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

FORM 10-Q

(Mark One)

**QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2024**

OR

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____
Commission file number: 001-36481**

**ASPEN AEROGELS, INC.
(Exact name of registrant as specified in its charter)**

Delaware (State or other jurisdiction of incorporation or organization)	04-3559972 (I.R.S. Employer Identification No.)
30 Forbes Road, Building B Northborough, Massachusetts (Address of principal executive offices)	01532 (Zip Code)

Registrant's telephone number, including area code: (508) 691-1111

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of exchange on which registered
Common Stock, par value \$0.00001 per share	ASPN	The New York Stock Exchange

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

<input type="checkbox"/> Large accelerated filer	<input type="checkbox"/> Accelerated filer <input checked="" type="checkbox"/>
<input type="checkbox"/> Non-accelerated filer	<input type="checkbox"/> Smaller reporting company <input type="checkbox"/>
	<input type="checkbox"/> Emerging growth company <input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

As of May 1, 2024, the registrant had 76,161,210 shares of common stock outstanding.

ASPEN AEROGELS, INC.

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Trademarks, Trade Names and Service Marks

We own or have rights to use "Aspen Aerogels," "Cryogel," "Pyrogel," "Spaceloft," "PyroThin," the Aspen Aerogels logo and other trademarks, service marks and trade names of Aspen Aerogels, Inc. appearing in this Quarterly Report on Form 10-Q. Solely for convenience, the trademarks, service marks and trade names referred to in this report are presented without the ® and TM 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 report contains additional trademarks, service marks and trade names of other companies, which, to our knowledge, are the property of their respective owners.

PART I — FINANCIAL INFORMATION

Item 1. Financial Statements.

ASPEN AEROGELS, INC.
Consolidated Balance Sheets
(Unaudited)

	March 31, 2024	December 31, 2023		
	(In thousands, except share and per share data)			
Assets				
Current assets:				
Cash and cash equivalents	\$ 101,461	\$ 139,723		
Restricted cash	157	248		
Accounts receivable, net of allowances of \$217 and \$230	84,029	69,995		
Inventories	45,750	39,189		
Prepaid expenses and other current assets	23,708	17,176		
Total current assets	255,105	266,331		
Property, plant and equipment, net	422,736	417,227		
Operating lease right-of-use assets	16,824	17,212		
Other long-term assets	3,324	2,278		
Total assets	<u>\$ 697,989</u>	<u>\$ 703,048</u>		
Liabilities and Stockholders' Equity				
Current liabilities:				
Accounts payable	\$ 44,713	\$ 51,094		
Accrued expenses	12,762	22,811		
Deferred revenue	3,130	2,316		
Finance obligation for sale and leaseback transactions	1,206	—		
Operating lease liabilities	1,769	1,874		
Total current liabilities	63,580	78,095		
Convertible note - related party	118,030	114,992		
Finance obligation for sale and leaseback transactions long-term	3,556	—		
Operating lease liabilities long-term	21,620	21,906		
Total liabilities	206,786	214,993		
Commitments and contingencies (Note 9)				
Stockholders' equity:				
Preferred stock, \$0.00001 par value; 5,000,000 shares authorized, no shares issued and outstanding at March 31, 2024 and December 31, 2023	—	—		
Common stock, \$0.00001 par value; 250,000,000 shares authorized, 76,077,929 and 76,503,151 shares issued and outstanding at March 31, 2024 and December 31, 2023, respectively	—	—		
Additional paid-in capital	1,166,640	1,161,657		
Accumulated deficit	(675,437)	(673,602)		
Total stockholders' equity	491,203	488,055		
Total liabilities and stockholders' equity	<u>\$ 697,989</u>	<u>\$ 703,048</u>		

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.
Consolidated Statements of Operations
(Unaudited)

	Three Months Ended March 31,	
	2024	2023
	(In thousands, except share and per share data)	
Revenue	\$ 94,501	\$ 45,586
Cost of revenue	59,358	40,500
Gross profit	35,143	5,086
Operating expenses:		
Research and development	4,489	4,099
Sales and marketing	8,303	7,713
General and administrative	17,213	12,182
Impairment of equipment under development	2,702	—
Total operating expenses	32,707	23,994
Income (loss) from operations	2,436	(18,908)
Other income (expense)		
Interest expense, convertible note - related party	(3,038)	(275)
Interest income (expense)	(477)	2,387
Total other income (expense)	(3,515)	2,112
Loss before income tax expense	(1,079)	(16,796)
Income tax expense	(756)	—
Net loss	<u>\$ (1,835)</u>	<u>\$ (16,796)</u>
Net loss per share:		
Basic and diluted	<u>\$ (0.02)</u>	<u>\$ (0.24)</u>
Weighted-average common shares outstanding:		
Basic and diluted	<u>75,762,893</u>	<u>69,162,739</u>

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.
Consolidated Statements of Stockholders' Equity
(Unaudited)
(In thousands, except share data)

	Preferred Stock Shares	Value	Common Stock Shares	Value	Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2023	—	\$ —	76,503,151	\$ —	\$ 1,161,657	\$ (673,602)	\$ 488,055
Net loss	—	—	—	—	—	(1,835)	(1,835)
Stock compensation expense	—	—	—	—	2,532	—	2,532
Issuance costs from private placement of common stock	—	—	—	—	(28)	—	(28)
Vesting of restricted stock units	—	—	118,289	—	(1,081)	—	(1,081)
Cancellation of restricted stock	—	—	(679,797)	—	2,174	—	2,174
Proceeds from employee stock option exercises	—	—	136,286	—	1,386	—	1,386
Balance at March 31, 2024	—	\$ —	76,077,929	\$ —	\$ 1,166,640	\$ (675,437)	\$ 491,203
	Preferred Stock Shares	Value	Common Stock Shares	Value	Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2022	—	\$ —	69,994,963	\$ —	\$ 1,075,226	\$ (627,791)	\$ 447,435
Net loss	—	—	—	—	—	(16,796)	(16,796)
Stock compensation expense	—	—	—	—	2,267	—	2,267
Vesting of restricted stock units	—	—	71,643	—	(385)	—	(385)
Proceeds from employee stock option exercises	—	—	2,554	—	21	—	21
Balance at March 31, 2023	—	\$ —	70,069,160	\$ —	\$ 1,077,129	\$ (644,587)	\$ 432,542

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.
Consolidated Statements of Cash Flows
(Unaudited)

	Three Months Ended March 31,	
	2024	2023
	(In thousands)	
Cash flows from operating activities:		
Net loss	\$ (1,835)	\$ (16,796)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	5,786	2,704
Accretion of interest on convertible note - related party	2,810	—
Amortization of convertible note issuance costs	9	9
Amortization of debt discount due to modification of convertible note – related party	219	266
Deferred financing costs written off	1,709	—
Provision for bad debt	—	99
Stock-compensation expense	4,706	2,267
Impairment of property, plant and equipment	6,039	—
Reduction in the carrying amount of operating lease right-of-use assets	574	632
Changes in operating assets and liabilities:		
Accounts receivable	(14,034)	9,971
Inventories	(6,561)	(4,469)
Prepaid expenses and other assets	(9,359)	(5,097)
Accounts payable	2,148	(5,516)
Accrued expenses	(10,289)	(6,240)
Deferred revenue	814	(1,872)
Operating lease liabilities	(485)	(609)
Net cash used in operating activities	(17,749)	(24,651)
Cash flows from investing activities:		
Capital expenditures	(25,863)	(49,378)
Net cash used in investing activities	(25,863)	(49,378)
Cash flows from financing activities:		
Proceeds from employee stock option exercises	1,386	21
Proceeds from sale and leaseback transactions	4,982	—
Payments made for employee restricted stock tax withholdings	(1,081)	(385)
Fees and issuance costs from private placement of common stock	(28)	—
Net cash provided by (used in) financing activities	5,259	(364)
Net (decrease) increase in cash, cash equivalents and restricted cash	(38,353)	(74,393)
Cash, cash equivalents and restricted cash at beginning of period	139,971	282,561
Cash, cash equivalents and restricted cash at end of period	<u>\$ 101,618</u>	<u>\$ 208,168</u>
Supplemental disclosures of cash flow information:		
Interest paid	\$ 187	\$ 0
Income taxes paid	<u>\$ —</u>	<u>\$ —</u>
Supplemental disclosures of non-cash activities:		
Right-of-use assets obtained in exchange for new operating lease liabilities	\$ 94	\$ —
Capitalized interest	<u>\$ —</u>	<u>\$ 2,561</u>
Changes in accrued capital expenditures	<u>\$ (8,529)</u>	<u>\$ 3,610</u>

See accompanying notes to unaudited consolidated financial statements.

ASPEN AEROGELS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(UNAUDITED)

(1) Description of Business and Basis of Presentation

Nature of Business

Aspen Aerogels, Inc. (the Company) is an aerogel technology company that designs, develops and manufactures innovative, high-performance aerogel insulation used primarily in the energy industrial and sustainable insulation materials markets. In addition, the Company has introduced a line of aerogel thermal barriers for use in battery packs in the electric vehicle market. The Company is also developing applications for its aerogel technology in the battery materials and a number of other high-potential markets.

The Company maintains its corporate offices in Northborough, Massachusetts. The Company has three wholly owned subsidiaries: Aspen Aerogels Rhode Island, LLC, Aspen Aerogels Germany, GmbH and Aspen Aerogels Georgia, LLC. Additionally, we engaged Prodensa Servicios de Consultora to establish OPE Manufacturer Mexico S de RL de CV, a maquiladora located in Mexico, ("OPE") which manufactures thermal barrier PyroThin products and operates an automated fabrication facility for PyroThin. OPE is currently owned by Prodensa, which charges a management fee. There is an option for OPE to be purchased by the Company after a period of 18 months. During the period between inception and the exercise of the purchase option, OPE operations are consolidated within the Company financial statements.

Liquidity

During the three months ended March 31, 2024, the Company incurred a net loss of \$1.8 million, used \$17.7 million of cash in operations and used \$25.9 million of cash for capital expenditures. The Company had unrestricted cash and cash equivalents of \$101.5 million as of March 31, 2024.

In November 2022, the Company entered into a loan agreement (the GM Loan Agreement) with General Motors Holdings LLC (GM), an entity affiliated with General Motors LLC, which provides for a multi-draw senior secured term loan (the GM Loan) in an aggregate principal amount of up to \$100.0 million, available to the Company on a delayed draw basis beginning January 1, 2023 to September 30, 2023, subject to certain conditions precedent to funding. In September 2023, the Company amended the GM Loan Agreement to (i) extend the draw period for the GM Loan to a period beginning on the date that is twelve months prior to the date agreed upon by the Company and GM for the start of production at an aerogel manufacturing facility in Bulloch County, Georgia (the Plant) and ending on March 31, 2024 (or any later date approved in writing by GM at its sole discretion); (ii) extend the maturity date of the GM Loan from March 31, 2025 to September 30, 2025; and (iii) add financial covenants measured starting from the fiscal quarter ending December 31, 2024 and at the end of each fiscal quarter thereafter. As of March 31, 2024, the Company has not drawn, and no longer has the ability to draw on the GM Loan. The associated unamortized deferred financing costs of \$1.7 million were written off to interest expense upon the expiration of the draw period.

In January 2024, the Company entered into a sale and leaseback arrangement, pursuant to which the Company sold certain equipment to an equipment leasing company for a one-time cash payment of \$5.0 million and leased back such equipment from the leasing company. The associated monthly lease rents will be paid over the lease term of three years.

