations, additions or improvements proposed by Tenant shall be constructed in accordance with all government laws, ordinances, rules and regulations and Tenant shall, prior to construction, provide the additional insurance required under Article 11 in such case, and also all such assurances to Landlord, including but not limited to, waivers of lien, surety company performance bonds and personal guaranties of individuals of substance as Landlord shall reasonably require to assure payment of the costs thereof and to protect Landlord and the Building and appurtenant land against any loss from any mechanic's, materialmen's or other liens. Tenant shall pay in addition to any sums due pursuant to Article 4, any increase in real estate taxes attributable to any such alteration, addition or improvement for so long, during the Term, as such increase is ascertainable; at Landlord's election said sums shall be paid in the same way as sums due under Article 4.

6.4 All alterations, additions, and improvements, except any manufacturing equipment, whether attached to the Premises or not, in, on, or to the Premises made or installed by Tenant, including carpeting, shall be and remain the property of Tenant during the Term but, excepting furniture, furnishings, movable partitions of less than full height from floor to ceiling and other trade fixtures, shall become a part of the realty and belong to Landlord without compensation to Tenant upon the expiration or sooner termination of the Term, at which time title shall pass to Landlord under this Lease as by a bill of sale, unless Landlord elects otherwise. Upon such election by Landlord, Tenant shall upon demand by Landlord, at Tenant's sole cost and expense, forthwith and with all due diligence remove any such alterations, additions or improvements which are designated by Landlord to be removed, and Tenant shall forthwith and with all due diligence, at its sole cost and expense, repair and restore the Premises to their original condition, reasonable wear and tear and damage by fire or other casualty excepted.

7. REPAIR.

7.1 Landlord shall have no obligation to alter, remodel, improve, repair, decorate or paint the Premises, except as specified in Exhibit B if attached to this Lease and except that Landlord shall repair and maintain the structural portions of the roof, walls and foundation of the Building. By taking possession of the Premises, Tenant accepts them as being in good order, condition and repair and in the condition in which Landlord is obligated to deliver them. It is hereby understood and agreed that no representations respecting the condition of the Premises or the Building have been made by Landlord to Tenant, except as specifically set forth in this Lease. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance unless such failure shall persist for an unreasonable time after written notice of the need of such repairs or maintenance is given to Landlord by Tenant. Landlord shall also be obligated to provide the following services: (1) to plow snow and treat ice on sidewalks, roadways and loading areas, (2) to maintain and clean all outdoor facilities including, without limitation, to maintain all lawns, landscaping, and repave and restripe the parking lot when reasonably necessary and to install, maintain or replace when necessary the outdoor lighting systems for the parking areas, (3) to maintain common area lights in good working order and condition, (4) to cause the boiler system providing baseboard heat to the Premises and the Building to be cleaned and maintained regularly, and (5) to maintain and repair the Building as necessary to apply with all applicable government requirements, including without limitation the make-up air system. The cost of performance of Landlord's obligations under this paragraph is included in Direct Expenses as provided in Paragraph 4.1.2.

7.2 Tenant shall at its own cost and expense keep and maintain all parts of the Premises and such portion of the Building and improvements as are within the exclusive control of Tenant in good condition, promptly making all necessary repairs and replacements, whether ordinary or extraordinary, with materials and workmanship of the same character, kind and quality as the original (including, but not limited to, repair and replacement of all fixtures installed by Tenant, water heaters serving the Premises, windows, glass and plate glass, doors, skylights, any special office entries, interior walls and finish work, floors and floor coverings, heating and air conditioning systems serving the Premises, electrical systems and fixtures, sprinkler systems, dock boards, truck doors, dock bumpers, plumbing work and fixtures, and performance of regular removal of trash and debris). Tenant as part of its obligations hereunder shall keep the Premises in a clean and sanitary condition. Tenant will, as far as possible keep all such parts of the Premises from deterioration due to ordinary wear and from falling temporarily out of repair, and upon termination of this Lease in any way Tenant will yield up the Premises to Landlord in good condition and repair, loss by fire or other casualty excepted (but not excepting any damage to glass). Tenant shall, at its own cost and expense, repair any damage to the Premises or the Building resulting from and/or caused in whole or in part by the negligence or misconduct of Tenant, its agents, employees, invitees, or any other person entering upon the Premises as a result of Tenant's business activities or caused by Tenant's default hereunder.

7.3 Except as provided in Article 22, there shall be no abatement of rent and no liability of Landlord by reason of any injury to or interference with Tenant's business arising from the making of any repairs, alterations or improvements in or to any portion of the Building or the Premises or to fixtures, appurtenances and equipment in the Building. Except to the extent, if any, prohibited by law, Tenant waives the right to make repairs at Landlord's expense under any law, statute or ordinance now or hereafter in effect.

7.4 Tenant shall, at its own cost and expense, enter into a regularly scheduled preventive maintenance/service contract with a maintenance contractor reasonably approved by Landlord for servicing all heating and air conditioning systems and equipment exclusively serving the Premises (and a copy thereof shall be furnished to Landlord). The service contract must include all services suggested by the equipment manufacturer in the operation/maintenance manual and must become effective within thirty (30) days of the date Tenant takes possession of the Premises. Landlord may, upon notice to Tenant, enter into such a maintenance/ service contract on behalf of Tenant or perform the work and in either case, charge Tenant the cost thereof along with a reasonable amount for Landlord's overhead.

7.5 If by reason of the failure of Landlord to furnish electrical, plumbing, HVAC or water service ("Critical Services") required to be provided by Landlord and without fault of Tenant, whether such failure is excused by reason of force majeure or constitutes an unexcused default, and if Tenant's ability to conduct business at the Premises is materially and adversely affected for five (5) consecutive days or more and notice thereof has been given to Landlord (and whether or not Tenant elects to exercise its rights of self-help) Tenant shall have the right to a full abatement of Rent, Direct Expenses and other charges payable by Tenant hereunder retroactively from the date Critical Services (or any of them) have ceased until such time as such Critical Service(s) have been restored. If Critical Service(s) can not be restored and Tenant's ability to conduct business at the Premises has been materially and adversely affected for a period of one hundred twenty (120) days after notice thereof to Landlord, Tenant may terminate this Lease upon no less than fifteen (15) days notice to Landlord unless such Critical Services are restored during said 15 day period.

7.6 If necessary by reason of an emergency, or by reason of an imminent threat of injury to persons or damage to property, Tenant may cure a failure by Landlord to perform its obligations under Paragraph 7.1, at the expense and for the account of Landlord, but only after oral or written notice and such opportunity as is reasonable under the circumstances to cause the cure thereof by Landlord.

8. LIENS. Tenant shall keep the Premises, the Building and appurtenant land and Tenant's leasehold interest in the Premises free from any liens arising out of any services, work or materials performed, furnished, or contracted for by Tenant, or obligations incurred by Tenant. In the event that Tenant shall not, within ten (10) days following the imposition of any such lien, either cause the same to be released of record or provide Landlord with insurance against the same issued by a major title insurance company or such other protection against the same as Landlord shall accept, Landlord shall have the right to cause the same to be released by such means as it shall deem proper, including payment of the claim giving rise to such lien. All such sums paid by Landlord and all expenses incurred by it in connection therewith shall be considered additional rent and shall be payable to it by Tenant on demand.

9. ASSIGNMENT AND SUBLETTING.

9.1 Tenant shall not have the right to assign or pledge this Lease or to sublet the whole or any part of the Premises whether voluntarily or by operation of law, or permit the use or occupancy of the Premises by anyone other than Tenant, and shall not make, suffer or permit such assignment, subleasing or occupancy, without the prior written consent of Landlord, such consent not to be unreasonably withheld, and said restrictions shall be binding upon any and all assignees of the Lease and subtenants of the Premises. In the event Tenant desires to sublet, or permit such occupancy of, the Premises, or any portion thereof, or assign this Lease, Tenant shall give written notice thereof to Landlord at least thirty (30) days but no more than one hundred eighty (180) days prior to the proposed commencement date of such subletting or assignment, which notice shall set forth the name of the proposed subtenant or assignee, the relevant terms of any sublease or assignment and copies of financial reports and other relevant financial reports and other relevant financial information of the proposed subtenant or assignee.

9.2 Notwithstanding any assignment or subletting, permitted or otherwise, Tenant shall at all times remain directly, primarily and fully responsible and liable for the payment of the rent specified in this Lease and for

compliance with all of its other obligations under the terms, provisions and covenants of this Lease. Upon the occurrence of an Event of Default, if the Premises or any part of them are then assigned or sublet, Landlord, in addition to any other remedies provided in this Lease or provided by law, may, at its option, collect directly from such assignee or subtenant all rents due and becoming due to Tenant under such assignment or sublease and apply such rent against any sums due to Landlord from Tenant under this Lease, and no such collection shall be construed to constitute a novation or release of Tenant from the further performance of Tenant's obligations under this Lease.

9.3 In addition to Landlord's right to approve of any subtenant or assignee, Landlord shall have the option, in its sole discretion, in the event of any proposed subletting or assignment, to terminate this Lease, or in the case of a proposed subletting of less than the entire Premises, to recapture the portion of the Premises to be sublet, as of the date the subletting or assignment is to be effective. The option shall be exercised, if at all, by Landlord giving Tenant written notice given by Landlord to Tenant within sixty (60) days following Landlord's receipt of Tenant's written notice as required above. If this Lease shall be terminated with respect to the entire Premises pursuant to this Section, the Term of this Lease shall end on the date stated in Tenant's notice as the effective date of the sublease or assignment as if that date had been originally fixed in this Lease for the expiration of the Term. If Landlord recaptures under this Section only a portion of the Premises, the rent to be paid from time to time during the unexpired Term shall abate proportionately based on the proportion by which the approximate square footage of the remaining portion of the Premises shall be less than that of the Premises as of the date immediately prior to such recapture. Tenant shall, at Tenant's own cost and expense, discharge in full any outstanding commission obligation on the part of Landlord with respect to this Lease, and any commissions which may be due and owing as a result of any proposed assignment or subletting, whether or not the Premises are recaptured pursuant to this Section 9.3 and rented by Landlord to the proposed tenant or any other tenant.

9.4 In the event that Tenant sells, sublets, assigns or transfers this Lease, Tenant shall pay to Landlord as additional rent an amount equal to seventy-five percent (75%) of any Increased Rent (as defined below) when and as such Increased Rent is received by Tenant, but after Tenant has first recovered, out of 100% of increased rent, its reasonable attorneys' fees, leasing commissions and tenant improvement costs incurred in connection with such transfer. As used in this Section, "Increased Rent" shall mean the excess of (i) all rent and other consideration which Tenant is entitled to receive by reason of any sale, sublease, assignment or other transfer of this Lease, over (ii) the rent otherwise payable by Tenant under this Lease at such time. For purposes of the foregoing, any consideration received by Tenant in form other than cash shall be valued at its fair market value as determined by Landlord in good faith.

9.5 Notwithstanding any other provision hereof, Tenant shall have no right to make (and Landlord shall have the absolute right to refuse consent to) any assignment of this Lease or sublease of any portion of the Premises if at the time of either Tenant's notice of the proposed assignment or sublease or the proposed commencement date thereof, there shall exist any uncured default of Tenant or matter which will become a default of Tenant with passage of time unless cured, or if the proposed assignee or sublessee is an entity: (a) with which Landlord is already in negotiation as evidenced by the issuance of a written proposal; (b) is already an occupant of the Building unless Landlord is unable to provide the amount of space required by such occupant; (c) is a governmental agency; (d) is incompatible with the character of occupancy of the Building; or (e) would subject the Premises to a use which would: (i) involve increased personnel or wear upon the Building; (ii) violate any exclusive right granted to another tenant of the Building; (iii) require any addition to or modification of the Premises or the Building in order to comply with building code or other governmental requirements; or, (iv) involve a violation of Section 1.2. Tenant expressly agrees that Landlord shall have the absolute right to refuse consent to any such assignment or sublease and that for the purposes of any statutory or other requirement of reasonableness on the part of Landlord such refusal shall be reasonable.

9.6 Upon any request to assign or sublet, Tenant will pay to Landlord the Assignment/Subletting Fee plus, on demand, a sum equal to all of Landlord's reasonable costs, including reasonable attorney's fees, incurred in investigating and considering any proposed or purported assignment or pledge of this Lease or sublease of any of the Premises, regardless of whether Landlord shall consent to, refuse consent, or determine that Landlord's consent is not required for, such assignment, pledge or sublease. Any purported sale, assignment, mortgage, transfer of this Lease or subletting which does not comply with the provisions of this Article 9 shall be void.

9.7 If Tenant is a corporation, partnership or trust, any transfer or transfers of or change or changes within any twelve month period in the number of the outstanding voting shares of the corporation, the general partnership interests in the partnership or the identity of the persons or entities controlling the activities of such partnership or trust resulting in the persons or entities owning or controlling a majority of such shares, partnership interests or activities of such partnership or trust at the beginning of such period no longer having such ownership or control shall be regarded as equivalent to an assignment of this Lease to the persons or entities acquiring such ownership or control and shall be subject to all the provisions of this Article 9 to the same extent and for all intents and purposes as though such an assignment.

9.8 Notwithstanding the foregoing provisions of this Article to the contrary, Tenant shall be permitted to assign this Lease, or sublet all or a portion of the Premises, to an Affiliate of Tenant without the prior consent of Landlord, if all of the following conditions are first satisfied:

9.8.1 Tenant shall not then be in default under this Lease;

9.8.2 a fully executed copy of such assignment or sublease, the assumption of this Lease by the assignee or acceptance of the sublease by the sublessee, and such other information regarding the assignment or sublease as Landlord may reasonably request, shall have been delivered to Landlord;

9.8.3 the Premises shall continue to be operated solely for the use specified in the Reference Page or other use acceptable to Landlord in its sole discretion;

9.8.4 any guarantor of this Lease reaffirms that its Guaranty remains in full force and effect; and

9.8.5 Tenant shall pay all costs reasonably incurred by Landlord in connection with such assignment or subletting, including without limitation attorneys' fees.

Tenant acknowledges (and, at Landlord's request, at the time of such assignment or subletting shall confirm) that in each instance Tenant shall remain liable for performance of the terms and conditions of the Lease despite such assignment or subletting. As used herein the term "Affiliate" shall mean an entity which (i) directly or indirectly controls Tenant or (ii) is under the direct or indirect control of Tenant or (iii) is under common direct or indirect control with Tenant, (iv) is the successor in interest to Tenant by way of merger or consolidation, or by sale of all of the stock of Tenant or of all of the assets of Tenant, so long as the net worth of the surviving or successor entity following such transaction is at least as much as the net worth of Tenant immediately preceding the transaction or at the Commencement Date, whichever is higher. Control shall mean ownership of fifty-one percent (51%) or more of the voting securities or rights of the controlled entity.

10. INDEMNIFICATION. None of the Landlord Entities shall be liable and Tenant hereby waives all claims against them for any damage to any property or any injury to any person in or about the Premises or the Building by or from any cause whatsoever (including without limiting the foregoing, rain or water leakage of any character from the roof, windows, walls, basement, pipes, plumbing works or appliances, the Building not being in good condition or repair, gas, fire, oil, electricity or theft), except that Landlord shall indemnify and hold Tenant harmless from and against any such claims to the extent caused by or arising from the gross negligence or willful misconduct of Landlord or its agents, employees or contractors. Tenant shall protect, indemnify and hold the Landlord Entities harmless from and against any and all loss, claims, liability or costs (including court costs and attorney's fees) incurred by reason of (a) any damage to any property (including but not limited to property of any Landlord Entity) or any injury (including but not limited to death) to any person occurring in, on or about the Premises or the Building to the extent that such injury or damage shall be caused by or arise from any actual or alleged act, neglect, fault, or omission by or of Tenant, its agents, servants, employees, invitees, or visitors to meet any standards imposed by any duty with respect to the injury or damage; (b) the conduct or management of any work or thing whatsoever done by the Tenant in or about the Premises or from transactions of the Tenant concerning the Premises; (c) Tenant's failure to comply with any and all governmental laws, ordinances and regulations applicable to the condition or use of the Premises or its occupancy; or (d) any breach or default on the part of Tenant in the performance of any covenant or agreement on the part of the Tenant to be performed pursuant to this Lease. The

provisions of this Article shall survive the termination of this Lease with respect to any claims or liability accruing prior to such termination.

11. INSURANCE.

11.1 Tenant shall keep in force throughout the Term: (a) a Commercial General Liability insurance policy or policies to protect the Landlord Entities against any liability to the public or to any invitee of Tenant or a Landlord Entity incidental to the use of or resulting from any accident occurring in or upon the Premises with a limit of not less than $1,000,000.00 per occurrence and not less than $2,000,000.00 in the annual aggregate, or such larger amount as Landlord may prudently require from time to time, covering bodily injury and property damage liability and $1,000,000 products/completed operations aggregate; (b) Business Auto Liability covering owned, non-owned and hired vehicles with a limit of not less than $1,000,000 per accident; (c) insurance protecting against liability under Worker's Compensation Laws with limits at least as required by statute; (d) Employers Liability with limits of $500,000 each accident, $500,000 disease policy limit, $500,000 disease—each employee; (e) All Risk or Special Form coverage protecting Tenant against loss of or damage to Tenant's alterations, additions, improvements, carpeting, floor coverings, panelings, decorations, fixtures, inventory and other business personal property situated in or about the Premises to the full replacement value of the property so insured; and, (f) Business Interruption Insurance with limit of liability representing loss of at least approximately six months of income.

11.2 Each of the aforesaid policies shall (a) be provided at Tenant's expense; (b) name the Landlord and building management company, if any, as additional insureds; (c) be issued by an insurance company with a minimum Best's rating of "A:VII" during the Term; and (d) provide that said insurance shall not be canceled unless thirty (30) days prior written notice (ten days for non-payment of premium) shall have been given to Landlord; and said policy or policies or certificates thereof shall be delivered to Landlord by Tenant upon the Commencement Date and at least thirty (30) days prior to each renewal of said insurance.

11.3 Whenever Tenant shall undertake any alterations, additions or improvements in, to or about the Premises ("Work") the aforesaid insurance protection must extend to and include injuries to persons and damage to property arising in connection with such Work, without limitation including liability under any applicable structural work act, and such other insurance as Landlord shall require; and the policies of or certificates evidencing such insurance must be delivered to Landlord prior to the commencement of any such Work.

12. WAIVER OF SUBROGATION. So long as their respective insurers so permit, Tenant and Landlord hereby mutually waive their respective rights of recovery against each other for any loss insured by fire, extended coverage, All Risks or other insurance now or hereafter existing for the benefit of the respective party but only to the extent of the net insurance proceeds payable under such policies. Each party shall obtain any special endorsements required by their insurer to evidence compliance with the aforementioned waiver.

13. SERVICES AND UTILITIES. Tenant shall pay for all water, gas, heat, light, power, telephone, sewer, sprinkler system charges and other utilities and services used on or from the premises, together with any taxes, penalties, and surcharges or the like pertaining thereto and any maintenance charges for utilities. Tenant shall furnish all electric light bulbs, tubes and ballasts, battery packs for emergency lighting and fire extinguishers for the Premises. If any such services are not separately metered to Tenant, Tenant shall pay such proportion of all charges jointly metered with other premises as determined by Landlord, in its sole discretion, to be reasonable. Any such charges paid by Landlord and assessed against Tenant shall be immediately payable to Landlord on demand and shall be additional rent hereunder. Landlord shall in no event be liable for any interruption or failure of utility services on or to the Premises. Landlord represents that 1,000 amp electrical service is available to the Premises.

14. HOLDING OVER. Tenant shall pay Landlord for each day Tenant retains possession of the Premises or part of them after termination of this Lease by lapse of time or otherwise at the rate ("Holdover Rate") which shall be 150% of the greater of: (a) the amount of the Annual Rent for the last period prior to the date of such termination plus all Rent Adjustments under Article 4; and, (b) the then market rental value of the Premises as determined by Landlord assuming a new lease of the Premises of the then usual duration and other terms, in either case prorated on a daily basis, and also pay all damages sustained by Landlord by reason of such retention. If Landlord gives notice to Tenant of Landlord's election to that effect, such holding over shall constitute renewal of this Lease for a period from month to month or one year, whichever shall be specified in such notice, in either case at the Holdover Rate,

but if the Landlord does not so elect, no such renewal shall result notwithstanding acceptance by Landlord of any sums due hereunder after such termination; and instead, a tenancy at sufferance at the Holdover Rate shall be deemed to have been created. In any event, no provision of this Article 14 shall be deemed to waive Landlord's right of reentry or any other right under this Lease or at law.

15. SUBORDINATION. Without the necessity of any additional document being executed by Tenant for the purpose of effecting a subordination, this Lease shall be subject and subordinate at all times to ground or underlying leases and to the lien of any mortgages or deeds of trust now or hereafter placed on, against or affecting the Building, Landlord's interest or estate in the Building, or any ground or underlying lease; provided, however, that if the lessor, mortgagee, trustee, or holder of any such mortgage or deed of trust elects to have Tenant's interest in this Lease be superior to any such instrument, then, by notice to Tenant, this Lease shall be deemed superior, whether this Lease was executed before or after said instrument. Notwithstanding the foregoing, Tenant covenants and agrees to execute and deliver upon demand such further instruments evidencing such subordination or superiority of this Lease as may be required by Landlord. Tenant's subordination to any future mortgage may be conditioned upon Tenant's receipt of a commercially reasonable nondisturbance agreement.

16. RULES AND REGULATIONS. Tenant shall faithfully observe and comply with all the rules and regulations as set forth in Exhibit C to this Lease and all reasonable modifications of and additions to them from time to time put into effect by Landlord. Landlord shall not be responsible to Tenant for the non-performance by any other tenant or occupant of the Building of any such rules and regulations.

17. REENTRY BY LANDLORD.

17.1 Landlord reserves and shall at all times have the right (except in an emergency, on at least 48 hours prior notice and during normal business hours) to re-enter the Premises to inspect the same, to show said Premises to prospective purchasers, mortgagees or, during the last six months of the Term, tenants, and to alter, improve or repair the Premises that is not being utilized by a Tenant and any portion of the Building, without abatement of rent, and may for that purpose erect, use and maintain scaffolding, pipes, conduits and other necessary structures and open any wall, ceiling or floor in and through the Building and Premises where reasonably required by the character of the work to be performed, provided entrance to the Premises shall not be blocked thereby, and further provided that the business of Tenant shall not be interfered with unreasonably.

17.2 Landlord shall have the right at any time to change the arrangement and/or locations of entrances, or passageways, doors and doorways, and corridors, windows, elevators, stairs, toilets or other public parts of the Building and to change the name, number or designation by which the Building is commonly known. However, Landlord shall have no right to alter the entrances to the Premises. In the event that Landlord damages any portion of any wall or wall covering, ceiling, or floor or floor covering within the Premises, Landlord shall repair or replace the damaged portion to match the original as nearly as commercially reasonable but shall not be required to repair or replace more than the portion actually damaged.

17.3 Except to the extent resulting from Landlord's negligence or willful misconduct, Tenant hereby waives any claim for damages for any injury or inconvenience to or interference with Tenant's business, any loss of occupancy or quiet enjoyment of the Premises, and any other loss occasioned by any action of Landlord authorized by this Article 17. Tenant agrees to reimburse Landlord, on demand, as additional rent, for any expenses which Landlord may incur in thus effecting compliance with Tenant's obligations under this Lease.

17.4 For each of the aforesaid purposes, Landlord shall at all times have and retain a key with which to unlock all of the doors in the Premises, excluding Tenant's vaults and safes or special security areas (designated in advance), and Landlord shall have the right to use any and all means which Landlord may deem proper to open said doors in an emergency to obtain entry to any portion of the Premises. As to any portion to which access cannot be had by means of a key or keys in Landlord's possession, Landlord is authorized to gain access by such means as Landlord shall elect and the cost of repairing any damage occurring in doing so shall be borne by Tenant and paid to Landlord as additional rent upon demand in the event such entry is warranted by an emergency.

18. DEFAULT.

18.1 Except as otherwise provided in Article 20, the following events shall be deemed to be Events of Default under this Lease:

18.1.1 Tenant shall fail to pay when due any sum of money becoming due to be paid to Landlord under this Lease, whether such sum be any installment of the rent reserved by this Lease, any other amount treated as additional rent under this Lease, or any other payment or reimbursement to Landlord required by this Lease, whether or not treated as additional rent under this Lease, and such failure shall continue for a period of five days after written notice that such payment was not made when due, but if any such notice shall be given, for the twelve month period commencing with the date of such notice, the failure to pay within five days after due any additional sum of money becoming due to be paid to Landlord under this Lease during such period shall be an Event of Default, without notice.

18.1.2 Tenant shall fail to comply with any term, provision or covenant of this Lease which is not provided for in another Section of this Article and shall not cure such failure within thirty (30) days (forthwith, if the failure involves a hazardous condition) after written notice of such failure to Tenant.

18.1.3 Tenant shall fail to vacate the Premises immediately upon termination of this Lease, by lapse of time or otherwise, or upon termination of Tenant's right to possession only.

18.1.4 Tenant shall become insolvent, admit in writing its inability to pay its debts generally as they become due, file a petition in bankruptcy or a petition to take advantage of any insolvency statute, make an assignment for the benefit of creditors, make a transfer in fraud of creditors, apply for or consent to the appointment of a receiver of itself or of the whole or any substantial part of its property, or file a petition or answer seeking reorganization or arrangement under the federal bankruptcy laws, as now in effect or hereafter amended, or any other applicable law or statute of the United States or any state thereof.

18.1.5 A court of competent jurisdiction shall enter an order, judgment or decree adjudicating Tenant bankrupt, or appointing a receiver of Tenant, or of the whole or any substantial part of its property, without the consent of Tenant, or approving a petition filed against Tenant seeking reorganization or arrangement of Tenant under the bankruptcy laws of the United States, as now in effect or hereafter amended, or any state thereof, and such order, judgment or decree shall not be vacated or set aside or stayed within thirty (30) days from the date of entry thereof.

19. REMEDIES

19.1 Except as otherwise provided in Article 20, upon the occurrence of any of the Events of Default described or referred to in Article 18, Landlord shall have the option to pursue any one or more of the following remedies without any notice or demand whatsoever, concurrently or consecutively and not alternatively:

19.1.1 Landlord may, at its election, terminate this Lease or terminate Tenant's right to possession only, without terminating the Lease.

19.1.2 Upon any termination of this Lease, whether by lapse of time or otherwise, or upon any termination of Tenant's right to possession without termination of the Lease, Tenant shall surrender possession and vacate the Premises immediately, and deliver possession thereof to Landlord, and Tenant hereby grants to Landlord full and free license to enter into and upon the Premises in such event and to repossess Landlord of the Premises as of Landlord's former estate and to expel or remove Tenant and any others who may be occupying or be within the Premises and to remove Tenant's signs and other evidence of tenancy and all other property of Tenant therefrom without being deemed in any manner guilty of trespass, eviction or forcible entry or detainer, and without incurring any liability for any damage resulting therefrom, Tenant waiving any right to claim damages for such re-entry and expulsion, and without relinquishing Landlord's right to rent or any other right given to Landlord under this Lease or by operation of law.

19.1.3 Upon any termination of this Lease, whether by lapse of time or otherwise, Landlord shall be entitled to recover as damages, all rent, including any amounts treated as additional rent under this Lease, and other sums due and payable by Tenant on the date of termination, plus as liquidated damages and not as a penalty, an amount equal to the sum of: (a) an amount equal to the then present value of the rent reserved in this Lease for the residue of the stated Term of this Lease including any amounts treated as additional rent under this Lease and all other sums provided in this Lease to be paid by Tenant, minus the fair rental value of the Premises for such residue; (b) the value of the time and expense necessary to obtain a replacement tenant or tenants, and the estimated expenses described in Section 19.1.4 relating to recovery of the Premises, preparation for reletting and for reletting itself; and (c) the cost of performing any other covenants which would have otherwise been performed by Tenant. Landlord agrees to use commercially reasonable efforts to mitigate its damages.

19.1.4 Upon any termination of Tenant's right to possession only without termination of the Lease:

19.1.4.1 Neither such termination of Tenant's right to possession nor Landlord's taking and holding possession thereof as provided in Section 19.1.2 shall terminate the Lease or release Tenant, in whole or in part, from any obligation, including Tenant's obligation to pay the rent, including any amounts treated as additional rent, under this Lease for the full Term, and if Landlord so elects Tenant shall pay forthwith to Landlord the sum equal to the entire amount of the rent, including any amounts treated as additional rent under this Lease, for the remainder of the Term plus any other sums provided in this Lease to be paid by Tenant for the remainder of the Term.

19.1.4.2 Landlord may, but need not, relet the Premises or any part thereof for such rent and upon such terms as Landlord, in its sole discretion, shall determine (including the right to relet the premises for a greater or lesser term than that remaining under this Lease, the right to relet the Premises as a part of a larger area, and the right to change the character or use made of the Premises). In connection with or in preparation for any reletting, Landlord may, but shall not be required to, make repairs, alterations and additions in or to the Premises and redecorate the same to the extent Landlord deems necessary or desirable, and Tenant shall, upon demand, pay the cost thereof, together with Landlord's expenses of reletting, including, without limitation, any commission incurred by Landlord. If Landlord decides to relet the Premises or a duty to relet is imposed upon Landlord by law, Landlord and Tenant agree that nevertheless Landlord shall at most be required to use only the same efforts Landlord then uses to lease premises in the Building generally and that in any case that Landlord shall not be required to give any preference or priority to the showing or leasing of the Premises over any other space that Landlord may be leasing or have available and may place a suitable prospective tenant in any such other space regardless of when such other space becomes available. Landlord shall not be required to observe any instruction given by Tenant about any reletting or accept any tenant offered by Tenant unless such offered tenant has a creditworthiness acceptable to Landlord and leases the entire Premises upon terms and conditions including a rate of rent (after giving effect to all expenditures by Landlord for tenant improvements, broker's commissions and other leasing costs) all no less favorable to Landlord than as called for in this Lease, nor shall Landlord be required to make or permit any assignment or sublease for more than the current term or which Landlord would not be required to permit under the provisions of Article 9.

19.1.4.3 Until such time as Landlord shall elect to terminate the Lease and shall thereupon be entitled to recover the amounts specified in such case in Section 19.1.3, Tenant shall pay to Landlord upon demand the full amount of all rent, including any amounts treated as additional rent under this Lease and other sums reserved in this Lease for the remaining Term, together with the costs of repairs, alterations, additions, redecorating and Landlord's expenses of reletting and the collection of the rent accruing therefrom (including attorney's fees and broker's commissions), as the same shall then be due or become due from time to time, less only such consideration as Landlord may have received from any reletting of the Premises; and Tenant agrees that Landlord may file suits from time to time to recover any sums falling due under this Article 19 as they become due. Any proceeds of reletting by Landlord in excess of the amount then owed by Tenant to Landlord from time to time shall be credited against Tenant's future obligations under this Lease but shall not otherwise be refunded to Tenant or inure to Tenant's benefit.

19.2 Landlord may, at Landlord's option, enter into and upon the Premises if Landlord determines in its sole discretion that Tenant is not acting within a commercially reasonable time to maintain, repair or replace anything for which Tenant is responsible under this Lease and correct the same, without being deemed in any manner guilty of trespass, eviction or forcible entry and detainer and without incurring any liability for any damage or interruption of Tenant's business resulting therefrom. If Tenant shall have vacated the Premises, Landlord may at Landlord's option re-enter the Premises at any time during the last six months of the then current Term of this Lease and make any and all such changes, alterations, revisions, additions and tenant and other improvements in or about the Premises as Landlord shall elect, all without any abatement of any of the rent otherwise to be paid by Tenant under this Lease.

19.3 If, on account of any breach or default by Tenant in Tenant's obligations under the terms and conditions of this Lease, it shall become necessary or appropriate for Landlord to employ or consult with an attorney concerning or to enforce or defend any of Landlord's rights or remedies arising under this Lease, Tenant agrees to pay all Landlord's attorney's fees so incurred which are reasonable and customary. Tenant expressly waives any right to trial by jury.

19.4 Pursuit of any of the foregoing remedies shall not preclude pursuit of any of the other remedies provided in this Lease or any other remedies provided by law (all such remedies being cumulative), nor shall pursuit of any remedy provided in this Lease constitute a forfeiture or waiver of any rent due to Landlord under this Lease or of any damages accruing to Landlord by reason of the violation of any of the terms, provisions and covenants contained in this Lease.

19.5 No act or thing done by Landlord or its agents during the Term shall be deemed a termination of this Lease or an acceptance of the surrender of the Premises, and no agreement to terminate this Lease or accept a surrender of said Premises shall be valid, unless in writing signed by Landlord. No waiver by Landlord of any violation or breach of any of the terms, provisions and covenants contained in this Lease shall be deemed or construed to constitute a waiver of any other violation or breach of any of the terms, provisions and covenants contained in this Lease. Nothing herein shall limit restrict or prevent in any way Tenant from brining an action against Landlord for constructive eviction or breach of violation of the covenant of quiet enjoyment. Landlord's acceptance of the payment of rental or other payments after the occurrence of an Event of Default shall not be construed as a waiver of such Default, unless Landlord so notifies Tenant in writing. Forbearance by Landlord in enforcing one or more of the remedies provided in this Lease upon an Event of Default shall not be deemed or construed to constitute a waiver of such Default or of Landlord's right to enforce any such remedies with respect to such Default or any subsequent Default.

19.6 To secure the payment of all rentals and other sums of money becoming due from Tenant under this Lease, Landlord shall have and Tenant grants to Landlord a first lien upon the leasehold interest of Tenant under this Lease, which lien may be enforced in equity, and a continuing security interest upon all goods, wares, equipment, fixtures, furniture, inventory, accounts, contract rights, chattel paper and other personal property of Tenant situated on the Premises, and such property shall not be removed therefrom without the consent of Landlord until all arrearages in rent as well as any and all other sums of money then due to Landlord under this Lease shall first have been paid and discharged. In the event of a Default under this Lease, Landlord shall have, in addition to any other remedies provided in this Lease or by law, all rights and remedies under the Uniform Commercial Code, including without limitation the right to sell the property described in this Section 19.6 at public or private sale upon five (5) days' notice to Tenant. Tenant shall execute all such financing statements and other instruments as shall be deemed necessary or desirable in Landlord's discretion to perfect the security interest hereby created. Notwithstanding the foregoing, Landlord shall subordinate to any traditional third party lender any and all liens and all rights which Landlord now has or may hereinafter require by levy, distraint, security interest or other interest with respect to the items of Tenant's personal property and assets contained in the Premises, and Landlord will execute any usual and customary documents in connection with such financing memorializing its subordination of a security interest in Tenant's property, with modifications to such documents as Landlord may reasonably require.

19.7 Any and all property which may be removed from the Premises by Landlord pursuant to the authority of this Lease or of law, to which Tenant is or may be entitled, may be handled, removed and/or stored, as the case may be, by or at the direction of Landlord but at the risk, cost and expense of Tenant, and Landlord shall in no event be responsible for the value, preservation or safekeeping thereof. Tenant shall pay to Landlord, upon

demand, any and all expenses incurred in such removal and all storage charges against such property so long as the same shall be in Landlord's possession or under Landlord's control. Any such property of Tenant not retaken by Tenant from storage within thirty (30) days after removal from the Premises shall, at Landlord's option, be deemed conveyed by Tenant to Landlord under this Lease as by a bill of sale without further payment or credit by Landlord to Tenant.

20. TENANT'S BANKRUPTCY OR INSOLVENCY.

20.1 If at any time and for so long as Tenant shall be subjected to the provisions of the United States Bankruptcy Code or other law of the United States or any state thereof for the protection of debtors as in effect at such time (each a "Debtor's Law"):

20.1.1 Tenant, Tenant as debtor-in-possession, and any trustee or receiver of Tenant's assets (each a "Tenant's Representative") shall have no greater right to assume or assign this Lease or any interest in this Lease, or to sublease any of the Premises than accorded to Tenant in Article 9, except to the extent Landlord shall be required to permit such assumption, assignment or sublease by the provisions of such Debtor's Law. Without limitation of the generality of the foregoing, any right of any Tenant's Representative to assume or assign this Lease or to sublease any of the Premises shall be subject to the conditions that:

20.1.1.1 Such Debtor's Law shall provide to Tenant's Representative a right of assumption of this Lease which Tenant's Representative shall have timely exercised and Tenant's Representative shall have fully cured any default of Tenant under this Lease.

20.1.1.2 Tenant's Representative or the proposed assignee, as the case shall be, shall have deposited with Landlord as security for the timely payment of rent an amount equal to the larger of: (a) three months' rent and other monetary charges accruing under this Lease; and (b) any sum specified in Article 5; and shall have provided Landlord with adequate other assurance of the future performance of the obligations of the Tenant under this Lease. Without limitation, such assurances shall include, at least, in the case of assumption of this Lease, demonstration to the satisfaction of the Landlord that Tenant's Representative has and will continue to have sufficient unencumbered assets after the payment of all secured obligations and administrative expenses to assure Landlord that Tenant's Representative will have sufficient funds to fulfill the obligations of Tenant under this Lease; and, in the case of assignment, submission of current financial statements of the proposed assignee, audited by an independent certified public accountant reasonably acceptable to Landlord and showing a net worth and working capital in amounts determined by Landlord to be sufficient to assure the future performance by such assignee of all of the Tenant's obligations under this Lease.

20.1.1.3 The assumption or any contemplated assignment of this Lease or subleasing any part of the Premises, as shall be the case, will not breach any provision in any other lease, mortgage, financing agreement or other agreement by which Landlord is bound.

20.1.1.4 Landlord shall have, or would have had absent the Debtor's Law, no right under Article 9 to refuse consent to the proposed assignment or sublease by reason of the identity or nature of the proposed assignee or sublessee or the proposed use of the Premises concerned.