The Company is increasing investment in the research and development of next-generation aerogel products and manufacturing process technologies. In addition, the Company has developed a number of promising aerogel products and technologies for the electric vehicle market. The Company believes that the commercial potential for the Company's products and technology in the electric vehicle market is significant. Accordingly, the Company is hiring additional personnel, incurring additional operating expenses, incurring significant capital expenditures to expand aerogel manufacturing capacity and automated thermal barrier fabrication operations, and enhancing research and development resources, among other items.

The Company expects its existing cash balance will be sufficient to support current operating requirements, current research and development activities and the initial capital expenditures required to support the evolving commercial opportunity in the electric vehicle market and other strategic business initiatives. However, the Company plans to supplement its cash balance with equity financings, debt financings, equipment leasing, sale and leaseback transactions, customer prepayments, or government grant and loan programs to provide the additional capital necessary to purchase the capital equipment, construct the new facilities, establish the

operations and complete the aerogel capacity expansions required to support these evolving commercial opportunities and strategic business initiatives.

Unaudited Interim Financial Information

The accompanying unaudited interim consolidated financial statements include the accounts of the Company and have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Certain information and disclosures normally included in the consolidated financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to such rules and regulations. As such, the information included in this Quarterly Report on Form 10-Q should be read in conjunction with the audited consolidated financial statements and accompanying notes in our Annual Report on Form 10-K for the year ended December 31, 2023 (the Annual Report), filed with the U.S. Securities and Exchange Commission on March 7, 2024.

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 that are of a normal recurring nature and necessary for the fair statement of the Company's financial position as of March 31, 2024 and the results of its operations and stockholders' equity for the three months ended March 31, 2024 and 2023 and the cash flows for the three-month periods then ended. The Company has evaluated subsequent events through the date of this filing.

The Company's results of operations for the three months ended March 31, 2024 are not necessarily indicative of the results to be expected for the year ending December 31, 2024 or any other period.

(2) Significant Accounting Policies

Please refer to "Note 2. Summary of Basis of Presentation and Significant Accounting Policies," to the Company's consolidated financial statements from the Annual Report for the discussion of the Company's significant accounting policies.

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 allowances for doubtful accounts, sales returns and allowances, product warranty costs, inventory valuation, the carrying amount of property and equipment, right-of-use assets, lease liabilities, stock-based compensation, and deferred income taxes. The Company evaluates its estimates and assumptions on an on-going basis using historical experience and other factors, including current economic conditions, which are believed to be reasonable under the circumstances. Management adjusts such estimates and assumptions when facts and circumstances warrant. Illiquid credit markets, volatile equity markets and declines in business investment can 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.

Restricted Cash

As of March 31, 2024, the Company had \$0.2 million of restricted cash to support its outstanding letters of credit.

Concentration of Credit Risk

Financial instruments, which potentially expose the Company to concentrations of credit risk, consist principally of accounts receivable. The Company's customers are primarily insulation distributors, insulation contractors, insulation fabricators and select energy and automotive end-users 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 quarterly. During both the three months ended March 31, 2024 and 2023, the Company recorded an increase for estimated customer uncollectible accounts receivable of less than \$0.1 million.

For the three months ended March 31, 2024 and 2023, two customers represented 64% and 45% of total revenue, respectively.

At March 31, 2024, the Company had one customer which accounted for 64% of accounts receivable. At December 31, 2023, the Company had two customers which accounted for 60% and 6% of accounts receivable, respectively.

Revenue Recognition

The Company recognizes revenue in accordance with Accounting Standards Codification 606, Revenue from Contracts with Customers (ASC 606). See note 3 for further details.

Warranty

The Company provides warranties for its products and records the estimated cost within cost of revenue in the period that the related revenue is recorded.

The Company's standard warranty period for energy industrial products extends to one year from the date of shipment. This standard warranty provides 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.

The Company's thermal barrier products provide quality and warranty provisions customary in the automotive industry.

The Company recorded warranty expense related to its thermal barrier products of \$0.2 million during the three months ended March 31, 2024 and less than \$0.1 million during the three months ended March 31, 2023.

Sale and Leaseback Accounting

The Company has entered into sale and leaseback transactions for certain equipment within its plants. Due to the Company not meeting criteria to account for the transfer of the assets as a sale, sale accounting is precluded. Accordingly, the Company uses the financing method to account for these transactions.

Under the financing method of accounting for a sale and leaseback, the Company does not derecognize the assets and does not recognize as revenue any of the sale proceeds received from the lessor that contractually constitutes payment to acquire the assets subject to these arrangements. Instead, the sale proceeds received are accounted for as finance obligations and leaseback payments made by the Company are allocated between interest expense and a reduction to the finance obligation. Interest on the finance obligation is calculated using the Company's incremental borrowing rate at the inception of the arrangement on the outstanding finance obligation.

Recently Issued Accounting Standards

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board or other standard setting bodies. Recently issued standards typically do not require adoption until a future effective date. Prior to their effective date, the Company evaluates the pronouncements to determine the potential effects of adoption to its consolidated financial statements.

Standards Implemented Since December 31, 2023

The Company has not implemented any accounting standards that had a material impact on its consolidated financial statements during the three months ended March 31, 2024.

Standards to be Implemented

In November 2023, the Financial Accounting Standards Board (FASB) issued Accounting Standard Update (ASU) 2023-07 Segment Reporting (Topic 280) Improvements to Reportable Segment Disclosures to enhance disclosures about significant segment expenses. This ASU is effective for the Company's fiscal year 2024 and interim periods in fiscal year 2025. Early adoption is permitted. The Company is currently evaluating segment expense disclosures related to its annual report for fiscal year 2024.

In December 2023, the FASB issued ASU 2023-09 Income Taxes (Topic 740) Improvements to Income Tax Disclosures that requires disclosure of disaggregated income taxes paid, prescribes standard categories for the components of the effective tax rate

reconciliation, and modifies other income tax-related disclosures. This ASU is effective for the Company's fiscal year 2025. Early adoption is permitted. The Company is currently evaluating income tax disclosures related to its annual report for fiscal year 2025. Although there are several other new accounting pronouncements issued by the FASB, the Company does not believe any of these accounting pronouncements had or will have a material impact on its Consolidated Financial Statements.

The Company believes that the impact of recently issued accounting standards that are not yet effective will not have a material impact on its consolidated financial statements.

(3) Revenue from Contracts with Customers

Revenue Recognition

Revenue is recognized when a customer obtains control of promised goods or services in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements within the scope of ASC 606, the Company performs the following five steps: (i) identification of the contract with a customer; (ii) identification of the performance obligations in the contract; (iii) determination of the transaction price; (iv) allocation of the transaction price to the separate performance obligations in the contract; and (v) recognition of the revenue associated with performance obligations as they are satisfied. The Company applies the five-step model to contracts when it is probable that the Company will collect the consideration it is entitled to in exchange for the goods or services it transfers to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, the Company assesses the goods or services promised within each contract and determines those that are performance obligations and assesses whether each promised good or service is distinct. If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price based on the estimated relative standalone-selling prices of the promised products or services underlying each performance obligation. The Company determines standalone-selling prices based on the price at which the performance obligation is sold separately. If the standalone-selling price is not observable through past transactions, the Company estimates the standalone-selling price considering available information such as market conditions and internally approved pricing guidelines related to the performance obligations. The Company then recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

When determining the transaction price of a contract, an adjustment is made if payment from a customer occurs either significantly before or significantly after performance, resulting in a significant financing component. Applying the practical expedient in paragraph ASC 606-10-32-18, the Company does not assess whether a significant financing component exists if the period between when the Company performs its obligations under the contract and when the customer pays is one year or less. The Company did not have any contracts outstanding at December 31, 2023 and did not enter into any contracts during the three months ended March 31, 2024 that contained a significant financing component.

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 the completion of required performance obligations.

Energy Industrial

The Company generally enters into contracts containing one type of performance obligation. For a majority of the contracts, the Company recognizes revenue at a point in time when transfer of control of the products is passed to the customer, which is generally upon delivery according to contractual shipping terms within customer purchase orders. For a limited number of customer arrangements for customized products with no alternative use to the Company and an enforceable right to payment for progress completed to date, the Company recognizes revenue over time using units of production to measure progress toward satisfying the performance obligations. Units of production represent work performed as we do not generate significant work in process and thereby best depicts the transfer of control to the customer. Customer invoicing terms for contracts for which revenue is recognized under the over time methodology are typically based on certain milestones within the production and delivery schedule. The timing of revenue recognition is assessed on a contract-by-contract basis.

The Company also enters into rebate agreements with certain customers. These agreements may be considered an additional performance obligation of the Company or variable consideration within a contract. Rebates are recorded as a reduction of revenue in the period the related revenue is recognized. A corresponding liability is recorded as a component of deferred revenue on the consolidated balance sheets. These arrangements are primarily based on the customer attaining contractually specified sales volumes.

The Company estimates the amount of its sales that may be returned by its customers and records this estimate as a reduction of revenue in the period the related revenue is recognized. The Company currently estimates return liabilities using historical rates of return, current quarter credit sales, and specific items of exposure on a contract-by-contract basis. Sales return reserves were approximately \$0.2 million as of March 31, 2024 and December 31, 2023.

Thermal Barriers

The Company supplies fabricated, multi-part thermal barriers for use in battery packs in the electric vehicle market. These thermal barriers are customized to meet customer specifications. Although thermal barrier products are customized with no alternative use to the Company, the Company does not always have an enforceable right to payment. Under the provisions of ASC 606, the Company recognizes revenue at a point in time when transfer of the control of the products is passed to the customer according to the terms of the contract, including under bill and hold arrangements. The timing of revenue recognition is assessed on a contract-by-contract basis.

Shipping and Handling Costs

Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as fulfillment costs and are included in the cost of product revenue. The associated amount of revenue recognized includes the consideration to which the Company expects to be entitled to receive in exchange for incurring these shipping and handling costs.

Disaggregation of Revenue

In the following tables, revenue is disaggregated by primary geographical region and source of revenue:

	Three Months Ended March 31,						2023				
	2024		Total		U.S.		International		Total		
	U.S.	International					U.S.	International			
Geographical region											
Asia	\$ —	\$ 7,213	\$ 7,213	\$ 7,213	\$ —	\$ —	\$ 11,784	\$ 11,784	\$ 11,784		
Canada	—	1,868	1,868	—	—	—	324	324	324		
Europe	—	9,361	9,361	—	—	—	5,412	5,412	5,412		
Latin America	—	15,371	15,371	—	—	—	1,624	1,624	1,624		
U.S.	60,688	—	60,688	26,442	26,442	26,442	—	—	26,442		
Total revenue	\$ 60,688	\$ 33,813	\$ 94,501	\$ 26,442	\$ 26,442	\$ 26,442	\$ 19,144	\$ 19,144	\$ 45,586		
Source of revenue											
Energy industrial	\$ 14,033	\$ 15,049	\$ 29,082	\$ 16,504	\$ 16,504	\$ 16,504	\$ 17,371	\$ 17,371	\$ 33,875		
Thermal barrier	46,655	18,764	65,419	9,938	9,938	9,938	1,773	1,773	11,711		
Total revenue	\$ 60,688	\$ 33,813	\$ 94,501	\$ 26,442	\$ 26,442	\$ 26,442	\$ 19,144	\$ 19,144	\$ 45,586		

Contract Balances

The following table presents changes in the Company's contract liabilities during the three months ended March 31, 2024:

	Balance at December 31, 2023	Additions		Deductions		Balance at March 31, 2024
Contract liabilities						
Deferred revenue						
Energy industrial	\$ 2,316	\$ 2,941	\$ (2,127)	\$ 3,130		
Total contract liabilities	\$ 2,316	\$ 2,941	\$ (2,127)	\$ 3,130		

During the three months ended March 31, 2024, the Company recognized \$1.2 million of revenue that was included in deferred revenue as of December 31, 2023.