21. QUIET ENJOYMENT. Landlord represents and warrants that it has full right and authority to enter into this Lease and that Tenant, while paying the rental and performing its other covenants and agreements contained in this Lease, shall peaceably and quietly have, hold and enjoy the Premises and use the parking areas and any common areas for the Term without hindrance or molestation from Landlord subject to the terms and provisions of this Lease. Landlord shall not be liable for any interference or disturbance by other tenants or third persons, nor shall Tenant be released from any of the obligations of this Lease because of such interference or disturbance.

22. DAMAGE BY FIRE, ETC.

22.1 In the event the Premises or the Building are damaged by fire or other cause and in Landlord's reasonable estimation such damage can be materially restored within two hundred ten (210) days, Landlord shall forthwith repair the same and this Lease shall remain in full force and effect, except that Tenant shall be entitled to a proportionate abatement in rent from the date of such damage. Such abatement of rent shall be made pro rata in accordance with the extent to which the damage and the making of such repairs shall interfere with the use and occupancy by Tenant of the Premises from time to time. Within thirty (30) days from the date of such damage, Landlord shall notify Tenant, in writing, of Landlord's reasonable estimation of the length of time within which material restoration can be made, and Landlord's determination shall be binding on Tenant. For purposes of this Lease, the Building or Premises shall be deemed "materially restored" if they are in such condition as would not prevent or materially interfere with Tenant's use of the Premises for the purpose for which it was being used immediately before such damage.

22.2 If such repairs cannot, in Landlord's reasonable estimation, be made within two hundred ten (210) days, Landlord and Tenant shall each have the option of giving the other, at any time within thirty (30) days after such damage, notice terminating this Lease as of the date of such damage. In the event of the giving of such notice, this Lease shall expire and all interest of the Tenant in the Premises shall terminate as of the date of such damage as if such date had been originally fixed in this Lease for the expiration of the Term. In the event that neither Landlord nor Tenant exercises its option to terminate this Lease, then Landlord shall repair or restore such damage, this Lease continuing in full force and effect, and the rent hereunder shall be proportionately abated as provided in Section 22.1.

22.3 Landlord shall not be required to repair or replace any damage or loss by or from fire or other cause to any panelings, decorations, partitions, additions, railings, ceilings, floor coverings, office fixtures or any other property or improvements installed on the Premises or belonging to Tenant. Any insurance which may be carried by Landlord or Tenant against loss or damage to the Building or Premises shall be for the sole benefit of the party carrying such insurance and under its sole control.

22.4 In the event that Landlord should fail to complete such repairs and material restoration within sixty (60) days after the date estimated by Landlord therefor as extended by this Section 22.4, Tenant may at its option and as its sole remedy terminate this Lease by delivering written notice to Landlord, within fifteen (15) days after the expiration of said period of time, whereupon the Lease shall end on the date of such notice or such later date fixed in such notice as if the date of such notice was the date originally fixed in this Lease for the expiration of the Term; provided, however, that if construction is delayed because of changes, deletions or additions in construction requested by Tenant, strikes, lockouts, casualties, Acts of God, war, material or labor shortages, government regulation or control or other causes beyond the reasonable control of Landlord, the period for restoration, repair or rebuilding shall be extended for the amount of time Landlord is so delayed.

22.5 Notwithstanding anything to the contrary contained in this Article: (a) Landlord shall not have any obligation whatsoever to repair, reconstruct, or restore the Premises when the damages resulting from any casualty covered by the provisions of this Article 22 occur during the last twelve (12) months of the Term or any extension thereof, but if Landlord determines not to repair such damages Landlord shall notify Tenant and if such damages shall render any material portion of the Premises untenantable Tenant shall have the right to terminate this Lease by notice to Landlord within fifteen (15) days after receipt of Landlord's notice; and (b) in the event the holder of any indebtedness secured by a mortgage or deed of trust covering the Premises or Building requires that any insurance proceeds be applied to such indebtedness, then Landlord shall have the right to terminate this Lease by delivering written notice of termination to Tenant within fifteen (15) days after such requirement is made by any such holder, whereupon this Lease shall end on the date of such damage as if the date of such damage were the date originally fixed in this Lease for the expiration of the Term.

22.6 In the event of any damage or destruction to the Building or Premises by any peril covered by the provisions of this Article 22, it shall be Tenant's responsibility to properly secure the Premises and upon notice from Landlord to remove forthwith, at its sole cost and expense, such portion of all of the property belonging to Tenant or its licensees from such portion or all of the Building or Premises as Landlord shall request.

23. EMINENT DOMAIN. If all or any substantial part of the Premises shall be taken or appropriated by any public or quasi-public authority under the power of eminent domain, or conveyance in lieu of such appropriation, either party to this Lease shall have the right, at its option, of giving the other, at any time within thirty (30) days after such taking, notice terminating this Lease, except that Tenant may only terminate this Lease by reason of taking or appropriation, if such taking or appropriation (including a taking or appropriation of parking) shall be so substantial as to materially interfere with Tenant's use and occupancy of the Premises, in Tenant's reasonable judgment. If neither party to this Lease shall so elect to terminate this Lease, the rental thereafter to be paid shall be adjusted on a fair and equitable basis under the circumstances. In addition to the rights of Landlord above, if any substantial part of the Building shall be taken or appropriated by any public or quasi-public authority under the power of eminent domain or conveyance in lieu thereof, and regardless of whether the Premises or any part thereof are so taken or appropriated, Landlord shall have the right, at its sole option, to terminate this Lease. Landlord shall be entitled to any and all income, rent, award, or any interest whatsoever in or upon any such sum, which may be paid or made in connection with any such public or quasi-public use or purpose, and Tenant hereby assigns to Landlord any interest it may have in or claim to all or any part of such sums, other than any separate award which may be made with respect to Tenant's trade fixtures and moving expenses; Tenant shall make no claim for the value of any unexpired Term.

24. SALE BY LANDLORD. In event of a sale or conveyance by Landlord of the Building, the same shall operate to release Landlord from any future liability upon any of the covenants or conditions, expressed or implied, contained in this Lease in favor of Tenant, and in such event Tenant agrees to look solely to the responsibility of the successor in interest of Landlord in and to this Lease. Except as set forth in this Article 24, this Lease shall not be affected by any such sale and Tenant agrees to attorn to the purchaser or assignee. If any security has been given by Tenant to secure the faithful performance of any of the covenants of this Lease, Landlord shall transfer or deliver said security, as such, to Landlord's successor in interest and thereupon Landlord shall be discharged from any further liability with regard to said security.

25. ESTOPPEL CERTIFICATES. Within ten (10) days following any written request which Landlord may make from time to time, Tenant shall execute and deliver to Landlord or mortgagee or prospective mortgagee a sworn statement certifying: (a) the date of commencement of this Lease; (b) the fact that this Lease is unmodified and in full force and effect (or, if there have been modifications to this Lease, that this lease is in full force and effect, as modified, and stating the date and nature of such modifications); (c) the date to which the rent and other sums payable under this Lease have been paid; (d) the fact that there are no current defaults under this Lease by either Landlord or Tenant except as specified in Tenant's statement; and (e) such other matters as may be requested by Landlord. Landlord and Tenant intend that any statement delivered pursuant to this Article 25 may be relied upon by any mortgagee, beneficiary or purchaser and Tenant shall be liable for all loss, cost or expense resulting from the failure of any sale or funding of any loan caused by any material misstatement contained in such estoppel certificate. Tenant irrevocably agrees that if Tenant fails to execute and deliver such certificate within such ten (10) day period Landlord or Landlord's beneficiary or agent may execute and deliver such certificate on Tenant's behalf, and that such certificate shall be fully binding on Tenant.

26. SURRENDER OF PREMISES.

26.1 Tenant shall, at least thirty (30) days before the last day of the Term, arrange to meet Landlord for a joint inspection of the Premises. In the event of Tenant's failure to arrange such joint inspection to be held prior to vacating the Premises, Landlord's inspection at or after Tenant's vacating the Premises shall be conclusively deemed correct for purposes of determining Tenant's responsibility for repairs and restoration.

26.2 At the end of the Term or any renewal of the Term or other sooner termination of this Lease, Tenant will peaceably deliver up to Landlord possession of the Premises, together with all improvements or additions upon or belonging to the same, by whomsoever made, in the same conditions received or first installed, broom clean and free of all debris, excepting only ordinary wear and tear and damage by fire or other casualty. Tenant may, and at Landlord's request shall, at Tenant's sole cost, remove upon termination of this Lease, any and all furniture, furnishings, movable partitions of less than full height from floor to ceiling, trade fixtures and other property installed by Tenant, title to which shall not be in or pass automatically to Landlord upon such termination, repairing all damage caused by such removal. Property not so removed shall, unless requested to be removed, be deemed abandoned by the Tenant and title to the same shall thereupon pass to Landlord under this Lease as by a bill

of sale. All other alterations, additions and improvements in, on or to the Premises shall be dealt with and disposed of as provided in Article 6.

26.3 All obligations of Tenant under this Lease not fully performed as of the expiration or earlier termination of the Term shall survive the expiration or earlier termination of the Term. In the event that Tenant's failure to perform prevents Landlord from releasing the Premises, Tenant shall continue to pay rent pursuant to the provisions of Article 14 until such performance is complete. Upon the expiration or earlier termination of the Term, Tenant shall pay to Landlord the amount, as estimated by Landlord, necessary to repair and restore the Premises as provided in this Lease and/or to discharge Tenant's obligation for unpaid amounts due or to become due to Landlord. All such amounts shall be used and held by Landlord for payment of such obligations of Tenant, with Tenant being liable for any additional costs upon demand by Landlord, or with any excess to be returned to Tenant after all such obligations have been determined and satisfied. Any otherwise unused Security Deposit shall be credited against the amount payable by Tenant under this Lease.

27. NOTICES. Any notice or document required or permitted to be delivered under this Lease shall be addressed to the intended recipient, shall be transmitted personally, by fully prepaid registered or certified United States Mail return receipt requested, or by reputable independent contract delivery service furnishing a written record of attempted or actual delivery, and shall be deemed to be delivered when tendered for delivery to the addressee at its address set forth on the Reference Page, or at such other address as it has then last specified by written notice delivered in accordance with this Article 27, or if to Tenant at either its aforesaid address or its last known registered office or home of a general partner or individual owner, whether or not actually accepted or received by the addressee.

28. TAXES PAYABLE BY TENANT. In addition to rent and other charges to be paid by Tenant under this Lease, Tenant shall reimburse to Landlord, upon demand, any and all taxes payable by Landlord (other than Federal, state and/or local net income taxes) whether or not now customary or within the contemplation of the parties to this Lease: (a) upon, allocable to, or measured by or on the gross or net rent payable under this Lease, including without limitation any gross income tax or excise tax levied by the State, any political subdivision thereof, or the Federal Government with respect to the receipt of such rent; (b) upon or with respect to the possession, leasing, operation, management, maintenance, alteration, repair, use or occupancy of the Premises or any portion thereof, including any sales, use or service tax imposed as a result thereof; (c) upon or measured by the Tenant's gross receipts or payroll or the value of Tenant's equipment, furniture, fixtures and other personal property of Tenant or leasehold improvements, alterations or additions located in the Premises; or (d) upon this transaction or any document to which Tenant is a party creating or transferring any interest of Tenant in this Lease or the Premises. In addition to the foregoing, Tenant agrees to pay, before delinquency, any and all taxes levied or assessed against Tenant and which become payable during the term hereof upon Tenant's equipment, furniture, fixtures and other personal property of Tenant located in the Premises.

29. RELOCATION OF TENANT. ***Intentionally deleted.***

30. DEFINED TERMS AND HEADINGS. The Article headings shown in this Lease are for convenience of reference and shall in no way define, increase, limit or describe the scope or intent of any provision of this Lease. Any indemnification or insurance of Landlord shall apply to and inure to the benefit of all the following "Landlord Entities", being Landlord, Landlord's investment manager, and the trustees, boards of directors, officers, general partners, beneficiaries, stockholders, employees and agents of each of them. Any option granted to Landlord shall also include or be exercisable by Landlord's trustee, beneficiary, agents and employees, as the case may be. In any case where this Lease is signed by more than one person, the obligations under this Lease shall be joint and several The terms "Tenant" and "Landlord" or any pronoun used in place thereof shall indicate and include the masculine or feminine, the singular or plural number, individuals, firms or corporations, and each of their respective successors, executors, administrators and permitted assigns, according to the context hereof. The term "rentable area" shall mean the rentable area of the Premises or the Building as calculated by the Landlord on the basis of the plans and specifications of the Building including a proportionate share of any common areas. Tenant hereby accepts and agrees to be bound by the figures for the rentable space footage of the Premises and Tenant's Proportionate Share shown on the Reference Page.

31. TENANT'S AUTHORITY. If Tenant signs as a corporation each of the persons executing this Lease on behalf of Tenant represents and warrants that Tenant has been and is qualified to do business in the state in which the Building is located, that the corporation has full right and authority to enter into this Lease, and that all persons signing on behalf of the corporation were authorized to do so by appropriate corporate actions. If Tenant signs as a partnership, trust or other legal entity, each of the persons executing this Lease on behalf of Tenant represents and warrants that Tenant has complied with all applicable laws, rules and governmental regulations relative to its right to do business in the state and that such entity on behalf of the Tenant was authorized to do so by any and all appropriate partnership, trust or other actions. Tenant agrees to furnish promptly upon request a corporate resolution, proof of due authorization by partners, or other appropriate documentation evidencing the due authorization of Tenant to enter into this Lease.

32. COMMISSIONS. Each of the parties represents and warrants to the other that it has not dealt with any broker or finder in connection with this Lease, except as described on the Reference Page, and agrees to indemnify, defend and hold the other party harmless from and against any claims arising from the breach of the indemnifying party's representation and warranty.

33. TIME AND APPLICABLE LAW. Time is of the essence of this Lease and all of its provisions. This Lease shall in all respects be governed by the laws of the state in which the Building is located.

34. SUCCESSORS AND ASSIGNS. Subject to the provisions of Article 9, the terms, covenants and conditions contained in this Lease shall be binding upon and inure to the benefit of the heirs, successors, executors, administrators and assigns of the parties to this Lease.

35. ENTIRE AGREEMENT. This Lease, together with its exhibits, contains all agreements of the parties to this Lease and supersedes any previous negotiations. There have been no representations made by the Landlord or understandings made between the parties other than those set forth in this Lease and its exhibits. This Lease may not be modified except by a written instrument duly executed by the parties to this Lease.

36. EXAMINATION NOT OPTION. Submission of this Lease shall not be deemed to be a reservation of the Premises. Landlord shall not be bound by this Lease until it has received a copy of this Lease duly executed by Tenant and has delivered to Tenant a copy of this Lease duly executed by Landlord, and until such delivery Landlord reserves the right to exhibit and lease the Premises to other prospective tenants. Notwithstanding anything contained in this Lease to the contrary, Landlord may withhold delivery of possession of the Premises from Tenant until such time as Tenant has paid to Landlord any security deposit required by Article 5, the first month's rent as set forth in Article 3 and any sum owed pursuant to this Lease.

37. RECORDATION. Tenant shall not record or register this Lease or a short form memorandum hereof without the prior written consent of Landlord, and then shall pay all charges and taxes incident such recording or registration.

38. RENT SCHEDULE.

Period		Rentable Square Footage	Rent Per Square Foot	Annual Rent	Monthly Installment of Rent
10/15/01	9/30/03	31,119	$6.00	$186,714.00	$15,559.50
10/1/03	9/30/05	31,119	$6.25	$194,493.75	$16,207.81
10/1/05	10/31/06	31,119	$6.50	$202,273.50	$16,856.13

39. RENEWAL OPTION. Tenant shall, provided the Lease is in full force and effect and Tenant is not then in default under any of the other terms and conditions of the Lease at the time of notification or commencement, have one (1) option to renew this Lease for a term of five (5) years, for the portion of the Premises being leased by Tenant as of the date the renewal term is to commence, on the same terms and conditions set forth in the Lease, except as modified by the terms, covenants and conditions as set forth below:

39.1 If Tenant elects to exercise said option, then Tenant shall provide Landlord with written notice no earlier than the date which is fifteen (15) months prior to the expiration of the then current term of the Lease but no later than the date which is nine (9) months prior to the expiration of the then current term of this Lease. If Tenant fails to provide such notice, Tenant shall have no further or additional right to extend or renew the term of the Lease.

39.2 The Annual Rent and Monthly Installment in effect at the expiration of the then current term of the Lease shall be increased to reflect the current fair market rental for comparable space in the Building and in other similar buildings in the same rental market as of the date the renewal term is to commence, taking into account the specific provisions of the Lease which will remain constant. Landlord shall advise Tenant of the new Annual Rent and Monthly Installment for the Premises no later than thirty (30) days after receipt of Tenant's written request therefor. Said request shall be made no earlier than thirty (30) days prior to the first date on which Tenant may exercise its option under this Paragraph. Said notification of the new Annual Rent may include a provision for its escalation to provide for a change in fair market rental between the time of notification and the commencement of the renewal term. If Tenant and Landlord are unable to agree on a mutually acceptable rental rate not later than sixty (60) days prior to the expiration of the then current term, then Landlord and Tenant shall each appoint a qualified MAI appraiser doing business in the area, in turn those two independent MAI appraisers shall appoint a third MAI appraiser and the majority shall decide upon the fair market rental for the Premises as of the expiration of the then current term. Landlord and Tenant shall equally share in the expense of this appraisal except that in the event the Annual Rent and Monthly Installment is found to be within fifteen percent (15%) of the original rate quoted by Landlord, then Tenant shall bear the full cost of all the appraisal process. In no event shall the Annual Rent and Monthly Installment for any option period be less than the Annual Rent and Monthly Installment in the preceding period.

39.3 This option is not transferable; the parties hereto acknowledge and agree that they intend that the aforesaid option to renew this Lease shall be "personal" to Tenant as set forth above and that in no event will any assignee or sublessee have any rights to exercise the aforesaid option to renew.

40. PARKING AND LOADING.

40.1 The Building has approximately 292 parking spaces. Tenant shall have the right to use 83 spaces, being its proportionate thereof.

40.2 Tenant shall have the exclusive use of four (4) loading docks as depicted on Exhibit A .

(THE NEXT ARTICLE IS ARTICLE 41)

41. LIMITATION OF LANDLORD'S LIABILITY. Redress for any claim against Landlord under this Lease shall be limited to and enforceable only against and to the extent of Landlord's interest in the Building. The obligations of Landlord under this Lease are not intended to and shall not be personally binding on, nor shall any resort be had to the private properties of, any of its trustees or board of directors and officers, as the case may be, its investment manager, the general partners thereof, or any beneficiaries, stockholders, employees, or agents of Landlord or the investment manager.

LANDLORD:

TMT 290 INDUSTRIAL PARK, INC. , a Delaware nonprofit corporation

By: RREEF Management Company, a Delaware corporation

By: /s/ Eric Berke
Eric Berke, District Manager

Dated: 10/11, 2001

TENANT:

ASPEN AEROGELS, INC., a Delaware corporation

By: /s/ Patrick J. Piper

Title: CFO

Dated: 10/9, 2001

EXHIBIT A — PREMISES

attached to and made a part of Lease bearing the
Lease Reference Date of August 20, 2001 between
TMT 290 INDUSTRIAL PARK, INC., as Landlord and
ASPEN AEROGELS, INC., as Tenant

PREMISES

Exhibit A is intended only to show the general layout of the Premises as of the beginning of the Term of this Lease. It does not in any way supersede any of Landlord's rights set forth in Section 17.2 with respect to arrangements and/or locations of public parts of the Building and changes in such arrangements and/or locations. It is not to be scaled; any measurements or distances shown should be taken as approximate.

EXHIBIT B — INITIAL ALTERATIONS

attached to and made a part of Lease bearing the
Lease Reference Date of August 20, 2001 between
TMT 290 INDUSTRIAL PARK, INC., as Landlord and
ASPEN AEROGELS, INC., as Tenant

INITIAL ALTERATIONS

Landlord shall deliver the Premises in its " **AS IS** " condition, and shall have no obligation to construct any improvements or provide any funds or allowance for same. Landlord represents that the Building systems serving the Premises will be in good working order as of the Commencement Date. Existing rooftop HVAC units will be left in place and Landlord shall have no obligation to remove same.

Tenant may construct tenant improvements in conformance with Article 6 of the Lease.

So long as Tenant complies with Article 6 and the additional provisions of this Exhibit B, Tenant shall have the right to construct the following specific improvements:

1. One (1) CO_2 tank located on the exterior of the Building and adjacent to the Premises. The height of the tank may not exceed the height of the Building or twenty (20) feet, whichever is less.

2. One (1) cooling tower on the roof. The cooling towers all meet the following specifications:

   - 80 inches high
   - 86 inches in diameter
   - Weight 642 pounds when dry, 1,588 pounds when wet

In addition, Landlord hereby agrees to the following alterations by Tenant and a contractor of Tenant's choosing in the future and reasonably approved by Landlord, described below and to be detailed in complete plans and specifications submitted to Landlord for approval:

1) Installation of a concrete containment wall around our prospective material storage area that conforms to permitting guidelines.

2) Attach equipment to the ground throughout the Premises to comply with government and stricter internal safety guidelines. These include, without limitation, skids for the extraction system, equipment in the casting, gel mix and dispense, post processing and storage areas.

3) Installation of several hoods to be installed in the lab space, as well as in the casting, aging and loading, extraction and post processing areas. Wherever possible, these hoods will be merged to minimize the amount of vents needed through the roof.

4) Installation of pipes to enter the building from the cooling tower on the roof and the CO2 storage near the loading docks to the boiler room. A collection of supply piping between the loading dock area and the material storage area will also be needed. There will also likely need to be additional piping for enhanced pressurized air and vacuum from the boiler room to be distributed throughout the facility.

5) Concrete slab to be constructed to support the CO2 pump. Currently, this slab's anticipated dimensions will be 10'X4'X20".

6) Boiler room built adjacent to the extraction system, which will hold among other things, a boiler, a chiller, and a CO2 compressor.

7) Installation of at least 2 cranes will need to be installed off existing structural supports or the ceiling.

8) Installation of a series of conveyor belts may be needed between production departments.

9) The office and lab space requirements typical of an office and/or lab environment. (i.e. — offices, conference rooms, sinks etc)

10) Additional restroom may be necessary to comply with governmental guidelines.

11) Additional fire suppression capabilities might also be required.

All of the above must be in compliance with all federal, state and local laws, codes and ordinances regarding construction, maintenance and operation of same, and Tenant shall be responsible for obtaining all necessary permits and approvals, at Tenant's sole cost. Both the tank and the cooling tower must be screened from view at street level. The exact location of all these improvements, and detailed plans and specifications for same, are subject to Landlord's prior written approval. Without limiting the generality of the foregoing, any rooftop installations must be approved by and coordinated with Landlord and Landlord's roofing contractor so as to avoid any impairment of any existing roof warranties, and Tenant acknowledges that access to the roof for installation and ongoing maintenance and operation will require that Tenant execute Landlord's standard form of rooftop license agreement, substantially in the form of Exhibit D attached hereto. The provisions of paragraph 6.4 of the Lease shall apply to these improvements as improvements which Landlord may require Tenant to remove at the expiration of the Term of the Lease.

Without limiting the generality of the foregoing, items number 4, 7 and 11 above in particular will require stamped drawings by a structural engineer and must be approved by Landlord.

The provisions of paragraph 6.4 of the Lease shall apply to all of these improvements, alterations and additions as items which Landlord may require Tenant to remove at the expiration of the Term of the Lease. Tenant is hereby notified that the entire Premises must be restored to its original condition upon expiration or early termination of the Term of the Lease, including removal of all equipment and concrete slabs.

EXHIBIT C — RULES AND REGULATIONS

**attached to and made a part of Lease bearing the
Lease Reference Date of August 20, 2001 between
TMT 290 INDUSTRIAL PARK, INC., as Landlord and
ASPEN AEROGELS, INC., as Tenant**

RULES AND REGULATIONS

1. No sign, placard, picture, advertisement, name or notice shall be installed or displayed on any part of the outside or inside of the Building without the prior written consent of the Landlord. Landlord shall have the right to remove, at Tenant's expense and without notice, any sign installed or displayed in violation of this rule. All approved signs or lettering on doors and walls shall be printed, painted, affixed or inscribed at the expense of Tenant by a person or vendor chosen by Landlord.

2. If Landlord objects in writing to any curtains, blinds, shades or screens attached to or hung in or used in connection with any window or door of the Premises, Tenant shall immediately discontinue such use. No awning shall be permitted on any part of the Premises. Tenant shall not place anything or allow anything to be placed against or near any glass partitions or doors or windows which may appear unsightly, in the opinion of Landlord, from outside the Premises.

3. Tenant shall not obstruct any sidewalks, halls, passages, exits, entrances, elevators, escalators or stairways of the Building. The halls, passages, exits, entrances, shopping malls, elevators, escalators and stairways are not for the general public, and Landlord shall in all cases retain the right to control and prevent access to the Building of all persons whose presence in the judgment of Landlord would be prejudicial to the safety, character, reputation and interests of the Building and its tenants provided that nothing contained in this rule shall be construed to prevent such access to persons with whom any tenant normally deals in the ordinary course of its business, unless such persons are engaged in illegal activities. No tenant and no employee or invitee of any tenant shall go upon the roof of the Building, except as provided herein.

4. The directory of the Building will be provided exclusively for the display of the name and location of tenants only and Landlord reserves the right to exclude any other names therefrom.

5. Landlord will furnish Tenant free of charge with two keys to each door in the Premises. Landlord may make a reasonable charge for any additional keys, and Tenant shall not make or have made additional keys, and Tenant shall not alter any lock or install a new or additional lock or bolt on any door of its Premises. Tenant, upon the termination of its tenancy, shall deliver to Landlord the keys of all doors which have been furnished to Tenant, and in the event of loss of any keys so furnished, shall pay Landlord therefor.

6. If Tenant requires telegraphic, telephonic, burglar alarm or similar services, it shall first obtain, and comply with, Landlord's instructions in their installation.

7. No equipment, materials, furniture, packages, supplies, merchandise or other property will be received in the Building or carried in the elevators except between such hours and in such elevators as may be designated by Landlord.

8. Landlord reserves the right to exclude from the Building between the hours of 6 p.m. and 7 a.m. the following day, or such other hours as may be established from time to time by Landlord, and on Sundays and legal holidays any person unless that person is known to the person or employee in charge of the Building and has a pass or is properly identified. Tenant shall be responsible for all persons for whom it requests passes and shall be liable to Landlord for all acts of such persons. Landlord shall not be liable for damages for any error with regard to the admission to or exclusion from the Building of any person.

9. Tenant shall close and lock the doors of its Premises and entirely shut off all water faucets or other water apparatus and electricity, gas or air outlets before Tenant and its employees leave the Premises. Tenant shall be responsible for any damage or injuries sustained by other tenants or occupants of the Building or by Landlord for noncompliance with this rule.

10. The toilet rooms, toilets, urinals, wash bowls and other apparatus shall not be used for any purpose other than that for which they were constructed, no foreign substance of any kind whatsoever shall be thrown into any of them, and the expense of any breakage, stoppage or damage resulting from the violation of this rule shall be borne by the Tenant who, or whose employees or invitees, shall have caused it.

11. Tenant shall not install any radio or television antenna, satellite dish, loudspeaker or other device on the roof or exterior walls of the Building. Tenant shall not interfere with radio or television broadcasting or reception from or in the Building or elsewhere.

12. Tenant shall not install, maintain or operate upon the Premises any vending machine.

13. Tenant shall store all its trash and garbage within its Premises [outside in dumptster]. Tenant shall not place in any trash box or receptacle any material which cannot be disposed of in the ordinary and customary manner of trash and garbage disposal. All garbage and refuse disposal shall be made in accordance with directions issued from time to time by Landlord.

14. No cooking shall be done or permitted by any Tenant on the Premises, except by the Tenant of Underwriters' Laboratory approved microwave oven or equipment for brewing coffee, tea, hot chocolate and similar beverages shall be permitted provided that such equipment and use is in accordance with all applicable federal, state and city laws, codes, ordinances, rules and regulations.

15. Tenant shall not use the name of the Building in connection with or in promoting or advertising the business of Tenant except as Tenant's address.

16. The requirements of Tenant will be attended to only upon appropriate application to the office of the Building by an authorized individual. Employees of Landlord shall not perform any work or do anything outside of their regular duties unless under special instruction form Landlord, and no employee of Landlord will admit any person (Tenant or otherwise) to any office without specific instructions from Landlord.

17. Landlord may waive any one or more of these Rules and Regulations for the benefit of any particular tenant or tenants, but no such waiver by Landlord shall be construed as a waiver of such Rules and Regulations in favor of any other tenant or tenants, nor prevent Landlord from thereafter enforcing any such Rules and Regulations against any or all of the tenants of the Building.

18. These Rules and Regulations are in addition to, and shall not be construed to in any way modify or amend, in whole or in part, the terms, covenants, agreements and conditions of any lease of premises in the Building.

19. Landlord reserves the right to make such other and reasonable rules and regulations as in its judgment may from time to time be needed for safety and security, for care and cleanliness of the Building and for the preservation of good order in and about the Building. Tenant agrees to abide by all such rules and regulations in this Exhibit C stated and any additional rules and regulations which are adopted.

20. Tenant shall be responsible for the observance of all of the foregoing rules by Tenant's employees, agents, clients, customers, invitees and guests.

EXHIBIT D — HAZARDOUS MATERIALS EXHIBIT

attached to and made a part of Lease bearing the Lease Reference Date of August 20, 2001 between TMT 290 INDUSTRIAL PARK, INC., as Landlord and ASPEN AEROGELS, INC., as Tenant

Based on 3,000-5,000 Liter Plant (limited inventories)	(gallons)
Silbond H-5 or similar	5,000
Waterglass (NA Silicate)	8,500
EtOH or similar	17,300
NH4OH conc. (ammonia)	55
Alcoblak 300A or similar	110
2-propanol or similar	2,500
THF, Hexane or similar	250
PDMS or similar	50
HCL	960
HMDS, HMDSO or similar	500

Also Various Standard Laboratory Chemicals

Alcohols	Standard Lab Quantities
Acids	Standard Lab Quantities
Chemicals	Standard Lab Quantities
Bases	Standard Lab Quantities
Alkoxides	Standard Lab Quantities
Chlorides	Standard Lab Quantities
Silanes	Standard Lab Quantities

Note: All materials and the quantities thereof are subject to Tenant’s obtaining any required federal, state and/or local approvals and compliance with all applicable statutes, regulations, codes and ordinances. .

EXHIBIT E — FORM OF LETTER OF CREDIT

attached to and made a part of Lease bearing the Lease Reference Date of August 20, 2001 between TMT 290 INDUSTRIAL PARK, INC., as Landlord and ASPEN AEROGELS, INC., as Tenant

EXHIBIT F — ROOFTOP LICENSE AGREEMENT

attached to and made a part of Lease bearing the Lease Reference Date of August 20, 2001 between TMT 290 INDUSTRIAL PARK, INC., as Landlord and ASPEN AEROGELS, INC., as Tenant

LICENSE TO USE ROOFTOP SPACE

THIS LICENSE TO USE ROOFTOP SPACE ("License") is entered into as of the ___ day of _____, 2001, by and between _____ ("Tenant"), and _____ ("Landlord").

1. Recitals . This License is made with reference to the following facts and objectives:

(a) Landlord leased to Tenant, and Tenant rented from Landlord, certain premises commonly known as _____ (the "Premises") located in the building commonly known as _____ (the "Building:"), pursuant to a _____ Lease dated for reference _____ (the "Lease").

(b) Tenant now wishes to install certain HVAC equipment on the roof of the Building, and has requested Landlord's approval of same, and, accordingly, Landlord has required the execution and delivery of this License.

(c) All terms defined in the Lease retain their meaning herein, unless specified herein to the contrary.

(d) Now, therefore, in consideration of the premises herein contained and the detriments to be suffered by each of the parties, the parties hereby agree as follows:

2. License . Landlord hereby grants to Tenant a license (the "license") to install, maintain and operate the HVAC system consisting of the equipment and materials, and having the operating characteristics specified in Exhibit A ("Rooftop HVAC Characteristics") and to be located as shown on Exhibit B ("Rooftop HVAC Plan"). This system is collectively referred to herein as the "Rooftop HVAC Facilities."

(a) Tenant shall pay to Landlord, as additional rent, on a monthly basis, the actual costs incurred by Landlord in furnishing electric power for the operation of the Rooftop HVAC Facilities. Landlord and Tenant agree that Tenant, at its sole cost and expense, shall install a meter to monitor Tenant's use of electricity furnished by Landlord in the operation of the Rooftop HVAC Facilities. All amounts due under this paragraph shall constitute additional rent for purposes of the Lease.

(b) This license shall be revocable at Landlord's discretion upon the occurrence of any of the following events: (i) termination of the Lease; (ii) default under the Lease; and (iii) default by Tenant of any of its obligations under this license. All of the Rooftop HVAC Facilities installed by Tenant shall be and remain the property of Tenant, and Tenant shall, prior to the expiration or termination of the Lease, remove the equipment (including all installation and anchoring hardware) and restore the roof to substantially the same condition existing prior to the installation of the equipment. Tenant shall be liable for, and shall promptly reimburse Landlord for, the cost of repairing all damage done to the Building by such removal, including filling and sealing any holes or cavities left by the removal of installation or anchoring hardware.

(c) Tenant shall, at its sole cost and expense, and at its sole risk, install the Rooftop HVAC Facilities in a good and workmanlike manner, and in compliance with all building, electric, communications, and safety codes, ordinances, standards, regulations and requirements of the municipal, state and Federal Governments.

Tenant shall deliver to Landlord Tenant's plans and specifications for the installation of the Rooftop HVAC Facilities for review and approval by Landlord's engineer not less than thirty (30) days prior to commencing installation. Tenant shall not commence installation of the Rooftop HVAC Facilities without the prior written consent of Landlord (which consent shall not be unreasonably withheld or delayed), and all phases of the installation shall be under the direct supervision of Landlord. Tenant shall obtain, at its sole cost and expense, prior to construction and work, any necessary federal, state, and municipal permits, licenses and approvals, copies of which will be delivered to Landlord prior to commencement of construction and work. In no event shall Tenant's installation of the Rooftop HVAC Facilities damage the Building or existing structures on the Building, or interfere with the maintenance of the Building, any system currently serving the Building, or any radio or telecommunications equipment currently being operated from the Building. Tenant shall notify Landlord upon completion of the installation of the Rooftop HVAC Facilities, and Landlord shall have ten (10) days after installation in which to inspect the installation. Tenant shall not commence operation of the Rooftop HVAC Facilities until Landlord has approved the installation. Landlord's review and approval of the plans and specifications for the installation of the Rooftop HVAC Facilities and Landlord's supervision and inspection of such installation shall not be construed in any way as approval by Landlord of the adequacy or safety of the installation of the Rooftop HVAC Facilities or a waiver of any of Landlord's rights hereunder, and Tenant shall be solely responsible for the adequacy and safety of the installation and operation of the Rooftop HVAC Facilities and solely liable for any damages or injury arising out of such installation and operation. Tenant shall pay to Landlord upon demand the cost of repairing any damage to the Building caused by such installation. The Rooftop HVAC Facilities shall be connected to Landlord's power supply in strict compliance with all applicable building, electrical, fire and safety codes. Landlord shall not be liable to Tenant for any stoppages or shortages of electrical power furnished to the Rooftop HVAC Facilities because of any act, omission, or requirement of the public utility serving the Building, or the act or omission of any other tenant, licensee, or contractor of the Building, or for any other cause beyond the reasonable control of Landlord.

(d) Tenant must coordinate the installation, operation and maintenance with Landlord's roofing contractor, to insure that the integrity of the roof is not compromised and the validity of the existing roof warranty is not impaired. No roof penetrations are permitted without the express written approval of Landlord and the roofing contractor. Tenant shall be solely liable for any damage to the roof or impairment or voiding of the roof warranty from any cause resulting from the installation, operation, maintenance, repair, inspection, use, or removal of the Rooftop HVAC Facilities equipment by Tenant or its agents, employees, representatives, contractors, or invitees, and shall indemnify, defend and hold Landlord harmless from and against any damages, claims, judgments, expenses and costs (including reasonable attorneys' fees) arising in connection therewith.

(e) Landlord agrees that Tenant shall have continuous access to the Rooftop HVAC Facilities for the purpose of installing, operating, maintaining, repairing, and removing the Rooftop HVAC Facilities, provided, however, that such access shall be limited to authorized engineers of Tenant, or persons under their direct supervision. Tenant shall deliver to Landlord a list of Tenant's authorized representatives, repair, maintenance, and engineering personnel prior to any access to the Rooftop HVAC Facilities, and those persons shall be required to sign in and out with Landlord's security personnel when entering or exiting the Rooftop HVAC Facilities. Landlord shall have no responsibility or liability for the conduct or safety of any of Tenant's representatives, repair, maintenance, and engineering personnel while in any part of the Building or the Rooftop HVAC Facilities, it being understood and agreed that Tenant shall be solely liable for any injury to or death of any such person from any cause resulting from the installation, operation, maintenance, repair, inspection, use, or removal of such equipment by Tenant or its agents, employees, representatives, contractors, or invitees.

(f) Tenant shall operate the equipment in strict compliance with Landlord's rules and regulations, now or hereafter promulgated, and all applicable statutes, codes, rules, regulations, standards, and requirements of all federal, state, and local governmental boards, authorities, and agencies. Tenant's equipment shall comply with all applicable safety standards, as modified form time to time, of any governing body with jurisdiction over Tenant's operations. The installation, operation, and maintenance of the equipment shall at all times strictly comply with the technical standards approved by Landlord. The operation of the Rooftop HVAC Facilities shall not interfere with the maintenance or operation of the Building, or any system now or hereafter serving the Building, or the operation of any existing radio, microwave, satellite, or telecommunications equipment operated on or from the Building.

(g) During the term hereof, Landlord reserves the right to grant licenses for space on the roof of the Building and elsewhere on the Building, for the operation of radio, microwave, satellite, and telecommunications equipment by other tenants and licensees as well as other HVAC equipment; provided, however, that such other equipment shall not hinder or interfere with Tenant's installation, operation, maintenance, or repair of the Rooftop HVAC Facilities.

3. Continuation . Other than as supplemented hereby, the Lease shall remain in full force and effect.

THE REST OF THIS PAGE IS INTENTIONALLY LEFT BLANK

4. Limitation Of Landlord's Liability . Redress for any claim against Landlord under the Lease as supplemented hereby and under this License shall be limited to and enforceable only against and to the extent of Landlord's interest in the Building. The obligations of Landlord under the Lease and the License are not intended to and shall not be personally binding on, nor shall any resort be had to the private properties of, any of its trustees or board of directors and officers, as the case may be, its investment manager, the general partners thereof, or any beneficiaries, stockholders, employees, or agents of Landlord or the investment manager.

IN WITNESS WHEREOF, the parties hereto have executed this License as of the day and year first written above.

LANDLORD: **TENANT:**

EXHIBIT A TO LICENSE TO USE ROOFTOP SPACE

Rooftop HVAC Characteristics

EXHIBIT B TO LICENSE TO USE ROOFTOP SPACE

Rooftop HVAC Plan

EXHIBIT HM

(Premises HVAC Maintenance Requirements)

1. Check performance of all major components.
2. Lubricate moving parts as required.
3. Check refrigerant charges (during cooling season).
4. Inspect for oil and refrigerant leaks.
5. Check operating and safety controls.
6. Check pressures and temperatures.
7. Inspect condenser.
8. Inspect fans, motors, and starters.
9. Tighten electrical connections at equipment.
10. Test amperages and voltages.
11. Check belts and drives.
12. Changes oil and filters, or dryers, as required.
13. Check temperature on control system.
14. Thoroughly inspect heat exchanger.

FIRST AMENDMENT TO LEASE

THIS FIRST AMENDMENT TO LEASE, dated as of March 25, 2004 (this "Amendment"), is made by and between **TMT 290 INDUSTRIAL PARK, INC.** , a Delaware nonprofit corporation, by RREEF Management Company, a Delaware corporation ("Landlord"), and **ASPEN AEROGELS, INC.** , a Delaware corporation ("Tenant"), for certain premises located in the building commonly known as 30 Forbes Road, I-290 Industrial Park, Northborough, Massachusetts (the "Building").

RECITALS :

A. Landlord and Tenant entered into that certain Multi-Tenant Industrial Net Lease dated for reference August 20, 2001 (the "Lease") for approximately 31,119 rentable square feet in the Building (the "Original Premises"). The Original Premises is depicted on Exhibit A attached hereto.

B. Fiber Optic Network Solutions Corp., a Massachusetts corporation ("FONS") currently leases the remainder of the Building consisting of approximately 80,458 rentable square feet, pursuant to a lease dated July 13, 2000, as amended (the "FONS Lease" and the portion of the Building subject to the FONS Lease, the "FONS Premises"). The FONS Premises is depicted on Exhibit A-1 attached hereto.

C. Tenant, as Subtenant, and FONS, as Sublandlord, with Landlord's consent, have entered into a Sublease dated as of January ___, 2004 (the "Sublease"), whereby Tenant has agreed to take occupancy of various portions of the FONS Premises over time, eventually occupying the entire FONS Premises (and, thus, the entire Building).

D. Tenant and Landlord wish to extend the Term of the Lease and to amend the Lease so as to expand the leased Premises by adding the FONS Premises to the Premises.

E. All terms, covenants and conditions contained in this Amendment shall have the same meaning as in the Lease, and, shall govern should a conflict exist with previous terms and conditions.

AGREEMENT:

NOW, THEREFORE, in consideration of the foregoing recitals and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. FONS Premises . The "FONS Premises Commencement Date," as used herein, is the earlier to occur of (i) June 1, 2004 or (ii) at Tenant's option, the date of Landlord's termination of the FONS Lease due to a default by FONS pursuant to the terms of the Lease and Landlord's notice to Tenant of such termination. Effective as of the FONS Premises Commencement Date, the Leased Premises shall be expanded to include the FONS Premises. Accordingly, as of the FONS Premises Commencement Date, the Leased Premises shall consist of the Original Premises, plus the FONS Premises, being the entire rentable area of the Building having a total Premises rentable area of approximately 111,577 rentable square feet, as approximately depicted on Exhibit A-2 attached hereto. The FONS Premises shall be a part of the Premises for all purposes of the Lease, except as specifically provided herein to the contrary.

2. Term . The term of the Lease is hereby extended so as to expire on August 31, 2010 (the revised Termination Date).

3. Tenant's Proportionate Share . As of the FONS Premises Commencement Date, Tenant's Proportionate Share for the entire Premises will be 100.00%.

4. Annual Rent and Monthly Installment of Rent . The Annual Rent and Monthly Installment of Rent for the Original Premises only shall remain as per Article 38 of the Lease, through October 31, 2006. Commencing as of the FONS Premises Commencement Date and continuing through October 31, 2006, the Annual Rent and Monthly Installment of Rent for the FONS Premises only shall be as set forth in the following schedule, and commencing as of November 1, 2006 and continuing through the end of the Term as extended, rent for the entire Premises (Original Premises and FONS Premises) shall be as set forth in the following schedule:

Period		Rentable Square	Annual Rent		Monthly Installment
from	to	Footage	Per Square Foot	Annual Rent	of Rent
FPCD	10/31/2006	80,458	$6.50	$522,977.00	$43,581.42
11/1/2006	8/31/2007	111,577	$6.50	$725,250.50	$60,437.54
9/1/2007	8/31/2010	111,577	$7.00	$781,039.00	$65,086.58

"FPCD" is the FONS Premises Commencement Date.

5. Restoration .

(a) Reference is made to Paragraphs 6.4 and 26.2 of the Lease. Notwithstanding anything therein to the contrary, but subject to subparagraph (b) below, Landlord may require that Tenant reimburse Landlord for the reasonable cost of demolishing the office improvements in the FONS Premises upon the expiration or sooner termination of the Term of the Lease, and restoring the entire FONS Premises to shell warehouse condition, repairing any damage caused by such demolition and restoration, provided that such demolition is not to prepare the FONS Premises for fit out for office use or uses other than warehouse (all such demolition, restoration and repair collectively referred to as the "Restoration"). Landlord must perform the Restoration within the six (6) month period following the Termination Date ("Restoration Period") in order to be entitled to reimbursement. To secure its obligation under this paragraph, Tenant shall deposit with Landlord, not later than ten (10) days after the execution and delivery of this Amendment, an irrevocable letter of credit in the amount of $241,375.00 (the "Restoration LOC"). The Restoration LOC must comply with, and shall be governed by the terms of, Paragraph 5.2 of the Lease; except that (i) the reduction provisions of Paragraph 5.2.1 will not apply, (ii) the "End Date," as that term is defined in Paragraph 5.2.3 of the Lease and as applied to the Restoration LOC, may not be not earlier than seven (7) months after the Termination Date, and (iii) Paragraph 5.2.8 will not apply. The total amount due by Tenant for the cost of the Restoration shall not exceed the amount of the Restoration LOC. The letter of credit must be in form acceptable to Landlord and its counsel. Said letter of credit is in addition to, and not in lieu of, the letter of credit provided for in Paragraph 5.2 of the Lease.

(b) Landlord shall only perform the Restoration should it determine, in its reasonable discretion, after engaging a third party reputable real estate broker familiar with the area to market and show the Premises to potential tenants. Landlord shall engage the broker as soon as reasonably practical after Tenant has not exercised its option to renew the Lease or within 12 months of termination of the Lease. In the event that the Landlord is unable, using good faith and due diligence, to obtain a tenant for the Premises, and Landlord determines that the Restoration is necessary or desirable in connection with the optimal re-leasing of the FONS Premises, Landlord may elect to demolish all or part of the office improvements. Prior to performing the Restoration, Landlord shall provide Tenant with its estimate of the cost and schedule thereof, and Tenant shall be afforded the opportunity to perform the Restoration, at its sole cost, if it demonstrates to Landlord's reasonable satisfaction that Tenant can perform the restoration at a cost lower than Landlord's estimate and complete same within the same time period. If Landlord performs the Restoration, Landlord shall provide Tenant evidence of the cost thereof by written notice (with reasonable supporting documentation) delivered not later than the end of the Restoration Period, and Landlord may then draw on the Restoration LOC if Tenant does not object to costs within ten (10) days of its receipt from Landlord. Upon (i) Landlord's receipt of reimbursement in full for the cost of the Restoration, or (ii) Tenant's completion of the Restoration and demonstration to Landlord's reasonable satisfaction that the cost thereof has been fully paid and the Building is free of any mechanics' liens arising out of the Restoration, Landlord shall return the unused portion of the Restoration LOC to Tenant. If Landlord does not perform the Restoration during the Restoration Period and timely notify Tenant of the cost thereof, Landlord shall return the Restoration LOC to Tenant.

6. Condition of Premises . Tenant acknowledges that Landlord shall have no obligation to perform any construction or make any additional improvements or alterations, or to afford any allowance to Tenant for improvements or alterations, in connection with this Amendment, either to the Original Premises or to the FONS Premises. Tenant acknowledges and agrees that all construction and improvements obligations of Landlord under the Lease (other than as set forth in this Amendment) have been performed in full and accepted. Tenant accepts the Original Premises and the FONS Premises in their "as is" condition, subject to Landlord's performing such work.

7. Renewal Options . Article 39 remains in effect, except that the earliest notice date under Paragraph 39.1 shall be eighteen (18) months prior to the Termination Date, and the latest notice date shall be twelve (12) months prior to the Termination Date.

8. Condition Precedent . This Amendment, and Landlord's obligations hereunder, are expressly conditioned upon Landlord and FONS entering into a lease termination agreement on terms and conditions acceptable to Landlord in its sole and absolute discretion. If, at any time, Landlord, in its sole and absolute discretion determines that the foregoing condition precedent cannot or will not be satisfied, Landlord may cancel this Amendment by written notice to Tenant, whereupon this Amendment shall be null and void and the Lease shall remain and continue in full force and effect without reference to this Amendment.

9. Notice of Lease/Subordination . The Landlord shall execute a Notice of Lease in the form attached hereto as Exhibit B , and consents to such being recorded, at Tenant's sole cost and expense, in the appropriate Registry of Deeds. Prior to any such recording, Tenant shall deliver to Landlord a fully executed and notarized (but undated) instrument, in form and substance acceptable to Landlord, sufficient to release of record any and all right, title and interest of Tenant in and to the Building evidenced by such notice, and Landlord is hereby irrevocably authorized to date and record such instrument upon the expiration or early termination of the Lease. At Tenant's request and at Tenant's sole expense, Landlord shall make request of its current and any future mortgagee that it provide a non-disturbance agreement in favor of Tenant, but the failure to obtain such non-disturbance agreement shall not be a failure of condition of this Lease. Tenant shall reimburse Landlord for any fees and charges imposed by said mortgagee in connection with the non-disturbance agreement, as well as for reasonable attorneys' fees and costs incurred by Landlord.

10. Tenant's Authority . If Tenant signs as a corporation, partnership, trust or other legal entity each of the persons executing this Lease on behalf of Tenant represents and warrants that Tenant has been and is qualified to do business in the state in which the Building is located, that the entity has full right and authority to enter into this Lease, and that all persons signing on behalf of the entity were authorized to do so by appropriate actions. Tenant agrees to deliver to Landlord, simultaneously with the delivery of this Amendment, a corporate resolution, proof of due authorization by partners, opinion of counsel or other appropriate documentation reasonably acceptable to Landlord evidencing the due authorization of Tenant to enter into this Amendment.

11. Brokers . Landlord and Tenant each (i) represents and warrants to the other that it has not dealt with any broker or finder in connection with this Amendment, and (ii) agrees to defend, indemnify and hold the other harmless from and against any losses, damages, costs or expenses (including reasonable attorneys' fees) incurred by such other party due to a breach of the foregoing warranty by the indemnifying party.

12. Incorporation . Except as modified herein, all other terms and conditions of the Lease shall continue in full force and effect and Tenant hereby ratifies and confirms its obligations thereunder. Tenant acknowledges that as of the date of the Amendment, Tenant (i) is not in default under the terms of the Lease; (ii) has no defense, set off or counterclaim to the enforcement by Landlord of the terms of the Lease; and (iii) is not aware of any action or inaction by Landlord that would constitute an Event of Default by Landlord under the Lease.

13. Limitation of Landlord Liability . Redress for any claim against Landlord under the Lease or this Amendment shall be limited to and enforceable only against and to the extent of Landlord's interest in the Building. The obligations of Landlord under the Lease as amended are not intended to be and shall not be personally binding on, nor shall any resort be had to the private properties of, any of its or its investment manager's trustees, directors, officers, partners, beneficiaries, members, stockholders, employees, or agents, and in no case shall Landlord be liable to Tenant hereunder for any lost profits, damage to business, or any form of special, indirect or consequential damages.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Amendment as of the day and year first written above.

LANDLORD:

TMT 290 INDUSTRIAL PARK, INC. , a Delaware nonprofit corporation

By: RREEF Management Company, a Delaware corporation

By: /s/ Robert Holmes
Robert Holmes, District Manager

Dated: March 26, 2004

TENANT:

ASPEN AEROGELS, INC., a Delaware corporation

By: /s/ Patrick J. Piper
Patrick J. Piper

Title: CFO

Date: March 25, 2004

EXHIBIT A

attached to and made a part of the First Amendment to Lease
dated January 19, 2004 between
TMT 290 INDUSTRIAL PARK, INC., as Landlord, and
ASPEN AEROGELS, INC., as Tenant

ORIGINAL PREMISES

Exhibits A, A-1 and A-2 are intended only to show the general layout of the expanded Leased Premises as of the FONS Premises Commencement Date. They do not in any way supersede any of Landlord's rights set forth in the lease with respect to arrangements and/or locations of public parts of the Building and changes in such arrangements and/or locations. They are not to be scaled; any measurements or distances shown should be taken as approximate.

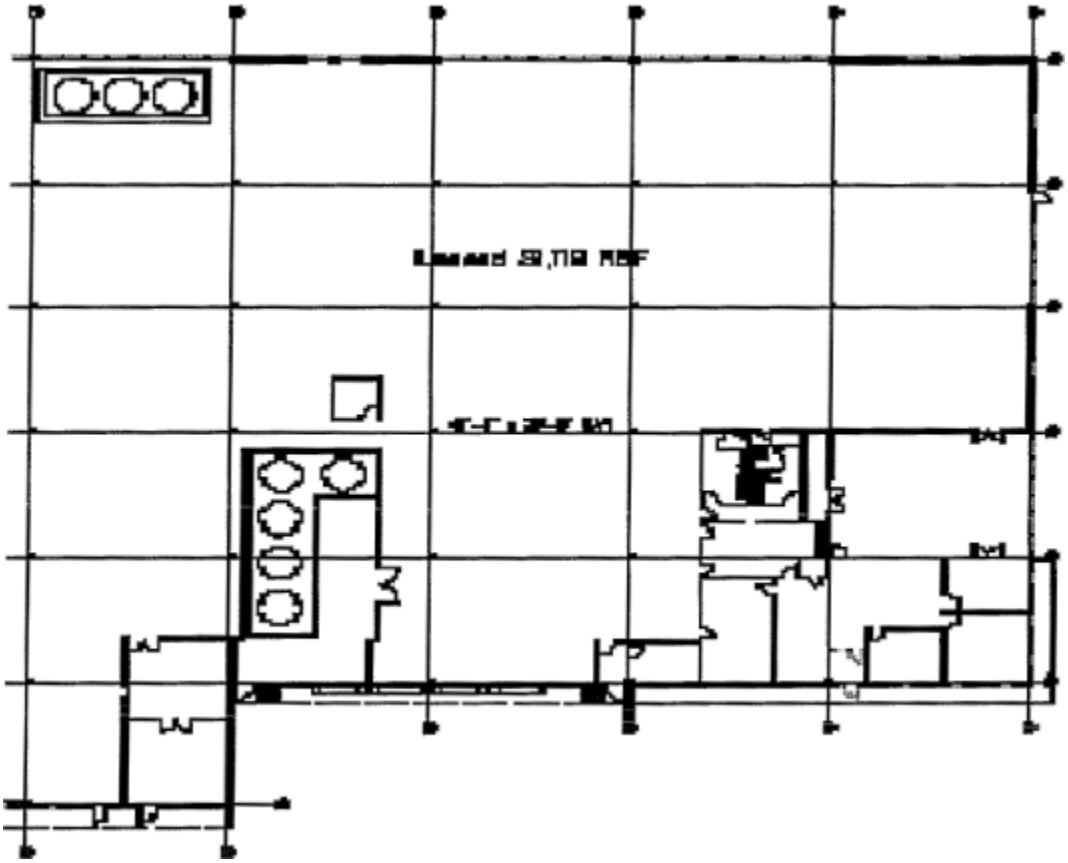


EXHIBIT A-1

attached to and made a part of the First Amendment to Lease
dated January 19, 2004 between
TMT 290 INDUSTRIAL PARK, INC., as Landlord, and
ASPEN AEROGELS, INC., as Tenant

FONS PREMISES

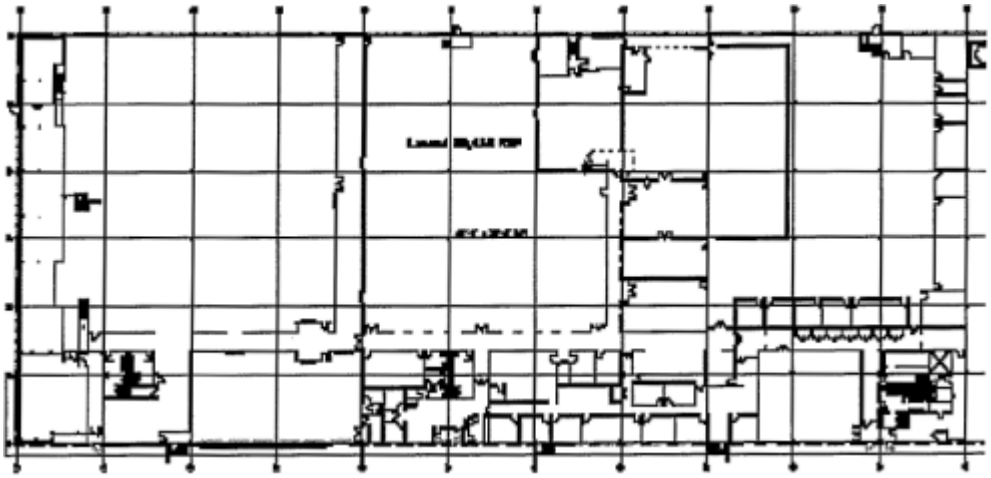


EXHIBIT A-2

attached to and made a part of the First Amendment to Lease dated January 19, 2004 between TMT 290 INDUSTRIAL PARK, INC., as Landlord, and ASPEN AEROGELS, INC., as Tenant

LEASED PREMISES AFTER EXPANSION (ENTIRE BUILDING)

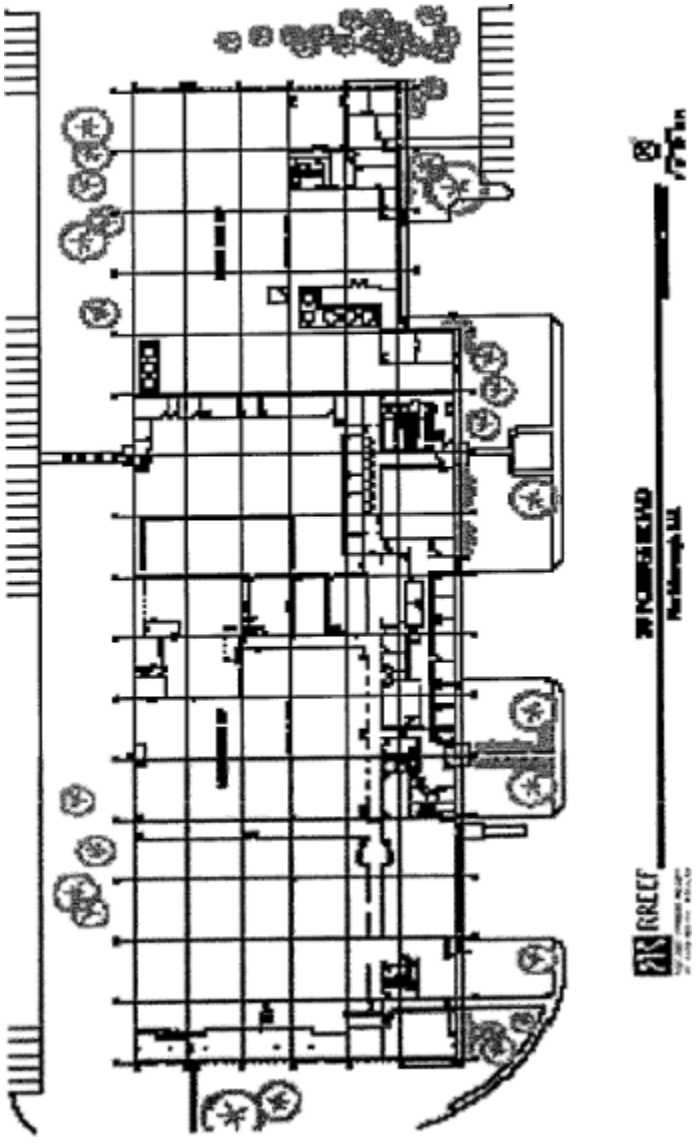


EXHIBIT B

attached to and made a part of the First Amendment to Lease dated January 19, 2004 between TMT 290 INDUSTRIAL PARK, INC., as Landlord, and ASPEN AEROGELS, INC., as Tenant

NOTICE OF LEASE

In accordance with M.G.L. c. 183, Sec. 4, notice is hereby given of the following described lease:

Landlord :	TMT 290 Industrial Park, Inc., a Delaware non-profit corporation
Tenant :	Aspen Aerogels, Inc., a Delaware corporation
Date of Lease Execution :	October 11, 2001 and amended March 25, 2004
Description of Leased Premises :	Approximately 31,119 sq. ft. and subject to the First Amendment to Lease an additional 80,458 sq. ft., located at 30 Forbes Road, I-290 Industrial Park, Northborough, MA, together with the buildings, fixtures and other improvements to be erected and installed thereon.
Term of Lease :	The term of the Lease expires on August 31, 2010, unless sooner terminated in accordance with the terms thereof.

This instrument is executed as a notice of the aforesaid Lease and is not intended nor shall it be deemed to vary or govern the interpretation of the terms and conditions thereof.

WITNESS the execution hereof under seal by Landlord and Tenant as of the 25 day of March, 2004.

TMT 290 Industrial Park, Inc,, a Delaware Non-profit Corporation

By: /s/ Robert Holmes
RREEF Management Company, a Delaware Corporation

By: /s/ Robert Holmes

ASPEN AEROGELS, INC.

By: /s/ P.J. Piper
Name: P.J. Piper
Title: CFO
Hereunto duly authorized

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF _____

On the ___ day of January, 2004 before me personally appeared the above-named _____, the _____ of TMT 290 Industrial Park, Inc., known to me to be the party executing the foregoing instrument on behalf of said limited liability company and acknowledged said instrument so executed to be his free act and deed in said capacity and the free act and deed of said company.

_____
Notary Public
My commission expires:

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF _____

On the _____ day of January, 2004 before me personally appeared the above-named _____, the _____ of Aspen Aerogels, Inc., known to me to be the party executing the foregoing instrument on behalf of said corporation and acknowledged said instrument so executed to be his free act and deed in said capacity and the free act and deed of said corporation.

_____
Notary Public
My commission expires:

SECOND AMENDMENT TO LEASE

THIS SECOND AMENDMENT TO LEASE (this " Amendment ") is made and entered into as of the 5th day of November 2009, by and between CABOT II — MA1M03, LLC, a Delaware limited liability company (" Landlord ") and ASPEN AEROGELS, INC., a Delaware corporation (" Tenant ").

WHEREAS, Landlord's predecessor-in-interest and Tenant's predecessor-in-interest entered into a certain Multi-Tenant Industrial Net Lease dated for reference as of August 20, 2001, as amended by First Amendment to Lease dated as of March 25, 2004 (as amended, the " Lease "), pursuant to which Tenant leases certain premises consisting of approximately 111,577 rentable square feet (the " Existing Premises ") in the building commonly known as 30 Forbes Road, Northborough, Massachusetts (the " Building ");

WHEREAS, Tenant desires to surrender approximately 28,800 rentable square feet of the Existing Premises (the " Surrendered Premises ") and Landlord has agreed to Tenant's surrender of the Surrendered Premises on the terms set forth herein;

WHEREAS, the term of the Lease currently expires on August 31, 2010 and Tenant desires to extend the term of the Lease for an additional three (3) years and four (4) months and Landlord has agreed to extend the term of the Lease on the terms set forth herein;

WHEREAS, Landlord and Tenant desire to memorialize their understanding and modify the Lease consistent therewith;

NOW, THEREFORE, and for other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. Lease Term . The term of the Lease shall be extended for a period of three (3) years and four (4) months and shall expire on December 31, 2013.

2. Surrendered Premises . As of December 31, 2009 (the " Surrender Date "), the Existing Premises shall be reduced by the Surrendered Premises. Tenant shall vacate the Surrendered Premises on or before the Surrender Date and shall deliver the Surrendered Premises to Landlord in accordance with Sections 6.4 and 26 of the Lease. Failure to vacate the Surrendered Premises by the Surrender Date shall be deemed a holding over pursuant to Section 14 of the Lease. Commencing on January 1, 2010 (the " Reduced Premises Commencement Date "), the " Premises " shall mean approximately 82,777 rentable square feet as shown on Exhibit A attached hereto.

3. Annual Rent . Commencing on the Reduced Premises Commencement Date, Tenant hereby agrees to pay to Landlord Monthly Installments of Rent for the Premises on the first day of each month in advance, without offset, deduction or prior demand as follows:

Time Period	*Annual Rent Per Square Foot*	*Annual Rent*	*Monthly Installment of Rent*
1.1.2010 — 8.31.2010	$7.00	$579,439.00	$48,286.58
9.1.2010 — 8.31.2011	$6.00	$496,662.00	$41,388.50*
9.1.2011 — 8.31.2012	$6.25	$517,356.25	$43,113.02
9.1.2012 — 12.31.2013	$6.50	$538,050.50	$44,837.54

* Landlord and Tenant agree that the Monthly Installment of Rent shall be abated for the months of (i) September 2010 and (ii) October 2010. Notwithstanding the foregoing abatement, Tenant shall be obligated to pay Tenant's Proportionate Share of Direct Expenses and Taxes for such months.

4. Tenant's Proportionate Share . Commencing on the Reduced Premises Commencement Date, Tenant's Proportionate Share shall be 74.19%.

5. As-Is Condition . In connection with this Amendment, Tenant is accepting the Premises in "as is" condition, and Landlord shall have no obligation to perform any work or construction to the Premises. Notwithstanding the foregoing, Landlord, at its sole cost and expense, shall demise the Premises (consisting of 82,777 rentable square feet) from the Existing Premises.

6. Brokers . Each party represents and warrants that it has dealt with no broker, agent, or other person other than CB Richard Ellis New England and Grubb & Ellis Company (collectively, the " Brokers "), in connection with this transaction and that no broker, agent or other person, other than the Brokers, brought about this transaction and each party agrees to indemnify and hold the other harmless from and against any claims by any other broker, agent or other person claiming a commission or other form of compensation by virtue of having dealt with the indemnifying party with regard to this leasing transaction. The provisions of this paragraph shall survive the termination of the Lease.

7. No Other Amendments . In all other respects, the terms and provisions of the Lease are ratified and reaffirmed hereby, are incorporated herein by this reference and shall be binding upon the parties to this Amendment.

8. Definitions . All capitalized terms used and not otherwise defined herein, shall have the meanings ascribed to them in the Lease.

9. Conflicts . Any inconsistencies or conflicts between the terms and provisions of the Lease and the terms and provisions of this Amendment shall be resolved in favor of the terms and provisions of this Amendment.

10. Execution . The submission of this Amendment shall not constitute an offer, and this Amendment shall not be effective and binding unless and until fully executed and delivered by each of the parties hereto. Tenant represents and warrants for itself that all requisite organizational action has been taken in connection with this transaction, and the individuals signing this Amendment on behalf of Tenant represent and warrant that they have been duly authorized to bind the Tenant by their signatures.

11. Counterparts . This Amendment may be executed in one or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument. Additionally, telecopied signatures may be used in place of original signatures on this Amendment. Landlord and Tenant intend to be bound by the signatures on the telecopied document, are aware that the other party will rely on the telecopied signatures, and hereby waive any defenses to the enforcement of the terms of this Amendment based on the form of signature.

SIGNATURES FOLLOW ON NEXT PAGE

IN WITNESS WHEREOF, Landlord and Tenant have caused this Amendment to be duly executed, under seal, in multiple copies, each to be considered an original hereof, as of the day and year first above written.

LANDLORD:

CABOT II — MA1M03, LLC

By: Cabot Industrial Value Fund II Operating Partnership, L.P.

By: /s/ Howard B. Hodgson, Jr.
Name: Howard B. Hodgson, Jr.
Title: Executive Vice President

TENANT:

ASPEN AEROGELS, INC.

By: /s/ John F. Fairbanks
Name: John F. Fairbanks
Title: Vice President, CFO & Treasurer

EXHIBIT A

PREMISES

A-1

Exhibit 10.4

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (this " **Agreement** ") dated as of the Effective Date between **SILICON VALLEY BANK** , a California corporation with a loan production office located at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 (" **Bank** "), and **ASPEN AEROGELS, INC.** , a Delaware corporation with offices located at 30 Forbes Road, Building B, Northborough, Massachusetts 01532 (" **Borrower** "), provides the terms on which Bank shall lend to Borrower and Borrower shall repay Bank. The parties agree as follows:

1 ACCOUNTING AND OTHER TERMS

Accounting terms not defined in this Agreement shall be construed following GAAP. Calculations and determinations must be made following GAAP. Capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in Section 13. All other terms contained in this Agreement, unless otherwise indicated, shall have the meaning provided by the Code to the extent such terms are defined therein.

2 LOAN AND TERMS OF PAYMENT

2.1 Promise to Pay . Borrower hereby unconditionally promises to pay Bank the outstanding principal amount of all Credit Extensions and accrued and unpaid interest thereon as and when due in accordance with this Agreement.

2.1.1 Revolving Advances.

(a) Availability . Subject to the terms and conditions of this Agreement and to deduction of Reserves, following the Account Transition Period, Bank shall make Advances not exceeding the Availability Amount. Amounts borrowed under the Revolving Line may be repaid, and prior to the Revolving Line Maturity Date, reborrowed, subject to the applicable terms and conditions precedent herein.

(b) Termination; Repayment . The Revolving Line terminates on the Revolving Line Maturity Date, when the principal amount of all Advances, the unpaid interest thereon, and all other Obligations relating to the Revolving Line shall be immediately due and payable.

2.1.2 Letters of Credit Sublimit.

(a) As part of the Revolving Line and subject to deduction of Reserves, following the Account Transition Period, Bank shall issue or have issued Letters of Credit denominated in Dollars or a Foreign Currency for Borrower's account. The aggregate Dollar Equivalent amount utilized for the issuance of Letters of Credit shall at all times reduce the amount otherwise available for Advances under the Revolving Line. The aggregate Dollar Equivalent of the face amount of outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve) may not exceed the lesser of (A) Two Million Dollars ($2,000,000), minus (i) the sum of all amounts used for Cash Management Services, and minus (ii) the FX Reduction Amount, or (B) the lesser of Revolving Line or the Borrowing Base, minus (i) the sum of all outstanding principal amounts of any Advances (including any amounts used for Cash Management Services), and minus (ii) the FX Reduction Amount.

(b) If, on the Revolving Line Maturity Date (or the effective date of any termination of this Agreement), there are any outstanding Letters of Credit, then on such date Borrower shall provide to Bank cash collateral in an amount equal to 105% of the Dollar Equivalent of the face amount of all such Letters of Credit plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment), to secure all of the Obligations relating to such Letters of Credit. All Letters of Credit shall be in form and substance acceptable to Bank in its sole discretion and shall be subject to the terms and conditions of Bank's standard Application and Letter of Credit Agreement (the " **Letter of Credit Application** "). Borrower agrees to execute any further documentation in connection with the Letters of Credit as Bank may reasonably request. Borrower further agrees to be bound by the regulations and interpretations of the issuer of any Letters of Credit guarantied by Bank and opened for Borrower's account or by Bank's interpretations of any Letter of Credit issued by Bank for Borrower's account, and Borrower understands and agrees that Bank shall not be liable for any error, negligence, or mistake, whether of omission or commission, in following Borrower's instructions or those contained in the Letters of Credit or any modifications, amendments, or supplements thereto.

(c) The obligation of Borrower to immediately reimburse Bank for drawings made under Letters of Credit shall be absolute, unconditional, and irrevocable, and shall be performed strictly in accordance with the terms of this Agreement, such Letters of Credit, and the Letter of Credit Application.

(d) Borrower may request that Bank issue a Letter of Credit payable in a Foreign Currency. If a demand for payment is made under any such Letter of Credit, Bank shall treat such demand as an Advance to Borrower of the Dollar Equivalent of the amount thereof (plus fees and charges in connection therewith such as wire, cable, SWIFT or similar charges).

(e) To guard against fluctuations in currency exchange rates, upon the issuance of any Letter of Credit payable in a Foreign Currency, Bank shall create a reserve (the " **Letter of Credit Reserve** ") under the Revolving Line in an amount equal to ten percent (10%) of the face amount of such Letter of Credit. The amount of the Letter of Credit Reserve may be adjusted by Bank from time to time to account for fluctuations in the exchange rate. The availability of funds under the Revolving Line shall be reduced by the amount of such Letter of Credit Reserve for as long as such Letter of Credit remains outstanding.

2.1.3 Foreign Exchange Sublimit. As part of the Revolving Line and subject to the deduction of Reserves, following the Account Transition Period, Borrower may enter into foreign exchange contracts with Bank under which Borrower commits to purchase from or sell to Bank a specific amount of Foreign Currency (each, a " **FX Forward Contract** ") on a specified date (the " **Settlement Date** "). FX Forward Contracts shall have a Settlement Date of at least one (1) FX Business Day after the contract date. The aggregate amount of FX Forward Contracts at any one time may not exceed ten (10) times the lesser of (A) Two Million Dollars ($2,000,000), minus (i) the sum of all amounts used for Cash Management Services, and minus (ii) the Dollar Equivalent of the face amount of any outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve), or (B) the lesser of Revolving Line or the Borrowing Base, minus (i) the sum of all outstanding principal amounts of any Advances (including any amounts used for Cash Management Services), and minus (ii) the Dollar Equivalent of the face amount of any outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve). The amount otherwise available for Credit Extensions under the Revolving Line shall be reduced by an amount equal to ten percent (10%) of each outstanding FX Forward Contract (the " **FX Reduction Amount** "). Any amounts needed to fully reimburse Bank for any amounts not paid by Borrower in connection with FX Forward Contracts will be treated as Advances under the Revolving Line and will accrue interest at the interest rate applicable to Advances.

2.1.4 Cash Management Services Sublimit. Borrower may, following the Account Transition Period, use the Revolving Line for Bank's cash management services, which may include merchant services, direct deposit of payroll, business credit card, and check cashing services identified in Bank's various cash management services agreements (collectively, the " **Cash Management Services** "), in an aggregate amount not to exceed the lesser of (A) Two Million Dollars ($2,000,000), minus (i) the Dollar Equivalent of the face amount of any outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve), and minus (ii) the FX Reduction Amount, or (B) the lesser of Revolving Line or the Borrowing Base, minus (i) the sum of all outstanding principal amounts of any Advances, minus (ii) the Dollar Equivalent of the face amount of any outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve), and minus (iii) the FX Reduction Amount. Any amounts Bank pays on behalf of Borrower for any Cash Management Services will be treated as Advances under the Revolving Line and will accrue interest at the interest rate applicable to Advances.

2.2 Overadvances. If, at any time, the sum of (a) the outstanding principal amount of any Advances (including any amounts used for Cash Management Services and the outstanding principal amount of any EXIM Loans); plus (b) the face amount of any outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve); plus (c) the FX Reduction Amount exceeds the lesser of either the Revolving Line or the Borrowing Base (such excess amount being an " **Overadvance** "), Borrower shall immediately pay to Bank in cash such Overadvance. Without limiting Borrower's obligation to repay Bank any amount of the Overadvance, Borrower agrees to pay Bank interest on the outstanding amount of any Overadvance, on demand, at the Default Rate.

2.3 Payment of Interest on the Credit Extensions.

(a) Interest Rate ; Advances . Subject to Section 2.3(b), the principal amount outstanding under the Revolving Line shall accrue interest at a floating per annum rate equal to Prime Rate plus one percent (1.00%); provided , however , when Borrower is at or above the Liquidity Threshold, the principal amount

outstanding under the Revolving Line shall accrue interest at a floating per annum rate equal to the Prime Rate plus one-half percent (0.50%). Such interest shall in any event be payable monthly, in arrears, in accordance with Section 2.3(f) below.