A contract asset is recorded when the Company satisfies a performance obligation by transferring a promised good or service and has earned the right to consideration from its customer. These assets may represent a conditional right to consideration and are included within accounts receivable and other current assets on the consolidated balance sheets.

A contract liability is recorded when consideration is received, or such consideration is unconditionally due, from a customer prior to transferring goods or services under the terms of the contract. Contract liabilities are recognized as revenue after control of the products or services is transferred to the customer and all revenue recognition criteria have been met.

(4) Inventories

Inventories consist of the following:

	March 31, 2024	December 31, 2023
	(In thousands)	
Raw materials	\$ 19,190	\$ 24,735
Work in process	13,936	7,936
Finished goods	12,624	6,518
Total	<u>45,750</u>	<u>39,189</u>

(5) Property, Plant and Equipment, Net

Property, plant and equipment consist of the following:

	March 31, 2024	December 31, 2023	Useful life
	(In thousands)		
Construction in progress	\$ 322,030	\$ 314,695	—
Buildings	25,985	25,473	30 years
Machinery and equipment	187,075	185,339	3-10 years
Computer equipment and software	9,631	9,495	3 years
Leasehold improvements	23,472	23,514	Shorter of useful life or lease term
Total	568,193	558,516	
Accumulated depreciation	(145,457)	(141,289)	
Property, plant and equipment, net	<u>422,736</u>	<u>417,227</u>	

Depreciation expense was \$5.8 million and \$2.7 million for the three months ended March 31, 2024 and 2023, respectively.

The Company recorded impairment charges of approximately \$6.0 million during the three months ended March 31, 2024 for equipment that will no longer be needed in manufacturing following customer directed engineering changes to a part it manufactures and for other property, plant and equipment that have become obsolete following development of new and more efficient equipment. The impairment charges of \$6.0 million during the three months ended March 31, 2024 consist of \$3.3 million impairment included in cost of revenue and \$2.7 million included in impairment of equipment under development on the Company's consolidated statement of operations. There were no impairments of property, plant and equipment during the three months ended March 31, 2023.

The construction in progress balance at March 31, 2024 and December 31, 2023 included engineering designs and construction costs, and capitalized interest totaling \$296.7 million and \$288.5 million, respectively, for a planned aerogel manufacturing facility in Bulloch County, Georgia. The Company incurred \$8.8 million in capitalized interest for the construction in progress in Bulloch County, Georgia. The Company incurred \$0.0 million and \$2.6 million in capitalized interest for the three months ended March 31, 2024 and 2023, respectively.

(6) Accrued Expenses

Accrued expenses consist of the following:

	March 31, 2024	December 31, 2023
	(In thousands)	
Employee compensation	\$ 5,710	\$ 16,876
Other accrued expenses	7,052	5,935
Total	\$ 12,762	\$ 22,811

(7) Related Party Transactions

Convertible Note

During the year ended December 31, 2022, the Company issued a \$100.0 million aggregate principal amount convertible note to Wood River Capital, LLC, an entity affiliated with Koch Disruptive Technologies, LLC (the 2022 Convertible Note), for the planned manufacturing facility in Bulloch County, Georgia. Refer to note 8 for more information.

During the three months ended March 31, 2024, the Company incurred \$2.8 million of interest from the 2022 Convertible Note.

Other

The Company had \$2.8 million in accounts payable as of December 31, 2023, due to an entity affiliated with Koch Disruptive Technologies, LLC (Koch) for project management service. On March 27, 2024, we entered into a Settlement and Release Agreement with the affiliate of Koch to settle the accounts payable for \$1.2 million, which was outstanding as of March 31, 2024.

(8) Convertible Note – Related Party

2022 Convertible Note

On February 15, 2022, the Company entered into a note purchase agreement (the Note Purchase Agreement) with Wood River Capital LLC, an entity affiliated with Koch, relating to the issuance and sale to Koch of the 2022 Convertible Note in the aggregate principal amount of \$100.0 million. The transactions contemplated by the Note Purchase Agreement closed on February 18, 2022 (the Issue Date). The maturity date of the 2022 Convertible Note is February 18, 2027, subject to earlier conversion, redemption, or repurchase.

The 2022 Convertible Note is a senior unsecured obligation of the Company and ranks equal in right of payment to all senior unsecured indebtedness of the Company and will rank senior in right of payment to any indebtedness that is contractually subordinated to the 2022 Convertible Note.

In accordance with ASU 2020-06, the 2022 Convertible Note is accounted for as a single unit of account and consists of the following:

	March 31, 2024	December 31, 2023
	(In thousands)	
Convertible note, principal	\$ 100,000	\$ 100,000
Payment in-kind	18,318	18,318
Accrued interest	2,810	-
Discount on convertible note, net of accumulated amortization	(2,990)	(3,209)
Debt issuance costs, net of accumulated amortization	(108)	(117)
Convertible note	\$ 118,030	\$ 114,992

The 2022 Convertible Note does not have current observable inputs such as recent trading prices (Level 1) and is measured at fair value using a combination of option pricing and discounted cash flow models and incorporate management's assumptions for stock price, volatility and risk rate. In general, fair values determined by Level 1 inputs utilize observable inputs such as quoted prices in active markets for identical assets or liabilities. Fair values determined by Level 2 inputs utilize data points that are either directly or indirectly observable, such as quoted prices for similar instruments in active markets, interest rates and yield curves. Fair values

determined by Level 3 inputs utilize unobservable data points in which there is little or no market data, which require the Company to develop its own assumptions for the asset or liability.

The Company estimated the fair value of the 2022 Convertible Notes is approximately \$118.7 million as of March 31, 2024. However, as the Company has not elected to utilize the fair value option, it is carried at amortized cost of \$118.0 million.

Contractual Interest Rates

The 2022 Convertible Note was issued at par and bears interest at the Secured Overnight Financing Rate (SOFR) plus 5.50% per annum if interest is paid in cash, or, if interest is paid in-kind as an increase in the principal amount of the outstanding note, at the SOFR plus 6.50% per annum. Under the terms of the 2022 Convertible Note, SOFR has a floor of 1% and a cap of 3%. Interest on the 2022 Convertible Note is payable semi-annually in arrears on June 30 and December 30. The Company, at its option, is permitted to settle each semi-annual interest payment in cash, in-kind, or any combination thereof. It is expected that the Notes will mature on February 18, 2027, subject to earlier conversion, redemption or repurchase.

The Company elected to repay the contractual interest due on June 30, 2022, December 30, 2022, June 30, 2023, and December 30, 2023 in-kind as an increase to the principal amount of \$2.9 million, \$4.9 million, \$5.1 million, and \$5.4 million, respectively. The contractual interest attributable to the 2022 Convertible Note was recorded as an addition to the convertible note – related party balance on the condensed consolidated balance sheets.

Accrued interest was \$2.8 million as of March 31, 2024, of which debt issuance costs, net of accumulated amortization is \$0.1 million. The effective interest rate approximated the contract interest rate for the three months ended March 31, 2024. The Company amortized \$1.1 million of the \$4.1 million discount on the convertible note as of March 31, 2024 utilizing an effective interest rate of 10.7%.

Conversion Rights

On November 28, 2022, the Company entered into an amendment to the 2022 Convertible Note to reduce the initial Conversion Price by \$5.00 per share from \$34.936625 per share to \$29.936625 per share, by increasing the initial Conversion Rate from 28.623257 shares per \$1,000 of Capitalized Principal Amount to 33.400100 shares per \$1,000 of Capitalized Principal Amount under the Convertible Note. Accordingly, the 2022 Convertible Note is convertible at the option of the holder at any time prior to the business day immediately preceding the maturity date at an initial conversion rate of 33.400100 shares of the Company's common stock per \$1,000 of capitalized principal. The effective conversion price is approximately \$29.936625 per share (the Conversion Price). The Conversion Price is subject to adjustment upon the occurrence of certain dilutive events such as stock splits and combinations, stock dividends, mergers and spin-off. As of March 31, 2024, 4,045,687 shares of the Company's common stock were issuable upon conversion of the 2022 Convertible Note. The Company has the right to settle conversions in shares of common stock, cash, or any combination thereof. If the closing price per share of the Company's common stock on the New York Stock Exchange is at least 130% of the Conversion Price for 20 consecutive trading days, the Company may elect to convert the principal and accrued interest owing under the Notes, plus a make-whole amount equal to the sum of the present values of the remaining interest payments that would have otherwise been payable from the date of such conversion, redemption or repurchase, as applicable, through maturity (the Make-Whole Amount), into the Company's common stock at the Conversion Price.

Optional Redemption

The 2022 Convertible Note is redeemable at the Company's option at any time and in the event that the volume weighted average price of the Company's common stock for the 10 trading days immediately preceding the date on which the Company provides the redemption notice has been at least 130% of the Conversion Price then in effect at a redemption price of 100% of the principal amount, plus accrued and unpaid interest (excluding the redemption date), plus the Make-Whole Amount.

Contingent Redemption

Upon the occurrence of certain fundamental changes described in the Indenture (each, a Fundamental Change), the Holder of the Note may require that the Company repurchase all or part of the principal amount of the Note at a purchase price of 100% of the principal amount of such Note, plus accrued and unpaid interest to, but excluding, the Fundamental Change repurchase date, plus the Make-Whole Amount. The Indenture includes customary "events of default," which may result in the acceleration of the maturity of the Note.

Embedded Derivatives

The Company determined that the Make-Whole feature of the 2022 Convertible Note requires bifurcation in accordance with Accounting Standards Codification 815, Derivatives and Hedging (ASC 815). Accordingly, the Company must separately account for the feature at fair value with changes in fair value reported in current period earnings. The fair value of the Make-Whole was determined to be immaterial as of February 18, 2022 and March 31, 2024.

(9) Commitments and Contingencies

Cloud Computing Agreement

The Company is party to a cloud computing agreement that is a service contract for enterprise resource planning software. During the quarter ended March 31, 2024, the amortization period was adjusted to three years. The capitalized implementation costs are classified on the consolidated balance sheets as follows:

	March 31, 2024	December 31, 2023
	(In thousands)	
Cloud computing costs included in other current assets	\$ 420	\$ 420
Cloud computing costs included in other assets	1,957	1,590
Amortization of cloud computing costs	(767)	(662)
Total capitalized cloud computing costs	<u>\$ 1,610</u>	<u>\$ 1,348</u>

Thermal Barrier Contracts

The Company is party to production contracts with General Motors to supply fabricated, multi-part thermal barriers (Barriers) for use in the battery system of its next-generation electric vehicles (Contracts). Pursuant to the Contracts, the Company is obligated to supply Barriers at fixed annual prices and at volumes to be specified by General Motors up to a daily maximum quantity through the respective terms of the agreements, which expire at various times from 2026 through 2034. While General Motors has agreed to purchase its requirement for Barriers from the Company for locations to be designated from time to time by General Motors, it has no obligation to purchase any minimum quantity of Barriers under the Contracts. In addition, General Motors may terminate the Contracts at any time and for any or no reason. All other terms of the Contracts are generally consistent with General Motors' standard purchase terms, including quality and warranty provisions customary in automotive industry.

Charges for Engineering Change

In January 2024, the Company was notified by a customer of an engineering change to one of the parts the Company manufactures for that customer to enable incremental productivity and support a set of broader system level changes that could drive higher demand for its parts. The Company has submitted a preliminary claim to the customer for reimbursement for estimated inventory and equipment losses incurred by the Company and its vendors due to potential obsolescence. The customer's ordinary course process is to audit the claim to determine the proposed reimbursable amount. The Company expects the matter to be concluded by the second quarter of 2024. In connection with the same, the Company has recognized a charge of \$6.8 million, net of contractual recoverable of \$1.9 million, in cost of revenues for inventory obsolescence and impairment of equipment.

Federal, State and Local Environmental Regulations

The Company is subject to federal, state and local environmental laws and regulations. These laws generally provide for control of pollutants released into the environment and require responsible parties to undertake remediation. Penalties may be imposed for noncompliance.

Litigation

The Company is, from time to time, a party to litigation that arises in the normal course of its business operations. See Part II, Item 1 "Legal Proceedings" of this Quarterly Report on Form 10-Q for a description of certain of the Company's current legal

proceedings. The Company is not presently a party to any litigation for which it believes a loss is probable requiring an amount to be accrued or a possible loss contingency requiring disclosure.

Purchase Commitments

As of March 31, 2024, the Company had purchase commitments of approximately \$266.8 million, which included capital commitments of \$202.7 million. Purchase commitments related to capital expenditures are anticipated to be spent over the next three years, while the Company's remaining purchase commitments are anticipated to be spent throughout 2024.

Purchase obligations relate primarily to open purchase orders for capital expenditures, inventories, and goods and services. Purchase obligations are entered into with various vendors in the normal course of business and are consistent with the Company's expected requirements.

(10) Leases and sale and leaseback

The Company leases office, laboratory, warehouse and fabrication space in Massachusetts, Rhode Island and Monterrey, Mexico under operating leases. Under these agreements, the Company is obligated to pay annual rent, real estate taxes, and certain other operating expenses. The Company also leases equipment under operating leases. The Company's operating leases expire at various dates through 2034.

The Company determines if an arrangement is a lease at inception. Right-of-use (ROU) assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's payment obligations under the lease. Operating lease ROU assets and liabilities are recognized based on the present value of lease payments over the lease term. To measure its lease liabilities, the Company uses its incremental borrowing rate or the rate implicit in the lease, if available. The Company calculates its incremental borrowing rate using a synthetic credit rating analysis based on Moody's Building Materials Industry Rating Methodology. ROU assets also include any direct costs and prepaid lease payments but exclude any lease incentives received. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

The Company elected the short-term lease recognition exemption for all leases that qualify. For leases that qualify for this exemption, the Company does not recognize ROU assets or lease liabilities. For lease agreements with lease and non-lease components, the Company accounts for each component separately. However, in the case of equipment leases, the Company accounts for lease and non-lease components as a single component.

Maturities of operating lease liabilities as of March 31, 2024 are as follows:

Year	Operating Leases (In thousands)
2024 (excluding the three months ended March 31, 2024)	\$ 3,303
2025	4,424
2026	4,077
2027	3,793
2028	3,946
Thereafter	19,174
Total lease payments	38,717
Less imputed interest	(15,328)
Total lease liabilities	\$ 23,389

The Company incurred operating lease costs of \$1.4 million and \$1.1 million during the three months ended March 31, 2024 and 2023, respectively. Cash payments related to operating lease liabilities were \$1.3 million and \$1.0 million during the three months ended March 31, 2024 and 2023, respectively.

As of March 31, 2024, the weighted average remaining lease term for operating leases was 8.8 years. As of March 31, 2024, the weighted average discount rate for operating leases was 12.0%.

As of March 31, 2024, the Company has additional operating real estate leases that will commence during 2024 with total lease payments of \$3.2 million and a weighted average lease term of 5.0 years.

Sale and leaseback transaction

In January 2024, the Company entered into a sale and leaseback arrangement, pursuant to which the Company sold certain equipment to an equipment leasing company for a one-time cash payment of \$5.0 million and leased back such equipment from the leasing company. The transaction was considered as a failed sale and leaseback transaction and accordingly, was accounted as a financing transaction. The Company did not recognize a gain on any of the proceeds received from the lessor that contractually constitute payments to acquire the assets subject to these arrangements. Instead, the sale proceeds received were accounted for as finance obligations. The outstanding finance obligation balance as of March 31, 2024 was \$4.8 million. The monthly lease rents will be paid over the term of three years and will be allocated between interest expense and principal repayment of the financial liability.

(11) Stock based compensation

During the three months ended March 31, 2024, the Company granted 238,986 restricted common stock units (RSUs) with an aggregate grant date fair value of \$3.9 million and non-qualified stock options (NSOs) to purchase 564,535 shares of common stock with an aggregate grant date fair value of \$6.3 million to employees under its equity incentive plans. The RSUs and NSOs granted to employees will typically vest over a three-year period.

Stock-based compensation is included in cost of revenue or operating expenses, as applicable, and consists of the following:

	Three Months Ended March 31,	
	2024	2023
	(In thousands)	
Cost of product revenue	\$ 161	\$ 134
Research and development expenses	424	30
Sales and marketing expenses	322	314
General and administrative expenses	3,799	1,789
Total stock-based compensation	\$ 4,706	\$ 2,267

The 2023 Equity Plan was approved by stockholders at the Company's annual meeting of stockholders on June 1, 2023 as the successor to the Company's 2014 Employee, Director and Consultant Equity Incentive Plan (the 2014 Equity Plan), and no further awards may be made under the 2014 Equity Plan after that date. As of March 31, 2024, 5,533,077 shares of common stock were reserved for issuance upon the exercise or vesting of outstanding stock-based awards granted under the Company's equity incentive plans. Any cancellations or forfeitures of awards outstanding under the 2023 Equity Plan, the 2014 Equity Plan or the 2001 Equity Incentive Plan, as amended (the 2001 Equity Plan) will result in the shares reserved for issuance pursuant to such awards becoming available for grant under the 2023 Equity Plan. As of March 31, 2024, the Company has either reserved in connection with statutory tax withholdings or issued a total of 5,491,916 shares under the Company's equity incentive plans. As of March 31, 2024, there were 2,097,001 shares of common stock available for future grant under the 2023 Equity Plan.

On March 5, 2024, the Compensation and Leadership Development Committee (the Committee) of the Board of Directors of the Company approved the cancellation of the outstanding, unearned portion of the performance-based restricted shares granted to certain employees pursuant to the 2014 Equity Plan on June 29, 2021 (to Donald R. Young) and June 2, 2022 (to certain other employees). The Committee determined that based on current market conditions, the likelihood of achievement of any of the remaining performance hurdles applicable to the unearned restricted shares is remote, and that the unearned restricted shares therefore had ceased to have incentive value for the grantees. On March 6, 2024, the Company entered into cancellation agreements, pursuant to which the applicable employees agreed to such cancellation.

The cancelled unearned restricted shares were added to the number of shares available for awards under the Company's 2023 Equity Incentive Plan. For financial accounting purposes, the cancellation of the unearned restricted shares resulted in the immediate charge of approximately \$2.2 million of unamortized stock compensation costs of which \$2.0 million is included in the general and administrative expenses and \$0.2 million is included in research and development expenses in the accompanying consolidated statement of operations.

(12) Net Loss Per Share

The computation of basic and diluted net loss per share consists of the following:

	Three Months Ended March 31,	
	2024	2023
	(In thousands, except share and per share data)	
Numerator:		
Net loss	\$ (1,835)	\$ (16,796)
Denominator:		
Weighted average shares outstanding, basic and diluted	75,762,893	69,162,739
Net loss per share, basic and diluted	\$ (0.02)	\$ (0.24)

Potentially dilutive common shares that were excluded from the computation of diluted net loss per share because they were anti-dilutive consist of the following:

	Three Months Ended March 31,	
	2024	2023
Common stock options	5,604,256	4,330,797
Restricted common stock units	604,220	458,262
Restricted common stock awards	201,878	857,933
Convertible note, if converted	4,045,687	3,687,070
Total	10,456,041	9,334,062

As the Company incurred a net loss for the three months ended March 31, 2024 and 2023, the potential dilutive shares from common stock options, restricted common stock units, restricted common stock awards, and the convertible note were excluded from the calculation of diluted net loss per share because their effect would have been anti-dilutive for the periods presented. The Company excludes the shares issued in connection with restricted stock awards from the calculation of basic weighted average common shares outstanding until the restrictions lapse.

(13) Income Taxes

The Company incurred net operating losses and recorded a full valuation allowance against net deferred tax assets for all periods presented. Accordingly, the Company has not recorded a provision for federal or state income taxes. The Company has provided \$0.8 million of income tax expense related to its Mexican maquiladora operations for the quarter ended March 31, 2024.

(14) Segment Information

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 reports two segments: Energy Industrial and Thermal Barrier. We evaluate segment performance based on the segment profit (loss) before corporate expenses.

Summarized below are the Revenue and Segment Operating Profit for each reporting segment:

	Revenue			Segment Operating Profit (Loss)		
	Three Months Ended			Three Months Ended		
	2024	2023	(In thousands)	March 31,	2024	2023
Energy industrial	\$ 29,082	\$ 33,875		\$ 11,562	\$ 8,881	
Thermal barrier	65,419	11,711		23,581	(3,795)	
Total	\$ 94,501	\$ 45,586		\$ 35,143	\$ 5,086	
Corporate expenses				32,707	23,994	
Operating gain (loss)				2,436	(18,908)	
Other (expense) income, net				(3,515)	2,112	
Income tax expense				(756)	-	
Net loss				\$ (1,835)	\$ (16,796)	

	Total Assets			
	March 31, 2024	(In thousands)		December 31, 2023
Energy industrial	\$	103,304	\$	93,168
Thermal barrier		127,199		118,565
Total assets of reportable segments		230,503		211,733
Construction in progress		322,012		314,678
All other corporate assets		145,474		176,637
	\$	697,989	\$	703,048

(15) Subsequent Events

The Company has evaluated subsequent events through May 2, 2024, the date of issuance of the consolidated financial statements for the three months ended March 31, 2024.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following information should be read in conjunction with the unaudited financial information and the notes thereto included in this Quarterly Report on Form 10-Q and the audited financial information and the notes thereto included in the Annual Report on Form 10-K for the year ended December 31, 2023, filed with the U.S. Securities and Exchange Commission (SEC) on March 7, 2024, which we refer to as the Annual Report.

Certain matters discussed in this Quarterly Report on Form 10-Q may be deemed to be forward-looking statements that involve risks and uncertainties. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. In this Quarterly Report on Form 10-Q, words such as "may," "will," "anticipate," "estimate," "expects," "projects," "intends," "plans," "believes" and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements.

Our actual results and the timing of certain events may differ materially from the results discussed, projected, anticipated, or indicated in any forward-looking statements. We caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate may differ materially from the forward-looking statements contained in this Quarterly Report on Form 10-Q. In addition, even if our results of operations, financial condition and liquidity, and the development of the industry in which we operate are consistent with the forward-looking statements contained in this Quarterly Report on Form 10-Q, they may not be predictive of results or developments in future periods.