(b) Default Rate . Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall bear interest at a rate per annum which is four percentage points (4.00%) above the rate that is otherwise applicable thereto (the " **Default Rate** ") unless Bank otherwise elects from time to time in its sole discretion to impose a smaller increase. Fees and expenses which are required to be paid by Borrower pursuant to the Loan Documents (including, without limitation, Bank Expenses) but are not paid when due shall bear interest until paid at a rate equal to the highest rate applicable to the Obligations. Payment or acceptance of the increased interest rate provided in this Section 2.3(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of Bank.

(c) Adjustment to Interest Rate . Changes to the interest rate of any Credit Extension based on changes to the Prime Rate shall be effective on the effective date of any change to the Prime Rate and to the extent of any such change.

(d) Computation; 360-Day Year . In computing interest, the date of the making of any Credit Extension shall be included and the date of payment shall be excluded; provided, however, that if any Credit Extension is repaid on the same day on which it is made, such day shall be included in computing interest on such Credit Extension. Interest shall be computed on the basis of a 360-day year for the actual number of days elapsed.

(e) Debit of Accounts . Bank may debit any of Borrower's deposit accounts, including the Designated Deposit Account, for principal and interest payments or any other amounts Borrower owes Bank when due. These debits shall not constitute a set-off.

(f) Payment; Interest Computation; Float Charge . Interest is payable monthly on the last calendar day of each month. In computing interest on the Obligations, all Payments received after 12:00 noon Eastern time on any day shall be deemed received on the next Business Day. In addition, Bank shall be entitled to charge Borrower a "float" charge in an amount equal to three (3) Business Days interest, at the interest rate applicable to the Advances, on all Payments received by Bank; provided , that when Borrower is at or above the Liquidity Threshold, such "float" charge shall not apply. The float charge for each month shall be payable on the last day of the month. Bank shall not, however, be required to credit Borrower's account for the amount of any item of payment which is unsatisfactory to Bank in its good faith business judgment, and Bank may charge Borrower's Designated Deposit Account for the amount of any item of payment which is returned to Bank unpaid.

2.4 Fees. Borrower shall pay to Bank:

(a) Commitment Fee . A fully earned, non refundable commitment fee of Seventy Five Thousand Dollars ($75,000), payable on the Effective Date;

(b) Anniversary Fee . A fully earned, non refundable anniversary fee of Twenty Seven Thousand Five Hundred Dollars ($27,500), payable on the date that is three hundred sixty five (365) days after the Effective Date

(c) Letter of Credit Fee . Bank's customary fees and expenses for the issuance or renewal of Letters of Credit, (including, without limitation, a letter of credit fee of two percent (2.00%) per annum of the Dollar Equivalent of the face amount of each Letter of Credit issued), upon the issuance of such Letter of Credit, each anniversary of the issuance during the term of such Letter of Credit, and upon the renewal of such Letter of Credit by Bank;

(d) Unused Revolving Line Facility Fee . A fee (the " **Unused Revolving Line Facility Fee** "), payable quarterly, in arrears, following the Account Transition Period, in an amount equal to one-half percent (0.50%) per annum of the average unused portion of the Revolving Line. The unused portion of the Revolving Line, for purposes of this calculation, shall equal the difference between (x) the Revolving Line amount (as it may be reduced from time to time) and (y) the average for the period of the daily closing balance of the Revolving Line outstanding plus the sum of the aggregate amount of outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit and any Letter of Credit Reserve, plus the sum of any Reserves). Borrower shall not be entitled to any credit, rebate or repayment of any Unused Revolving Line Facility Fee previously earned by Bank

pursuant to this Section notwithstanding any termination of the Agreement or the suspension or termination of Bank's obligation to make loans and advances hereunder; and

(e) Bank Expenses . All Bank Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due.

2.5 Payments; Application of Payments.

(a) All payments (including prepayments) to be made by Borrower under any Loan Document shall be made in immediately available funds in U.S. Dollars, without setoff or counterclaim, before 12:00 noon Eastern time on the date when due. Payments of principal and/or interest received after 12:00 noon Eastern time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment shall be due the next Business Day, and additional fees or interest, as applicable, shall continue to accrue until paid.

(b) Subject to Section 6.3(c), Bank shall apply the whole or any part of collected funds against the Revolving Line or credit such collected funds to a depository account of Borrower with Bank (or an account maintained by an Affiliate of Bank), the order and method of such application to be in the sole discretion of Bank. Borrower shall have no right to specify the order or the accounts to which Bank shall allocate or apply any payments required to be made by Borrower to Bank or otherwise received by Bank under this Agreement when any such allocation or application is not specified elsewhere in this Agreement.

3 CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Credit Extension. Bank's obligation to make the initial Credit Extension is subject to the condition precedent that Bank shall have received, in form and substance reasonably satisfactory to Bank, such documents, and completion of such other matters, as Bank may reasonably deem necessary or appropriate, including, without limitation:

(a) duly executed original signatures to the Loan Documents;

(b) duly executed original signatures to the Control Agreements, if any;

(c) Borrower's Operating Documents and a good standing certificate of Borrower certified by the Secretary of State of the State(s) of Delaware, together with any certificates of foreign qualifications from each jurisdiction in which Borrower is qualified, each dated as of a date no earlier than thirty (30) days prior to the Effective Date;

(d) duly executed original signatures to the Secretary's Certificate with completed Borrowing Resolutions for Borrower;

(e) the PJC Intercreditor Agreement by PJC Capital in favor of Bank, together with the duly executed original signatures thereto;

(f) [Reserved];

(g) [Reserved];

(h) certified copies, dated as of a recent date, of financing statement searches, as Bank shall request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Credit Extension, will be terminated or released;

(i) the Perfection Certificates of Borrower and Guarantor, together with the duly executed original signatures thereto;

(j) a landlord's consent in favor of Bank for 30 Forbes Road, Building B, Northborough, Massachusetts 01532 and for 1 Dexter Road, East Providence, Rhode Island , by each landlord thereof, together with the duly executed original signatures thereto;

(k) [Reserved];

(l) a legal opinion of Borrower's counsel, in form and substance acceptable to Bank, in its reasonable discretion, dated as of the Effective Date together with the duly executed original signature thereto;

(m) the duly executed original signatures to the Guaranty Agreement and the Security Agreement, together with a Secretary's Certificate and duly executed original signatures to the completed Borrowing Resolutions for Guarantor;

(n) evidence satisfactory to Bank that the insurance policies required by Section 6.7 hereof are in full force and effect, together with appropriate evidence showing lender loss payable and/or additional insured clauses and cancellation notice to Bank (or endorsements reflecting the same) in favor of Bank; and

(o) payment of the fees and Bank Expenses then due as specified in Section 2.4 hereof.

3.2 Conditions Precedent to all Credit Extensions. Bank's obligation to make each Credit Extension, including the initial Credit Extension, is subject to the following conditions precedent:

(a) except as otherwise provided in Section 3.4, timely receipt of an executed Transaction Report;

(b) the representations and warranties in this Agreement shall be true, accurate, and complete in all material respects on the date of the Transaction Report and on the Funding Date of each Credit Extension; provided , however , that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided , further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Default or Event of Default shall have occurred and be continuing or result from the Credit Extension. Each Credit Extension is Borrower's representation and warranty on that date that the representations and warranties in this Agreement remain true, accurate, and complete in all material respects; provided , however , that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided , further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date; and

(c) in Bank's sole discretion, there has not been any material impairment in the general affairs, management, results of operation, financial condition or the prospect of repayment of the Obligations, or any material adverse deviation by Borrower from the most recent business plan of Borrower presented to and accepted by Bank.

3.3 Covenant to Deliver. Borrower agrees to deliver to Bank each item required to be delivered to Bank under this Agreement as a condition precedent to any Credit Extension. Borrower expressly agrees that a Credit Extension made prior to the receipt by Bank of any such item shall not constitute a waiver by Bank of Borrower's obligation to deliver such item, and the making of any Credit Extension in the absence of a required item shall be in Bank's sole discretion.

3.4 Procedures for Borrowing; Advances . Subject to the prior satisfaction of all other applicable conditions to the making of an Advance set forth in this Agreement, to obtain an Advance (other than Advances under Sections 2.1.2 or 2.1.4), Borrower shall notify Bank (which notice shall be irrevocable) by electronic mail, facsimile, or telephone by 12:00 noon Eastern time on the Funding Date of the Advance. Together with any such electronic or facsimile notification, Borrower shall deliver to Bank by electronic mail or facsimile a completed Transaction Report executed by a Responsible Officer or his or her designee. Bank may rely on any telephone notice given by a person whom Bank believes is a Responsible Officer or designee. Bank shall credit Advances to the Designated Deposit Account. Bank may make Advances under this Agreement based on instructions from a Responsible Officer or his or her designee or without instructions if the Advances are necessary to meet Obligations which have become due.

4 CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Borrower hereby grants Bank, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges to Bank, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof.

4.2 Priority of Security Interest. Borrower represents, warrants, and covenants that the security interest granted herein is and shall at all times continue to be a first priority perfected security interest in the Collateral (subject only to Permitted Liens that may have superior priority to Bank's Lien under this Agreement or the Export-Import Agreement). If Borrower shall acquire a commercial tort claim, Borrower shall promptly notify Bank in a writing signed by Borrower of the general details thereof and grant to Bank in such writing a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Bank.

If this Agreement is terminated, Bank's Lien in the Collateral shall continue until the Obligations (other than inchoate indemnity obligations) are repaid in full in cash. Upon payment in full in cash of the Obligations and at such time as Bank's obligation to make Credit Extensions has terminated, Bank shall, at Borrower's sole cost and expense, release its Liens in the Collateral and all rights therein shall revert to Borrower.

Notwithstanding the foregoing, it is expressly acknowledged and agreed that the security interest created in this Agreement only with respect to Export-Related Accounts Receivable, Export-Related Inventory and Export-Related General Intangibles (as such terms are defined in the Export-Import Agreement) is subject to and subordinate to the security interest granted to Bank in the Export-Import Agreement with respect to such Export-Related Accounts Receivable, Export-Related Inventory and Export-Related General Intangibles.

4.3 Authorization to File Financing Statements. Borrower hereby authorizes Bank to file financing statements, without notice to Borrower, with all appropriate jurisdictions to perfect or protect Bank's interest or rights hereunder, including a notice that any disposition of the Collateral, by either Borrower or any other Person not in accordance with this Agreement, may be deemed to violate the rights of Bank under the Code.

5 REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants as follows:

5.1 Due Organization; Authorization; Power and Authority. Borrower and each of its Subsidiaries are duly existing and in good standing as a Registered Organization in its jurisdiction of formation and each is qualified and licensed to do business and each is in good standing in any jurisdiction in which the conduct of each of its business or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to have a material adverse effect on Borrower's business. In connection with this Agreement, Borrower has delivered to Bank completed certificates each signed by Borrower and Guarantor, respectively, entitled "Perfection Certificate". Borrower represents and warrants to Bank that (a) Borrower's exact legal name is that indicated on the Perfection Certificate and on the signature page hereof; (b) Borrower is an organization of the type and is organized in the jurisdiction set forth in the Perfection Certificate; (c) the Perfection Certificate accurately sets forth Borrower's organizational identification number or accurately states that Borrower has none; (d) the Perfection Certificate accurately sets forth Borrower's place of business, or, if more than one, its chief executive office as well as Borrower's mailing address (if different than its chief executive office); (e) except as set forth on the Perfection Certificate, Borrower (and each of its predecessors) has not, in the past five (5) years, changed its jurisdiction of formation, organizational structure or type, or any organizational number assigned by its jurisdiction; and (f) all other information set forth on the Perfection Certificate pertaining to Borrower and each of its Subsidiaries is accurate and complete (it being understood and agreed that Borrower may from time to time update certain information in the Perfection Certificate after the Effective Date to the extent permitted by one or more specific provisions in this Agreement). If Borrower is not now a Registered Organization but later becomes one, Borrower shall promptly notify Bank of such occurrence and provide Bank with Borrower's organizational identification number.

The execution, delivery and performance by Borrower of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's organizational documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or any of its Subsidiaries or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any

Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect) or (v) constitute an event of default under any material agreement by which Borrower is bound. Borrower is not in default under any agreement to which it is a party or by which it is bound in which the default could reasonably be expected to have a material adverse effect on Borrower's business.

5.2 Collateral. Borrower has good title to, has rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien hereunder, free and clear of any and all Liens except Permitted Liens. Borrower has no deposit accounts other than the deposit accounts with Bank, the deposit accounts, if any described in the Perfection Certificate delivered to Bank in connection herewith, or of which Borrower has given Bank notice and taken such actions as are necessary to give Bank a perfected security interest therein. The Accounts are bona fide, existing obligations of the Account Debtors.

The Collateral is not in the possession of any third party bailee (such as a warehouse) except as otherwise provided in the Perfection Certificate. None of the components of the Collateral shall be maintained at locations other than as provided in the Perfection Certificate or as permitted pursuant to Section 7.2. In the event that Borrower, after the date hereof, intends to store or otherwise deliver any portion of the Collateral to a bailee, then Borrower will first receive the written consent of Bank and such bailee must execute and deliver a bailee agreement in form and substance satisfactory to Bank in its sole discretion.

All Inventory is in all material respects of good and marketable quality, free from material defects, except normal and customary quality issues occurring in the ordinary course of business, in amounts consistent with past practices.

Borrower is the sole owner of the Intellectual Property which it owns or purports to own except for (a) non-exclusive licenses granted to its customers in the ordinary course of business, (b) over-the-counter software that is commercially available to the public, and (c) material Intellectual Property licensed to Borrower and noted on the Perfection Certificate. Each Patent which it owns or purports to own and which is material to Borrower's business is valid and enforceable, and no part of the Intellectual Property which Borrower owns or purports to own and which is material to Borrower's business has been judged invalid or unenforceable, in whole or in part, except to the extent in each of the above such invalidity or unenforceability would not have a material adverse effect on Borrower's business, taken as a whole. To the best of Borrower's knowledge, no claim has been made that any part of the Intellectual Property violates the rights of any third party except to the extent such claim would not have a material adverse effect on Borrower's business, taken as a whole.

5.3 Accounts Receivable; Inventory. For any Eligible Account in any Borrowing Base Certificate, all statements made and all unpaid balances appearing in all invoices, instruments and other documents evidencing such Eligible Accounts are and shall be true and correct and all such invoices, instruments and other documents, and all of Borrower's Books are genuine and in all respects what they purport to be. Whether or not an Event of Default has occurred and is continuing, Bank may, after consultation with Borrower, notify any Account Debtor owing Borrower money of Bank's security interest in such funds and verify the amount of such Eligible Account. All sales and other transactions underlying or giving rise to each Eligible Account shall comply in all material respects with all applicable laws and governmental rules and regulations. Borrower has no knowledge of any actual or imminent Insolvency Proceeding of any Account Debtor whose accounts are Eligible Accounts in any Borrowing Base Certificate. To the best of Borrower's knowledge, all signatures and endorsements on all documents, instruments, and agreements relating to all Eligible Accounts are genuine, and all such documents, instruments and agreements are legally enforceable in accordance with their terms.

5.4 Litigation. There are no actions or proceedings pending or, to the knowledge of the Responsible Officers, threatened in writing by or against Borrower or any of its Subsidiaries involving more than, individually or in the aggregate, One Hundred Fifty Thousand Dollars ($150,000).

5.5 Financial Condition . All consolidated financial statements for Borrower delivered to Bank fairly present in all material respects Borrower's consolidated financial condition and Borrower's consolidated results of operations. There has not been any material deterioration in Borrower's consolidated financial condition since the date of the most recent financial statements submitted to Bank.

5.6 Solvency . The fair salable value of Borrower's assets (including goodwill minus disposition costs) exceeds the fair value of its liabilities; Borrower is not left with unreasonably small capital after the transactions in this Agreement; and Borrower is able to pay its debts (including trade debts) as they mature.

5.7 Regulatory Compliance. Borrower is not an "investment company" or a company "controlled" by an "investment company" under the Investment Company Act of 1940, as amended. Borrower is not engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a "holding company" or an "affiliate" of a "holding company" or a "subsidiary company" of a "holding company" as each term is defined and used in the Public Utility Holding Company Act of 2005. Borrower has not violated any laws, ordinances or rules, the violation of which could reasonably be expected to have a material adverse effect on its business. Except as described in the Perfection Certificate or otherwise disclosed to Bank, none of Borrower's or any of its Subsidiaries' properties or assets has been used by Borrower or any Subsidiary or, to the best of Borrower's knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than legally. Borrower and each of its Subsidiaries have obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted, the absence of which could reasonably be expected to have a materially adverse effect on the Borrower.

5.8 Subsidiaries; Investments . Borrower does not own any stock, partnership interest or other equity securities except for Permitted Investments.

5.9 Tax Returns and Payments; Pension Contributions . Borrower has timely filed all required tax returns and reports, and Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower. Borrower may defer payment of any contested taxes, provided that Borrower (a) in good faith contests its obligation to pay the taxes by appropriate proceedings promptly and diligently instituted and conducted, (b) notifies Bank in writing of the commencement of, and any material development in, the proceedings, (c) posts bonds or takes any other steps required to prevent the Governmental Authority levying such contested taxes from obtaining a Lien upon any of the Collateral that is other than a "Permitted Lien". Borrower is unaware of any claims or adjustments proposed for any of Borrower's prior tax years which could result in additional taxes becoming due and payable by Borrower. Borrower has paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and Borrower has not withdrawn from participation in, and has not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

5.10 Use of Proceeds . Borrower shall use the proceeds of the Credit Extensions solely as working capital to fund its general business requirements and not for personal, family, household or agricultural purposes.

5.11 Full Disclosure . No written representation, warranty or other statement of Borrower in any certificate or written statement given to Bank, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Bank, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized by Bank that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted results).

5.12 Definition of "Knowledge." For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of" Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

6 <u>AFFIRMATIVE COVENANTS</u>

Borrower shall do all of the following:

6.1 Government Compliance . (a) Maintain its and all its Subsidiaries' legal existence and good standing in their respective jurisdictions of formation and maintain qualification in each jurisdiction in which the failure to so qualify would reasonably be expected to have a material adverse effect on Borrower's business or operations. Borrower shall comply, and have each Subsidiary comply, with all laws, ordinances and regulations to which it is subject, the noncompliance with which could have a material adverse effect on Borrower's business.

(b) Obtain all of the Governmental Approvals necessary for the performance by Borrower of its obligations under the Loan Documents to which it is a party and the grant of a security interest to Bank in the Collateral. Borrower shall promptly provide copies of any such obtained Governmental Approvals to Bank.

6.2 Financial Statements, Reports, Certificates .

(a) Borrower shall provide Bank with the following:

(i) (A) weekly, and (B) upon each request for a Credit Extension, a Transaction Report;

(ii) within fifteen (15) days after the end of each month in which there are any outstanding Credit Extensions (otherwise quarterly, within fifteen (15) days after the end of each fiscal quarter), (A) accounts receivable agings, aged by invoice date (including, without limitation, accounts receivable agings for accounts receivable used in determining EXIM Loans), (B) accounts payable agings, aged by invoice date, and outstanding or held check registers, if any, (C) reconciliations of accounts receivable agings (aged by invoice date), transaction reports, Deferred Revenue report and general ledger, (D) perpetual inventory reports for Inventory valued on a first-in, first-out basis at the lower of cost or market (in accordance with GAAP) or such other inventory reports as are requested by Bank in its good faith business judgment; and (e) a completed Borrowing Base Certificate;

(iii) as soon as available, and in any event within thirty (30) days after the end of each month, monthly unaudited financial statements;

(iv) within thirty (30) days after the end of each month a monthly Compliance Certificate signed by a Responsible Officer, certifying that as of the end of such month, Borrower was in full compliance with all of the terms and conditions of this Agreement, and setting forth calculations showing compliance with the financial covenants set forth in this Agreement and such other information as Bank shall reasonably request, including, without limitation, a statement that at the end of such month there were no held checks;

(v) within fifteen (15) days after the end of each fiscal quarter, copies of invoices for no less than ten percent (10%) of the outstanding balance of EXIM Bank accounts receivable as of the last day of such fiscal quarter;

(vi) within thirty (30) days prior to the end of each fiscal year of Borrower and as amended or updated, (A) annual operating budgets (including income statements, balance sheets and cash flow statements, by month) for the upcoming fiscal year of Borrower, and (B) annual financial projections for the following fiscal year (on a quarterly basis) as approved by Borrower's board of directors, together with any related business forecasts used in the preparation of such annual financial projections;

(vii) as soon as available, and in any event within one hundred eighty (180) days following the end of Borrower's fiscal year, annual financial statements certified by, and with an unqualified opinion of, independent certified public accountants acceptable to Bank; provided , that for Borrower's fiscal year ended December 31, 2010, such annual financial statements shall be certified by, and with an unqualified opinion of (other than qualified with respect to "going concern"), independent certified public accountants acceptable to Bank

(viii) within five (5) days of delivery, copies of all statements, reports and notices made available to Borrower's security holders or to any holders of Subordinated Debt;

(ix) a prompt report of any legal actions pending or threatened in writing against Borrower or any of its Subsidiaries that could result in damages or costs to Borrower or any of its Subsidiaries of, individually or in the aggregate, One Hundred Fifty Thousand Dollars ($150,000) or more;

Notwithstanding the foregoing, when Borrower is at or above the Liquidity Threshold, provided no Event of Default has occurred and is continuing, Borrower shall be required to provide Bank with the reports and schedules required pursuant to clause (a)(i)(A) above monthly, within fifteen (15) days after the end of each month.

(b) In the event that Borrower is or becomes subject to the reporting requirements under the Securities Exchange Act of 1934, as amended, within five (5) days after filing, all reports on Form 10-K, 10-Q and 8-K filed with the SEC or a link thereto on Borrower's or another website on the Internet.

(c) Borrower shall provide Bank with prompt written notice of Borrower's knowledge of an event that affects the value of the Intellectual Property and that would have a material adverse effect on Borrower's business, taken as a whole.

6.3 Accounts Receivable .

(a) Schedules and Documents Relating to Accounts . Borrower shall deliver to Bank transaction reports and schedules of collections, as provided in Section 6.2, on Bank's standard forms; provided , however , that Borrower's failure to execute and deliver the same shall not affect or limit Bank's Lien and other rights in all of Borrower's Accounts, nor shall Bank's failure to advance or lend against a specific Account affect or limit Bank's Lien and other rights therein. If requested by Bank, Borrower shall furnish Bank with copies (or, at Bank's request after the occurrence and during the continuance of an Event of Default, originals) of all contracts, orders, invoices, and other similar documents, and all shipping instructions, delivery receipts, bills of lading, and other evidence of delivery, for any goods the sale or disposition of which gave rise to such Accounts. In addition, Borrower shall deliver to Bank, on its request, the originals of all instruments, chattel paper, security agreements, guarantees and other documents and property evidencing or securing any Accounts, in the same form as received, with all necessary endorsements, and copies of all credit memos.

(b) Disputes . Borrower shall promptly notify Bank of all disputes or claims relating to Accounts, to the extent such disputes or claims involve amounts in excess of Two Hundred Fifty Thousand Dollars ($250,000) in the aggregate for all Account Debtors. Borrower may forgive (completely or partially), compromise, or settle any Account for less than payment in full, or agree to do any of the foregoing so long as (i) Borrower does so in good faith, in a commercially reasonable manner, in the ordinary course of business, in arm's-length transactions, and reports the same to Bank in the regular reports provided to Bank; (ii) no Default or Event of Default has occurred and is continuing; and (iii) after taking into account all such discounts, settlements and forgiveness, the total outstanding Advances will not exceed the Availability Amount.

(c) Collection of Accounts . Borrower shall have the right to collect all Accounts, unless and until a Default or an Event of Default has occurred and is continuing. All payments on, and proceeds of, Accounts shall be deposited directly by the applicable Account Debtor into a lockbox account, or such other "blocked account" as Bank may specify, pursuant to a blocked account agreement in form and substance satisfactory to Bank in its sole discretion. Whether or not an Event of Default has occurred and is continuing, Borrower shall immediately deliver all payments on and proceeds of Accounts to an account maintained with Bank to be applied (i) prior to an Event of Default, to the Revolving Line pursuant to the terms of Section 2.5(b) hereof, and (ii) after the occurrence and during the continuance of an Event of Default, pursuant to the terms of Section 9.4 hereof; provided , however , when Borrower is at or above the Liquidity Threshold, such payments and proceeds shall be transferred to an account of Borrower maintained at Bank.

(d) Returns . Provided no Event of Default has occurred and is continuing, if any Account Debtor returns any Inventory having an aggregate value in excess of Two Hundred Fifty Thousand Dollars ($250,000) to Borrower, Borrower shall promptly (i) determine the reason for such return, (ii) issue a credit memorandum to the Account Debtor in the appropriate amount, and (iii) provide a copy of such credit memorandum to Bank, upon request from Bank. In the event any attempted return occurs after the occurrence and during the continuance of any Event of Default, Borrower shall immediately notify Bank of the return of the Inventory.

(e) Verification . Bank may, from time to time, after consultation with Borrower, verify directly with the respective Account Debtors the validity, amount and other matters relating to the Accounts, either in the name of Borrower or Bank or such other name as Bank may choose.

(f) No Liability . Bank shall not be responsible or liable for any shortage or discrepancy in, damage to, or loss or destruction of, any goods, the sale or other disposition of which gives rise to an Account, or for any error, act, omission, or delay of any kind occurring in the settlement, failure to settle, collection or failure to collect any Account, or for settling any Account in good faith for less than the full amount thereof, nor shall Bank be deemed to be responsible for any of Borrower's obligations under any contract or agreement giving rise to an Account. Nothing herein shall, however, relieve Bank from liability for its own gross negligence or willful misconduct.

6.4 Remittance of Proceeds . Except as otherwise provided in Section 6.3(c), deliver, in kind, all proceeds arising from the disposition of any Collateral to Bank in the original form in which received by Borrower

not later than the following Business Day after receipt by Borrower, to be applied to the Obligations (1) prior to an Event of Default, pursuant to the terms of Section 2.5(b) hereof, and (2) after the occurrence and during the continuance of an Event of Default, pursuant to the terms of Section 9.4 hereof; provided that , if no Event of Default has occurred and is continuing, Borrower shall not be obligated to remit to Bank the proceeds of the sale of surplus, worn out or obsolete Equipment disposed of by Borrower in good faith in an arm's length transaction for an aggregate purchase price of Five Hundred Thousand Dollars ($500,000) or less (for all such transactions in any fiscal year). Borrower agrees that it will maintain all proceeds of Collateral in an account maintained with Bank. Nothing in this Section limits the restrictions on disposition of Collateral set forth elsewhere in this Agreement.

6.5 Taxes; Pensions; Withholding. Timely file, and require each of its Subsidiaries to timely file, all required tax returns and reports and timely pay, and require each of its Subsidiaries to timely pay, all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower and each of its Subsidiaries, except for deferred payment of any taxes contested pursuant to the terms of Section 5.9 hereof, and shall deliver to Bank, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms.

6.6 Access to Collateral; Books and Records. In addition to the Initial Audit, at reasonable times, on one (1) Business Day's notice (provided no notice is required if an Event of Default has occurred and is continuing), Bank, or its agents, shall have the right, up to two (2) times per year (or more frequently (i) after the occurrence and during the continuance of an Event of Default, as Bank shall determine necessary, or (ii) at the direction of EXIM Bank), to inspect the Collateral and the right to audit and copy Borrower's Books. The foregoing inspections and audits shall be at Borrower's expense, and the charge therefor shall be $850 per person per day (or such higher amount as shall represent Bank's then-current standard charge for the same), plus reasonable out-of-pocket expenses. In the event Borrower and Bank schedule an audit more than ten (10) days in advance, and Borrower cancels or seeks to reschedule the audit with less than ten (10) days written notice to Bank, then (without limiting any of Bank's rights or remedies), Borrower shall pay Bank a fee of $1,000 plus any out-of-pocket expenses incurred by Bank to compensate Bank for the anticipated costs and expenses of the cancellation or rescheduling.

6.7 Insurance. Keep its business and the Collateral insured for risks and in amounts standard for companies in Borrower's industry and location and as Bank may reasonably request. Insurance policies shall be in a form, with companies, and in amounts that are satisfactory to Bank. All property policies shall have a lender's loss payable endorsement showing Bank as an additional lender loss payee and waive subrogation against Bank. All liability policies shall show, or have endorsements showing, Bank as an additional insured. All policies (or their respective endorsements) shall provide that the insurer shall give Bank at least twenty (20) days notice before canceling, amending, or declining to renew its policy. At Bank's request, Borrower shall deliver certified copies of policies and evidence of all premium payments. Proceeds payable under any policy shall, at Bank's option, be payable to Bank on account of the Obligations. Notwithstanding the foregoing, (a) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy up to Two Hundred Fifty Thousand Dollars ($250,000) with respect to any loss, but not exceeding Five Hundred Thousand Dollars ($500,000) in the aggregate for all losses under all casualty policies in any one year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced or repaired property (i) shall be of equal or like value as the replaced or repaired Collateral and (ii) shall be deemed Collateral in which Bank has been granted a first priority security interest, and (b) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Bank, be payable to Bank on account of the Obligations. If Borrower fails to obtain insurance as required under this Section 6.7 or to pay any amount or furnish any required proof of payment to third persons and Bank, Bank may make all or part of such payment or obtain such insurance policies required in this Section 6.7, and take any action under the policies Bank deems prudent.

6.8 Operating Accounts.

(a) Maintain all of its and its Subsidiaries', if any, depository, operating accounts and securities accounts with Bank and Bank's Affiliates with all excess funds maintained at or invested through Bank or an affiliate of Bank; provided , however , Aspen GmbH may maintain depository, operating accounts and securities accounts in a financial institution located in the Federal Republic of Germany (the " **German Accounts** "), in an aggregate amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000) at any time; provided further , that Borrower shall have up to sixty (60) days to provide Bank evidence satisfactory to Bank, in its sole discretion, that, during such sixty (60) day period (the " **Account Transition Period** "), Borrower has transitioned all of its and its

Subsidiaries existing depository, operating accounts and securities accounts maintained at financial institutions other than Bank or Bank's Affiliates (other than the German Accounts) to accounts with Bank or Bank's Affiliates.

(b) Provide Bank five (5) days prior-written notice before establishing any Collateral Account at or with any bank or financial institution other than Bank or Bank's Affiliates. For each Collateral Account that Borrower at any time maintains, Borrower shall cause the applicable bank or financial institution (other than Bank) at or with which any Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Bank's Lien in such Collateral Account in accordance with the terms hereunder which Control Agreement may not be terminated without the prior written consent of Bank. The provisions of the previous sentence shall not apply to the German accounts or to deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's employees and identified to Bank by Borrower as such.

6.9 Financial Covenants.

Maintain at all times, to be certified by Borrower as of the last day of each month, unless otherwise noted, on a consolidated basis with respect to Borrower and its Subsidiaries, unless otherwise noted:

(a) Liquidity . Borrower's unrestricted cash at Bank plus the unused Availability Amount of at least Three Million Dollars ($3,000,000).

(b) Tangible Net Worth . A Tangible Net Worth of at least Forty Million Dollars ($40,000,000).

6.10 Protection of Intellectual Property Rights. (i) Protect, defend and maintain the validity and enforceability of its material Intellectual Property; (ii) promptly advise Bank in writing of material infringements of its Intellectual Property; and (iii) not allow any Intellectual Property material to Borrower's business to be abandoned, forfeited or dedicated to the public without Bank's written consent, other than where any of the foregoing would not have a material adverse effect on Borrower's business, taken as a whole.

6.11 Litigation Cooperation. From the date hereof and continuing through the termination of this Agreement, make available to Bank, without expense to Bank, Borrower and its officers, employees and agents and Borrower's Books, to the extent that Bank may deem them reasonably necessary to prosecute or defend any third-party suit or proceeding instituted by or against Bank with respect to any Collateral or relating to Borrower.

6.12 Creation/Acquisition of Subsidiaries. Notwithstanding and without limiting the negative covenant contained in Section 7.3 hereof, in the event Borrower or any Subsidiary creates or acquires any Subsidiary, Borrower and such Subsidiary shall promptly notify Bank of the creation or acquisition of such new Subsidiary and, at Bank's request, in its sole discretion, take all such action as may be reasonably required by Bank to cause each such Subsidiary to, in Bank's sole discretion, become a co-Borrower or Guarantor under the Loan Documents and grant a continuing pledge and security interest in and to the assets of such Subsidiary (substantially as described on Exhibit A hereto); and Borrower shall grant and pledge to Bank a perfected security interest in the stock, units or other evidence of ownership of each Subsidiary.

6.13 Further Assurances. Execute any further instruments and take further action as Bank reasonably requests to perfect or continue Bank's Lien in the Collateral or to effect the purposes of this Agreement. Borrower shall deliver to Bank, within five (5) days after the same are sent or received, copies of all correspondence, reports, documents and other filings with any Governmental Authority regarding compliance with or maintenance of Governmental Approvals or Requirements of Law or that could reasonably be expected to have a material effect on any of the Governmental Approvals or otherwise on the operations of Borrower or any of its Subsidiaries.

7 NEGATIVE COVENANTS

Borrower shall not do any of the following without Bank's prior written consent:

7.1 Dispositions. Convey, sell, lease, transfer, assign, or otherwise dispose of (collectively, "Transfer"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, except for Transfers (a) of Inventory in the ordinary course of business; (b) of worn out or obsolete Equipment; (c) in connection with Permitted Liens and Permitted Investments; and (d) of non-exclusive licenses for the use of the

property of Borrower or its Subsidiaries in the ordinary course of business and licenses that could not result in a legal transfer of title of the licensed property but that may be exclusive in respects other than territory and that may be exclusive as to territory only as to discreet geographical areas outside of the United States.

7.2 Changes in Business, Management, Ownership or Business Locations. (a) Engage in or permit any of its Subsidiaries, if any, to engage in any business other than the businesses currently engaged in by Borrower and such Subsidiary, as applicable, or reasonably related thereto; (b) liquidate or dissolve; or (c) (i) any Key Person ceases to hold such office(s) with Borrower and replacement(s) satisfactory to Bank are not made within one hundred twenty (120) days after such Key Person's departure from Borrower; or (ii) enter into any transaction or series of related transactions in which the stockholders of Borrower who were not stockholders immediately prior to the first such transaction own more than forty percent (40%) of the voting stock of Borrower immediately after giving effect to such transaction or related series of such transactions (other than by the sale of Borrower's equity securities in a public offering or to venture capital investors so long as Borrower identifies to Bank the venture capital investors prior to the closing of the transaction and provides to Bank a description of the material terms of the transaction).

Borrower shall not, without at least thirty (30) days prior written notice to Bank: (1) add any new offices or business locations, including warehouses (unless such new offices or business locations contain less than Fifty Thousand Dollars ($50,000) in Borrower's assets or property) or deliver any portion of the Collateral valued, individually or in the aggregate, in excess of Fifty Thousand Dollars ($50,000) to a bailee at a location other than to a bailee and at a location already disclosed in the Perfection Certificate, (2) change its jurisdiction of organization, (3) change its organizational structure or type, (4) change its legal name, or (5) change any organizational number (if any) assigned by its jurisdiction of organization. If Borrower intends to deliver any portion of the Collateral valued, individually or in the aggregate, in excess of Fifty Thousand Dollars ($50,000) to a bailee, and Bank and such bailee are not already parties to a bailee agreement governing both the Collateral and the location to which Borrower intends to deliver the Collateral, then Borrower will first receive the written consent of Bank, and such bailee shall execute and deliver a bailee agreement in form and substance satisfactory to Bank in its sole discretion.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock or property of another Person. A Subsidiary may merge or consolidate into another Subsidiary or into Borrower.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien (other than Permitted Liens) on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except for Permitted Liens. Borrower shall not permit any Collateral to be subject to any Liens other than the first priority security interest granted herein or Permitted Liens, or enter into any agreement, document, instrument or other arrangement (except with or in favor of Bank except as otherwise permitted herein) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower or any Subsidiary from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or any Subsidiary's Intellectual Property, except as is otherwise described in the Perfection Certificate, permitted in Section 7.1 hereof and in the definition of "Permitted Liens" herein.

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.8(b) hereof.

7.7 Distributions; Investments. (a) Pay any dividends or make any distribution or payment or redeem, retire or purchase any capital stock; or (b) directly or indirectly make any Investment (including, without limitation, any additional Investment in any Subsidiary) other than Permitted Investments, or permit any of its Subsidiaries to do so.

7.8 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower, except for transactions that are in the ordinary course of Borrower's business, upon fair and reasonable terms that are no less favorable to Borrower than would be obtained in an arm's length transaction with a non-affiliated Person.

7.9 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt, except as permitted under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof or adversely affect the subordination thereof to Obligations owed to Bank, except as permitted under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject.