The following information and any forward-looking statements should be considered in light of factors discussed elsewhere in this Quarterly Report on Form 10-Q and under "Risk Factors" in Item 1A of the Annual Report.

We caution readers not to place undue reliance on any forward-looking statements made by us, which speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the SEC, to publicly update or revise any such statements to reflect any change in our expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

You should read the following discussion and analysis of financial condition and results of operations together with Part I Item 1 "Financial Statements," which includes our financial statements and related notes, elsewhere in this Quarterly Report on Form 10-Q.

Investors and others should note that we routinely use the Investors section of our website to announce material information to investors and the marketplace. While not all of the information that we post on the Investors section of our website is of a material nature, some information could be deemed to be material. Accordingly, we encourage investors, the media, and others interested in us to review the information that we share on the Investors section of our website, <https://www.aerogel.com>.

Products

Our core businesses are organized into two reportable segments: Energy Industrial and Thermal Barrier. The following describes our key product offerings and new product innovations by reportable segment.

Energy Industrial

We design, develop and manufacture innovative, high-performance aerogel insulation used primarily in the energy industrial and sustainable insulation materials markets. We believe our aerogel blankets deliver the best thermal performance of any widely used insulation product available on the market today and provide a combination of performance attributes unmatched by traditional insulation materials. Our end-user customers select our products where thermal performance is critical and to save money, improve resource efficiency, enhance sustainability, preserve operating assets and protect workers. Our insulation is used by oil producers and the owners and operators of refineries, petrochemical plants, LNG facilities, power generating assets and other energy industrial companies. Our Pyrogel® and Cryogel® product lines have undergone rigorous technical validation by industry leading end-users and achieved significant market adoption.

We also derive revenue from a number of other end markets. Customers in these markets use our products for applications as diverse as military and commercial aircraft, trains, buses, appliances, apparel, footwear and outdoor gear. As we continue to enhance our Aerogel Technology Platform, we believe we will have additional opportunities to address high-value applications in the global

insulation market, and in a number of new, high-value markets, including hydrogen energy, filtration, water purification, and gas sorption.

We market and sell our products primarily through a 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 responsible for establishing and maintaining customer and partner relationships, delivering highly technical information and ensuring high-quality customer service.

Our salespeople work directly with end-user customers and engineering firms to promote the qualification, specification and acceptance of our aerogel and thermal barrier products. We also rely on an existing and well-established channel of qualified insulation distributors and contractors in more than 50 countries around the world to ensure rapid delivery of our aerogel products and strong end-user support.

Thermal Barrier

We are also actively developing a number of promising aerogel products and technologies for the electric vehicle ("EV") market. We have developed and are commercializing our proprietary line of PyroThin® aerogel thermal barriers for use in battery packs in EVs. Our PyroThin product is an ultra-thin, lightweight and flexible thermal barrier designed with other functional layers to impede the propagation of thermal runaway across multiple lithium-ion battery system architectures. Our thermal barrier technology is designed to offer a unique combination of thermal management, mechanical performance and fire protection properties. These properties enable EV manufacturers to achieve critical battery performance and safety goals. In addition, we are seeking to leverage our patented carbon aerogel technology to develop industry-leading battery materials for use in lithium-ion battery cells. These battery materials have the potential to increase the energy density of the battery cells, thus enabling an increase in the driving range of EVs.

The commercial potential for our PyroThin thermal barriers and our carbon aerogel battery materials in the EV market is significant. Accordingly, we are hiring additional personnel, incurring additional operating expenses, incurring significant capital expenditures to expand aerogel manufacturing capacity, establishing an automated thermal barrier fabrication operation, enhancing research and development resources and expanding our battery material research facilities, among other items.

We have entered into production contracts with certain major OEMs, including General Motors LLC ("GM"), to supply fabricated, multi-part thermal barriers for use in the battery system of its next-generation EVs. Pursuant to the contracts with GM, we are obligated to supply the barriers at fixed annual prices and at volumes to be specified by the customer up to a daily maximum quantity through the term of the agreements, which expire at various times from 2026 through 2034. While GM has agreed to purchase its requirement for the barriers from us at locations to be designated from time to time, it has no obligation to purchase any minimum quantity of barriers under the contracts. In addition, GM may terminate the contracts any time and for any or no reason. All other terms of the contracts are generally consistent with GM's standard purchase terms, including quality and warranty provisions customary in the automotive industry. We have also entered into production contracts with Toyota, Scania, Audi, a luxury brand of the Volkswagen Group, and ACC, a battery cell joint venture between Stellantis N.V., Saft-TotalEnergies and Mercedes-Benz.

Manufacturing Operations

We manufacture our products using our proprietary technology at our facility in East Providence, Rhode Island. We have operated the East Providence facility since 2008 and have increased our capacity in phases. To meet expected growth in demand for our aerogel products in the EV market, we have been in the process of expanding our aerogel blanket capacity by constructing a second manufacturing plant in Bulloch County, Georgia. However, in order to manage the development of the second plant so that its increased capacity comes online in a manner that aligns with our current expectations as to demand from our EV customers, we are extending the timeframe for construction and commissioning of the second plant until such time as its capacity is supported by increased demand. In the meantime, and until we ramp up construction, we expect to be able to substantially reduce our planned capital expenditures for 2024. At the same time, we believe that productivity improvements in our existing Rhode Island facility combined with the supplemental supply of our energy industrial products from one or more external manufacturing facilities in China will permit us to achieve a target revenue capacity of approximately \$650 million in 2024 and prior to the completion and start-up of the second plant. Nonetheless, there can be no assurance as to when we will ramp up construction on the second plant. There can also be no assurance that our contract manufacturing strategy of meeting the demand of our energy industrial customers with supply from one or more external manufacturing facilities in China will provide us with adequate manufacturing capacity or supply for that expected demand. Furthermore, when we ramp up construction on the second plant, further cost inflation and/or supply chain disruptions, as well as potential changes in the scope of the facilities, could lead to increases to our prior estimated costs for completion of the second plant. In 2023, we opened our 59,000-square-foot engineering and rapid prototyping facility in Marlborough, MA. Our Advanced Thermal Barrier Center (ATBC) is designed to be the engineering hub of PyroThin cell-to-cell barriers, which help manufacturers optimize the safety and performance of battery packs for eMobility and energy storage system (ESS) markets.

Recent Developments

We announced that the U.S. Department of Energy ("DOE") Loan Programs Office invited us into the formal due diligence and term sheet negotiation stage of the process, which is one in several steps remaining in the due diligence process prior to the DOE making a decision on whether to issue a Conditional Commitment for a loan. This loan application is in connection with the construction of our planned second manufacturing plant in Bulloch County, Georgia. The DOE's continued evaluation of the application is not an assurance that the terms and conditions of a term sheet will be consistent with terms proposed by the applicant. The foregoing matters are wholly dependent on the results of DOE review and evaluation, and DOE's determination whether to proceed. While the DOE's invitation to the formal due diligence stage is not an assurance that the DOE will issue a loan, we remain deeply engaged with the Loan Programs Office and its advisors and continue to believe that we are a strong candidate to partner with the DOE Loan Programs Office in this program.

Financial Summary

Our revenue for the three months ended March 31, 2024 was \$94.5 million, which represented an increase of \$48.9 million, or 107%, from \$45.6 million for the three months ended March 31, 2023. Net loss for the three months ended March 31, 2024 was \$1.8 million and net loss per share was \$0.02. Net loss for the three months ended March 31, 2023 was \$16.8 million and net loss per share was \$0.24.

Key Metrics and Non-GAAP Financial Measures

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

Adjusted EBITDA

We use Adjusted EBITDA, a non-GAAP financial measure, as a means to assess our operating performance. We define Adjusted EBITDA as net income (loss) before interest expense, taxes, depreciation, amortization, stock-based compensation expense and other items, from time to time, which we do not believe are indicative of our core operating performance. Adjusted EBITDA is a supplemental measure of our performance that is not presented in accordance with U.S. GAAP. Adjusted EBITDA should not be considered as an alternative to net income (loss) or any other measure of financial performance calculated and presented in accordance with U.S. 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.

Although measures similar to Adjusted EBITDA are frequently used by investors and securities analysts in their evaluation of companies, we understand that Adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for net income (loss), income (loss) from operations, net cash provided by (used in) operating activities or an analysis of our results of operations as reported under U.S. 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 income 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 charges 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 U.S. GAAP financial statements included elsewhere in this Quarterly Report on Form 10-Q, and not to rely on any single financial measure to evaluate our business.

The following table presents a reconciliation of net loss, the most directly comparable U.S. GAAP measure, to Adjusted EBITDA for the periods presented:

	Three Months Ended March 31,	
	2024	2023
	(In thousands)	
Net loss	\$ (1,835)	\$ (16,796)
Depreciation and amortization	5,786	2,704
Stock-based compensation ⁽¹⁾	4,706	2,267
Other expense (income)	3,515	(2,112)
Income tax expense	756	-
Adjusted EBITDA	\$ 12,928	\$ (13,937)

⁽¹⁾Represents non-cash stock-based compensation related to vesting and modifications of stock option grants, vesting of restricted stock units and vesting of restricted common stock.

Our financial performance, including such measures as net income (loss), earnings per share and Adjusted EBITDA, are affected by a number of factors including volume and mix of aerogel products sold, average selling prices, our material costs and manufacturing expenses, the costs associated with capacity expansions and start-up of additional production capacity, and the amount and timing of operating expenses. Accordingly, we expect that our net income (loss), earnings per share and Adjusted EBITDA will vary from period to period.

We expect to maintain strong revenue growth during 2024 driven by accelerating demand in the EV market and continued market share gains in the sustainable insulation materials market. Our expectation to maintain strong revenue growth is based, in part, on our OEM customers' production volume forecasts and targets as well as our expectation to successfully scale our manufacturing capabilities and address any potential supply chain issues to meet this expected demand. As a result, we expect to experience a decrease in both net loss and negative Adjusted EBITDA during 2024.

Components of Our Results of Operations

Revenue

We recognize revenue from the sale of our energy industrial aerogel products and thermal barriers. Revenue is recognized upon the satisfaction of contractual performance obligations.

We record deferred revenue for sales when (i) we have delivered products, but other revenue recognition criteria have not been satisfied, or (ii) payments have been received in advance of the completion of required performance obligations.

We project revenue growth during 2024 due to accelerating demand in the EV market and continued market share gains in the sustainable insulation materials market.

Cost of Revenue

Cost of product revenue consists primarily of materials and manufacturing expense. Cost of product revenue is recorded when the related product revenue is recognized.

Material is a significant component of cost of product revenue and includes fibrous batting, silica materials and additives. Material costs as a percentage of product revenue vary from product to product due to differences in average selling prices, material requirements, product thicknesses, and manufacturing yields. In addition, we provide warranties for our products and record the estimated cost within cost of revenue in the period that the related revenue is recorded or when we become aware that a potential warranty claim is probable and can be reasonably estimated. As a result of these factors, material costs as a percentage of product revenue will vary from period to period due to changes in the mix of aerogel products sold, the costs of our raw materials or the estimated cost of warranties. In addition, global supply chain disturbances, increased reliance on foreign materials procurement, industrial gas supply constraints, increases in the cost of our raw materials, engineering changes, higher prototype sales and other factors may significantly impact our material costs and have a material impact on our operations. We expect that material costs will increase in absolute dollars during 2024 due to projected growth in product shipments and contracts but remain stable as a percentage of revenue due to improved manufacturing, and fabrication yields and a favorable mix of products sold.

Manufacturing expense is also a significant component of cost of revenue. Manufacturing expense includes labor, utilities, maintenance expense, and depreciation on manufacturing assets. Manufacturing expense also includes stock-based compensation of manufacturing employees and shipping costs. We expect that manufacturing expense will increase in absolute dollars and decrease as a percentage of revenue during 2024 due to increased staffing and spending levels in support of our thermal barrier business, including the operation of an automated fabrication facility in Monterrey, Mexico. We are also continuing to monitor the impact of engaging one or more external manufacturing facilities in China to supply our aerogel products for the energy industrial market beginning in 2024 on our manufacturing expense and cost of product revenue.

During 2024, we expect that cost of product revenue will increase in absolute dollars due to projected volume growth and a planned increase in staffing and spending levels, but decrease as a percentage of product revenue due to projected increases in average selling prices, improved manufacturing and fabrication yields and a favorable mix of products sold.

Gross Profit

Our gross profit as a percentage of revenue is affected by a number of factors, including the volume of products produced and sold, the mix of products sold, average selling prices, our material and manufacturing costs, realized capacity utilization and the costs associated with expansions and start-up of production capacity. Accordingly, we expect our gross profit to vary significantly in absolute dollars and as a percentage of revenue from period to period.

During 2024, we expect gross profit to increase in both absolute dollars and as a percentage of total revenue due to the combination of a projected increase in total revenue combined with projected reduction in material costs and manufacturing expense as a percentage of total revenue.

In the longer term, we expect gross profit to improve in absolute dollars and as a percentage of revenue due to expected increases in total revenue, production volumes and manufacturing productivity. In addition, we expect the gross profit improvement derived from the increases in revenue, volume and productivity will be supported by the continued implementation of lower cost product formulations and realization of material purchasing efficiencies.

Operating Expenses

Operating expenses consist of research and development, sales and marketing, and general and administrative expenses. Operating expenses include personnel costs, legal fees, professional fees, service fees, insurance premiums, travel expense, facilities related costs and other costs, expenses and fees. The largest component of our operating expenses is personnel costs, consisting of salaries, benefits, incentive compensation and stock-based compensation. In any particular period, the timing and extent of personnel additions or reductions, legal activities, including patent enforcement actions, marketing programs, research efforts and a range of similar activities or actions could materially affect our operating expenses, both in absolute dollars and as a percentage of revenue.

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, trial formulations for new products, 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 technologies, including our carbon aerogel battery materials. We believe that these investments are necessary to maintain and improve our competitive position. We also expect to continue to invest in research and engineering personnel and the infrastructure required in support of their efforts. We expect our research and development expenses will increase in absolute dollars and decrease as a percentage of revenue in 2024 and the longer term.

Sales and Marketing Expenses

Sales and marketing expenses consist primarily of personnel costs, incentive compensation, marketing programs, costs of new product and process introductions, travel and related costs, consulting expenses and facilities related costs. We expect our sales and marketing expenses will increase in absolute dollars but decrease as a percentage of revenue in 2024 and in the longer term.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel costs, legal expenses, consulting and professional services, audit fees, compliance with securities, corporate governance and related laws and regulations, investor relations and insurance premiums, including director and officer insurance.

We expect our general and administrative expenses to increase as we add general and administrative personnel to support the anticipated growth of our business. We also expect that the patent enforcement actions, described in more detail under "Legal Proceedings" in Part I, Item 3 of our Annual Report and "Legal Proceedings" in Part II, Item 1 of this Quarterly Report on Form 10-Q, if protracted, could result in significant legal expense over the medium to long-term. We expect that our general and administrative expenses will increase in absolute dollars and decrease as a percentage of revenue.

Interest Expense, Convertible Note - Related Party

Interest expense, convertible note - related party is net of the capitalized interest related to the \$100.0 million in aggregate principal amount of our Convertible Senior PIK Toggle Notes due 2027, which we sold and issued to Wood River Capital, LLC, an entity affiliated with Koch Disruptive Technologies, LLC.

Interest Income (Expense)

Interest expense consists of interest expense and amortization or write-off of deferred financing costs related to our other financing arrangements including a failed sale and leaseback arrangement accounted as a financing transaction and interest earned on the cash balances invested in deposit accounts, money market accounts, and high-quality debt securities issued by the U.S. government.

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 due to the uncertainty associated with the utilization of net operating loss carryforwards. We record tax expenses in connection with our Mexican maquiladora operations.

Results of Operations

Three months ended March 31, 2024 compared to the three months ended March 31, 2023

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

Revenue

	Three Months Ended March 31,		2023		Change	
	2024		Amount	Percentage of Revenue	Amount	Percentage of Revenue
	Amount	Percentage of Revenue	(\$ in thousands)	Amount	Percentage	
Revenue:						
Energy industrial	\$ 29,082	31%	\$ 33,875	74%	\$ (4,793)	(14)%
Thermal barrier	65,419	69%	11,711	26%	53,708	459%
Total revenue	\$ 94,501	100%	\$ 45,586	100%	\$ 48,915	107%

Total revenue increased \$48.9 million, or 107%, to \$94.5 million for the three months ended March 31, 2024 from \$45.6 million in the comparable period in 2023. The increase in total revenue was the result of an increase in thermal barrier revenue, offset by a decrease energy industrial revenue.

Energy industrial revenue decreased by \$4.8 million, or 14%, to \$29.1 million for the three months ended March 31, 2024 from \$33.9 million in the comparable period in 2023. This decrease was driven by a decrease in the volume of shipments in the global petrochemical and refinery markets of Asia, North America, and Latin America, offset in part by an increase in project-based demand in the subsea market and a more favorable mix of product shipments in the global petrochemical and refinery markets in Europe.

Energy industrial revenue for the three months ended March 31, 2024 included \$7.5 million to a North American distributor, in comparison to \$10.9 million for the comparable period of 2023.

The average selling price per square foot of our energy industrial products increased by 16% for the three months ended March 31, 2024, compared to the three months ended March 31, 2023. The increase in average selling price reflected the impact of price increases enacted in 2023 and a change in the mix of products sold, as we strive to maximize capacity in our aerogel manufacturing facility. This increase in average selling price had the effect of increasing product revenue by \$4.1 million for the three months ended March 31, 2024 from the comparable period in 2023.

In volume terms, energy industrial product shipments decreased by 26% as measured by square feet of our energy industrial products shipped for the three months ended March 31, 2024, compared to the three months ended March 31, 2023. The decrease in volume had the effect of decreasing product revenue by \$8.8 million for the three months ended March 31, 2024 from the comparable period in 2023.

Thermal barrier revenue was \$65.4 million for the three months ended March 31, 2024 as compared to \$11.7 million for the three months ended March 31, 2023. During the three months ended March 31, 2024 and 2023, thermal barrier revenue included \$60.6 million and \$9.7 million, respectively, to a major U.S. automotive OEM.

Cost of Revenue

	Three Months Ended March 31,		2023		Change	
	2024		Amount	Percentage of Related Revenue	Amount	Percentage of Related Revenue
	Amount	Percentage of Related Revenue	(\$ in thousands)	Amount	Percentage	
Cost of revenue:						
Energy industrial	\$ 17,520	60%	\$ 24,994	74%	\$ (7,474)	(30)%
Thermal barrier	41,838	64%	15,506	132%	26,332	170%
Total cost of revenue	\$ 59,358	63%	\$ 40,500	89%	\$ 18,858	47%

Total cost of revenue increased \$18.8 million, or 47%, to \$59.3 million for the three months ended March 31, 2024 from \$40.5 in the comparable period in 2023. The increase in total cost of revenue was the result of an increase in thermal barrier cost of revenue, offset by a decrease in energy industrial cost of revenue.

Energy industrial cost of revenue decreased \$7.5 million, or 30%, to \$17.5 million for the three months ended March 31, 2024 from \$25.0 million in the comparable period in 2023. The \$7.5 million decrease was the result of a \$4.8 million decrease in material costs due to change in the product mix and a \$2.7 million decrease in manufacturing and other operating costs from the comparable period in 2023.

Thermal barrier cost of revenue increased \$26.3 million to \$41.8 million for the three months ended March 31, 2024 as compared to \$15.5 million for the three months ended March 31, 2023. The \$26.3 million increase was the result of a \$14.3 million increase in material costs and a \$12.0 million increase in manufacturing costs, primarily driven by an increase in volume. Thermal barrier cost of revenue included \$6.8 million for estimated costs related to impact from an engineering change notified by a customer to a part that we manufacture for that customer to enable incremental productivity and support a set of broader system level changes that could drive higher demand for its products. The Company has submitted a preliminary claim to the customer for reimbursement for estimated inventory and equipment losses incurred by the Company and its vendors due to potential obsolescence. The customer's ordinary course process is to audit the claim to determine the proposed reimbursable amount. The Company expects the matter to be concluded by the second quarter of 2024.

Gross Profit

	Three Months Ended March 31,				Change	
	2024		2023		Amount	Percentage
	Amount	Percentage of Revenue	Amount	Percentage of Revenue		
Gross profit:						
Energy industrial	\$ 11,562	40%	\$ 8,881	26%	\$ 2,681	30%
Thermal barrier	23,581	36%	(3,795)	(32)%	27,376	721%
Total gross profit	\$ 35,143	37%	\$ 5,086	11%	\$ 30,057	(591)%

Gross profit increased by \$30.1 million, or 591%, to \$35.1 million for the three months ended March 31, 2024 from \$5.0 million of gross profit in the comparable period in 2023. The increase in gross profit was the result of the \$48.9 million increase in total revenue, offset by the \$18.8 million increase in total cost of revenue.

Research and Development Expenses

	Three Months Ended March 31,				Change	
	2024		2023		Amount	Percentage
	Amount	Percentage of Revenue	Amount	Percentage of Revenue		
Research and development expenses	\$ 4,489	5%	\$ 4,099	9%	\$ 390	10%

Research and development expenses increased by \$0.4 million, or 10%, to \$4.5 million for the three months ended March 31, 2024 from \$4.1 million in the comparable period in 2023. The \$0.4 million increase reflects increases in operating expenditures of \$0.2 million and depreciation and facility related expenses of \$0.2 million.

Research and development expenses as a percentage of total revenue decreased to 5% of total revenue for the three months ended March 31, 2024 from 9% in the comparable period in 2023.

Sales and Marketing Expenses

	Three Months Ended March 31,				Change	
	2024		2023		Amount	Percentage
	Amount	Percentage of Revenue	Amount	Percentage of Revenue		
Sales and marketing expenses	\$ 8,303	9%	\$ 7,713	17%	\$ 590	8%

Sales and marketing expenses increased by \$0.6 million, or 8%, to \$8.3 million for the three months ended March 31, 2024 from \$7.7 million in the comparable period in 2023. The \$0.6 million increase was principally the result of increases in depreciation and facility related expenses of \$0.5 million, and other general sales and marketing expenses of \$0.1 million.

Sales and marketing expenses as a percentage of total revenue decreased to 9% of total revenue for the three months ended March 31, 2024 from 17% in the comparable period in 2023.