7.10 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Credit Extension for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or non-exempt Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the violation could reasonably be expected to have a material adverse effect on Borrower's business, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

8 EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an " **Event of Default** ") under this Agreement:

8.1 Payment Default. Borrower fails to (a) make any payment of principal or interest on any Credit Extension on its due date, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day cure period shall not apply to payments due on the Revolving Line Maturity Date). During the cure period, the failure to make or pay any payment specified under clause (a) or (b) hereunder is not an Event of Default (but no Credit Extension will be made during the cure period);

8.2 Covenant Default.

(a) Borrower fails or neglects to perform any obligation in Sections 6.2 (provided , however , Borrower shall have five (5) Business Days from the scheduled due date to cure any default under clauses 6.2(a) (ii)-(vi) and clause 6.2(a)(viii)), 6.4, 6.6, 6.7, 6.8, or 6.9, or violates any covenant in Section 7; or

(b) Borrower fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this Section 8) under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided , however , that if the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such ten (10) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to cure the default shall not be deemed an Event of Default (but no Credit Extensions shall be made during such cure period). Cure periods provided under this section shall not apply, among other things, to financial covenants or any other covenants set forth in clause (a) above;

8.3 Material Adverse Change. A Material Adverse Change occurs;

8.4 Attachment; Levy; Restraint on Business.

(a) (i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or of any entity under the control of Borrower (including a Subsidiary) on deposit or otherwise maintained with Bank or any Bank Affiliate, or (ii) a notice of lien or levy is filed against any of Borrower's assets by any government agency, and the same under subclauses (i) and (ii) hereof are not, within ten (10) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); provided , however , no Credit Extensions shall be made during any ten (10) day cure period; or

(b) (i) any material portion of Borrower's assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower from conducting any material part of its business;

8.5 Insolvency. (a) Borrower is unable to pay its debts (including trade debts) as they become due or otherwise becomes insolvent; (b) Borrower begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower and not dismissed or stayed within thirty (30) days (but no Credit Extensions shall be made while of any of the conditions described in clause (a) exist and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is, under any agreement to which Borrower or any Guarantor is a party with a third party or parties, (a) any default resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount individually or in the aggregate in excess of One Hundred Thousand Dollars ($100,000); or (b) any default by Borrower or Guarantor, the result of which could have a material adverse effect on Borrower's or any Guarantor's business, taken as a whole;

8.7 Judgments. One or more final judgments, orders, or decrees for the payment of money in an amount, individually or in the aggregate, of at least One Hundred Thousand Dollars ($100,000) (not covered by independent third-party insurance as to which liability has been accepted by such insurance carrier) shall be rendered against Borrower and the same are not, within ten (10) days after the entry thereof, discharged or execution thereof stayed or bonded pending appeal, or such judgments are not discharged prior to the expiration of any such stay (provided that no Credit Extensions will be made prior to the discharge, stay, or bonding of such judgment, order, or decree);

8.8 Misrepresentations. Borrower or any Person acting for Borrower makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Bank or to induce Bank to enter this Agreement or any Loan Document, and such representation, warranty, or other statement is incorrect in any material respect when made;

8.9 Subordinated Debt. Any document, instrument, or agreement evidencing any Subordinated Debt shall for any reason be revoked or invalidated or otherwise cease to be in full force and effect, any Person shall be in breach thereof or contest in any manner the validity or enforceability thereof or deny that it has any further liability or obligation thereunder, or the Obligations shall for any reason be subordinated or shall not have the priority contemplated by this Agreement or the PJC Intercreditor Agreement.

8.10 Guaranty. (a) Any guaranty of any Obligations terminates or ceases for any reason to be in full force and effect which could reasonably be expected to have a material adverse effect on the ability of the Borrower and its Subsidiaries, taken as a whole, to repay the Obligations; (b) any Guarantor does not perform any obligation or covenant under any guaranty of the Obligations which could reasonably be expected to have a material adverse effect on the ability of the Borrower and its Subsidiaries, taken as a whole, to repay the Obligations; (c) any circumstance described in Sections 8.3, 8.4, 8.5, 8.7, or 8.8. occurs with respect to any Guarantor which could reasonably be expected to have a material adverse effect on the ability of the Borrower and its Subsidiaries, taken as a whole, to repay the Obligations; (d) the liquidation, winding up, or termination of existence of any Guarantor which could reasonably be expected to have a material adverse effect on the ability of the Borrower and its Subsidiaries, taken as a whole, to repay the Obligations; or (e) (i) a material impairment in the perfection or priority of Bank's Lien in the collateral provided by Guarantor or in the value of such collateral or (ii) a material adverse change in the general affairs, management, results of operation, condition (financial or otherwise) or the prospect of repayment of the Obligations occurs with respect to any Guarantor and such material impairment or material adverse change could reasonably be expected to have a material adverse effect on the ability of the Borrower and its Subsidiaries, taken as a whole, to repay the Obligations;

8.11 EXIM Guarantee . If the EXIM Guarantee ceases for any reason to be in full force and effect, other than for payment-in-full and termination of the Export-Import Agreement, or if the EXIM Bank declares the EXIM Guarantee void or revokes any obligations under the EXIM Guarantee;

8.12 Export-Import Agreement Default. A fter the effective date of the Export-Import Agreement, the occurrence of an Event of Default under the Export-Import Agreement or the other EXIM Loan Documents; and

8.13 Governmental Approvals. Any Governmental Approval shall have been (a) revoked, rescinded, suspended, modified in an adverse manner or not renewed in the ordinary course for a full term or (b) subject to any

decision by a Governmental Authority that designates a hearing with respect to any applications for renewal of any of such Governmental Approval or that could result in the Governmental Authority taking any of the actions described in clause (a) above, and such decision or such revocation, rescission, suspension, modification or non-renewal (i) has, or could reasonably be expected to have, a Material Adverse Change, or (ii) adversely affects the legal qualifications of Borrower or any of its Subsidiaries to hold such Governmental Approval in any applicable jurisdiction and such revocation, rescission, suspension, modification or non-renewal could reasonably be expected to affect the status of or legal qualifications of Borrower or any of its Subsidiaries to hold any Governmental Approval in any other jurisdiction.

9 BANK'S RIGHTS AND REMEDIES

9.1 Rights and Remedies. While an Event of Default occurs and continues Bank may, without notice or demand, do any or all of the following:

(a) declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations are immediately due and payable without any action by Bank);

(b) stop advancing money or extending credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Bank;

(c) demand that Borrower (i) deposit cash with Bank in an amount equal to 105% of the Dollar Equivalent of the aggregate face amount of all Letters of Credit remaining undrawn plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment), to secure all of the Obligations relating to such Letters of Credit, as collateral security for the repayment of any future drawings under such Letters of Credit, and Borrower shall forthwith deposit and pay such amounts, and (ii) pay in advance all letter of credit fees scheduled to be paid or payable over the remaining term of any Letters of Credit **;** provided , however , if an Event of Default described in Section 8.5 occurs, the obligation of Borrower to cash collateralize all Letters of Credit remaining undrawn shall automatically become effective without any action by Bank;

(d) terminate any FX Forward Contracts;

(e) settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Bank considers advisable, notify any Person owing Borrower money of Bank's security interest in such funds, and verify the amount of such account;

(f) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Bank requests and make it available as Bank designates. Bank may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Bank a license to enter and occupy any of its premises, without charge, to exercise any of Bank's rights or remedies;

(g) apply to the Obligations any (i) balances and deposits of Borrower it holds, or (ii) any amount held by Bank owing to or for the credit or the account of Borrower;

(h) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, advertise for sale, and sell the Collateral. Bank is hereby granted a non-exclusive, royalty-free license or other right to use, without charge, Borrower's labels, Patents, Copyrights, mask works, rights of use of any name, trade secrets, trade names, Trademarks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral and, in connection with Bank's exercise of its rights under this Section, Borrower's rights under all licenses and all franchise agreements inure to Bank's benefit;

(i) place a "hold" on any account maintained with Bank and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(j) demand and receive possession of Borrower's Books; and

(k) exercise all rights and remedies available to Bank under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

9.2 Power of Attorney. Borrower hereby irrevocably appoints Bank as its lawful attorney-in-fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's name on any checks or other forms of payment or security; (b) sign Borrower's name on any invoice or bill of lading for any Account or drafts against Account Debtors; (c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Bank determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies; (e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (f) transfer the Collateral into the name of Bank or a third party as the Code permits. Borrower hereby appoints Bank as its lawful attorney-in-fact to sign Borrower's name on any documents necessary to perfect or continue the perfection of Bank's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations have been satisfied in full and Bank is under no further obligation to make Credit Extensions hereunder. Bank's foregoing appointment as Borrower's attorney in fact, and all of Bank's rights and powers, being coupled with an interest, are irrevocable until all Obligations have been fully repaid and performed and Bank's obligation to provide Credit Extensions terminates.

9.3 Protective Payments. If Borrower fails to obtain the insurance called for by Section 6.7 or fails to pay any premium thereon or fails to pay any other amount which Borrower is obligated to pay under this Agreement or any other Loan Document, Bank may obtain such insurance or make such payment, and all amounts so paid by Bank are Bank Expenses and immediately due and payable, bearing interest at the then highest rate applicable to the Obligations, and secured by the Collateral. Bank will make reasonable efforts to provide Borrower with notice of Bank obtaining such insurance at the time it is obtained or within a reasonable time thereafter. No payments by Bank are deemed an agreement to make similar payments in the future or Bank's waiver of any Event of Default.

9.4 Application of Payments and Proceeds. If an Event of Default has occurred and is continuing, Bank may apply any funds in its possession, whether from Borrower account balances, payments, proceeds realized as the result of any collection of Accounts or other disposition of the Collateral, or otherwise, to the Obligations in such order as Bank shall determine in its sole discretion. Any surplus shall be paid to Borrower or to other Persons legally entitled thereto; Borrower shall remain liable to Bank for any deficiency. If Bank, in its good faith business judgment, directly or indirectly enters into a deferred payment or other credit transaction with any purchaser at any sale of Collateral, Bank shall have the option, exercisable at any time, of either reducing the Obligations by the principal amount of the purchase price or deferring the reduction of the Obligations until the actual receipt by Bank of cash therefor.

9.5 Bank's Liability for Collateral. So long as Bank complies with reasonable banking practices regarding the safekeeping of the Collateral in the possession or under the control of Bank, Bank shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the Collateral.

9.6 No Waiver; Remedies Cumulative. Bank's failure, at any time or times, to require strict performance by Borrower of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Bank thereafter to demand strict performance and compliance herewith or therewith. No waiver hereunder shall be effective unless signed by the party granting the waiver and then is only effective for the specific instance and purpose for which it is given. Bank's rights and remedies under this Agreement and the other Loan Documents are cumulative. Bank has all rights and remedies provided under the Code, by law, or in equity. Bank's exercise of one right or remedy is not an election and shall not preclude Bank from exercising any other remedy under this Agreement or other remedy available at law or in equity, and Bank's waiver of any Event of Default is not a continuing waiver. Bank's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Borrower waives demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Bank on which Borrower is liable.

10 NOTICES

All notices, consents, requests, approvals, demands, or other communication (collectively, " **Communication** "), other than Advance requests made pursuant to Section 3.4, by any party to this Agreement or any other Loan Document must be in writing and be delivered or sent by facsimile at the addresses or facsimile numbers listed below. Bank or Borrower may change its notice address by giving the other party written notice thereof. Each such Communication shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, registered or certified mail, return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by facsimile transmission (with such facsimile promptly confirmed by delivery of a copy by personal delivery or United States mail as otherwise provided in this Section 10); (c) one (1) Business Day after deposit with a reputable overnight courier with all charges prepaid; or (d) when delivered, if hand-delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address or facsimile number indicated below. Advance requests made pursuant to Section 3.4 must be in writing and may be in the form of electronic mail, delivered to Bank by Borrower at the e-mail address of Bank provided below and shall be deemed to have been validly served, given, or delivered when sent (with such electronic mail promptly confirmed by delivery of a copy by personal delivery or United States mail as otherwise provided in this Section 10). Bank or Borrower may change its address, facsimile number, or electronic mail address by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower:	Aspen Aerogels, Inc. 30 Forbes Road, Building B Northborough, Massachusetts 01532 Attn: John Fairbanks Fax: (508) 691-1200 Email: jfairbanks@aerogel.com
with a copy to:	Edwards Angell Palmer & Dodge LLP 111 Huntington Ave Boston, MA 02199 Attn: Christopher W. Nelson Fax: (888) 325.9513 Email: cnelson@eapdlaw.com
If to Bank:	Silicon Valley Bank 275 Grove Street, Suite 2-200 Newton, Massachusetts 02466 Attn: Mr. Dave Rodriguez Fax: (617) 969-4395 Email: drodriguez@svb.com
with a copy to:	Riemer & Braunstein LLP Three Center Plaza Boston, Massachusetts 02108 Attn: Charles W. Stavros, Esquire Fax: (617) 880-3456 Email: cstavros@riemerlaw.com

11 CHOICE OF LAW, VENUE AND JURY TRIAL WAIVER

Massachusetts law governs the Loan Documents without regard to principles of conflicts of law. Borrower and Bank each submit to the exclusive jurisdiction of the State and Federal courts in Massachusetts; provided , however , that nothing in this Agreement shall be deemed to operate to preclude Bank from bringing suit or taking other legal action in any other jurisdiction to realize on the Collateral or any other security for the Obligations, or to enforce a judgment or other court order in favor of Bank. Borrower expressly submits and consents in advance to such jurisdiction in any action or suit commenced in any such court, and Borrower hereby waives any objection that it may have based upon lack of personal jurisdiction, improper venue, or forum non conveniens and hereby consents to the granting of such legal or equitable relief as is deemed appropriate by such

court. Borrower hereby waives personal service of the summons, complaints, and other process issued in such action or suit and agrees that service of such summons, complaints, and other process may be made by registered or certified mail addressed to Borrower at the address set forth in Section 10 of this Agreement and that service so made shall be deemed completed upon the earlier to occur of Borrower's actual receipt thereof or three (3) days after deposit in the U.S. mails, proper postage prepaid. NOTWITHSTANDING ANYTHING TO THE CONTRARY SET FORTH HEREINABOVE, BANK SHALL SPECIFICALLY HAVE THE RIGHT TO BRING ANY ACTION OR PROCEEDING AGAINST BORROWER OR ITS PROPERTY IN THE COURTS OF ANY OTHER JURISDICTION WHICH BANK DEEMS NECESSARY OR APPROPRIATE IN ORDER TO REALIZE ON THE COLLATERAL OR TO OTHERWISE ENFORCE BANK'S RIGHTS AGAINST BORROWER OR ITS PROPERTY.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, BORROWER AND BANK EACH WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION ARISING OUT OF OR BASED UPON THIS AGREEMENT, THE LOAN DOCUMENTS OR ANY CONTEMPLATED TRANSACTION, INCLUDING CONTRACT, TORT, BREACH OF DUTY AND ALL OTHER CLAIMS. THIS WAIVER IS A MATERIAL INDUCEMENT FOR BOTH PARTIES TO ENTER INTO THIS AGREEMENT. EACH PARTY HAS REVIEWED THIS WAIVER WITH ITS COUNSEL.

12 GENERAL PROVISIONS

12.1 Termination Prior to Maturity Date. This Agreement may be terminated prior to the Revolving Line Maturity Date by Borrower, effective three (3) Business Days after written notice of termination is given to Bank or if Bank's obligation to fund Credit Extensions terminates pursuant to the terms of Section 2.1.1(b). Notwithstanding any such termination, Bank's lien and security interest in the Collateral shall continue until Borrower fully satisfies its Obligations. Upon payment in full of the Obligations and at such time as Bank's obligation to make Credit Extensions has terminated, Bank shall release its liens and security interests in the Collateral and all rights therein shall revert to Borrower.

12.2 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not assign this Agreement or any rights or obligations under it without Bank's prior written consent (which may be granted or withheld in Bank's discretion). Bank has the right, without the consent of or notice to Borrower, to sell, transfer, assign, negotiate, or grant participation in all or any part of, or any interest in, Bank's obligations, rights, and benefits under this Agreement and the other Loan Documents; provided , that , prior to the occurrence and during the continuance of an Event of Default, any such sale, transfer, assignment, negotiation or grant of a participation to a Person or entity other than an institutional lender shall require Borrower's prior written consent, such consent not to be unreasonably withheld.

12.3 Indemnification. Borrower agrees to indemnify, defend and hold Bank and its directors, officers, employees, agents, attorneys, or any other Person affiliated with or representing Bank (each, an " **Indemnified Person** ") harmless against: (a) all obligations, demands, claims, and liabilities (collectively, " **Claims** ") claimed or asserted by any other party in connection with the transactions contemplated by the Loan Documents; and (b) all losses or expenses (including Bank Expenses) in any way suffered, incurred, or paid by such Indemnified Person as a result of, following from, consequential to, or arising from transactions between Bank and Borrower contemplated by the Loan Documents (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct.

12.4 Time of Essence. Time is of the essence for the performance of all Obligations in this Agreement.

12.5 Correction of Loan Documents. Bank may correct patent errors and fill in any blanks in the Loan Documents consistent with the agreement of the parties.

12.6 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision.

12.7 Amendments in Writing; Waiver; Integration. No purported amendment or modification of any Loan Document, or waiver, discharge or termination of any obligation under any Loan Document, shall be enforceable or admissible unless, and only to the extent, expressly set forth in a writing signed by the party against which enforcement or admission is sought. Without limiting the generality of the foregoing, no oral promise or

statement, nor any action, inaction, delay, failure to require performance or course of conduct shall operate as, or evidence, an amendment, supplement or waiver or have any other effect on any Loan Document. Any waiver granted shall be limited to the specific circumstance expressly described in it, and shall not apply to any subsequent or other circumstance, whether similar or dissimilar, or give rise to, or evidence, any obligation or commitment to grant any further waiver. The Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of the Loan Documents merge into the Loan Documents.

12.8 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.9 Survival. All covenants, representations and warranties made in this Agreement continue in full force until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been paid in full and satisfied. The obligation of Borrower in Section 12.3 to indemnify Bank shall survive until the statute of limitations with respect to such claim or cause of action shall have run.

12.10 Confidentiality. In handling any confidential information, Bank shall exercise the same degree of care that it exercises for its own proprietary information, but disclosure of information may be made: (a) to Bank's Subsidiaries or Affiliates (such Subsidiaries and Affiliates, together with Bank, collectively, " **Bank Entities** "); (b) to prospective transferees or purchasers of any interest in the Credit Extensions (provided , however , Bank shall use commercially reasonable efforts to obtain any prospective transferee's or purchaser's agreement to the terms of this provision); (c) as required by law, regulation, subpoena, or other order; (d) to Bank's regulators or as otherwise required in connection with Bank's examination or audit; (e) as Bank considers appropriate in exercising remedies under the Loan Documents; and (f) to third-party service providers of Bank so long as such service providers have executed a confidentiality agreement with Bank with terms no less restrictive than those contained herein. Confidential information does not include information that is either: (i) in the public domain or in Bank's possession when disclosed to Bank, or becomes part of the public domain after disclosure to Bank; or (ii) disclosed to Bank by a third party if Bank does not know that the third party is prohibited from disclosing the information.

Bank Entities may use the confidential information for reporting purposes and the development and distribution of databases and market analyses so long as such confidential information is aggregated and anonymized prior to distribution, unless otherwise expressly permitted by Borrower. The provisions of the immediately preceding sentence shall survive the termination of this Agreement.

12.11 Attorneys' Fees, Costs and Expenses. In any action or proceeding between Borrower and Bank arising out of or relating to the Loan Documents, Bank shall be entitled to recover its reasonable attorneys' fees and other costs and expenses incurred, in addition to any other relief to which it may be entitled.

12.12 Right of Set Off. Borrower hereby grants to Bank, a lien, security interest and right of set off as security for all Obligations to Bank, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Bank or any entity under the control of Bank (including a Bank subsidiary) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Bank may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations. ANY AND ALL RIGHTS TO REQUIRE BANK TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

12.13 Electronic Execution of Documents. The words "execution," "signed," "signature" and words of like import in any Loan Document shall be deemed to include electronic signatures or the keeping of records in electronic form, each of which shall be of the same legal effect, validity and enforceability as a manually executed signature or the use of a paper-based recordkeeping systems, as the case may be, to the extent and as provided for in any applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act.

12.14 Captions. The headings used in this Agreement are for convenience only and shall not affect the interpretation of this Agreement.

12.15 Construction of Agreement. The parties mutually acknowledge that they and their attorneys have participated in the preparation and negotiation of this Agreement. In cases of uncertainty this Agreement shall be construed without regard to which of the parties caused the uncertainty to exist.

12.16 Relationship. The relationship of the parties to this Agreement is determined solely by the provisions of this Agreement. The parties do not intend to create any agency, partnership, joint venture, trust, fiduciary or other relationship with duties or incidents different from those of parties to an arm's-length contract.

12.17 Third Parties. Nothing in this Agreement, whether express or implied, is intended to: (a) confer any benefits, rights or remedies under or by reason of this Agreement on any Persons other than the express parties to it and their respective permitted successors and assigns; (b) relieve or discharge the obligation or liability of any Person not an express party to this Agreement; or (c) give any Person not an express party to this Agreement any right of subrogation or action against any party to this Agreement.

12.18 Borrower Agreement; Cross-Collateralization; Cross-Default; Conflicts. Both this Agreement and the EXIM Borrower Agreement shall continue in full force and effect, and all rights and remedies under this Agreement and the EXIM Borrower Agreement are cumulative. The term "Obligations" as used in this Agreement and in the EXIM Borrower Agreement shall include without limitation the obligation to pay when due all loans made pursuant to the EXIM Borrower Agreement (the " **EXIM Loans** ") and all interest thereon and the obligation to pay when due all Advances made pursuant to the terms of this Agreement and all interest thereon. Without limiting the generality of the foregoing, the security interest granted herein covering all "Collateral" as defined in this Agreement and as defined in the EXIM Borrower Agreement shall secure all EXIM Loans and all Advances and all interest thereon, and all other Obligations. Any Event of Default under this Agreement shall also constitute a default under the EXIM Borrower Agreement, and any default under the EXIM Borrower Agreement shall also constitute an Event of Default under this Agreement. In the event Bank assigns its rights under this Agreement and/or under any note evidencing EXIM Loans and/or its rights under the Borrower Agreement and/or under any note evidencing Advances, to any third party, including, without limitation, the EXIM Bank, whether before or after the occurrence of any Event of Default, Bank shall have the right (but not any obligation), in its sole discretion, to allocate and apportion Collateral to the EXIM Borrower Agreement and/or note assigned and to specify the priorities of the respective security interests in such Collateral between itself and the assignee, all without notice to or consent of the Borrower. Should any term of the Agreement conflict with any term of the EXIM Borrower Agreement, the more restrictive term in either agreement shall govern Borrower.

13 DEFINITIONS

13.1 Definitions. As used in the Loan Documents, the word "shall" is mandatory, the word "may" is permissive, the word "or" is not exclusive, the words "includes" and "including" are not limiting, the singular includes the plural, and numbers denoting amounts that are set off in brackets are negative. As used in this Agreement, the following capitalized terms have the following meanings:

" **Account** " is any "account" as defined in the Code with such additions to such term as may hereafter be made, and includes, without limitation, all accounts receivable and other sums owing to Borrower.

" **Account Debtor** " is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made.

" **Account Transition Period** " is defined in Section 6.8(a).

" **Adjusted Quick Ratio** " is, as of any date of measurement, the ratio of (i) the sum of (a) Borrower's unrestricted cash at Bank plus (b) Borrower's net billed accounts receivable that are aged less than ninety (90) days divided by (ii) the difference between (a) Current Liabilities minus accrued but unpaid Series A and Series B Dividends.

" **Advance** " or " **Advances** " means an advance (or advances) under the Revolving Line.

“ **Affiliate** ” is, with respect to any Person, each other Person that owns or controls directly or indirectly the Person, any Person that controls or is controlled by or is under common control with the Person, and each of that Person’s senior executive officers, directors, partners and, for any Person that is a limited liability company, that Person’s managers and members.

“ **Agreement** ” is defined in the preamble hereof.

“ **Aspen Aerogels Rhode Island** ” is Aspen Aerogels Rhode Island LLC, a Rhode Island limited liability company and wholly owned Subsidiary of Borrower.

“ **Aspen GmbH** ” is Aspen Aerogels Germany GmbH, a company organized under the laws of the Federal Republic of Germany.

“ **Availability Amount** ” is (a) the lesser of (i) the Revolving Line minus any amounts outstanding under the Export-Import Agreement or (ii) the amount available under the Borrowing Base minus (b) the Dollar Equivalent amount of all outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit plus an amount equal to the Letter of Credit Reserve), minus (c) the FX Reduction Amount, minus (d) any amounts used for Cash Management Services, and minus (e) the outstanding principal balance of any Advances. The aggregate amount of all Advances (including, without limitation, the Dollar Equivalent amount of all outstanding Letters of Credit (including drawn but unreimbursed Letters of Credit plus an amount equal to the Letter of Credit Reserve), any outstanding FX Reduction Amount and any amounts used for Cash Management Services) under this Agreement outstanding at any time together with all Credit Extensions made pursuant to the Export-Import Agreement outstanding at any time shall not exceed Ten Million Dollars ($10,000,000).

“ **Bank** ” is defined in the preamble hereof.

“ **Bank Expenses** ” are all audit fees and expenses, costs, and expenses (including reasonable attorneys’ fees and expenses) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred with respect to Borrower or any Guarantor.

“ **Borrower** ” is defined in the preamble hereof.

“ **Borrower’s Books** ” are all Borrower’s books and records including ledgers, federal and state tax returns, records regarding Borrower’s assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

“ **Borrowing Base** ” is (a) eighty percent (80%) of Eligible Accounts, as determined by Bank from Borrower’s most recent Borrowing Base Certificate; provided , however , that Bank may decrease the foregoing percentage in its good faith business judgment based on events, conditions, contingencies, or risks which, as determined by Bank, may adversely affect the Collateral.

“ **Borrowing Base Certificate** ” is that certain certificate included within each Transaction Report.

“ **Borrowing Resolutions** ” are, with respect to any Person, those resolutions adopted by such Person’s Board of Directors or other appropriate body and delivered by such Person to Bank approving the Loan Documents to which such Person is a party and the transactions contemplated thereby, together with a certificate executed by its secretary on behalf of such Person certifying that (a) such Person has the authority to execute, deliver, and perform its obligations under each of the Loan Documents to which it is a party, (b) attached as Exhibit A to such certificate is a true, correct, and complete copy of the resolutions then in full force and effect authorizing and ratifying the execution, delivery, and performance by such Person of the Loan Documents to which it is a party, (c) the name(s) of the Person(s) authorized to execute the Loan Documents on behalf of such Person, together with a sample of the true signature(s) of such Person(s), and (d) Bank may conclusively rely on such certificate unless and until such Person shall have delivered to Bank a further certificate canceling or amending such prior certificate.

“ **Business Day** ” is any day that is not a Saturday, Sunday or a day on which Bank is closed.

" **Cabot License Agreement** " means that certain Cross License Agreement dated April 1, 2006 by and between Cabot Corporation and Borrower, as amended by that certain Settlement Agreement and First Amendment to Cross License Agreement dated as of September 21, 2007.

" **Capital Expenditures** " means, with respect to any Person for any period, the sum of (a) the aggregate of all expenditures by such Person and its Subsidiaries during such period that are capital expenditures as determined in accordance with GAAP, whether such expenditures are paid in cash or financed, plus (b) to the extent not covered by clause (a), the aggregate of all expenditures by such Person and its Subsidiaries during such period to acquire by purchase or otherwise the business or capitalized assets or the capital stock of any other Person.

" **Cash Equivalents** " means (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc., (c) Bank's certificates of deposit issued maturing no more than one (1) year after issue; and (d) money market funds at least ninety-five percent (95%) of the assets of which constitute Cash Equivalents of the kinds described in clauses (a) through (c) of this definition.

" **Cash Management Services** " is defined in Section 2.1.4.

" **Code** " is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the Commonwealth of Massachusetts; provided , that , to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Bank's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the Commonwealth of Massachusetts, the term " **Code** " shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

" **Collateral** " is any and all properties, rights and assets of Borrower described on Exhibit A.

" **Collateral Account** " is any Deposit Account, Securities Account, or Commodity Account.

" **Commodity Account** " is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made.

" **Communication** " is defined in Section 10.

" **Compliance Certificate** " is that certain certificate in the form attached hereto as Exhibit B.

" **Contingent Obligation** " is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another such as an obligation, in each case directly or indirectly guaranteed, endorsed, co made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

" **Control Agreement** " is any control agreement entered into among the depository institution at which Borrower maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower maintains a Securities Account or a Commodity Account, Borrower, and Bank pursuant to which Bank obtains control (within the meaning of the Code) over such Deposit Account, Securities Account, or Commodity Account.

" **Copyrights** " are any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

" **Credit Extension** " is any Advance, EXIM Loan, Letter of Credit, FX Forward Contract, amount utilized for Cash Management Services, or any other extension of credit by Bank for Borrower's benefit.

" **Current Liabilities** " are all Obligations and liabilities of Borrower owed to Bank, plus, without duplication, the aggregate amount of Borrower's Total Liabilities that mature within one (1) year.

" **Default** " means any event which with notice or passage of time or both, would constitute an Event of Default.

" **Default Rate** " is defined in Section 2.3(b).

" **Deferred Revenue** " is all amounts received or invoiced in advance of performance under contracts and not yet recognized as revenue.

" **Deposit Account** " is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

" **Designated Deposit Account** " is Borrower's deposit account, account number _____, maintained with Bank.

" **Dollars** ," " **dollars** " or use of the sign "$" means only lawful money of the United States and not any other currency, regardless of whether that currency uses the "$" sign to denote its currency or may be readily converted into lawful money of the United States.

" **Dollar Equivalent** " is, at any time, (a) with respect to any amount denominated in Dollars, such amount, and (b) with respect to any amount denominated in a Foreign Currency, the equivalent amount therefor in Dollars as determined by Bank at such time on the basis of the then-prevailing rate of exchange in San Francisco, California, for sales of the Foreign Currency for transfer to the country issuing such Foreign Currency.

" **Effective Date** " is the date Bank executes this Agreement and as indicated on the signature page hereof.

" **Eligible Accounts** " means Accounts which arise in the ordinary course of Borrower's business that meet all Borrower's representations and warranties in Section 5.3. Bank reserves the right at any time and from time to time after the Effective Date upon notice to Borrower, to adjust any of the criteria set forth below and to establish new criteria in its good faith business judgment. Without limiting the fact that the determination of which Accounts are eligible for borrowing is a matter of Bank's good faith judgment, the following ("Minimum Eligibility Requirements") are the minimum requirements for an Account to be an Eligible Account. Unless Bank agrees otherwise in writing, Eligible Accounts shall not include:

(a) Accounts for which the Account Debtor is Borrower's Affiliate, officer, employee, or agent;

(b) Accounts that the Account Debtor has not paid within ninety (90) days of invoice date regardless of invoice payment period terms;

(c) Accounts with credit balances over ninety (90) days from invoice date;

(d) Accounts owing from an Account Debtor, in which fifty percent (50%) or more of the Accounts have not been paid within ninety (90) days of invoice date;

(e) Accounts owing from an Account Debtor which does not have its principal place of business in the United States;

(f) Accounts billed and/or payable outside of the United States (sometimes called foreign invoiced accounts);

(g) Accounts owing from an Account Debtor to the extent that Borrower is indebted or obligated in any manner to the Account Debtor (as creditor, lessor, supplier or otherwise — sometimes called "contra" accounts, accounts payable, customer deposits or credit accounts).

(h) Accounts owing from an Account Debtor which is a United States government entity or any department, agency, or instrumentality thereof unless Borrower has assigned its payment rights to Bank and the assignment has been acknowledged under the Federal Assignment of Claims Act of 1940, as amended;

(i) Accounts for demonstration or promotional equipment, or in which goods are consigned, or sold on a "sale guaranteed", "sale or return", "sale on approval", or other terms if Account Debtor's payment may be conditional;

(j) Accounts owing from an Account Debtor where goods or services have not yet been rendered to the Account Debtor (sometimes called memo billings or pre-billings);

(k) Accounts subject to contractual arrangements between Borrower and an Account Debtor where payments shall be scheduled or due according to completion or fulfillment requirements where the Account Debtor has a right of offset for damages suffered as a result of Borrower's failure to perform in accordance with the contract (sometimes called contracts accounts receivable, progress billings, milestone billings, or fulfillment contracts);

(l) Accounts owing from an Account Debtor the amount of which may be subject to withholding based on the Account Debtor's satisfaction of Borrower's complete performance (but only to the extent of the amount withheld; sometimes called retainage billings);

(m) Accounts subject to trust provisions, subrogation rights of a bonding company, or a statutory trust;

(n) Accounts owing from an Account Debtor that has been invoiced for goods that have not been shipped to the Account Debtor unless Bank, Borrower, and the Account Debtor have entered into an agreement acceptable to Bank in its sole discretion wherein the Account Debtor acknowledges that (i) it has title to and has ownership of the goods wherever located, (ii) a bona fide sale of the goods has occurred, and (iii) it owes payment for such goods in accordance with invoices from Borrower (sometimes called "bill and hold" accounts);

(o) Accounts for which the Account Debtor has not been invoiced;

(p) Accounts that represent non-trade receivables or that are derived by means other than in the ordinary course of Borrower's business;

(q) Accounts for which Borrower has permitted Account Debtor's payment to extend beyond ninety (90) days;

(r) Accounts arising from chargebacks, debit memos or other payment deductions taken by an Account Debtor;

(s) Accounts arising from product returns and/or exchanges (sometimes called "warranty" or "RMA" accounts);

(t) Accounts in which the Account Debtor disputes liability or makes any claim (but only up to the disputed or claimed amount), or if the Account Debtor is subject to an Insolvency Proceeding, or becomes insolvent, or goes out of business;

(u) Accounts owing from an Account Debtor with respect to which Borrower has received Deferred Revenue (but only to the extent of such Deferred Revenue);

(v) Accounts owing from an Account Debtor, whose total obligations to Borrower exceed twenty-five percent (25%) of all Accounts, for the amounts that exceed that percentage, unless Bank approves in writing;

(w) Accounts for which Bank in its good faith business judgment determines collection to be doubtful, including, without limitation, accounts represented by "refreshed" or "recycled" invoices; and

(x) other Accounts Bank deems ineligible in the exercise of its good faith business judgment.

" **Equipment** " is all " **equipment** " as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, goods, vehicles (including motor vehicles and trailers), and any interest in any of the foregoing.

" **ERISA** " is the Employee Retirement Income Security Act of 1974, and its regulations.

" **Event of Default** " is defined in Section 8.

" **EXIM Bank** " is the Export-Import Bank of the United States.

" **EXIM Borrower Agreement** " is defined in the Export-Import Agreement.

" **EXIM Guaranty** " is that certain Master Guarantee Agreement, by and between Bank and EXIM Bank, dated as of November 1, 2005, as amended and in effect as of the date hereof.

" **EXIM Loan Documents** " are all documents and agreements executed in connection with the Export-Import Agreement, including, without limitation, the EXIM Borrower Agreement and the EXIM Promissory Note (as defined in the Export-Import Agreement), as each may be amended from time to time.

" **Export-Import Agreement** " is that certain Export-Import Bank Loan and Security Agreement, dated as of the date hereof, by and between Borrower and Bank.

" **EXIM Loans** " is defined in Section 12.18.

" **Foreign Currency** " means lawful money of a country other than the United States.

" **Funding Date** " is any date on which a Credit Extension is made to or for the account of Borrower which shall be a Business Day.

" **FX Business Day** " is any day when (a) Bank's Foreign Exchange Department is conducting its normal business and (b) the Foreign Currency being purchased or sold by Borrower is available to Bank from the entity from which Bank shall buy or sell such Foreign Currency.

" **FX Forward Contract** " is defined in Section 2.1.3.

" **FX Reduction Amount** " is defined in Section 2.1.3.

" **GAAP** " is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession, which are applicable to the circumstances as of the date of determination.

" **General Intangibles** " is all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, claims, income and other tax refunds, security and other deposits, payment intangibles, contract rights, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind. Notwithstanding the foregoing, General Intangibles does not include any Intellectual Property.

" **Governmental Approval** " is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

" **Governmental Authority** " is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

" **Guarantor** " is any present or future guarantor of the Obligations, including, without limitation, Aspen Aerogels Rhode Island.

" **Guaranty Agreement** " is any present or future guaranty agreement pursuant to which any Guarantor guaranty's repayment of the Obligations, including, without limitation, that certain Unconditional Guaranty, dated as of the date hereof, by Aspen Aerogels Rhode Island, in favor of Bank.

" **Indebtedness** " is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

" **Indemnified Person** " is defined in Section 12.3.

" **Insolvency Proceeding** " is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other relief.

" **Intellectual Property** " means all of Borrower's and/or Guarantor's right, title, and interest in and to the following (including all rights under licenses thereof, including without limitation all right, title and interest of the Borrower under the Cabot License Agreement):

(a) Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know-how, operating manuals;

(c) any and all source code;

(d) any and all design rights which may be available to a Borrower;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above; and

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents.

" **Inventory** " is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of Borrower's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

" **Investment** " is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance or capital contribution to any Person.

" **Key Person** " is Borrower's Chief Executive Officer and President who is, as of the Effective Date, Don Young.

" **Letter of Credit** " means a standby letter of credit issued by Bank or another institution based upon an application, guarantee, indemnity or similar agreement on the part of Bank as set forth in Section 2.1.2.

" **Letter of Credit Application** " is defined in Section 2.1.2(a).

" **Letter of Credit Reserve** " has the meaning set forth in Section 2.1.2(d).

" **Lien** " is a claim, mortgage, deed of trust, levy, charge, pledge, security interest or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

" **Liquidity Threshold** " is, on and after the Effective Date, provided no Default or Event of Default has occurred and is continuing, the period (i) commencing on the first (1st) day in which Borrower has, for each consecutive day in the immediately preceding thirty (30) day period, maintained an Adjusted Quick Ratio, as determined by Bank, in its reasonable discretion, in an amount at all times greater than or equal to 1.00:1.00, as determined by Bank, in its sole discretion; and (ii) terminating on the earlier to occur of (A) the occurrence of a Default or an Event of Default; and (B) the first day thereafter in which Borrower fails to maintain an Adjusted Quick Ratio greater than or equal to 1.00:1.00, as determined by Bank, in its reasonable discretion. Thereafter, in order for the Liquidity Threshold to be applicable, Borrower must achieve an Adjusted Quick Ratio in an amount greater than or equal to 1.00:1.00 each consecutive day for thirty (30) consecutive days, as determined by Bank, in its reasonable discretion. Borrower shall give Bank prior-written notice of Borrower's achievement of the Liquidity Threshold.