General and Administrative Expenses

	Three Months Ended March 31,		(\$ in thousands)	Change		
	2024	Percentage of Revenue		2023	Percentage of Revenue	
	Amount			Amount		
General and administrative expenses	\$ 17,213	18%	\$ 12,182	27%	\$ 5,031	41%

General and administrative expenses increased by \$5.0 million, or 41%, to \$17.2 million for the three months ended March 31, 2024 from \$12.2 million in the comparable period in 2023. The \$5.0 million increase was the result of additional staffing combined with increases in compensation and related costs of \$3.5 million, operating expenditures of \$0.6 million, utilities expenditures of \$0.5 million, professional services expenses of \$0.2 million, and depreciation and facility related expenses of \$0.2 million. Compensation and related costs include \$2.0 million of charge from the cancellation of the unearned performance-based restricted shares.

General and administrative expenses as a percentage of total revenue decreased to 18% for the three months ended March 31, 2024 from 27% in the comparable period in 2023.

Impairment of Equipment Under Development

The \$2.7 million impairment of equipment under development was the result of a charge for impairment of assets due to obsolescence following development of new and more efficient equipment.

Other Income (Expense), net

	Three Months Ended March 31,		(\$ in thousands)	Change		
	2024	Percentage of Revenue		2023	Percentage of Revenue	
	Amount			Amount		
Interest income (expense):						
Interest (expense), related party	\$ (3,038)	(3)%	\$ (275)	(1)%	\$ (2,763)	1005%
Interest income (expense), net	(477)	(1)%	2,387	5%	(2,864)	(120)%
Total interest income (expense), net	\$ (3,515)	(4)%	\$ 2,112	5%	\$ (5,627)	(266)%

Other income (expense), net decreased by \$5.6 million to \$3.5 million of other expense for the three months ended March 31, 2024 from \$2.1 million of other income in the comparable period in 2023. The \$5.6 million decrease was the result of a \$2.7 million net impact of capitalized interest relating to our Convertible Note in the comparable period in 2023, \$1.7 million of deferred financing costs related to the GM Loan Agreement for which the draw down date has expired, a \$1.0 million decrease of interest income, and a \$0.2 million increase of interest expense.

Liquidity and Capital Resources

Overview

We have experienced significant losses and invested substantial resources since our inception to develop, commercialize and protect our aerogel technology and to build a manufacturing infrastructure capable of supplying aerogel products at the volumes and costs required by our customers. These investments have included research and development and other operating expenses, capital expenditures, and investment in working capital balances.

Our long-term financial projections anticipate revenue growth, increasing levels of gross profit, and improved cash flows from operations. To meet expected growth in demand for our aerogel products in the EV market, we have been in the process of expanding

our aerogel blanket capacity by constructing a second manufacturing plant in Bulloch County, Georgia. However, in order to manage the development of the second plant so that its increased capacity comes online in a manner that aligns with our current expectations of demand from our EV customers, we are extending the timeframe for construction and commissioning of the second plant until such time as its capacity is supported by increased demand. In the meantime, and until we ramp up construction, we expect to be able to substantially reduce our planned capital expenditures for 2024. At the same time, we believe that productivity improvements in our existing Rhode Island facility combined with the supplemental supply of our energy industrial products from one or more external manufacturing facilities in China will permit us to achieve a target revenue capacity of approximately \$650 million in 2024 and prior to the completion and start-up of the second plant. Nonetheless, there can be no assurance as to when we will ramp up construction on the second plant. There can also be no assurance that our contract manufacturing strategy of meeting the demand of our energy industrial customers with supply from one or more external manufacturing facilities in China will provide us with adequate manufacturing capacity or supply for that expected demand. Furthermore, when we ramp up construction on the second plant, further cost inflation and/or supply chain disruptions, as well as potential changes in the scope of the facilities, could lead to increases to our prior estimated costs for completion of the second plant.

We are also increasing our investment in the research and development of next-generation aerogel products and technologies. During 2024, we will continue to develop aerogel products and technologies for the EV market. We believe the commercial potential for our technology in the EV market is significant. To meet the anticipated revenue growth and take advantage of this market opportunity, we are adding personnel and incurring additional operating expenses, among other items.

We believe that our March 31, 2024 cash and cash equivalents balance of \$101.5 million will be sufficient to support current operating requirements, current research and development activities and the initial capital expenditures required to support the evolving commercial opportunities in the EV market and other strategic business opportunities.

In December 2023, we entered into a securities purchase agreement with certain institutional investors named therein, pursuant to which we issued and sold, in a registered direct offering directly to the Investors an aggregate of 6,060,607 shares of our common stock at an offering price of \$12.38 per share. We received net proceeds of \$74.4 million, after deducting offering expenses of approximately \$0.6 million.

In November 2022, we entered into a loan agreement (the GM Loan Agreement) with General Motors Holdings LLC (GM), an entity affiliated with General Motors LLC, which provides for a multi-draw senior secured term loan (the GM Loan) in an aggregate principal amount of up to \$100.0 million, available to the Company on a delayed draw basis beginning January 1, 2023 to September 30, 2023, subject to certain conditions precedent to funding. In September 2023, we amended the GM Loan Agreement to (i) extend the draw period for the delayed GM Loan to a period beginning on the date that is twelve months prior to the date agreed upon by the Company and GM for the start of production at an aerogel manufacturing facility in Bulloch County, Georgia and ending on March 31, 2024 (or any later date approved in writing by GM at its sole discretion); (ii) extend the maturity date of the GM Loan from March 31, 2025 to September 30, 2025; and (iii) add financial covenants measured starting from the fiscal quarter ending December 31, 2024 and at the end of each fiscal quarter thereafter. As of March 31, 2024, we have not drawn, and no longer have the ability to draw on, the GM Loan.

In January 2024, we entered into a sale and leaseback arrangement, pursuant to which we sold certain equipment to an equipment leasing company for a one-time cash payment of \$5.0 million and leased back such equipment from the leasing company. The associated monthly lease rents will be paid over the term of three years.

We plan to supplement our cash balance and available credit with equity financings, debt financings, equipment leasing, sale and leaseback transactions, customer prepayments or government grant and loan programs to provide the additional capital necessary to purchase the capital equipment, construct the new facilities and complete the aerogel capacity expansions required to support our evolving commercial opportunities and strategic business initiatives. We also intend to enter into a new revolving credit facility. Furthermore, we have certain assets that are currently owned, which we are evaluating for potential sale and lease back arrangements. This type of arrangement would provide us with one-time cash payments in the near term, in exchange for future lease payments. We believe that consummation of equity financing could potentially result in an ownership change under Section 382 of the Internal Revenue Code. Such an ownership change would lead to the use of our net operating loss carryforwards being restricted. Our inability to use a substantial portion of our net operating loss carryforwards would result in a higher effective tax rate and adversely affect our financial condition and results of operations.

Primary Sources of Liquidity

Our principal sources of liquidity are currently our cash and cash equivalents. Cash and cash equivalents consist primarily of cash, money market accounts, and sweep accounts on deposit with banks. As of March 31, 2024, we had \$101.5 million of unrestricted cash and cash equivalents.

In December 2023, we entered into a securities purchase agreement with certain institutional investors named therein, pursuant to which we issued and sold, in a registered direct offering directly to the Investors an aggregate of 6,060,607 shares of our common stock at an offering price of \$12.38 per share. We received net proceeds of \$74.4 million, after deducting offering expenses of approximately \$0.6 million.

Analysis of Cash Flow

Net Cash Used in Operating Activities

During the three months ended March 31, 2024, we used \$17.7 million in net cash in operating activities, as compared to the use of \$24.7 million in net cash during the comparable period in 2023, a decrease in the use of cash of \$7.0 million. This decrease in use of cash was the result of lower net loss adjusted for non-cash items of \$30.8 million offset by net cash used by changes in operating assets and liabilities of \$23.8 million.

During the three months ended March 31, 2023, we used \$24.7 million in net cash in operating activities, as compared to the use of \$22.8 million in net cash during the comparable period in 2022, an increase in the use of cash of \$1.9 million. This increase in use of cash was the result of cash provided by net loss adjusted for non-cash items of \$3.3 million and in net cash used by changes in operating assets and liabilities of \$5.2 million.

Net Cash Used in Investing Activities

Net cash used in investing activities is for capital expenditures for machinery and equipment principally to improve the throughput, efficiency and capacity of our East Providence facility and engineering designs and construction costs for the planned aerogel manufacturing facility in Bulloch County, Georgia. Net cash used in investing activities for the three months ended March 31, 2024 and 2023 was \$25.9 million and \$49.4 million, respectively.

Net Cash Provided by Financing Activities

Net cash provided by financing activities for the three months ended March 31, 2024 totaled \$5.3 million and consisted of \$5.0 million in proceeds from a sales leaseback and \$1.4 million in proceeds from employee stock option exercises, offset by \$1.1 million in cash used for payments made for employee tax withholdings associated with the vesting of restricted stock units

Net cash used in financing activities for the three months ended March 31, 2023 totaled \$0.4 million and consisted of \$0.4 million in cash used for payments made for employee tax withholdings associated with the vesting of restricted stock units, offset, in part, by less than \$0.1 million in proceeds from employee stock option exercises.

Contractual Obligations and Commitments

There have been no material changes to our contractual obligations and commitments as reported in our Annual Report.

Recent Accounting Pronouncements

Information regarding new accounting pronouncements is included in note 2 to our unaudited consolidated financial statements contained in Item 1 of this Quarterly Report on Form 10-Q.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with U.S. GAAP. 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 these accounting policies 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 our Annual Report and note 2 to our consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for information about these critical accounting policies, as well as a description of our other significant accounting policies.

Certain Factors That May Affect Future Results of Operations

The SEC encourages companies to disclose forward-looking information so that investors can better understand a company's future prospects and make informed investment decisions. This Quarterly Report on Form 10-Q contains such "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements involve known and unknown risks, uncertainties and other important factors, which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements include, but are not limited to, statements about: the expected future growth of the market for our aerogel products and our continued gain in market share, in particular in the electric vehicle market, the energy infrastructure insulation market, the lithium-ion battery thermal barrier markets, and other markets we target; our beliefs in the appropriateness of our assumptions, the accuracy of our estimates regarding expenses, loss contingencies, future revenues, revenue capacity, future profits, uses of cash, available credit, capital requirements, and the need for additional financing to operate our business and for capital expenditures and to fund our planned strategic business initiatives; the performance of our aerogel blankets; our expectation that we will be successful in obtaining, enforcing and defending our patents against competitors and that such patents are valid and enforceable; our expectations regarding the investment to open a second manufacturing facility in Georgia, the extended construction and commissioning timeframe for the planned second manufacturing facility, our efforts to manage the construction of the second plant to align with our expectations of demand from EV customers; our estimates of annual production capacity; beliefs about the commercial potential for our technology in the electric vehicle market; beliefs about our ability to produce and deliver products to electric vehicle customers; beliefs about Aspen's contracts with the major automotive manufacturers; our expectations about the size and timing of awarded business in the electric vehicle market, future revenues and profit margins, arising from our supply relationship and contract with automotive OEMs and our ability to win more business and increase revenue in the electric vehicle market; beliefs about the performance of our thermal barrier products in the battery systems of electric vehicles; the current or future trends in the energy, energy infrastructure, chemical and refinery, LNG, sustainable building materials, electric vehicle thermal barrier, electric vehicle battery materials or other markets and the impact of these trends on our business; our investments in the electric vehicle market and aerogel technology platform; our beliefs about the financial metrics that are indicative of our core performance; our expectations about the effect of manufacturing capacity on financial metrics such as Adjusted EBITDA; our expectations about future revenues, expenses, gross profit, net loss, loss per share and Adjusted EBITDA, sources and uses of cash, capital requirements and the sufficiency of our existing cash balance and available credit; our beliefs about the outcome, effects or estimated costs of current or potential litigation or their respective timing, including expected legal expense in connection with our patent enforcement actions; our expectations about future material costs and manufacturing expenses as a percentage of revenue, including the impact of engaging one or more contract manufacturers in China for supply of our energy industrial products; our expectation about the ability of the Chinese contract manufacturers that we engage to consistently supply the aerogel product that we order in a timely manner; our expectations of future gross profit and the effect of manufacturing expenses, manufacturing capacity and productivity on gross profit; our expectations about our resources and other investments in new technology and related research and development activities and associated expenses; our expectations about short and long term (a) research and development (b) general and administrative and (c) sales and marketing expenses; our expectations of revenue growth, increased gross profit, and improving cash flows over the long term; our intentions about managing capital expenditures and working capital balances; and our expectations about potential sources of future financing.

Words such as "may," "will," "anticipate," "estimate," "expects," "projects," "intends," "plans," "believes" and words and terms of similar substance used in connection with any discussion of future operating or financial performance, identify forward-looking statements. All forward-looking statements are management's present expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those described in the forward-looking statements. These risks include, but are not limited to, those set forth in this Quarterly Report on Form 10-Q and under the heading "Risk Factors" contained in Item 1A of our Annual Report.

In light of these assumptions, risks and uncertainties, the results and events discussed in the forward-looking statements contained in this Quarterly Report on Form 10-Q might not occur. Stockholders and other readers are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date of this Quarterly Report on Form 10-Q. We are not under any obligation, and we expressly disclaim any obligation, to update or alter any forward-looking statements, whether as a result of new information, future events or otherwise. All subsequent forward-looking statements attributable to Aspen Aerogels, Inc. or to any person acting on its behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

Item 3. Quantitative and Qualitative 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 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. As of March 31, 2024, we had unrestricted cash and cash equivalents of \$101.5 million. These amounts were held for working capital and capital expansion purposes and were invested primarily in deposit accounts, money market accounts, and high-quality debt securities issued by the U.S. government via cash sweep accounts primarily at major financial institutions in North America. Due to the short-term nature of these investments, we believe that our exposure to changes in the fair value of our cash as a result of changes in interest rates is not material.

As of March 31, 2024, we had a convertible note outstanding with principal balance of \$118.3 million. Our convertible note bears interest at the Secured Overnight Financing Rate (SOFR) plus 5.50% per annum if interest is paid in cash, or, if interest is paid in-kind as an increase in the principal amount of the outstanding note, at the SOFR plus 6.50% per annum. Under the terms of the investment, SOFR has a floor of 1% and a cap of 3%. Interest is paid semi-annually in arrears on June 30 and December 30. We, at our option, are permitted to settle each semi-annual interest payment in cash, in-kind, or any combination thereof.

As of March 31, 2024, we had \$0.2 million of restricted cash to support our outstanding letters of credit to secure obligations under certain commercial contracts and other obligations. We terminated our revolving credit facility agreement on November 28, 2022.

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 in this report. 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. We do not consider the exposure to foreign currency risk from our international operations to be material. A majority of our revenue, receivables, purchases and debts are denominated in U.S. dollars. Certain transactions of the Company and its subsidiaries are denominated in currencies other than the functional currency. Foreign currency transaction losses were \$0.7 million and \$0.0 million for the three months ended March 31, 2024, and 2023, respectively, and were recorded within operating expenses on the consolidated statements of operations.

Item 4. Controls and Procedures.

(a) Evaluation of Disclosure Controls and Procedures.

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934, as amended (the Exchange Act), is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

As of March 31, 2024, our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on such evaluation, our principal executive officer and principal financial officer have concluded that, as of March 31, 2024, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and

reported within the time periods specified in the SEC's rules and forms, and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

(b) *Changes in Internal Controls.*

During the three months ended March 31, 2024, there were no changes in our internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15(d)-15(f) promulgated under the Exchange Act, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

Item 1. Legal Proceedings.

We are involved in various legal claims and proceedings in the normal course of operations. We believe the outcome of these matters will not have a material adverse effect on our consolidated financial position, results of operations or liquidity, except as described in Part 1, Item 3. "Legal Proceedings" of our Annual Report on Form 10-K. Since the filing of our Form 10-K, there have been no material changes in our legal proceedings from those disclosed therein, other than as noted below.

Our patent infringement proceedings in Italy against of AMA S.p.A. and AMA Composites S.r.l. (collectively, AMA) are ongoing. In July 2023, the technical experts appointed by the judge issued a report finding key claims of our process patents valid and infringed by the aerogel products manufactured by Nano Tech Co., Ltd. and sold by AMA. In November 2023, we appealed our motion for preliminary injunction to a panel of the Court of Genoa. In February 2024, the Court issued an order dismissing our appeal. As of March 31, 2024, the main patent infringement proceedings are ongoing.

Our patent infringement proceedings in Korea against Beerenberg Services AS, Beerenberg Korea Ltd., and Bronx (China) Co., Ltd., are ongoing. In April 2024, the Korea Trade Commission ("KTC") concluded its investigation into unfair international trade practices by Beerenberg Korea Ltd. and Bronx (China) Co., Ltd., with a decision that our asserted composition patent claims were invalid and our asserted process patent claims were not infringed. We disagree with the KTC decision, which is subject to appeal in the Seoul Administrative Court. We continue to vigorously defend the validity of these patents in the related oppositions filed by Beerenberg Korea Ltd. and Bronx (China) Co. Ltd., at the Korean Intellectual Property Trial and Appeal Board ("IPTAB"). Our patent infringement case against Beerenberg Services AS and Beerenberg Korea Ltd. at the Seoul District Court remains stayed pending the outcome of the IPTAB proceedings.

The oppositions filed in August and September 2023 by, LG Chem Ltd. against one of the Korean patents we are asserting against Beerenberg in Korea and a Japanese counterpart of the Korean patents are ongoing. We are vigorously defending the validity of these patents.

In October 2022, we were served with a summons from Aerogels Poland Nanotechnology LLC ("APN"), a former distributor of our products in Poland with whom we previously terminated our distribution agreements because of APN's failure to pay amounts due to us. The summons asserts causes of action for declaratory judgment, breach of contract, breach of implied contract, equitable estoppel and fraud, and states that plaintiffs will seek declaratory judgment, actual and liquidated damages in the sum of \$20 million, in addition to attorneys' fees. We were not served with any complaint at the time the summons was served. In December 2022, we filed a notice of appearance in New York County Supreme Court and a demand upon plaintiffs to file and serve a complaint. In March 2023, plaintiffs filed a complaint asserting various causes of action consistent with those set forth in the October 2022 summons, and a demand for monetary damages and other relief in excess of \$16 million. In July 2023, we filed a motion to compel arbitration, and in February 2024, the Court granted our motion and stayed the litigation pending arbitration. To the extent APN seeks to pursue claims in an arbitration proceeding, Aspen intends to continue to vigorously defend this matter, including seeking its legal costs.

Item 1A. Risk Factors.

The ownership of our common stock involves a number of risks and uncertainties. When evaluating the Company and our business before making an investment decision regarding our securities, potential investors should carefully consider the risk factors and uncertainties described in Part 1, Item 1A. "Risk Factors" of our Annual Report on Form 10-K. Since the filing of our Form 10-K, there have been no material changes in our risk factors from those disclosed therein.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

(a) *Unregistered Sales of Equity Securities.*

None.

(b) *Use of Proceeds from Initial Public Offering of Common Stock.*

Not applicable.

(c) *Purchases of Equity Securities by the Issuer and Affiliated Purchasers.*

We did not repurchase any of our equity securities during the quarter ended March 31, 2024.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

On February 26, 2024, Donald R. Young, our President, Chief Executive Officer, and member of our board of directors, adopted a trading plan intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) under the Exchange Act. The plan provides for the sale of up to 691,124 shares at specific market prices, subject to specified limitations, during pre-determined sale periods. The plan was established for the purposes of facilitating the exercise and subsequent sale of stock options with a ten-year contractual life that are due to expire between September 2024 and December 2025 (the "Options"), by facilitating the sale of shares solely to raise sufficient proceeds to cover the exercise cost and taxes associated with the exercise of the Options. The plan expires on the earlier of (i) the date all of the shares under the plan have been sold and (ii) December 11, 2025.

Except as disclosed above, none of our directors or executive officers adopted, modified or terminated any contract, instruction or written plan for the purchase or sale of our securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any "non-Rule 10b5-1 trading arrangement" as such term is defined in Item 408(a) of Regulation S-K, during the fiscal quarter ended March 31, 2024.

Item 6. Exhibits.

(a) Exhibits

10.1+ [SEIG Award Cancellation Agreement, dated March 6, 2024 \(Donald R. Young\) \(incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K, filed on March 7, 2024\).](#)

10.2+ [Form of SEIG Award Cancellation Agreement, dated March 6, 2024 \(other employees\) \(incorporated by reference to Exhibit 10.2 of the Registrant's Form 8-K, filed on March 7, 2024\).](#)

31.1 [Certification of principal executive officer under Section 302\(a\) of the Sarbanes-Oxley Act of 2002.](#)

31.2 [Certification of principal financial officer under Section 302\(a\) of the Sarbanes-Oxley Act of 2002.](#)

32 [Certifications of the principal executive officer and the principal financial officer under Section 906 of the Sarbanes-Oxley Act of 2002.](#)

101.INS XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

101.SCH Inline XBRL Taxonomy Extension Schema Document.

101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase Document.

101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document.

101.LAB Inline XBRL Taxonomy Extension Label Linkbase Document.

101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document.

104 Cover Page Interactive Data File (embedded within the Inline XBRL document).

+ Management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

ASPEN AEROGELS, INC.

Date: May 2, 2024

By: /s/ Donald R. Young
Donald R. Young
President and Chief Executive Officer
(principal executive officer)

Date: May 2, 2024

By: /s/ Ricardo C. Rodriguez
Ricardo C. Rodriguez
Chief Financial Officer and Treasurer
(principal financial officer)

CERTIFICATIONS UNDER SECTION 302

I, Donald R. Young, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aspen Aerogels, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 2, 2024

/s/ Donald R. Young
Donald R. Young
President and Chief Executive Officer
(principal executive officer)

CERTIFICATIONS UNDER SECTION 302

I, Ricardo C. Rodriguez, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aspen Aerogels, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 2, 2024

/s/ Ricardo C. Rodriguez

Ricardo C. Rodriguez
Chief Financial Officer and Treasurer (principal financial officer)

CERTIFICATIONS UNDER SECTION 906

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Aspen Aerogels, Inc., a Delaware corporation (the "Company"), does hereby certify, to such officer's knowledge, that:

The Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 (the "Form 10-Q") of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: May 2, 2024

/s/ Donald R. Young
Donald R. Young
President and Chief Executive Officer
(principal executive officer)

Dated: May 2, 2024

/s/ Ricardo C. Rodriguez
Ricardo C. Rodriguez
Chief Financial Officer and Treasurer
(principal financial officer)

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.