" **Loan Documents** " are, collectively, this Agreement, the EXIM Loan Documents, the Perfection Certificates, the Stock Pledge Agreement, the PJC Intercreditor Agreement, any Guaranty Agreement, any Security Agreement, any note, or notes or guaranties executed by Borrower or any Guarantor, and any other present or future agreement between Borrower any Guarantor and/or for the benefit of Bank in connection with this Agreement, all as amended, restated, or otherwise modified.

" **Material Adverse Change** " is (a) a material impairment in the perfection or priority of Bank's Lien in the Collateral or in the value of such Collateral; (b) a material adverse change in the business, operations, or condition (financial or otherwise) of Borrower and its Subsidiaries, taken as a whole; (c) a material impairment of the prospect of repayment of any portion of the Obligations or (d) Bank determines, after consultation with Borrower, based upon information available to it and in its reasonable judgment, that there is a substantial likelihood that Borrower shall fail to comply with one or more of the financial covenants in Section 6 during the next succeeding financial reporting period.

" **Minimum Eligibility Requirements** " is defined in the defined term "Eligible Accounts".

" **Note Purchase Agreement** " is that certain Subordinated Note and Warrant Purchase Agreement, dated as of the date hereof, by and among Borrower, PJC Capital LLC and the other "Purchasers" named therein.

" **Obligations** " are Borrower's obligation to pay when due any debts, principal, interest, Bank Expenses and other amounts Borrower owes Bank now or later, whether under this Agreement, the other Loan Documents, the Export-Import Agreement, the other EXIM Loan Documents, or otherwise, including, without limitation, all obligations relating to letters of credit (including reimbursement obligations for drawn and undrawn letters of credit), cash management services, and foreign exchange contracts, if any, and including interest accruing after Insolvency Proceedings begin and debts, liabilities, or obligations of Borrower assigned to Bank, and to perform Borrower's duties under the Loan Documents.

" **Operating Documents** " are, for any Person, such Person's formation documents, as certified with the Secretary of State of such Person's state of formation on a date that is no earlier than 30 days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

" **Patents** " means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

" **Payment** " means all checks, wire transfers and other items of payment received by Bank (including proceeds of Accounts and payment of all the Obligations in full) for credit to Borrower's outstanding

Credit Extensions or, if the balance of the Credit Extensions has been reduced to zero, for credit to its Deposit Accounts.

" **Perfection Certificate** " is defined in Section 5.1.

" **Permitted Indebtedness** " is:

(a) Borrower's Indebtedness to Bank under this Agreement and the other Loan Documents;

(b) Indebtedness existing on the Effective Date and shown on the Perfection Certificate;

(c) Subordinated Debt, including, without limitation, the Indebtedness owed to PJC Capital LLC and the other "Holders" as such term is defined in the Note Purchase Agreement, as described in and subject to the PJC Intercreditor Agreement, and guaranties of any such Subordinated Debt by any Subsidiary of the Borrower;

(d) Indebtedness owed to the Massachusetts Development Finance Agency pursuant to the Borrower's 6% term loan dated January 12, 2005, in the original principal amount of $1,500,000, repayable in equal monthly installments over 84 months, secured by leasehold improvements and lab equipment located at 30 Forbes Road, Northborough, MA, the outstanding principal and accrued but unpaid interest of which is, as of November 30, 2010, $297,448;

(e) unsecured Indebtedness to trade creditors incurred in the ordinary course of business;

(f) Indebtedness secured by Liens permitted to clauses (a) and (c) of the definition of "Permitted Liens" hereof;

(g) Indebtedness (i) of Subsidiaries owed to Borrower for any Subsidiary that has executed a Security Agreement in favor of Bank and (ii) of Subsidiaries owed to Borrower in an aggregate amount, together with Investments permitted in connection with clause (d) of the definition of "Permitted Investments", not to exceed Two Hundred Fifty Thousand Dollars ($250,000) in any fiscal year;

(h) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (e) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose more burdensome terms upon Borrower or its Subsidiary, as the case may be; and

(i) other unsecured Indebtedness in an aggregate amount not to exceed Two hundred Fifty Thousand Dollars ($250,000);

" **Permitted Investments** " are:

(a) Investments shown on the Perfection Certificate and existing on the Effective Date;

(b) Cash Equivalents;

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of Borrower's business;

(d) Investments (i) by Borrower in any Subsidiary that has executed a Security Agreement in favor of Bank and (ii) by Borrower in any Subsidiary, in an aggregate amount, together with any Indebtedness described in clause (g) of the definition of "Permitted Indebtedness", not to exceed Two Hundred Fifty Thousand Dollars ($250,000) in any fiscal year;

(e) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business; and

(f) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (f) shall not apply to Investments of Borrower in any Subsidiary.

" **Permitted Liens** " are:

(a) (i) Liens existing on the Effective Date and shown on the Perfection Certificate or arising under this Agreement and the other Loan Documents and (ii) subject to the terms and conditions of the PJC Intercreditor Agreement, Liens in favor of PJC Capital LLC, as collateral agent;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on its Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) purchase money Liens (i) on Equipment acquired or held by Borrower incurred for financing the acquisition of the Equipment securing no more than Two Hundred Fifty Thousand Dollars ($250,000) in the aggregate amount outstanding, or (ii) existing on Equipment when acquired, if the Lien is confined to the property and improvements and the proceeds of the Equipment;

(d) Liens to secure payment of workers' compensation, employment insurance, old-age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(e) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase;

(f) leases or subleases of real property granted in the ordinary course of business, and leases, subleases, non-exclusive licenses or sublicenses of property (other than real property or Intellectual Property) granted in the ordinary course of Borrower's business, if the leases, subleases, licenses and sublicenses do not prohibit granting Bank a security interest;

(g) non-exclusive license of Intellectual Property granted to third parties in the ordinary course of business, and licenses of Intellectual Property that could not result in a legal transfer of title of the licensed property that may be exclusive in respects other than territory and that may be exclusive as to territory only as to discreet geographical areas outside of the United States;

(h) Liens securing Permitted Indebtedness; and

(i) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default under Section 8.4 or 8.7.

" **Person** " is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or government agency.

" **PJC Capital LLC** " is PJC Capital LLC, a Delaware limited liability company and "Collateral Agent" under the Note Purchase Agreement.

" **PJC Intercreditor Agreement** " is that certain Intercreditor and Subordination Agreement, dated on or about the date hereof, by and between Bank, PJC Capital LLC and the other subordinated creditors named therein.

" **Prime Rate** " is the greater of (i) four percent (4.00%) per annum, and (ii) Bank's most recently announced "prime rate," even if it is not Bank's lowest rate.

" **Registered Organization** " is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made.

" **Requirement of Law** " is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

" **Reserves** " means, as of any date of determination, such amounts as Bank may from time to time establish and revise in good faith reducing the amount of Advances, Letters of Credit and other financial accommodations which would otherwise be available to Borrower under the lending formulas: (a) to reflect events, conditions, contingencies or risks which, as determined by Bank in good faith, do or may affect (i) the Collateral or any other property which is security for the Obligations or its value (including without limitation any increase in delinquencies of Accounts), (ii) the assets or business of Borrower or any guarantor, or (iii) the security interests and other rights of Bank in the Collateral (including the enforceability, perfection and priority thereof); or (b) to reflect Bank's good faith belief that any collateral report or financial information furnished by or on behalf of Borrower or any guarantor to Bank is or may have been incomplete, inaccurate or misleading in any material respect; or (c) in respect of any state of facts which Bank determines in good faith constitutes an Event of Default or may, with notice or passage of time or both, constitute an Event of Default.

" **Responsible Officer** " is any of the Chief Executive Officer, President, Chief Financial Officer and Controller of Borrower.

" **Revolving Line** " is an Advance or Advances (including, without limitation, Advances made pursuant to the Export-Import Agreement) in an amount under this Agreement and the Export-Import Agreement not to exceed Ten Million Dollars ($10,000,000) at any time.

" **Revolving Line Maturity Date** " is March 31, 2013 (two (2) years after the Effective Date).

" **SEC** " shall mean the Securities and Exchange Commission, any successor thereto, and any analogous Governmental Authority

" **Securities Account** " is any "securities account" as defined in the Code with such additions to such term as may hereafter be made.

" **Security Agreement** " is any present or future security agreement pursuant to which any Person pledges its Collateral to Bank as security for the Obligations, including, without limitation, that certain Security Agreement, dated as of the date hereof, by Aspen Aerogels Rhode Island, in favor of Bank.

" **Series A and Series B Dividends** " are, as of any date of measurement, the dividends that shall have accrued on shares of the Borrower's Series A Preferred Stock and Series B Preferred Stock, whether or not declared or paid.

" **Stock Pledge Agreement** " is that certain Stock Pledge Agreement, dated as of the date hereof, by and between Borrower and Bank.

" **Subordinated Debt** " is indebtedness incurred by Borrower subordinated to all of Borrower's now or hereafter indebtedness to Bank (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Bank entered into between Bank and the other creditor), on terms acceptable to Bank, including, without limitation, the Subordinated Debt described in and subject to the PJC Intercreditor Agreement.

" **Subsidiary** " is, as to any Person, a corporation, partnership, limited liability company or other entity of which shares of stock or other ownership interests having ordinary voting power (other than stock or such other ownership interests having such power only by reason of the happening of a contingency) to elect a majority of the board of directors or other managers of such corporation, partnership or other entity are at the time owned, or the management of which is otherwise controlled, directly or indirectly through one or more intermediaries, or both, by such Person. Unless the context otherwise requires, each reference to a Subsidiary herein shall be a reference to a Subsidiary of Borrower or Guarantor.

" **Tangible Net Worth** " is, on any date, the consolidated total assets of Borrower and its Subsidiaries minus (a) any amounts attributable to (i) goodwill, (ii) intangible items including unamortized debt discount and expense, Patents, Trademarks, Copyrights, and research and development expenses except prepaid

expenses, (iii) notes, accounts receivable and other obligations owing to Borrower from its officers or other Affiliates, and (iv) reserves not already deducted from assets, minus (b) Total Liabilities plus (c) Subordinated Debt.

" **Total Liabilities** " is on any day, all obligations that should, under GAAP, be classified as liabilities on Borrower's consolidated balance sheet, including all Indebtedness.

" **Trademarks** " means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower connected with and symbolized by such trademarks.

" **Transaction Report** " is the Bank's standard reporting package provided by Bank to Borrower.

" **Transfer** " is defined in Section 7.1.

" **Unused Revolving Line Facility Fee** " is defined in Section 2.4(d).

[Signature page follows. **]**

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed as a sealed instrument under the laws of the Commonwealth of Massachusetts as of the Effective Date.

BORROWER:

ASPEN AEROGELS, INC.

By: /s/ John F. Fairbanks
Name: John F. Fairbanks
Title: Chief Financial Officer

BANK:

SILICON VALLEY BANK

By: /s/ Thomas Kelly
Name: Thomas Kelly
Title: Vice President

Effective Date: March 31, 2011

EXHIBIT A — COLLATERAL DESCRIPTION

The Collateral consists of all of Borrower's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights (except as provided below) or rights to payment of money, leases, license agreements (except as provided below), franchise agreements, General Intangibles (except as provided below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

all Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include any Intellectual Property; provided however , the Collateral shall include all Accounts and all proceeds of Intellectual Property. Pursuant to the terms of a certain negative pledge arrangement with Bank, Borrower has agreed not to encumber any of its Intellectual Property without Bank's prior written consent.

EXHIBIT B

COMPLIANCE CERTIFICATE

TO: SILICON VALLEY BANK Date: _____
FROM: ASPEN AEROGELS, INC.

The undersigned authorized officer of Aspen Aerogels, Inc. (" **Borrower** ") certifies that under the terms and conditions of the Loan and Security Agreement between Borrower and Bank (the " **Agreement** "), (1) Borrower is in complete compliance for the period ending _____ with all required covenants except as noted below, (2) there are no Events of Default, (3) all representations and warranties in the Agreement are true and correct in all material respects on this date except as noted below; provided , however , that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided , further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, (4) Borrower, and each of its Subsidiaries, has timely filed all required tax returns and reports, and Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower except as otherwise permitted pursuant to the terms of Section 5.9 of the Agreement, and (5) no Liens have been levied or claims made against Borrower or any of its Subsidiaries, if any, relating to unpaid employee payroll or benefits of which Borrower has not previously provided written notification to Bank. Attached are the required documents supporting the certification. The undersigned certifies that these are prepared in accordance with GAAP consistently applied from one period to the next except as explained in an accompanying letter or footnotes. The undersigned acknowledges that no borrowings may be requested at any time or date of determination that Borrower is not in compliance with any of the terms of the Agreement, and that compliance is determined not just at the date this certificate is delivered. Capitalized terms used but not otherwise defined herein shall have the meanings given them in the Agreement.

Please indicate compliance status by circling Yes/No under "Complies" column.

Reporting Covenant	Required	Complies
Monthly financial statements with * Compliance Certificate	Monthly within 30 days	Yes No
Annual financial statement (CPA Audited) + CC	FYE within 180 days	Yes No
10-Q, 10-K and 8-K	Within 5 days after filing with SEC	Yes No
A/R & A/P Agings (including EXIM), inventory reports and Borrowing Base Certificate*	Monthly within 15 days (quarterly within 15 days if no outstanding Credit Extensions)	Yes No
Transaction Reports	Weekly (monthly within 15 days when Borrower has achieved Liquidity Threshold) and with each request for a Credit Extension)	Yes No
Invoices for 10% of outstanding balance of EXIM A/R*	Within 15 days after the end of each quarter	Yes No

* See Section 8.2 for 5 Business Day cure period

The following Intellectual Property was registered after the Effective Date (if no registrations, state "None")

Financial Covenant	Required	Actual	Complies
Maintain as indicated:			
Liquidity (at all times, certified monthly)	**$ 3,000,000**	**$_____**	**Yes No**
Tangible Net Worth (at all times, certified monthly)	**$40,000,000**	**$_____**	**Yes No**

The following financial covenant analyses and information set forth in Schedule 1 attached hereto are true and accurate as of the date of this Certificate.

The following are the exceptions with respect to the certification above: (If no exceptions exist, state "No exceptions to note.")

_____

_____

_____

Aspen Aerogels, Inc.

By: _____
Name: _____
Title: _____

BANK USE ONLY

Received by: _____
AUTHORIZED SIGNER
Date: _____

Verified: _____
AUTHORIZED SIGNER
Date: _____

Compliance Status: Yes No

Schedule 1 to Compliance Certificate

Financial Covenants of Borrower

In the event of a conflict between this Schedule and the Loan Agreement, the terms of the Loan Agreement shall govern.

Dated: _____

I. **Liquidity** (Section 6.9(a))

Required: Maintain Borrower's unrestricted cash at Bank plus the unused Availability Amount of at least Three Million Dollars ($3,000,000).

Actual:

A.	Borrower's unrestricted cash at Bank	$ _____
B.	Unused Availability Amount	$ _____
C.	LIQUIDITY (line A plus line B)	$ _____

Is line C equal to or greater than $3,000,000?

_____No, not in compliance _____Yes, in compliance

II. **Tangible Net Worth** (Section 6.9(b))

Required: Maintain a Tangible Net Worth of at least Forty Million Dollars ($40,000,000).

Actual:

A.	Aggregate value of total assets of Borrower and its Subsidiaries	$ _____
B.	Aggregate value of goodwill of Borrower	$ _____
C.	Aggregate value of intangible items including unamortized debt discount and expense, Patents, Trademarks, Copyrights, and research and development expenses except prepaid expenses	$ _____
D.	Aggregate value of any notes, accounts receivable and other obligations owing to Borrower from its officers or other Affiliates, and	
E.	Aggregate value of any reserves not already deducted from assets	$ _____
F.	Total Liabilities of Borrower (excluding Subordinated Debt)	$ _____
G.	TANGIBLE NET WORTH (line A minus line B minus line C minus line D minus line E minus line F)	$ _____

Is line G equal to or greater than $40,000,000?

_____No, not in compliance _____Yes, in compliance

CONSENT AND FIRST LOAN MODIFICATION AGREEMENT

This Consent and First Loan Modification Agreement (this " **Loan Modification Agreement** ") is entered into as of June 1, 2011, by and between **SILICON VALLEY BANK** , a California corporation with a loan production office located at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 (" **Bank** "), and **ASPEN AEROGELS, INC.** , a Delaware corporation with offices located at 30 Forbes Road, Building B, Northborough, Massachusetts 01532 (the " **Borrower** ").

1. DESCRIPTION OF EXISTING INDEBTEDNESS AND OBLIGATIONS . Among other indebtedness and obligations which may be owing by Borrower to Bank, Borrower is indebted to Bank pursuant to a loan arrangement dated as of March 31, 2011, evidenced by, among other documents, (i) a certain Loan and Security Agreement dated as of March 31, 2011 (as may be amended from time to time, the " **Loan Agreement** ") and (ii) a certain Export-Import Bank Loan and Security Agreement, dated as of March 31, 2011 (as may be amended from time to time, the " **EXIM Loan Agreement** "), in each case between Borrower and Bank. Capitalized terms used but not otherwise defined herein shall have the same meaning as in the Loan Agreement.

2. DESCRIPTION OF COLLATERAL . Repayment of the Obligations is secured by the Collateral as described in the Loan Agreement and EXIM Loan Agreement and the " **Intellectual Property Collateral** " as described in a certain Intellectual Property Security Agreement, dated as of March 31, 2011 (together with any other collateral security granted to Bank, the " **Security Documents** "). Hereinafter, the Security Documents, together with all other documents evidencing or securing the Obligations shall be referred to as the " **Existing Loan Documents** ".

3. DESCRIPTION OF CHANGE IN TERMS .

A. Modifications to Loan Agreement.

1 The Loan Agreement shall be amended by deleting the following text appearing as Section 7.9 (**Subordinated Debt**) thereof:

" **7.9 Subordinated Debt.** (a) Make or permit any payment on any Subordinated Debt, except as permitted under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof or adversely affect the subordination thereof to Obligations owed to Bank, except as permitted under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject."

and inserting in lieu thereof the following:

" **7.9 Subordinated Debt.** (a) Make or permit any payment on any Subordinated Debt, except as permitted under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof or adversely affect the subordination thereof to Obligations owed to Bank, except as permitted under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject. Notwithstanding subsection (b) above, Borrower shall not permit any amendment to the Fidelity Note Purchase Agreement without the prior written consent of Bank."

2 The Loan Agreement shall be amended by deleting the following text appearing as Section 8.9 (**Subordinated Debt**) thereof:

"8.9 Subordinated Debt. Any document, instrument, or agreement evidencing any Subordinated Debt shall for any reason be revoked or invalidated or

otherwise cease to be in full force and effect, any Person shall be in breach thereof or contest in any manner the validity or enforceability thereof or deny that it has any further liability or obligation thereunder, or the Obligations shall for any reason be subordinated or shall not have the priority contemplated by this Agreement or the PJC Intercreditor Agreement."

and inserting in lieu thereof the following:

"8.9 Subordinated Debt. (a) Any document, instrument, or agreement evidencing any Subordinated Debt shall for any reason be revoked or invalidated or otherwise cease to be in full force and effect, any Person shall be in breach thereof or contest in any manner the validity or enforceability thereof or deny that it has any further liability or obligation thereunder, or the Obligations shall for any reason be subordinated or shall not have the priority contemplated by this Agreement, the PJC Intercreditor Agreement or the Fidelity Subordination Agreement; or (b) (i) any cash prepayment or (ii) acceleration of principal or interest or (iii) the payment of any other Indebtedness of Borrower in each case under the Fidelity Note Purchase Agreement or any Fidelity Note issued thereunder."

3 The Loan Agreement shall be amended by deleting the following clause (i) from the definition of "Permitted Indebtedness" in Section 13.1 thereof:

"(i) other unsecured Indebtedness in an aggregate amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000);"

and inserting in lieu thereof the following:

"(i) (i) the unsecured Indebtedness of Borrower owed to the Fidelity Creditors pursuant to the Fidelity Note Purchase Agreement and (ii) other unsecured Indebtedness in an aggregate amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000);"

4 The Loan Agreement shall be amended by inserting the following new definitions in Section 13.1 thereof in their appropriate alphabetical order:

"" **Fidelity Creditors** " is each "Purchaser" from time to time party to the Fidelity Note Purchase Agreement.

" **Fidelity Note** " and " **Fidelity Notes** " is each Convertible Promissory Note issued pursuant to the Fidelity Note Purchase Agreement.

" **Fidelity Note Purchase Agreement** " is that certain Note Purchase Agreement, dated as of the date hereof, by and between Borrower and the "Purchasers" party thereto, in a maximum principal amount equal to Twenty Five Million Dollars ($25,000,000), together with an executed copy of each Fidelity Note issued thereunder and each other document or agreement executed and/or delivered in connection therewith.

" **Fidelity Subordination Agreement"** is that certain Subordination Agreement, dated as of the date hereof, by and between Bank and the Fidelity Creditors."

4. ISSUANCE OF ADDITIONAL SUBORDINATED DEBT . The Borrower has requested that the Bank consent to the Borrower receiving proceeds from the issuance of additional unsecured Subordinated Debt to the Fidelity Creditors, as more fully described in the Fidelity Note Purchase Agreement, in substantially the form attached as Exhibit A hereto (such issuance hereafter referred to as the " **Transaction** "). The Bank has agreed to do so, but only upon and subject to the specific terms and conditions set forth herein.

5. CONSENT . In reliance upon the representations of the Borrower herein, Bank hereby consents to the consummation of the Transaction and waives any Event of Default that may otherwise arise under the Existing Loan Documents solely as a result of the consummation of the Transaction for all purposes under the Existing Loan Documents, subject to each of the Conditions Precedent described in Section 6 hereof. In addition, Bank hereby consents to the amendment to the Note Purchase Agreement, as evidenced by a certain Amendment No. 1 to Subordinated Note and Warrant Purchase Agreement, by and between borrower and the "Purchasers" signatory thereto, dated as of the date hereof, which shall be in form and substance acceptable to Bank, in its reasonable discretion.

6. CONDITIONS PRECEDENT . Borrower hereby agrees that the following representations and warranties shall be true and/or the following documents shall be delivered to the Bank prior to or concurrently with this Loan Modification Agreement, each in form and substance satisfactory to the Bank (collectively, the " **Conditions Precedent** "):

A. the Transaction shall be consummated upon terms substantially similar to those contained in the Fidelity Note Purchase Agreement attached at Exhibit A hereto, in each case without any material amendment or modification thereto (it being agreed that any amendment or modification to the Fidelity Note Purchase Agreement attached as Exhibit A hereto which may reasonably be considered materially adverse to the interests of the Bank shall be deemed to be material);

B. copies, certified by a duly authorized officer of Borrower and Guarantor, to be true and complete as of the date hereof, of each of (i) the governing documents of Borrower and Guarantor, respectively, as in effect on the date hereof (but only to the extent modified since last delivered to the Bank), (ii) the resolutions of Borrower and Guarantor, respectively, authorizing the execution and delivery of this Loan Modification Agreement, the other documents executed in connection herewith and the Borrower's and Guarantor's respective performance of all of the transactions contemplated hereby (but only to the extent required since last delivered to Bank), and (iii) an incumbency certificate giving the name and bearing a specimen signature of each individual who shall be so authorized (but only to the extent any signatories have changed since such incumbency certificate was last delivered to Bank);

C. Bank shall have received executed copies of this Loan Modification Agreement, the Fidelity Note Purchase Agreement and the Fidelity Subordination Agreement;

D. Bank shall have received a copy of the executed Amendment No. 1 to Subordinated Note and Warrant Purchase Agreement, which shall be in form and substance acceptable to Bank, in its reasonable discretion;

E. Bank shall have received an executed Subordination Agreement, dated as of the date hereof, by and between the Purchasers party to the Note Purchase Agreement and the Fidelity Creditors, in substantially the same form as the Fidelity Subordination Agreement;

F. After giving effect to the consent granted herein, this Loan Modification Agreement and the Fidelity Note Purchase Agreement, no Default or Event of Default shall exist and be continuing, including, without limitation, any default under any instrument, agreement or other document evidencing any Subordinated Debt; and

G. such other documents and/or agreements as Bank may reasonably request.

7. FEES . Borrower shall reimburse Bank for all legal fees and expenses incurred in connection with this amendment to the Existing Loan Documents.

8. ADDITIONAL COVENANTS: RATIFICATION OF PERFECTION CERTIFICATE . Borrower hereby certifies that, other than as disclosed in the Perfection Certificate, no Collateral with a value greater than Fifty Thousand Dollars ($50,000) in the aggregate is in the possession of any third party bailee (such as at a warehouse).

In the event that Borrower, after the date hereof, intends to store or otherwise deliver the Collateral with a value in excess of Fifty Thousand Dollars ($50,000) in the aggregate to such a bailee, then Borrower shall first receive, the prior written consent of Bank and such bailee must acknowledge in writing that the bailee is holding such Collateral for the benefit of Bank. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and disclosures contained in a certain Perfection Certificate, dated as of March 31, 2011, and acknowledges, confirms and agrees the disclosures and information above Borrower provided to Bank in such Perfection Certificate remains true and correct in all material respects as of the date hereof.

9. AUTHORIZATION TO FILE . Borrower hereby authorizes Bank to file UCC financing statements without notice to Borrower, with all appropriate jurisdictions, as Bank deems appropriate, in order to further perfect or protect Bank's interest in the Collateral, including a notice that any disposition of the Collateral, by either the Borrower or any other Person, shall be deemed to violate the rights of the Bank under the Code.

10. CONSISTENT CHANGES . The Existing Loan Documents are hereby amended wherever necessary to reflect the changes described above.

11. RATIFICATION OF LOAN DOCUMENTS . Borrower hereby ratifies, confirms, and reaffirms all terms and conditions of the Loan Agreement, each other Loan Document and all security or other collateral granted to the Bank, and confirms that the indebtedness secured thereby includes, without limitation, the Obligations.

12. NO DEFENSES OF BORROWER . Borrower hereby acknowledges and agrees that Borrower has no offsets, defenses, claims, or counterclaims against Bank with respect to the Obligations, or otherwise, and that if Borrower now has, or ever did have, any offsets, defenses, claims, or counterclaims against Bank, whether known or unknown, at law or in equity, all of them are hereby expressly WAIVED and Borrower hereby RELEASES Bank from any liability thereunder.

13. CONTINUING VALIDITY . Borrower understands and agrees that in modifying the existing Obligations, Bank is relying upon Borrower's representations, warranties, and agreements, as set forth in the Existing Loan Documents. Except as expressly modified pursuant to this Loan Modification Agreement, the terms of the Existing Loan Documents remain unchanged and in full force and effect. Bank's agreement to modifications to the existing Obligations pursuant to this Loan Modification Agreement in no way shall obligate Bank to make any future modifications to the Obligations. Nothing in this Loan Modification Agreement shall constitute a satisfaction of the Obligations. It is the intention of Bank and Borrower to retain as liable parties all makers of Existing Loan Documents, unless the party is expressly released by Bank in writing. No maker will be released by virtue of this Loan Modification Agreement.

14. RIGHT OF SET-OFF . In consideration of Bank's agreement to enter into this Loan Modification Agreement, Borrower hereby reaffirms and hereby grants to Bank, a lien, security interest and right of set off as security for all Obligations to Bank, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Bank or any entity under the control of Bank (including a Bank subsidiary) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Bank may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the loan. ANY AND ALL RIGHTS TO REQUIRE BANK TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER, ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

15. CONFIDENTIALITY . In handling any confidential information, Bank shall exercise the same degree of care that it exercises for its own proprietary information, but disclosure of information may be made: (a) to Bank's Subsidiaries or Affiliates; (b) to prospective transferees or purchasers of any interest in the Credit Extensions (provided , however , Bank shall use commercially reasonable efforts to obtain any prospective transferee's or purchaser's agreement to the terms of this provision); (c) as required by law, regulation, subpoena, or other order; (d) to Bank's regulators or as otherwise required in connection with Bank's examination or audit; (e) as Bank considers appropriate in exercising remedies under the Loan Documents; and (f) to third-party service providers of

Bank so long as such service providers have executed a confidentiality agreement with Bank with terms no less restrictive than those contained herein. Confidential information does not include information that is either: (i) is in the public domain or in Bank's possession when disclosed to Bank, or becomes part of the public domain after disclosure to Bank; or (ii) is disclosed to Bank by a third party, if Bank does not know that the third party is prohibited from disclosing the information.

Bank may use confidential information for the development of databases, reporting purposes, and market analysis so long as such confidential information is aggregated and anonymized prior to distribution unless otherwise expressly permitted by Borrower. The provisions of the immediately preceding sentence shall survive the termination of the Loan Agreement.

16. JURISDICTION/VENUE . Section 11 of the Loan Agreement is hereby incorporated by reference in its entirety.

17. COUNTERSIGNATURE . This Loan Modification Agreement shall become effective only when it shall have been executed by Borrower and Bank.

[The remainder of this page is intentionally left blank]

IN WITNESS WHEREOF , the parties hereto have caused this Loan Modification Agreement to be executed as a sealed instrument under the laws of the Commonwealth of Massachusetts as of the date first above written.

BORROWER:

ASPEN AEROGELS, INC.

By /s/ John F. Fairbanks
Name: John F. Fairbanks
Title: CFO

BANK:

SILICON VALLEY BANK

By /s/ Win Bear
Name: Win Bear
Title: Deal Team Leader

The undersigned ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Unconditional Guaranty, dated March 31, 2011 (the " **Guaranty** "), and each document executed in connection therewith, and acknowledges, confirms and agrees that the Guaranty and each document executed in connection therewith shall remain in full force and effect and shall in no way be limited by the execution of this Forbearance Agreement, or any other documents, instruments and/or agreements executed and/or delivered in connection herewith.

GUARANTOR:

ASPEN AEROGELS RHODE ISLAND LLC

By /s/ John F. Fairbanks
Name: John F. Fairbanks
Title: CFO

CONSENT AND SECOND LOAN MODIFICATION AGREEMENT

This Consent and Second Loan Modification Agreement (this " **Loan Modification Agreement** ") is entered into as of June 14, 2011, by and between **SILICON VALLEY BANK** , a California corporation with a loan production office located at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 (" **Bank** "), and **ASPEN AEROGELS, INC.** , a Delaware corporation with offices located at 30 Forbes Road, Building B, Northborough, Massachusetts 01532 (the " **Borrower** ").

1. DESCRIPTION OF EXISTING INDEBTEDNESS AND OBLIGATIONS . Among other indebtedness and obligations which may be owing by Borrower to Bank, Borrower is indebted to Bank pursuant to a loan arrangement dated as of March 31, 2011, evidenced by, among other documents, (i) a certain Loan and Security Agreement dated as of March 31, 2011 and as amended by that certain Consent and First Loan Modification Agreement dated as of June 1, 2011 (as may be amended from time to time, the " **Loan Agreement** ") and (ii) a certain Export-Import Bank Loan and Security Agreement, dated as of March 31, 2011 (as may be amended from time to time, the " **EXIM Loan Agreement** "), in each case between Borrower and Bank. Capitalized terms used but not otherwise defined herein shall have the same meaning as in the Loan Agreement.

2. DESCRIPTION OF COLLATERAL . Repayment of the Obligations is secured by the Collateral as described in the Loan Agreement and EXIM Loan Agreement and the " **Intellectual Property Collateral** " as described in a certain Intellectual Property Security Agreement, dated as of March 31, 2011 (together with any other collateral security granted to Bank, the " **Security Documents** "). Hereinafter, the Security Documents, together with all other documents evidencing or securing the Obligations shall be referred to as the " **Existing Loan Documents** ".

3. DESCRIPTION OF CHANGE IN TERMS .

A. Modifications to Loan Agreement.

1 The Loan Agreement shall be amended by deleting the following definitions in Section 13.1 thereof:

"" **Fidelity Note Purchase Agreement** " is that certain Note Purchase Agreement, dated as of the date hereof, by and between Borrower and the "Purchasers" party thereto, in a maximum principal amount equal to Twenty Five Million Dollars ($25,000,000), together with an executed copy of each Fidelity Note issued thereunder and each other document or agreement executed and/or delivered in connection therewith.

" **Fidelity Subordination Agreement"** is that certain Subordination Agreement, dated as of the date hereof, by and between Bank and the Fidelity Creditors."

and inserting in lieu thereof the following:

"" **Fidelity Note Purchase Agreement** " is that certain Note Purchase Agreement, dated June 1, 2011, as amended by that certain Amendment No. 1 entered into as of June 14, 2011 by and between Borrower and the "Purchasers" party thereto, in a maximum principal amount equal to Thirty Million Dollars ($30,000,000), together with an executed copy of each Fidelity Note issued thereunder and each other document or agreement executed and/or delivered in connection therewith.

" **Fidelity Subordination Agreement** " is that certain Subordination Agreement, dated June 1, 2011 by and between Bank and the Fidelity Creditors listed therein, together with any subsequent Subordination Agreement entered into on or after the date hereof, by and between Bank and any Fidelity Creditor or any other "Purchaser" (as such term is defined in the Fidelity Note Purchase Agreement)."

4. ISSUANCE OF ADDITIONAL SUBORDINATED DEBT . The Borrower has requested that the Bank consent to the Borrower receiving proceeds from the issuance of additional unsecured Subordinated Debt to the Fidelity Creditors, as more fully described in the Fidelity Note Purchase Agreement, in substantially the form attached as Exhibit A hereto (such issuance hereafter referred to as the " **Transaction** "). The Bank has agreed to do so, but only upon and subject to the specific terms and conditions set forth herein.

5. CONSENT . In reliance upon the representations of the Borrower herein, Bank hereby consents to the consummation of the Transaction and waives any Event of Default that may otherwise arise under the Existing Loan Documents solely as a result of the consummation of the Transaction for all purposes under the Existing Loan Documents, subject to each of the Conditions Precedent described in Section 6 hereof. In addition, Bank hereby consents to the amendment to the Note Purchase Agreement, as evidenced by a certain Amendment No. 2 to Subordinated Note and Warrant Purchase Agreement, by and between borrower and the "Purchasers" signatory thereto, dated as of the date hereof, which shall be in form and substance acceptable to Bank, in its reasonable discretion.

6. CONDITIONS PRECEDENT . Borrower hereby agrees that the following representations and warranties shall be true and/or the following documents shall be delivered to the Bank prior to or concurrently with this Loan Modification Agreement, each in form and substance satisfactory to the Bank (collectively, the " **Conditions Precedent** "):

A. the Transaction shall be consummated upon terms substantially similar to those contained in the Fidelity Note Purchase Agreement attached at Exhibit A hereto, in each case without any material amendment or modification thereto (it being agreed that any amendment or modification to the Fidelity Note Purchase Agreement attached as Exhibit A hereto which may reasonably be considered materially adverse to the interests of the Bank shall be deemed to be material);

B. copies, certified by a duly authorized officer of Borrower and Guarantor, to be true and complete as of the date hereof, of each of (i) the governing documents of Borrower and Guarantor, respectively, as in effect on the date hereof (but only to the extent modified since last delivered to the Bank), (ii) the resolutions of Borrower and Guarantor, respectively, authorizing the execution and delivery of this Loan Modification Agreement, the other documents executed in connection herewith and the Borrower's and Guarantor's respective performance of all of the transactions contemplated hereby (but only to the extent required since last delivered to Bank), and (iii) an incumbency certificate giving the name and bearing a specimen signature of each individual who shall be so authorized (but only to the extent any signatories have changed since such incumbency certificate was last delivered to Bank);

C. Bank shall have received executed copies of this Loan Modification Agreement, the Fidelity Note Purchase Agreement, as amended, and each Fidelity Subordination Agreement from each Fidelity Creditor, to the extent not previously delivered by such Fidelity Creditor to Bank;

D. After giving effect to the consent granted herein, this Loan Modification Agreement and the Fidelity Note Purchase Agreement, no Default or Event of Default shall exist and be continuing, including, without limitation, any default under any instrument, agreement or other document evidencing any Subordinated Debt; and

E. such other documents and/or agreements as Bank may reasonably request.

7. FEES . Borrower shall reimburse Bank for all legal fees and expenses incurred in connection with this amendment to the Existing Loan Documents.

8. ADDITIONAL COVENANTS: RATIFICATION OF PERFECTION CERTIFICATE . Borrower hereby certifies that, other than as disclosed in the Perfection Certificate, no Collateral with a value greater than Fifty

Thousand Dollars ($50,000) in the aggregate is in the possession of any third party bailee (such as at a warehouse). In the event that Borrower, after the date hereof, intends to store or otherwise deliver the Collateral with a value in excess of Fifty Thousand Dollars ($50,000) in the aggregate to such a bailee, then Borrower shall first receive, the prior written consent of Bank and such bailee must acknowledge in writing that the bailee is holding such Collateral for the benefit of Bank. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and disclosures contained in a certain Perfection Certificate, dated as of March 31, 2011, and acknowledges, confirms and agrees the disclosures and information above Borrower provided to Bank in such Perfection Certificate remains true and correct in all material respects as of the date hereof.

9. AUTHORIZATION TO FILE . Borrower hereby authorizes Bank to file UCC financing statements without notice to Borrower, with all appropriate jurisdictions, as Bank deems appropriate, in order to further perfect or protect Bank's interest in the Collateral, including a notice that any disposition of the Collateral, by either the Borrower or any other Person, shall be deemed to violate the rights of the Bank under the Code.

10. CONSISTENT CHANGES . The Existing Loan Documents are hereby amended wherever necessary to reflect the changes described above.

11. RATIFICATION OF LOAN DOCUMENTS . Borrower hereby ratifies, confirms, and reaffirms all terms and conditions of the Loan Agreement, each other Loan Document and all security or other collateral granted to the Bank, and confirms that the indebtedness secured thereby includes, without limitation, the Obligations.

12. NO DEFENSES OF BORROWER . Borrower hereby acknowledges and agrees that Borrower has no offsets, defenses, claims, or counterclaims against Bank with respect to the Obligations, or otherwise, and that if Borrower now has, or ever did have, any offsets, defenses, claims, or counterclaims against Bank, whether known or unknown, at law or in equity, all of them are hereby expressly WAIVED and Borrower hereby RELEASES Bank from any liability thereunder.

13. CONTINUING VALIDITY . Borrower understands and agrees that in modifying the existing Obligations, Bank is relying upon Borrower's representations, warranties, and agreements, as set forth in the Existing Loan Documents. Except as expressly modified pursuant to this Loan Modification Agreement, the terms of the Existing Loan Documents remain unchanged and in full force and effect. Bank's agreement to modifications to the existing Obligations pursuant to this Loan Modification Agreement in no way shall obligate Bank to make any future modifications to the Obligations. Nothing in this Loan Modification Agreement shall constitute a satisfaction of the Obligations. It is the intention of Bank and Borrower to retain as liable parties all makers of Existing Loan Documents, unless the party is expressly released by Bank in writing. No maker will be released by virtue of this Loan Modification Agreement.

14. RIGHT OF SET-OFF . In consideration of Bank's agreement to enter into this Loan Modification Agreement, Borrower hereby reaffirms and hereby grants to Bank, a lien, security interest and right of set off as security for all Obligations to Bank, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Bank or any entity under the control of Bank (including a Bank subsidiary) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Bank may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the loan. ANY AND ALL RIGHTS TO REQUIRE BANK TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER, ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

15. CONFIDENTIALITY . In handling any confidential information, Bank shall exercise the same degree of care that it exercises for its own proprietary information, but disclosure of information may be made: (a) to Bank's Subsidiaries or Affiliates; (b) to prospective transferees or purchasers of any interest in the Credit Extensions (provided , however , Bank shall use commercially reasonable efforts to obtain any prospective transferee's or purchaser's agreement to the terms of this provision); (c) as required by law, regulation, subpoena, or other order; (d) to Bank's regulators or as otherwise required in connection with Bank's examination or audit; (e) as Bank

considers appropriate in exercising remedies under the Loan Documents; and (f) to third-party service providers of Bank so long as such service providers have executed a confidentiality agreement with Bank with terms no less restrictive than those contained herein. Confidential information does not include information that is either: (i) is in the public domain or in Bank's possession when disclosed to Bank, or becomes part of the public domain after disclosure to Bank; or (ii) is disclosed to Bank by a third party, if Bank does not know that the third party is prohibited from disclosing the information.

Bank may use confidential information for the development of databases, reporting purposes, and market analysis so long as such confidential information is aggregated and anonymized prior to distribution unless otherwise expressly permitted by Borrower. The provisions of the immediately preceding sentence shall survive the termination of the Loan Agreement.

16. JURISDICTION/VENUE . Section 11 of the Loan Agreement is hereby incorporated by reference in its entirety.

17. COUNTERSIGNATURE . This Loan Modification Agreement shall become effective only when it shall have been executed by Borrower and Bank.

[The remainder of this page is intentionally left blank]

IN WITNESS WHEREOF , the parties hereto have caused this Loan Modification Agreement to be executed as a sealed instrument under the laws of the Commonwealth of Massachusetts as of the date first above written.

BORROWER:

ASPEN AEROGELS, INC.

By /s/ Donald R. Young
Name:
Title:

BANK:

SILICON VALLEY BANK

By /s/ Win Bear
Name: Win Bear
Title: Deal Team Leader

The undersigned ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Unconditional Guaranty, dated March 31, 2011 (the " **Guaranty** "), and each document executed in connection therewith, and acknowledges, confirms and agrees that the Guaranty and each document executed in connection therewith shall remain in full force and effect and shall in no way be limited by the execution of this Forbearance Agreement, or any other documents, instruments and/or agreements executed and/or delivered in connection herewith.

GUARANTOR:

ASPEN AEROGELS RHODE ISLAND LLC

By /s/ Donald R. Young
Name:
Title:

Exhibit 10.5

THIS INSTRUMENT HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 OR APPLICABLE STATE LAWS AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED, OFFERED, PLEDGED OR OTHERWISE DISTRIBUTED FOR VALUE UNLESS THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND/OR SUCH LAWS COVERING THIS INSTRUMENT OR THE COMPANY, UPON ITS REQUEST, RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THIS INSTRUMENT STATING THAT SUCH SALE, TRANSFER, ASSIGNMENT, OFFER, PLEDGE OR OTHER DISTRIBUTION FOR VALUE IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SUCH ACT AND APPLICABLE STATE LAWS.

THIS INSTRUMENT IS ALSO SUBJECT TO FURTHER RESTRICTIONS ON TRANSFER AS PROVIDED IN THAT CERTAIN SUBORDINATED NOTE AND WARRANT PURCHASE AGREEMENT DATED AS OF DECEMBER 29, 2010 AMONG THE COMPANY, THE PURCHASERS NAMED ON EXHIBIT A THERETO, AND PJC CAPITAL LLC, AS COLLATERAL AGENT, AS THE SAME MAY BE AMENDED, RESTATED, SUPPLEMENTED OR OTHERWISE MODIFIED FROM TIME TO TIME (THE "PURCHASE AGREEMENT").

12% Secured Subordinated Promissory Note

$[_____] December 29, 2010

FOR VALUE RECEIVED, the undersigned, Aspen Aerogels, Inc., a Delaware corporation (" Aspen Aerogels "), hereby promises to pay to [_____], a [_____], or its registered permitted assigns, the principal sum of [_____] ($[_____]), together with interest accrued on the principal balance of this note (including interest compounded and added to such principal balance).

The principal balance of this note shall be due and payable in the manner and at the times provided in the Purchase Agreement (as defined below). Interest on the principal amount of this note from time to time outstanding shall accrue from and after the date hereof at the rate per annum specified in the Purchase Agreement (computed on the basis of a three hundred sixty (360) day year for the actual number of days elapsed in the period during which it accrues). Accrued interest on this note shall be, as specified in the Purchase Agreement, either compounded by adding it to the principal balance of the note at the times provided in the Purchase Agreement or payable in the manner and at the times provided in the Purchase Agreement. In no event, however, shall interest exceed the maximum rate permitted by applicable law.

This note is one of the Notes referred to in that certain Subordinated Note and Warrant Purchase Agreement by and among the purchasers party thereto, Aspen Aerogels dated as of December 29, 2010 (as the same may be amended, supplemented, modified or restated from time to time, the " Purchase Agreement "). Capitalized terms used in this note are defined in the Purchase Agreement, unless otherwise expressly stated herein. This note is entitled to the benefits of the

Purchase Agreement and is subject to all of the agreements, terms and conditions contained therein, all of which are incorporated herein by this reference. Payment of this note is subject to the agreements, terms and conditions contained in any Intercreditor Agreement. This note may be prepaid, in whole or in part, in accordance with the terms and conditions set forth in the Purchase Agreement. This note is guaranteed and secured as provided in the Purchase Agreement and the Security Documents.

As provided in subsection 6.2 of the Purchase Agreement, (a) upon the occurrence of an Event of Default under subsection 6.1(G) or subsection 6.1(H) of the Purchase Agreement, this note, and all amounts payable hereunder in accordance with the terms of the Purchase Agreement, shall immediately become due and payable, without notice of any kind, and (b) upon the occurrence and during the continuance of any other Event of Default under the Purchase Agreement, all or any portion of this note and the amounts payable hereunder in accordance with the terms of the Purchase Agreement shall, at the option of the Majority Holders, immediately become due and payable upon written notice to the Company in accordance with the terms of the Purchase Agreement.

THIS NOTE SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE INTERNAL LAWS OF THE STATE OF NEW YORK, WITHOUT REFERENCE TO PRINCIPLES OF CONFLICTS OF LAW OTHER THAN SECTIONS 5-1401 AND 5-1402 OF THE NEW YORK GENERAL OBLIGATIONS LAW.

Each of the undersigned expressly waives any presentment, demand, protest, notice of default, notice of intention to accelerate, notice of acceleration or notice of any other kind except as expressly provided in the Purchase Agreement.

[Remainder of Page Intentionally Left Blank]

This Secured Subordinated Promissory Note is executed as of the date first written above.

ASPEN AEROGELS, INC.

By: _____
Name: _____
Title: _____

[Signature Page to $[_____] Note]

Exhibit 10.13

Corporate Bonus Plan — 2010
Revised

Threshold

For any payout, the Company must meet or exceed both of the following targets:

Total revenue of $41,750,000

- includes both commercial & government

and,

Achieve EBITDA positive results for Q3 and Q4 of 2010

The Incentive Plan:

- *Direct Reports of the CEO*
  - 20% of salary at threshold
  - Additional 3% of salary for every 1% that revenue exceeds plan

Example: Company achieves $43,158,500 in total revenue, or 3.37365% above plan. The participant with a base salary of $200,000 would earn 20.00% of salary or $40,000.00 for the Company having achieved Threshold and an incremental 10.12096% of salary or $20,241.92 for a total bonus payout of $60,241.92.

Corporate Bonus Plan — 2010
Revised

Threshold

For any payout, the Company must meet or exceed both of the following targets:

Total revenue of $41,750,000

- includes both commercial & government

and,

Achieve EBITDA positive results for Q3 and Q4 of 2010

The Incentive Plan:

- *Key Employees*
  - 15% of salary at threshold
  - Additional 2% of salary for every 1% that revenue exceeds plan

Example: Company achieves $43,158,500 in total revenue, or 3.37% above plan. The participant with a base salary of $100,000 would earn 15.00% of salary or $15,000 for the Company having achieved Threshold and an incremental 6.74731% of salary or $6,747.31 for a total bonus payout of $21,747.31.

Corporate Bonus Plan — 2010
Revised

Threshold

For any payout, the Company must meet or exceed both of the following targets:

Total revenue of $41,750,000

- includes both commercial & government

and,

Achieve EBITDA positive results for Q3 and Q4 of 2010

The Incentive Plan:

- *CEO*
  - 30% of salary at threshold
  - Additional 4% of salary for every 1% that revenue exceeds plan

Example: Company achieves $43,158,500 in total revenue, or 3.37365% above plan. The participant with a base salary of $300,000 would earn 30.00% of salary or $90,000.00 for the Company having achieved Threshold and an incremental 13.4946% of salary or $40,483.80 for a total bonus payout of $130,433.80.

Exhibit 10.15

Execution Copy

ASPEN AEROGELS, INC.

FIFTH AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT

THIS FIFTH AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT (" **Agreement** "), dated as of September 22, 2010, is by and among Aspen Aerogels, Inc., a Delaware corporation (the " **Company** "), and the Investors set forth on Schedule A hereto (the " **Investors** ").

Recitals :

A. The Company was formed as Aspen Merger Sub, Inc. on May 16, 2008 by filing its Certificate of Incorporation with the Secretary of the State of Delaware. The Company entered into an Agreement and Plan of Merger with Aspen Aerogels, Inc., a Delaware corporation (the " **Predecessor Entity** "), on June 10, 2008, pursuant to which the Predecessor Entity merged with and into the Company (the " **Merger** "), with the Company surviving the Merger, and the Company changed its name to "Aspen Aerogels, Inc." as part of the Merger.

B. In connection with the issuance of the Predecessor Entity's Series A Convertible Preferred Stock on May 17, 2001, the Predecessor Entity and certain Stockholders entered into that certain Registration Rights Agreement dated as of such date (the " **Original Agreement** ").

C. In connection with the issuance of the Predecessor Entity's Series C Convertible Preferred Stock on December 9, 2003, the Predecessor Entity and certain Stockholders entered into that certain First Amended and Restated Registration Rights Agreement dated as of such date, as amended on October 20, 2004 (as so amended, the " **Amended Agreement** ") replacing the Original Agreement in its entirety.

D. In connection with the issuance of the Predecessor Entity's Series D Preferred Stock on March 23, 2005, the Predecessor Entity and certain Stockholders entered into that certain Second Amended and Restated Registration Rights Agreement dated as of such date (the " **Second Amended Agreement** ") replacing the Amended Agreement in its entirety.

E. In connection with the issuance of the Company's formerly outstanding Series B-1 Preferred Stock on June 10, 2008, the Company and certain Stockholders entered into that certain Third Amended and Restated Registration Rights Agreement dated as of such date (the " **Third Amended Agreement** ") replacing the Second Amended Agreement in its entirety.

F. In connection with the issuance of the Company's Series A Preferred Stock on August 14, 2009, the Company and certain Stockholders entered into that certain Fourth Amended and Restated Registration Rights Agreement dated as of such date (the " **Fourth Amended Agreement** ") replacing the Third Amended Agreement in its entirety.

G. Certain Investors (the " **Purchasers** ") will purchase shares of the Company's newly created Series B Preferred Stock, par value $0.001 per share (the " **Series B Preferred**

Stock "), pursuant to a Series B Preferred Stock Purchase Agreement, dated as of the date hereof, by and among the Company and the Purchasers (the " **Purchase Agreement** ").

H. The Company and the Majority Holders under the Fourth Amended Agreement, together with the Purchasers, desire to amend and restate the Fourth Amended Agreement by deleting it in its entirety and replacing it with this Agreement.

I. The Company and the Investors desire to enter into this Agreement for the purpose of establishing the registration rights of the Common Stock.

J. The execution and delivery of this Agreement is a condition to the Purchasers' purchase of shares of Series B Preferred Stock pursuant to the Purchase Agreement.

Agreement :

NOW, THEREFORE , for and in consideration of the foregoing and of the mutual covenants and agreements hereinafter set forth, the parties hereto agree as follows:

Section 1. Definitions .

As used in this Agreement, the following terms shall have the following meanings:

" **Affiliate** " means, (1) with respect to any Person, any of (a) a director, officer or stockholder holding 5% or more of the capital stock (on a fully diluted basis) of such Person, (b) a spouse, parent, sibling or descendant of such Person (or a spouse, parent, sibling or descendant of any director or officer of such Person) and (c) any other Person that, directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, another Person or (2) in any event, any Person meeting the definition of "Affiliate" set forth in Rule 405 under the Securities Act. The term "control" includes, without limitation, the possession, directly or indirectly, of the power to direct the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

" **Board** " means the Board of Directors of the Company.

" **Charter** " means the Third Amended and Restated Certificate of Incorporation of the Company, as amended from time to time.

" **Commission** " means the Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

" **Common Stock** " means the common stock, $0.001 par value per share, of the Company.

" **Conversion True-Up Shares** " has the meaning set forth in the Charter.

" **Exchange Act** " means the Securities Exchange Act of 1934, as amended, or any successor Federal statute, and the rules and regulations of the Commission promulgated thereunder, all as the same shall be in effect from time to time.

“ **FINRA** ” has the meaning set forth in Section 6(n) .

“ **Holders** ” means Investors holding Registrable Shares or their transferees.

“ **Information** ” has the meaning set forth in Section 6(i) .

“ **Inspectors** ” has the meaning set forth in Section 6(i) .

“ **Investors** ” shall mean the parties to this Agreement who are designated as Investors as set forth on Schedule A to the Agreement.

“ **Investors Counsel** ” has the meaning set forth in Section 6(b) .

“ **IPO** ” has the meaning set forth in the Charter.

“ **Other Shares** ” means at any time those shares of Common Stock which do not constitute Primary Shares or Registrable Shares.

“ **Person** ” means any individual, partnership, corporation, group, trust or other legal entity.

“ **Preferred Stock** ” means the Series A Preferred Stock, the Series B Preferred Stock and any other series of the Company’s preferred stock.

“ **Primary Shares** ” means at any time the authorized, but unissued, shares of Common Stock and shares of Common Stock held by the Company in its treasury.

“ **Purchase Agreement** ” has the meaning set forth in the Recitals.

“ **Purchasers** ” has the meaning set forth in the Recitals.

“ **QPO** ” has the meaning set forth in the Charter.

“ **Records** ” has the meaning set forth in Section 6(i) .

“ **Registrable Shares** ” means (i) the Common Stock issuable or issued upon the voluntary conversion on August 14, 2009 of the Company’s formerly outstanding Series A-1, A-2, A-3, B-1, B-2 and B-3 Preferred Stock; (ii) the Common Stock issuable or issued upon conversion of the Preferred Stock, (iii) any True-Up Shares, and (iii) any other shares of Common Stock issued as a dividend or other distribution with respect to, or in exchange for or replacement of, any of the shares of Common Stock referred to in clauses (i), (ii) or (iii). As to any particular Registrable Shares, once issued, such Registrable Shares shall cease to be Registrable Shares when (i) they have been registered under the Securities Act, the registration statement in connection therewith has been declared effective and they have been disposed of pursuant to such effective registration statement, or (ii) such Registrable Shares are held by an Investor (together with its affiliates) if (A) as reflected on the Company’s books and records, such Investor (together with its affiliates) holds less than 1% of the Company’s outstanding Common Stock (on an as-if-converted to Common Stock basis), (B) the Company has completed a QPO and (C) all shares of Common

Stock issued or issuable upon conversion of such Registrable Shares held by and issuable to such Investor (and its affiliates) may be sold pursuant to Rule 144 during any ninety (90) day period.

" **Rule 144** " means Rule 144 promulgated under the Securities Act or any successor rule thereto or any complementary rule thereto (such as Rule 144A).

" **Sale of the Company** " has the meaning set forth in the Charter.

" **Securities Act** " means the Securities Act of 1933, as amended, or any successor Federal statute, and the rules and regulations of the Commission thereunder, all as the same shall be in effect from time to time.

" **Series A Preferred Stock** " means the Company's Series A Preferred Stock, par value $0.001 per share.

" **Series B Preferred Stock** " has the meaning set forth in the Recitals.

" **Stockholders' Agreement** " means the Fifth Amended and Restated Stockholders' Agreement dated the date hereof by and among the Company, the Stockholders identified therein and those Persons who shall hereafter agree in writing to be treated as Stockholders thereunder, as amended from time to time.

" **True-Up Shares** " has the meaning set forth in the Charter.

Section 2. Demand Registration .

(a) At any time from the earlier of (i) six (6) months following the completion of an IPO or (ii) the third (3rd) anniversary of the date of this Agreement, if the Holders representing at least a majority of the Registrable Shares then outstanding (the " **Initiating Holders** ") shall state in writing that such Holders desire to sell Registrable Shares in the public securities markets and request the Company to effect the registration of Registrable Shares under the Securities Act, the Company shall promptly use its best efforts to effect the registration under the Securities Act of the Registrable Shares which the Company has been so requested to register by the Holders. For the avoidance of doubt, the Company shall not be required to register the sale or re-sale of any True-Up Shares or Conversion True-Up Shares in an IPO.

(b) Notwithstanding anything contained in this Section 2 to the contrary, the Company shall not be obligated to effect any registration under the Securities Act except in accordance with the following provisions:

(i) The Company shall not be obligated to use its best efforts to file and cause to become effective (A) more than two (2) long-form registration statements initiated pursuant to Section 2(a) (other than those on form S-3 as set forth in Section 4) at the Company's expense; (B) more than two (2) long-form registration statements initiated pursuant to Section 2(a) at the Holders' expense; (C) any demand registration statement pursuant to Section 2(a) with an anticipated aggregate offering price of less than $10,000,000; nor (D) any registration statement during any period in which any other registration statement (other than on Form S-8 promulgated under the Securities Act or any successor form thereto) pursuant to which Primary Shares are to

be or were sold has been filed and not withdrawn or has been declared effective within the prior one hundred eighty (180) days.

(ii) The Company may delay the filing or effectiveness of any registration statement for a period of up to ninety (90) days after the date of a request for registration pursuant to this Section 2 if at the time of such request the Company furnishes to the Holders requesting such registration statement pursuant to this Section 2 , a certificate signed by the Chief Executive Officer of the Company stating that (i) the Company is engaged, or has fixed plans to engage within thirty (30) days of the time of such request, in a firm commitment underwritten public offering of Primary Shares in which the holders of Registrable Shares may include Registrable Shares pursuant to Section 3 or (ii) the Board has reasonably determined in its good faith judgment that it would be seriously detrimental to the Company and its stockholders for such registration statement to be filed, provided, however, that the Company may only delay the filing or effectiveness of a registration statement pursuant to this Section 2(b) for a total of one hundred and twenty (120) days after the date of a request for registration pursuant to this Section 2 .

(iii) With respect to any registration pursuant to this Section 2 , the Company shall give notice of such registration to all Holders that are not Initiating Holders and the holders of all Other Shares that are entitled to registration rights and the Company may include in such registration any Primary Shares or Other Shares and shall include all Registrable Shares that Holders that are not Initiating Holders request to be registered within 20 days of the mailing of the foregoing notice by the Company; provided , however , that if the managing underwriter advises the Company that the inclusion of all Registrable Shares, Primary Shares and/or Other Shares proposed to be included in such registration would interfere with the successful marketing (including pricing) of the Registrable Shares proposed to be included in such registration, then the number of Registrable Shares, Primary Shares and/or Other Shares proposed to be included in such registration shall be included in the following order:

(A) first, all the Registrable Shares that are issued or issuable upon conversion of the Series B Preferred Stock and any True-Up Shares (collectively, " **Series B Registrable Shares** "), subject to the last sentence of Section 2(a), requested to be included in such registration (or, if necessary, such Series B Registrable Shares pro rata among the Holders thereof based upon the number of Series B Registrable Shares requested to be registered by each such Holder);

(B) second, all the Registrable Shares that are not Series B Registrable shares (" **Non-Series B Registrable Shares** ") requested to be included in such registration (or, if necessary, such Non-Series B Registrable Shares pro rata among the Holders thereof based upon the number of Non-Series B Registrable Shares requested to be registered by each such Holder);

(C) third, the Primary Shares; and

(D) fourth, the Other Shares that are entitled to registration rights requested to be included in such registration (or, if necessary, such Other Shares pro rata

among the holders thereof based upon the number of Other Shares requested to be registered by each such holder).

(iv) If the Initiating Holders so elect, the offering of such Registrable Shares pursuant to such registration shall be in the form of an underwritten offering. The Initiating Holders shall, at their option, select one or more nationally prominent firms of investment bankers reasonably acceptable to the Company to act as the lead managing underwriter or underwriters in connection with such offering. In such event, the right of any Person to include such Person's Registrable Shares or Other Shares in such registration shall be conditioned upon such Person's participation in such underwriting. All Holders proposing to distribute their securities through such underwriting shall (together with the Company) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting.

Section 3. Piggyback Registration .

If the Company at any time proposes for any reason to register Primary Shares or Other Shares under the Securities Act (other than on Form S-4 or Form S-8 promulgated under the Securities Act or any successor forms thereto), it shall give written notice to the holders of Registrable Shares of its intention to so register such Primary Shares or Other Shares at least thirty (30) days before the initial filing of such registration statement and, upon the written request, delivered to the Company within twenty (20) days after delivery of any such notice by the Company, of the holders of Registrable Shares to include in such registration Registrable Shares (which request shall specify the number of Registrable Shares proposed to be included in such registration and shall state that such holder of Registrable Shares desires to sell such Registrable Shares in the public securities markets), the Company shall use its best efforts to cause all such Registrable Shares to be included in such registration on the same terms and conditions as the securities otherwise being sold in such registration; provided , however , that if the managing underwriter advises the Company that the inclusion of some or all Registrable Shares requested to be included in such registration would interfere with the successful marketing (including pricing) of the Primary Shares or Other Shares proposed to be registered by the Company, then the number of Primary Shares and Registrable Shares and Other Shares proposed to be included in such registration shall be included in the following order:

(i) first, the Primary Shares;

(ii) second, the Series B Registrable Shares (or, if necessary, such Series B Registrable Shares will be cutback pro rata among the holders thereof based upon the number of Series B Registrable Shares requested to be registered by each such holder (or Series B Registrable Shares issued in respect thereof));

(iii) third, the Non-Series B Registrable Shares (or, if necessary, such Non-Series B Registrable Shares will be cutback pro rata among the holders thereof based upon the number of Non-Series B Registrable Shares requested to be registered by each such holder (or Non-Series B Registrable Shares issued in respect thereof), provided , however , that in no event will Registrable Shares be cut back pursuant to this clause (iii) or clause (ii) above to the point

that Registrable Shares in aggregate constitute less than thirty five percent (35%) of the total number of shares registered in any registration under this Section 3); and

(iv) fourth, the Other Shares requested to be included in such registration (or, if necessary, such Other Shares pro rata among the holders thereof based upon the number of Other Shares requested to be registered by each such holder);

provided , however , that no Registrable Shares or Other Shares shall be required to be included in any registration pursuant to this Section 3 in connection with the Company's initial public offering if the Company and the underwriters determine, in their sole discretion, not to include any shares other than Primary Shares.

Section 4. Registrations on Form S-3 .

Anything contained in Section 2 to the contrary notwithstanding, at such time as the Company shall have qualified for the use of Form S-3 promulgated under the Securities Act or any successor form thereto, holders of the Registrable Shares then outstanding shall have the right to request in writing an unlimited number of registrations of Registrable Shares on Form S-3 or such successor form, which request or requests shall (i) specify the number of Registrable Shares intended to be sold or disposed of and the holders thereof, (ii) state the intended method of disposition of such Registrable Shares and (iii) relate to Registrable Shares having an aggregate offering price of at least $2,000,000. A requested registration on Form S-3 or any such successor form in compliance with this Section 4 shall not count as a registration statement initiated pursuant to Section 2 , but shall otherwise be treated as a registration initiated pursuant to, and shall, except as otherwise expressly provided in this Section 4 , be subject to Section 2 ; provided , however , that the Company shall not be obligated to (a) effect more than two registrations pursuant to this Section 3 in any twelve (12) month period or (b) keep effective at any one time more than one registration statement on Form S-3 with respect to Registrable Shares requested to be registered in accordance with this Section 4 , and if the Company is requested to effect the registration of Registrable Shares on Form S-3 at a time when it is keeping such a registration statement effective, it may delay effecting such requested registration until it is no longer required in accordance with Section 6(a) hereof to keep effective the then effective registration statement on Form S-3.

Section 5. Market "Stand-Off" Agreement .

(a) Solely in connection with an IPO (including an IPO pursuant to Section 2 hereof), if so requested by the underwriters, the Investors shall not sell publicly, make any short sale of, grant any option for the purchase of, or otherwise dispose publicly of, any capital stock of the Company (other than those shares of Common Stock included in such registration pursuant to Section 2 , hereof) without the prior written consent of the Company, for a period designated by the Company in writing to the Investors, which period shall begin upon the effectiveness of the registration statement pursuant to which such IPO shall be made and shall not last more than one hundred and eighty (180) days (or such other period, not to exceed two hundred and ten (210) days, as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (i) the publication or other distribution of research reports or (ii) analyst recommendations and opinions, including but not limited to the restrictions

contained in FINRA Rule 2711(f)(4) or NYSE Rule 472(f) or any successor provisions or amendments thereto) after the effective date of such registration statement. The Company shall obtain the agreement of any person permitted to sell shares of stock in a registration to be bound by and to comply with this Section 5 as if such person was an Investor hereunder. In the event (a) the Company fails to attain an agreement from all of the Company's directors and officers to be bound by and to comply with this Section 5 as if such person were an Investor hereunder or (b) the Company fails to attain such agreement from all holders of more than one percent (1%) of the Company's outstanding capital stock, on a fully-diluted basis, the restrictions set forth in this Section 5 shall cease to apply to the Investors. The foregoing provisions of this Section 5 shall not apply to distributions or other transfers to Affiliates, partners, members, stockholders or other equity holders of an Investor, provided , that the recipient agrees to be similarly bound by this Section 5 . Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply pro rata to all parties subject to such agreements, based on the number of shares subject to such agreements.

Section 6. Preparation and Filing .

If and whenever the Company is under an obligation pursuant to the provisions of this Agreement to effect the registration of any Registrable Shares, the Company shall, as expeditiously as practicable:

(a) use its best efforts to cause a registration statement that registers such Registrable Shares to become and remain effective for a period of ninety (90) days or until all of such Registrable Shares have been disposed of (if earlier);

(b) furnish, at least ten (10) business days before filing a registration statement that registers such Registrable Shares, a prospectus relating thereto or any amendments or supplements relating to such a registration statement or prospectus, to one counsel selected by the Investors whose reasonable fees and expenses (subject to the cap set forth in Section 7) shall be borne by the Company (the " **Investors Counsel** "), copies of all such documents proposed to be filed (it being understood that such ten (10) business-day period need not apply to successive drafts of the same document proposed to be filed so long as such successive drafts are supplied to the Investors Counsel in advance of the proposed filing by a period of time that is customary and reasonable under the circumstances);

(c) prepare and file with the Commission such amendments and supplements to such registration statement and the prospectus used in connection therewith as may be necessary to keep such registration statement effective for at least a period of ninety (90) days or until all of such Registrable Shares have been disposed of (if earlier) and to comply with the provisions of the Securities Act with respect to the sale or other disposition of such Registrable Shares;

(d) notify in writing the Investors Counsel (i) of the receipt by the Company of any notification with respect to any comments by the Commission with respect to such registration statement or prospectus or any amendment or supplement thereto or any request by the Commission for the amending or supplementing thereof or for additional information with respect thereto, (ii) of the receipt by the Company of any notification with respect to the issuance

by the Commission of any stop order suspending the effectiveness of such registration statement or prospectus or any amendment or supplement thereto or the initiation or threatening of any proceeding for that purpose and (iii) of the receipt by the Company of any notification with respect to the suspension of the qualification of such Registrable Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purposes;

(e) use its best efforts to register or qualify such Registrable Shares under such other securities or blue sky laws of such jurisdictions as the Investors reasonably requests and do any and all other acts and things which may be reasonably necessary or advisable to enable the Investors to consummate the disposition in such jurisdictions of the Registrable Shares owned by the Investors; provided , however , that the Company will not be required to qualify generally to do business, subject itself to general taxation or consent to general service of process in any jurisdiction where it would not otherwise be required to do so but for this paragraph (e) or to provide any material undertaking or make any changes in its Bylaws or Certificate of Incorporation which the Board determines to be contrary to the best interests of the Company or to modify any of its contractual relationships then existing;

(f) furnish to the Investors holding such Registrable Shares such number of copies of a summary prospectus, if any, or other prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as the Investors may reasonably request in order to facilitate the public sale or other disposition of such Registrable Shares;

(g) without limiting subsection (e) above, use its best efforts to cause such Registrable Shares to be registered with or approved by such other governmental agencies or authorities as may be necessary by virtue of the business and operations of the Company to enable the Holders holding such Registrable Shares to consummate the disposition of such Registrable Shares;

(h) notify the Holders holding such Registrable Shares on a timely basis at any time when a prospectus relating to such Registrable Shares is required to be delivered under the Securities Act within the appropriate period mentioned in subparagraph (a) of this Section 6 , of the happening of any event as a result of which the prospectus included in such registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in light of the circumstances then existing and, at the request of the Investors, prepare and furnish to the Investors a reasonable number of copies of a supplement to or an amendment of such prospectus as may be necessary so that, as thereafter delivered to the offerees of such shares, such prospectus shall not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading in light of the circumstances then existing;

(i) subject to the execution of confidentiality agreements in form and substance satisfactory to the Company, make available upon reasonable notice and during normal business hours, for inspection by any Investor holding such Registrable Shares, any underwriter participating in any disposition pursuant to such registration statement and any attorney, accountant or other agent retained by the Investor or underwriter (collectively, the

" **Inspectors** "), all pertinent financial and other records, pertinent corporate documents and properties of the Company (collectively, the " **Records** "), as shall be reasonably necessary to enable them to exercise their due diligence responsibility, and cause the Company's officers, directors and employees to supply all information (together with the Records, the " **Information** ") reasonably requested by any such Inspector in connection with such registration statement. Any of the Information which the Company determines in good faith to be confidential, and of which determination the Inspectors are so notified, shall not be disclosed by the Inspectors unless (i) the disclosure of such Information is necessary to avoid or correct a misstatement or omission in the registration statement, (ii) the release of such Information is ordered pursuant to a subpoena or other order from a court of competent jurisdiction or (iii) such Information has been made generally available to the public; the Investors agree that they will, upon learning that disclosure of such Information is sought in a court of competent jurisdiction, give notice to the Company and allow the Company, at the Company's expense, to undertake appropriate action to prevent disclosure of the Information deemed confidential;

(j) in the event of an underwritten offering pursuant to this Agreement, use its best efforts to obtain from its independent certified public accountants " **comfort** " letters in customary form and at customary times and covering matters of the type customarily covered by comfort letters at the request of the lead underwriter;

(k) in the event of an underwritten offering pursuant to this Agreement, use its best efforts to obtain from its counsel an opinion or opinions in customary form at the request of the lead underwriter;

(l) provide a transfer agent and registrar (which may be the same entity and which may be the Company) for such Registrable Shares;

(m) issue certificates evidencing such Registrable Shares to any underwriter (at the request of such underwriter) to which the Investors holding such Registrable Shares may sell shares in such offering;

(n) list such Registrable Shares on any national securities exchange on which any shares of the Common Stock are listed or, if the Common Stock is not listed on a national securities exchange, use its best efforts (or in the case of a registration under Section 3 hereof, reasonable best efforts) to qualify such Registrable Shares for inclusion on such national securities exchange as the holders of a majority of such Registrable Shares shall reasonably request;

(o) otherwise use its best efforts to comply with all applicable rules and regulations of the Commission and make available to its securityholders, as soon as reasonably practicable, earnings statements (which need not be audited) covering a period of twelve (12) months beginning within three (3) months after the effective date of the registration statement, which earnings statements shall satisfy the provisions of Section 11(a) of the Securities Act;

(p) subject to all the other provisions of this Agreement, use its best efforts to take all other steps necessary to effect the registration of such Registrable Shares contemplated hereby; and

(q) in the event of any underwritten public offering, cooperate with the selling Holders, the underwriters participating in the offering and their counsel in any due diligence investigation reasonably requested by the selling Holders or the underwriters in connection therewith, and participate, to the extent reasonably requested by the managing underwriter for the offering or the selling Holder, in efforts to sell the Registrable Securities under the offering (including, without limitation, participating in " **roadshow** " meetings with prospective investors) that would be customary for underwritten primary offerings of a comparable amount of equity securities by the Company.

Each holder of the Registrable Shares, upon receipt of any notice from the Company of any event of the kind described in Section 6(h) hereof, shall forthwith discontinue disposition of the Registrable Shares pursuant to the registration statement covering such Registrable Shares until such holder's receipt of the copies of the supplemented or amended prospectus contemplated by Section 6(h) hereof, and, if so directed by the Company, such holder shall deliver to the Company all copies, other than permanent file copies then in such holder's possession, of the prospectus covering such Registrable Shares at the time of receipt of such notice.

Section 7. Expenses .

All expenses (other than stock transfer taxes and underwriting discounts and commissions relating to the Registrable Shares, as provided below) incurred by the Company in complying with Section 6, including, without limitation, all registration and filing fees (including all expenses incident to filing with the FINRA), fees and expenses of complying with securities and blue sky laws, printing expenses, fees and expenses of the Company's counsel and accountants and reasonable fees and expenses of the Investors Counsel shall be paid by the Company (which fees and expenses of Investors Counsel shall not exceed one hundred thousand dollars ($100,000) with respect to a registration under Section 3 hereof); provided , however , that all underwriting discounts and selling commissions applicable to Primary Shares shall be borne by the Company; and provided , further , that all underwriting discounts and selling commissions applicable to Registrable Shares and Other Shares shall be borne by the holders selling such Registrable Shares and Other Shares, in proportion to the number of Registrable Shares and Other Shares, if any, sold thereby; and provided , further , that the Company shall not be obligated to pay fees or expenses of the Investors Counsel in connection with any registration requested by the Investors and later terminated, withdrawn or suspended at the request of the Investors (other than as a result of any material adverse change or event involving the Company).

Section 8. Indemnification .

(a) In connection with any registration of any Registrable Shares under the Securities Act pursuant to this Agreement, the Company shall indemnify and hold harmless the holders of Registrable Shares, each underwriter, broker or any other person acting on behalf of the holders of Registrable Shares and each other person, if any, who controls any of the foregoing persons within the meaning of the Securities Act against any losses, claims, damages or liabilities, joint or several (or actions in respect thereof), to which any of the foregoing persons may become subject under the Securities Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue

statement or allegedly untrue statement of a material fact contained in the registration statement under which such Registrable Shares were registered under the Securities Act, any preliminary prospectus or final prospectus contained therein or otherwise filed with the Commission, any amendment or supplement thereto or any document incident to registration or qualification of any Registrable Shares, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading or, with respect to any prospectus, necessary to make the statements therein in light of the circumstances under which they were made not misleading, or arise out of or are based on any violation by the Company of the Securities Act or state securities or blue sky laws applicable to the Company and relating to action or inaction required of the Company in connection with such registration or qualification under such state securities or blue sky laws; and shall reimburse the holders of Registrable Shares, such underwriter, such broker or such other person acting on behalf of the holders of Registrable Shares and each such controlling person for any legal or other expenses reasonably incurred by any of them in connection with investigating or defending any such loss, claim, damage, liability or action; provided , however , that the Company shall not be liable in any such case to the extent that any such loss, claim, damage, liability or action (including any legal or other expenses incurred) arises out of or is based upon an untrue statement or allegedly untrue statement or omission or alleged omission made in said registration statement, preliminary prospectus, final prospectus, amendment, supplement or document incident to registration or qualification of any Registrable Shares in reliance upon and in conformity with written information furnished to the Company by the holders of Registrable Shares or their counsel or underwriter specifically for use in the preparation thereof.

(b) In connection with any registration of Registrable Shares under the Securities Act pursuant to this Agreement, each holder of Registrable Shares shall severally, and not jointly, indemnify and hold harmless (in the same manner and to the same extent as set forth in the preceding paragraph of this Section 8) the Company, each director of the Company, each officer of the Company who shall sign such registration statement, each underwriter, broker or other person acting on behalf of the holders of Registrable Shares and each person who controls any of the foregoing persons within the meaning of the Securities Act with respect to any statement or omission from such registration statement, any preliminary prospectus or final prospectus contained therein or otherwise filed with the Commission, any amendment or supplement thereto or any document incident to registration or qualification of any Registrable Shares, if such statement or omission was made in reliance upon and in conformity with written information furnished to the Company or such underwriter by such holder of Registrable Shares specifically for use in connection with the preparation of such registration statement, preliminary prospectus, final prospectus, amendment, supplement or document; provided , however , that the maximum amount of liability in respect of such indemnification shall be limited, in the case of each seller of Registrable Shares, to an amount equal to the net proceeds actually received by such Seller from the sale of Registrable Shares effected pursuant to such registration.

(c) Promptly after receipt by an indemnified party of notice of the commencement of any action involving a claim referred to in the preceding paragraphs of this Section 8 , such indemnified party will, if a claim in respect thereof is made against an indemnifying party, give written notice to the latter of the commencement of such action. The failure of any indemnified party to notify an indemnifying party of any such action shall not

(unless such failure shall have a material adverse effect on the indemnifying party) relieve the indemnifying party from any liability in respect of such action that it may have to such indemnified party on account of this Section 8 . In case any such action is brought against an indemnified party, the indemnifying party will be entitled to participate in and to assume the defense thereof, jointly with any other indemnifying party similarly notified to the extent that it may wish, with counsel reasonably satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party shall not be responsible for any legal or other expenses subsequently incurred by the indemnified party in connection with the defense thereof; provided , however , that if any indemnified party shall have reasonably concluded that there may be one or more legal or equitable defenses available to such indemnified party which are additional to or conflict with those available to the indemnifying party, or that such claim or litigation involves or could have an effect upon matters beyond the scope of the indemnity agreement provided in this Section 8 , the indemnifying party shall not have the right to assume the defense of such action on behalf of such indemnified party (but shall have the right to participate therein with counsel of its choice) and such indemnifying party shall reimburse such indemnified party and any person controlling such indemnified party for that portion of the fees and expenses of any counsel retained by the indemnified party which is reasonably related to the matters covered by the indemnity agreement provided in this Section 8 . If the indemnifying party is not entitled to, or elects not to, assume the defense of a claim, it will not be obligated to pay the fees and expenses of more than one counsel with respect to such claim.

(d) If the indemnification provided for in this Section 8 is held by a court of competent jurisdiction to be unavailable to an indemnified party with respect to any loss, claim, damage, liability or action referred to herein, then the indemnifying party, in lieu of indemnifying such indemnified party hereunder, shall contribute to the amounts paid or payable by such indemnified party as a result of such loss, claim, damage, liability or action in such proportion as is appropriate to reflect the relative fault of the indemnifying party on the one hand and of the indemnified party on the other in connection with the statements or omissions which resulted in such loss, claim, damage, liability or action as well as any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The parties agree that it would not be just and equitable if contribution pursuant hereto were determined by pro rata allocation or by any other method of allocation which does not take account of the equitable considerations referred to herein. No person guilty of fraudulent misrepresentation shall be entitled to contribution from any person.

(e) The obligations of the Company and Holders under this Section 8 shall survive completion of any offering of Registrable Shares in a registration statement and the termination of this Agreement. No indemnifying party, in the defense of any such claim or litigation, shall, except with the consent of each indemnified party, consent to entry of any judgment or enter into any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such indemnified party of a release from all liability in respect to such claim or litigation.

Section 9. Underwriting Agreement .

Notwithstanding the provisions of Sections 5 , 6 , 7 and 8 , to the extent that the Company and the Investors shall enter into an underwriting or similar agreement, which agreement contains provisions covering one or more issues addressed in such Sections, the provisions contained in such agreement addressing such issue or issues shall control. Each Holder further agrees to execute such customary lock-up agreements as may be reasonably requested by the underwriters in connection with an underwritten offering.

Section 10. Information by Holders .

Each Investor shall furnish to the Company such written information regarding such Investor and the distribution proposed by such Investor as the Company may reasonably request in writing and as shall be reasonably required in connection with any registration, qualification or compliance referred to in this Agreement.

Section 11. Exchange Act Compliance .

With a view to making available to the Holders the benefits of certain rules and regulations of the Commission which may permit the sale of the Registrable Securities to the public without registration, the Company agrees to use its best efforts to:

(a) make and keep public information available, as those terms are understood and defined in Commission Rule 144 or any similar or analogous rule promulgated under the Securities Act, at all times after the effective date of the IPO;

(b) take such action, including the voluntary registration of its Common Stock under Section 12 of the Exchange Act, as is necessary to enable the Holders to utilize Form S-3 for the sale of their Registrable Securities, such action to be taken as soon as practicable after the end of the fiscal year in which the first registration statement filed by the Company for the offering of its securities to the general public is declared effective;

(c) file with the Commission, in a timely manner, all reports and other documents required of the Company under the Exchange Act; and

(d) furnish to such Holder forthwith upon request: (i) a written statement by the Company as to its compliance with the reporting requirements of said Rule 144 (at any time after ninety (90) days after the effective date of the first registration statement filed by the Company), of the Securities Act, and of the Exchange Act (at any time after it has become subject to such reporting requirements); (ii) a copy of the most recent annual or quarterly report of the Company and such other forms and reports filed by the Company with the Commission; and (iii) such other reports and documents as a Holder may reasonably request in availing itself of any rule or regulation of the Commission allowing it to sell any such securities without registration.

Section 12. No Conflict of Rights .

Without the consent of the holders of at least a majority of the Registrable Shares then outstanding which are issued or issuable upon conversion of Preferred Stock, the Company shall not, after the date hereof, grant any registration rights that are not subordinate to or that conflict with or impair the registration rights granted hereby.

Section 13. Termination .

This Agreement shall terminate and be of no further force or effect (except as to such provisions which expressly survive the termination of the Agreement) upon the earlier of (a) the seventh (7th) anniversary of the Company's first QPO or (b) as to each Holder the date upon which such Holder ceases to hold Registrable Shares.

Section 14. Successors and Assigns .

This Agreement shall bind and inure to the benefit of the Company, the Investors and, subject to Section 15 , the respective successors and assigns of the Company and the Investors.

Section 15. Assignment .

An Investor may assign its rights hereunder to an Affiliate of such Investor, or to any other purchaser or transferee of at least 333,333 (or, if less, all) of such Investor's Registrable Shares (as adjusted for stock splits, dividends, recapitalization and the like); provided , however , that (i) such purchaser or transferee shall, as a condition to the effectiveness of such assignment, be required to execute a counterpart to this Agreement agreeing to be treated as an "Investor" whereupon such purchaser or transferee shall have the benefits of, (ii) such purchaser or transferee shall be subject to the restrictions contained in, this Agreement as if such purchaser or transferee was originally included in the definition of Investors herein and had originally been a party hereto, and (iii) such assignment must be made in compliance with Article II of the Settlement Agreement and First Amendment to Cross License Agreement dated as of September 21, 2007 by and between Cabot Corporation and the Company.

Section 16. Entire Agreement .

This Agreement, and the other writings referred to herein or therein or delivered pursuant hereto or thereto, contains the entire agreement between the Investors and the Company with respect to the subject matter hereof and supersede all prior and contemporaneous arrangements or understandings with respect thereto.

Section 17. Notices .

All notices, requests, consents and other communications hereunder to any party shall be deemed to be sufficient if contained in a written instrument delivered in person or sent by telecopy, nationally-recognized overnight courier or first class registered or certified mail, return receipt requested, postage prepaid, addressed to such party at the address set forth below or such other address as may hereafter be designated in writing by such party to the other parties:

(i) If to the Company:

- Aspen Aerogels, Inc.

30 Forbes Road, Building B
Northborough, Massachusetts 01532
Telephone: (508) 691-1111
Facsimile: (508) 691-1200
Attention: Chief Financial Officer

- with a copy to:

Edwards Angell Palmer & Dodge, LLP
111 Huntington Avenue
Boston, MA 02199
Telephone: (617) 951-2207
Facsimile: (888) 325-9513
Attention: Christopher W. Nelson, Esq.

(ii) If to any Investor:

- To their address set forth on Schedule A hereto.

All such notices, requests, consents and other communications shall be deemed to have been delivered (a) in the case of personal delivery or delivery by telecopy, on the date of such delivery, (b) in the case of dispatch by nationally-recognized overnight courier, on the next business day following such dispatch and (c) in the case of mailing, on the third business day after the posting thereof.

Section 18. Modifications; Amendments; Waivers .

The terms and provisions of this Agreement may not be modified or amended, nor may any provision be waived, except pursuant to a writing signed by the Company and the holders of at least a majority of the Registrable Shares then outstanding which are issued or issuable upon conversion of the Preferred Stock, provided , however , that at any time when shares of Series B Preferred Stock are outstanding, no amendment or waiver of Section 2(b)(iii) or Section 3 hereof, which would change the priority of the Series B Registrable Shares relative to the Non-Series B Registrable Shares with respect to cut-backs, may be made without the written consent of the holders of two-thirds of the then outstanding shares of the Series B Preferred Stock.

Section 19. Counterparts; Facsimile Signatures .

This Agreement may be executed in any number of counterparts, including by an omnibus signature page that also constitutes the signature page to other agreements, each of which shall be deemed to be an original instrument and all which together shall constitute one and the same agreement. This Agreement may be executed by facsimile or by electronic or PDF file.

Section 20. Headings .

The headings of the various sections of this Agreement have been inserted for convenience of reference only and shall not be deemed to be a part of this Agreement.

Section 21. Aggregation of Stock .

All shares of Registrable Shares held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

Section 22. Additional Investors .

Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of Series B Preferred Stock after the date hereof, pursuant to the Purchase Agreement any purchaser of such shares of Series B Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

Section 23. Governing Law .

THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF DELAWARE APPLICABLE TO CONTRACTS MADE AND TO BE PERFORMED WHOLLY THEREIN.

[THIS SPACE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

ASPEN AEROGELS, INC.

By: /s/ John F. Fairbanks
Name. John F. Fairbanks
Title: Vice President Finance
and Chief Financial Officer

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

ARGONAUT VENTURES I, LLC

By: Argonaut Private Equity, LLC
Its: Manager

By: /s/ Steve R. Mitchell
Name: Steve R. Mitchell
Title: Managing Director

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

BASF VENTURE CAPITAL GMBH

By: /s/ Dirk Nachtigal /s/ Josef R. Wünsch

Dirk Nachtigal
Managing Director

Josef R. Wünsch
Managing Director

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

CONTRA COSTA CAPITAL, LLC

By: /s/ Barbara M. Morris
Name: Barbara M. Morris
Title: President

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

RESERVOIR CAPITAL PARTNERS, L.P.

By: RCP GP, LLC
Its: General Partner

By: /s/ Craig A. Huff
Name: Craig A. Huff
Title: Co-Chief Executive Officer

RESERVOIR CAPITAL MASTER FUND, L.P.

By: Reservoir Capital Group, L.L.C.
Its: General Partner

By: /s/ Craig A. Huff
Name: Craig A. Huff
Title: Co-Chief Executive Officer

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

ROCKPORT CAPITAL PARTNERS II, L.P.

By: RockPort Capital II, L.L.C.
Its: General Partner

By: /s/ Stoddard Wilson
Name: Stoddard Wilson
Title: Managing Member

ROCKPORT CAPITAL PARTNERS, L.P.

By: RockPort Capital, L.L.C.
Its: General Partner

By: /s/ Stoddard Wilson
Name: Stoddard Wilson
Title: Managing Member

RP CO-INVESTMENT FUND I, L.P.

By: RP Co-Investments Fund I, GP, LLC
Its: General Partner

By: /s/ Stoddard Wilson
Name: Stoddard Wilson
Title: Managing Member

ROCKPORT SII, LLC

By: RockPort SGII, LLC
Its: General Partner

By: /s/ Stoddard Wilson
Name: Stoddard Wilson
Title: Managing Member

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

TENAYA CAPITAL IV-C, LP
(f/k/a Lehman Brothers Venture Partners 2003-C, L.P.)

By: Tenaya Capital IV GP, LP
Its: General Partner

By: Tenaya Capital IV GP, LLC
Its: General Partner

By: /s/ James D. Hinson
Name: James D. Hinson
Title: COO

TENAYA CAPITAL IV-P, LP
(f/k/a Lehman Brothers Venture Partners 2003-P, L.P.)

By: Tenaya Capital IV GP, LP
Its: General Partner

By: Tenaya Capital IV GP, LLC
Its: General Partner

By: /s/ James D. Hinson
Name: James D. Hinson
Title: COO

TENAYA CAPITAL IV, LP

By: Tenaya Capital IV Annex GP, LLC
Its: General Partner

By: /s/ James D. Hinson
Name: James D. Hinson
Title: COO

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

ARCAPITA VENTURES I LIMITED

By: /s/ John Huntz
Name: John Huntz
Title: Executive Director

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

/s/ Linnea J. Geiss
Linnea J. Geiss

ASPEN AEROGELS, INC.

AMENDMENT NO. 1 TO

FIFTH AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT

This Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement (this " Amendment ") is entered into as of December 29, 2010, by and among Aspen Aerogels, Inc., a Delaware corporation (the " Company ") and the Investors set forth on the signature pages hereto, constituting the holders of at least a majority of the Registrable Shares currently outstanding which are issued or issuable upon conversion of the Preferred Stock (the " Requisite Holders "). Capitalized terms used herein but not defined shall have the meanings ascribed to them in the Fifth Amended and Restated Registration Rights Agreement of the Company, entered into as of September 22, 2010 (the " Original Agreement ").

WHEREAS , the Company and the Requisite Holders wish to amend the Original Agreement, in accordance with Section 18 thereof.

NOW, THEREFORE , for valid and adequate consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. The definition of "Registrable Shares" in Section 1 of the Original Agreement is deleted in its entirety and the following language is substituted in lieu thereof:

"Registrable Shares" means (i) the Common Stock issuable or issued upon the voluntary conversion on August 14, 2009 of the Company's formerly outstanding Series A-1, A-2, A-3, B-1, B-2 and B-3 Preferred Stock; (ii) the Common Stock issuable or issued upon conversion of the Preferred Stock, (iii) any True-Up Shares, (iv) any Warrant Stock and (v) any other shares of Common Stock issued as a dividend or other distribution with respect to, or in exchange for or replacement of, any of the shares of Common Stock referred to in clauses (i), (ii), (iii) or (iv). As to any particular Registrable Shares, once issued, such Registrable Shares shall cease to be Registrable Shares when (i) they have been registered under the Securities Act, the registration statement in connection therewith has been declared effective and they have been disposed of pursuant to such effective registration statement, or (ii) such Registrable Shares are held by an Investor (together with its affiliates) if (A) as reflected on the Company's books and records, such Investor (together with its affiliates) holds less than 1% of the Company's outstanding Common Stock (on an as-if-converted to Common Stock basis), (B) the Company has completed a QPO and (C) all shares of Common Stock issued or issuable upon conversion of such Registrable Shares held by and issuable to such Investor (and its affiliates) may be sold pursuant to Rule 144 during any ninety (90) day period.

2. The Original Agreement shall be amended by adding two new definitions to Section 1 thereof as follows:

"Warrants" means those certain warrants to initially subscribe for and purchase an aggregate of 1,496,107 shares of Common Stock issued by the Company to certain purchasers

pursuant to a Subordinated Note and Warrant Purchase Agreement dated as of December __, 2010 by and among the Company, Aspen Aerogels Rhode Island, LLC and the "Purchasers" named therein, together with any warrants issued upon the transfer or division of, or in exchange or substitution for any such Warrants.

"Warrant Stock" means all shares of Common Stock which may be issued upon the exercise of the rights represented by the Warrants.

3. The Original Agreement shall be amended by adding the initial holders of the Warrants as parties to the Original Agreement upon each such holder's execution and delivery to the Company of a Joinder Agreement in the form attached hereto as Exhibit A . Thereafter such persons shall be deemed an "Investor" for all purposes under the Original Agreement, as amended hereby.

4. This Amendment contains the entire agreement among the parties hereto with respect to the subject matter hereof.

5. This Amendment may be executed in any number of counterparts, each of which shall be deemed to be an original instrument and all which together shall constitute one and the same agreement. This Amendment may be executed by facsimile or by electronic or PDF file.

[THIS SPACE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

ASPEN AEROGELS, INC.

By: /s/ John F. Fairbanks
Name: John F. Fairbanks
Title: Chief Financial Officer

[Signature Page to Aspen Aerogels Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement]

RESERVOIR CAPITAL PARTNERS, L.P.

By: RCP GP, LLC
Its: General Partner

By: /s/ Craig Huff
Name: Craig Huff
Title: Co-Chief Executive Officer

RESERVOIR CAPITAL MASTER FUND, LP,

By: Reservoir Capital Group, L.L.C.
Its: General Partner

By: /s/ Craig Huff
Name: Craig Huff
Title: Co-Chief Executive Officer

[Signature Page to Aspen Aerogels Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement]

ROCKPORT CAPITAL PARTNERS, L.P.

By: RockPort Capital, L.L.C.
Its: General Partner

By: /s/ David J. Prend
Name. David J. Prend
Title: Managing Member

ROCKPORT CAPITAL PARTNERS II, L.P.

By: RockPort Capital II, L.L.C.
Its: General Partner

By: /s/ David J. Prend
Name: David J. Prend
Title: Managing Member

RP CO-INVESTMENT FUND I, L.P.

By: RP Co-Investments Fund I, GP, LLC
Its: General Partner

By: /s/ David J. Prend
Name: David J. Prend
Title: Managing Member

[Signature Page to Aspen Aerogels Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement]

ARCAPITA VENTURES I LIMITED

By: /s/ John Huntz
Name: John Huntz
Title: Executive Director

[Signature Page to Aspen Aerogels Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement]

ARGONAUT VENTURES I, LLC

By: Argonaut Private Equity, LLC
Its: Manager

By: /s/ Steve R. Mitchell
Name: Steve R. Mitchell
Title: Managing Director

[Signature Page to Aspen Aerogels Amendment No. 1 to Fifth Amended and Restated Registration Rights Agreement]

TENAYA CAPITAL IV-C, LP (f/k/a Lehman Brothers Venture Partners 2003-C, L.P.)

By: Tenaya Capital IV GP, LP
Its: General Partner

By: Tenaya Capital IV GP, LLC
Its: General Partner

By: /s/ James D. Hinson
Name: James D. Hinson
Title: COO

TENAYA CAPITAL IV-P, LP (f/k/a Lehman Brothers Venture Partners 2003-P, L.P.)

By: Tenaya Capital IV GP, LP
Its: General Partner

By: Tenaya Capital IV GP, LLC
Its: General Partner

By: /s/ James D. Hinson
Name: James D. Hinson
Title: COO

TENAYA CAPITAL IV, LP

By: Tenaya Capital IV Annex GP, LLC
Its: General Partner

By: /s/ James D. Hinson
Name: James D. Hinson
Title: COO

LEHMAN BROTHERS OFFSHORE PARTNERSHIP ACCOUNT 2000/2001, L.P.

By: Lehman Brothers Offshore Partnership GP 2000/2001, L.P.
Its: General Partner

By: Lehman Brothers Offshore Partners Ltd.
Its: General Partner

By: _____
Name:
Title:

LEHMAN BROTHERS VENTURE CAPITAL PARTNERS II, L.P.

By: Lehman Brothers Venture Associates II, LLC
Its: General Partner

By: _____
Name:
Title:

LEHMAN BROTHERS P.A., LLC

By: _____
Name:
Title:

LEHMAN BROTHERS PARTNERSHIP ACCOUNT 2000/2001, L.P.

By: Lehman Brothers Partnership GP 2000/2001, L.P.
Its: General Partner

By: LBI Group Inc.
Its: General Partner

By: _____
Name:
Title:

Exhibit A

JOINDER TO FIFTH AMENDED AND RESTATED

REGISTRATION RIGHTS AGREEMENT

As of December __, 2010

The undersigned, [*insert name of initial Warrant holder*], having a principal business address of _____, hereby joins in the execution of that certain Fifth Amended and Restated Registration Rights Agreement of Aspen Aerogels, Inc., a Delaware corporation (the " Company "), dated September 22, 2010, by and among the Company and the Investors set forth on Schedule A thereto (as amended, the " Registration Rights Agreement ").

By executing this Joinder, the undersigned hereby:

1. Agrees and acknowledges that the undersigned is an Investor, as such term is defined and used in the Registration Rights Agreement, a copy of which has been furnished to the undersigned, with the same force and effect as if originally named therein as an Investor and that each reference to an Investor in the Registration Rights Agreement shall be deemed to include the undersigned; and

2. Agrees to be bound by, and agrees that the undersigned is bound by, all of the terms and provisions of the Registration Rights Agreement for all purposes.

[*Insert name of initial Warrant holder*]

By: _____
Name:
Title:

ACKNOWLEDGED AND ACCEPTED:

ASPEN AEROGELS, INC.

By: _____
Name:
Title:

ASPEN AEROGELS, INC.

AMENDMENT NO. 2 TO

FIFTH AMENDED AND RESTATED REGISTRATION RIGHTS AGREEMENT

This Amendment No. 2 to Fifth Amended and Restated Registration Rights Agreement (this " Amendment ") is entered into as of June 1, 2011, by and among Aspen Aerogels, Inc., a Delaware corporation (the " Company "), and the Investors set forth on the signature pages hereto, constituting the holders of at least a majority of the Registrable Shares currently outstanding which are issued or issuable upon conversion of the Preferred Stock (the " Requisite Holders "). Capitalized terms used herein but not defined shall have the meanings ascribed to them in the Fifth Amended and Restated Registration Rights Agreement of the Company, as amended by Amendment No. 1 dated December 29, 2010 (the " Original Agreement ").

WHEREAS , the Company and the Requisite Holders wish to amend the Original Agreement in accordance with Section 18 thereof.

NOW, THEREFORE , for valid and adequate consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. The definition of "Registrable Shares" in Section 1 of the Original Agreement is deleted in its entirety and the following language is substituted in lieu thereof:

" **Registrable Shares** " means (i) the Common Stock issuable or issued upon the voluntary conversion on August 14, 2009 of the Company's formerly outstanding Series A-1, A-2, A-3, B1, B-2 and B-3 Preferred Stock; (ii) the Common Stock issuable or issued upon conversion of the Preferred Stock, (iii) any True-Up Shares, (iv) any Note Shares, (v) any Warrant Stock, (vi) solely with respect to the rights granted in Sections 3 and 4 , the 2005 Warrant Stock, and (vii) any other shares of Common Stock issued as a dividend or other distribution with respect to, or in exchange for or replacement of any of the shares of Common Stock referred to in clauses (i), (ii), (iii), (iv), (v) or (vi). As to any particular Registrable Shares, once issued, such Registrable Shares shall cease to be Registrable Shares when (i) they have been registered under the Securities Act, the registration statement in connection therewith has been declared effective and they have been disposed of pursuant to such effective registration statement, or (ii) such Registrable Shares are held by an Investor (together with its affiliates) if (A) as reflected on the Company's books and records, such Investor (together with its affiliates) holds less than 1% of the Company's outstanding Common Stock (on an as-if-converted to Common Stock basis), (B) the Company has completed a QPO and (C) all shares of Common Stock issued or issuable upon conversion of such Registrable Shares held by and issuable to such Investor (and its affiliates) may be sold without limitation pursuant to Rule 144 during any ninety (90) day period.

2. The Original Agreement shall be amended by adding four new definitions to Section 1 thereof as follows:

" **2005 Warrants** " means those warrants to purchase Common Stock listed on Annex A hereto."

“ **2005 Warrant Stock** ” means all shares of Common Stock which may be issued upon exercise of the rights represented by the 2005 Warrants.”

“ **Notes** ” means those certain convertible promissory notes convertible into shares of Common Stock issued by the Company to certain purchasers pursuant that certain Note Purchase Agreement dated as of June 1, 2011 by and among the Company and the “Purchasers” named therein, together with any Notes issued upon the transfer or division of, or in exchange or substitution for any such Notes.

“ **Note Shares** ” means all shares of Common Stock which may be issued upon conversion of the Notes pursuant to the terms thereof.

3. Section 4 of the Original Agreement is amended by adding the following to the end thereof:

“, except the Company shall not be permitted to so delay any then effective registration on Form S-3 that is a “shelf” registration or a Rule 415 continuous offering.”

4. Section 8(a) of the Original Agreement is amended by adding “or otherwise” after the phrase “pursuant to this Agreement” in the first clause thereof.

5. Section 18 of the Original Agreement is amended by adding the following proviso at the end thereof:

“ provided , further , that at any time when any Warrants or Warrant Stock are outstanding, no amendment or waiver of any term or provision of this Agreement that is disproportionately adverse to the holders of the Warrants or Warrant Stock, as compared to the holders of the Registrable Shares, may be made without the written consent of the holders of two-thirds of the then outstanding Warrants and Warrant Stock; provided , further , that at any time when any Notes or Note Shares are outstanding, no amendment or waiver of any term or provision of this Agreement that is disproportionately adverse to the holders of the Notes or Note Shares, as compared to the holders of the Registrable Shares, may be made without the written consent of the holders of two-thirds of the then outstanding Notes and Note Shares.”

6. The language in Section 15 of the Original Agreement is amended and restated in its entirety as follows:

“An Investor may assign its rights hereunder to an Affiliate of such Investor or to any other purchaser or transferee of (a) at least 333,333 (or, if less, all) of such Investor’s Registrable Shares (as adjusted for stock splits, dividends, recapitalizations and the like) or (b) at least $1,000,000 principal amount of the Notes; provided , however , that (i) such purchaser or transferee may not be a competitor of the Company; (ii) such purchaser or transferee shall, as a condition to the effectiveness of such assignment, be required to execute a counterpart to this Agreement agreeing to be treated as an “Investor” hereunder; (iii) such purchaser or transferee shall be subject to the restrictions contained in this Agreement as if such purchaser or transferee was originally included in the definition of Investors herein and had originally been a party hereto; and (iv) such assignment must be made in compliance with Article II of the Settlement Agreement and First Amendment to Cross License Agreement

dated as of September 21, 2007 by and between Cabot Corporation and the Company."

7. The Original Agreement shall be amended by adding a new Annex A thereto in the form attached hereto as Annex A .

8. The Original Agreement shall be amended by adding, to the extent such holder is not already a party to the Original Agreement, the initial holders of the Notes and the 2005 Warrants as parties to the Original Agreement upon each such holder's execution and delivery to the Company of a Joinder Agreement in the form attached hereto as Exhibit A. Thereafter such persons shall be deemed an "Investor" for all purposes under the Original Agreement, as amended hereby.

9. This Amendment contains the entire agreement among the parties hereto with respect to the subject matter hereof.

10. This Amendment may be executed in any number of counterparts, each of which shall be deemed to be an original instrument and all which together shall constitute one and the same agreement. This Amendment may be executed by facsimile or by electronic or PDF file.

[THIS SPACE INTENTIONALLY LEFT BLANK]

IN WITNESS ‘WHEREOF, the parties hereto have executed this Amendment No. 2 to Fifth Amended and Restated Registration Rights Agreement as of the date first written above.

ASPEN AEROGELS, INC.

By: /s/ Donald R. Young
Name: Donald R. Young
Title: CEO

[*Signature page to Registration Rights Agreement Amendment*]

ARCAPITA VENTURES I LIMITED

By: /s/ John Huntz
Name: John Huntz
Title: Executive Director

[*Signature page to Registration Rights Agreement Amendment*]

ARGONAUT VENTURES I, LLC

By: Argonaut Private Equity, LLC, its Manager

By: /s/ Steve R. Mitchell
Name: Steve R. Mitchell
Title: Managing Director

[*Signature page to Registration Rights Agreement Amendment*]

BASF VENTURE CAPITAL GMBH

By: /s/ Dr. Josef R. Wuensch
Name: Dr. Josef R. Wuensch
Title: Managing Director

By: ppa /s/ Dr. Thomas Weber
Name: Dr. Thomas Weber
Title:

[Signature page to Registration Rights Agreement Amendment]

FIDELITY SELECT PORTFOLIOS: ENVIRONMENT AND ALTERNATIVE ENERGY PORTFOLIO

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

FIDELITY PURITAN TRUST: FIDELITY PURITAN FUND

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

VARIABLE INSURANCE PRODUCTS FUND III: BALANCED PORTFOLIO

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

FIDELITY SECURITIES FUND: FIDELITY DIVIDEND GROWTH FUND

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

FIDELITY ADVISOR SERIES I: FIDELITY ADVISOR DIVIDEND GROWTH FUND

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

FIDELITY CENTRAL INVESTMENT PORTFOLIOS LLC: FIDELITY MATERIALS CENTRAL FUND

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

VARIABLE INSURANCE PRODUCTS FUND IV: MATERIALS PORTFOLIO

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

FIDELITY SELECT PORTFOLIOS: MATERIALS

By: /s/ Adrien Deberghes
Name: Adrien Deberghes
Title: Deputy Treasurer

[*Signature page to Registration Rights Agreement Amendment*]

LEHMAN BROTHERS OFFSHORE PARTNERSHIP ACCOUNT 2000/2001, L.P.

By: Lehman Brothers Offshore Partners Ltd., its General Partner

By: /s/ Ashvin Rao
Name: Ashvin Rao
Title: Authorized Signatory

LEHMAN BROTHERS VENTURE CAPITAL PARTNERS II, L.P.

By: Lehman Brothers Venture Associates II, LLC, its General Partner

By: /s/ Ashvin Rao
Name: Ashvin Rao
Title: Authorized Signatory

LEHMAN BROTHERS P.A., LLC

By: /s/ Ashvin Rao
Name: Ashvin Rao
Title: Authorized Signatory

LEHMAN BROTHERS PARTNERSHIP ACCOUNT 2000/2001, L.P.

By: LBI Group Inc., its General Partner

By: /s/ Ashvin Rao
Name: Ashvin Rao
Title: Authorized Signatory

[*Signature page to Registration Rights Agreement Amendment*]

RESERVOIR CAPITAL PARTNERS, L.P.

By: RCP GP, LLC, its General Partner

By: /s/ Craig A. Huff
Name: Craig A. Huff
Title: Co-Chief Executive Officer

RESERVOIR CAPITAL MASTER FUND, L.P.

By: Reservoir Capital Group, L.L.C., its General Partner

By: /s/ Craig A. Huff
Name: Craig A. Huff
Title: Co-Chief Executive Officer

[*Signature page to Registration Rights Agreement Amendment*]

ROCKPORT CAPITAL PARTNERS II, L.P.

By: RockPort Capital II, L.L.C., its General Partner

By: /s/ David J. Prend
Name: David J. Prend
Title: Managing Member

ROCKPORT CAPITAL PARTNERS, L.P.

By: RockPort Capital, L.L.C., its General Partner

By: /s/ David J. Prend
Name: David J. Prend
Title: Managing Member

RP CO-INVESTMENT FUND I, L.P.

By: RP Co-Investments Fund I, GP, LLC, its General Partner

By: /s/ David J. Prend
Name: David J. Prend
Title: Managing Member

ROCKPORT SII, LLC

By: RockPort SGII, LLC, its Managing Member

By: /s/ David J. Prend
Name: David J. Prend
Title: Managing Member

[*Signature page to Registration Rights Agreement Amendment*]

TENAYA CAPITAL IV-C, LP (f/k/a Lehman Brothers Venture Partners 2003-C, L.P.)

By: Tenaya Capital IV GP, LP, its General Partner

By: Tenaya Capital IV GP, LLC, its General Partner

By: /s/ Dave Markland
Name: Dave Markland
Title: Attorney-in-Fact

TENAYA CAPITAL IV-P, LP (f/k/a Lehman Brothers Venture Partners 2003-P, L.P.)

By: Tenaya Capital IV GP, LP, its General Partner

By: Tenaya Capital IV GP, LLC, its General Partner

By: /s/ Dave Markland
Name: Dave Markland
Title: Attorney-in-Fact

TENAYA CAPITAL IV, LP

By: Tenaya Capital IV Annex GP, LLC, its General Partner

By: /s/ Dave Markland
Name: Dave Markland
Title: Attorney-in-Fact

[*Signature page to Registration Rights Agreement Amendment*]

Annex A

2005 Warrants

Warrant Holder	Issue Date	Expiration Date	Number of Shares
Heller Financial Leasing, Inc.	20-Oct-04	20-Oct-14	56
Atel Ventures, Inc.	28-Oct-04	28-Oct-14	28
Massachusetts Development Finance Agency	12-Jan-05	12-Jan-15	25
Reservoir Capital Partners, L.P.	24-Feb-05	24-Feb-13	198
Reservoir Capital Master Fund, L.P.	24-Feb-05	24-Feb-13	26
Reservoir Capital Partners, L.P.	23-Mar-05	23-Mar-13	128
Reservoir Capital Master Fund, L.P.	23-Mar-05	23-Mar-13	17
RP Co-Investment Fund I, L.P.	23-Mar-05	23-Mar-13	15
RockPort Capital Partners, L.P.	23-Mar-05	23-Mar-13	14
Tenaya Capital IV-P, L.P.	23-Mar-05	23-Mar-13	6
Tenaya Capital IV-C, L.P.	23-Mar-05	23-Mar-13	6
Sun Young Park	23-Mar-05	23-Mar-13	6
Aerogel Korea Co., Ltd.	23-Mar-05	23-Mar-13	5
Lehman Brothers Venture Capital Partners II, L.P.	23-Mar-05	23-Mar-13	3
Tenaya Capital IV, L.P.	23-Mar-05	23-Mar-13	3
Lehman Brother P.A. LLC	23-Mar-05	23-Mar-13	2
Thomas L. Cunningham	23-Mar-05	23-Mar-13	1
Dalsuk Youn	23-Mar-05	23-Mar-13	1
Lehman Brothers Partnerhsip Account 2000/2001, L.P.	23-Mar-05	23-Mar-13	1
J. Christopher Young	23-Mar-05	23-Mar-13	1
James P. Manzi	23-Mar-05	23-Mar-13	1
Heller Financial Leasing, Inc.	23-Mar-05	23-Mar-13	1
Soo Young & Myung Sook Chung	23-Mar-05	23-Mar-13	1
Star Faith Holdings Ltd.	23-Mar-05	23-Mar-13	1
Nancy L. and F. Lester Fraser	23-Mar-05	23-Mar-13	1
Protos, LLC	23-Mar-05	23-Mar-13	1
Michael H. Koegler	23-Mar-05	23-Mar-13	1
Lehman Brothers Offshore Partnership Account 2000/2001, L.P.	23-Mar-05	23-Mar-13	1
Dong W. Cho	23-Mar-05	23-Mar-13	1
Charles C. Cunningham, Jr.	23-Mar-05	23-Mar-13	1
Jonathan F. P. Rose	23-Mar-05	23-Mar-13	1
Bonwan Koo	23-Mar-05	23-Mar-13	1
Sung Choi	23-Mar-05	23-Mar-13	1
Melissa D. Kaplan	23-Mar-05	23-Mar-13	1
Maricamp, LLC	23-Mar-05	23-Mar-13	1
Richard and Kristina Han	23-Mar-05	23-Mar-13	1

Warrant Holder	Issue Date	Expiration Date	Number of Shares
Paul and Marie Jo	23-Mar-05	23-Mar-13	1
Edward Lamont	23-Mar-05	23-Mar-13	1
Douglas A. Muller	23-Mar-05	23-Mar-13	1
Key-Hyup Kim	23-Mar-05	23-Mar-13	1
Ariel Flores 1999 Trust	23-Mar-05	23-Mar-13	1
Jean-Paul Benveniste	23-Mar-05	23-Mar-13	1
Fred Smithson	23-Mar-05	23-Mar-13	1
Jamie McCourt	23-Mar-05	23-Mar-13	1
Roger J. Herz	23-Mar-05	23-Mar-13	1
Robert D. Batting	23-Mar-05	23-Mar-13	1
James J. Childress	23-Mar-05	23-Mar-13	1
Richard M. C. Glenn III	23-Mar-05	23-Mar-13	1

Exhibit A

JOINDER TO FIFTH AMENDED AND RESTATED
REGISTRATION RIGHTS AGREEMENT

As of June 1, 2011

The undersigned, *[insert name of initial Note holder]* , having a principal business address of _____, hereby joins in the execution of that certain Fifth Amended and Restated Registration Rights Agreement of Aspen Aerogels, Inc., a Delaware corporation (the " Company "), dated September 22, 2010, by and among the Company and the Investors set forth on Schedule A thereto (as amended through and including the date hereof, the " Registration Rights Agreement ").

By executing this Joinder, the undersigned hereby:

1. Agrees and acknowledges that the undersigned is an Investor, as such term is defined and used in the Registration Rights Agreement, a copy of which has been furnished to the undersigned, with the same force and effect as if originally named therein as an Investor and that each reference to an Investor in the Registration Rights Agreement shall be deemed to include the undersigned; and

2. Agrees to be bound by, and agrees that the undersigned is bound by, all of the terms and provisions of the Registration Rights Agreement for all purposes.

[*Signature pages to follow*]

[INVESTOR]

By: _____
Name:
Title:

ACKNOWLEDGED AND ACCEPTED:

ASPEN AEROGELS, INC.

By: _____
Name:
Title:

Exhibit 21.1

SUBSIDIARIES OF ASPEN AEROGELS, INC.

Aspen Aerogels Germany GmbH, a German entity

Aspen Aerogels Rhode Island, LLC, a Rhode Island limited liability company

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Aspen Aerogels, Inc.:

We consent to the use of our report dated June 24, 2011, with respect to the consolidated balance sheets of Aspen Aerogels, Inc. and subsidiaries as of December 31, 2009 and 2010, and the related consolidated statements of operations, stockholders' (deficit) equity and comprehensive income (loss), and cash flows for each of the years in the three-year period ended December 31, 2010, included herein and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Boston, Massachusetts
June 24, 2011