

**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, 2025

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 001-39378

ORIGIN MATERIALS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

87-1388928
(I.R.S. Employer
Identification No.)

930 Riverside Parkway, Suite 10
West Sacramento, CA
(Address of principal executive offices)

95605
(Zip Code)

(916) 231-9329
(Registrant's telephone number, including area code)

N/A
(Former name or former address, if changed since last report)

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

Title of each class:	Trading Symbol(s)	Name of each exchange on which registered:
Common Stock, \$0.0001 par value per share	ORGN	The Nasdaq Capital Market
Warrants	ORGNW	The Nasdaq Capital Market

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, 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.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

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

The number of shares of the registrant's common stock, par value \$0.0001 per share outstanding was 149,944,774, as of May 9, 2025.

ORIGIN MATERIALS, INC.

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WHERE YOU CAN FIND MORE INFORMATION

Investors and others should note that we announce material financial information to our investors using our investor relations website, which can be found at <https://investors.originmaterials.com/>, as well as press releases, our filings with the Securities and Exchange Commission, SEC, and public conference calls and webcasts. We also use other mediums, including the following social media channels as a means of disclosing information about the company, our products, our planned financial and other announcements and attendance at upcoming investor and industry conferences, and other matters and for complying with our disclosure obligations under Regulation FD:

Origin X (f/k/a Twitter) Account (<https://twitter.com/OriginMaterials>)

Origin LinkedIn Page (<https://www.linkedin.com/company/origin-materials>)

Origin Facebook Page (<https://www.facebook.com/people/Origin-Materials/100057468488825>)

These channels may be updated from time to time on our investor relations website. The information we post through these channels may be deemed material. Accordingly, investors should monitor them in addition to following our investor relations website, press releases, SEC filings, and public conference calls and webcasts. This list may be updated from time to time. The information we post through these channels is not a part of this Quarterly Report on Form 10-Q.

PART I. — FINANCIAL INFORMATION**Item 1. Financial Statements****ORIGIN MATERIALS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS**

<i>(In thousands, except share and per share data)</i>	March 31, 2025 (Unaudited)	December 31, 2024
ASSETS		
Current assets		
Cash and cash equivalents	\$ 43,835	\$ 56,307
Marketable securities	39,213	46,613
Accounts receivable net of allowance for credit losses of \$1,230 and \$1,230, respectively	19,120	19,179
Other receivables	3,106	2,526
Inventory	866	866
Prepaid expenses and other current assets	2,087	2,401
Land held for sale	11,282	11,282
Total current assets	119,509	139,174
Property, plant, and equipment, net	211,568	203,919
Operating lease right-of-use asset	3,437	3,735
Intangible assets, net	65	73
Deferred tax assets	563	621
Other long-term assets	13,835	30,505
Total assets	\$ 348,977	\$ 378,027
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	\$ 3,176	\$ 2,921
Accrued expenses	6,922	2,779
Operating lease liabilities, current	334	323
Notes payable, short-term	1,730	3,772
Other liabilities, current	410	2,754
Total current liabilities	12,572	12,549
Earnout liability	24	2,486
Canadian Government Research and Development Program liability	14,422	14,399
Common stock warrants liability	1,788	4,566
Notes payable, long-term	1,730	1,730
Operating lease liabilities	3,770	3,858
Other liabilities, long-term	63	74
Total liabilities	34,369	39,662

<i>(In thousands, except share and per share data)</i>	March 31, 2025 (Unaudited)	December 31, 2024
Commitments and contingencies (See Note 16)		
STOCKHOLDERS' EQUITY		
Preferred stock, \$0.0001 par value, 10,000,000 shares authorized; no shares issued and outstanding as of March 31, 2025 and December 31, 2024	—	—
Common stock, \$0.0001 par value, 1,000,000,000 shares authorized; 149,506,676 and 148,574,227, issued and outstanding as of March 31, 2025 and December 31, 2024, respectively (including 3,000,000 of Sponsor Vesting Shares)	15	15
Additional paid-in capital	395,475	393,186
Accumulated deficit	(64,568)	(38,127)
Accumulated other comprehensive loss	(16,314)	(16,709)
Total stockholders' equity	314,608	338,365
Total liabilities and stockholders' equity	\$ 348,977	\$ 378,027

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ORIGIN MATERIALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Unaudited)

(In thousands, except share and per share data)	Three Months Ended March 31,	
	2025	2024
Revenues:		
Products	\$ 5,430	\$ 6,822
Services	—	3
Total revenues	5,430	6,825
Cost of revenues (exclusive of depreciation and amortization shown separately below)	5,317	6,687
Operating expenses:		
Research and development	3,301	5,819
General and administrative	10,111	10,005
Depreciation and amortization	2,714	2,311
Impairment of assets	16,610	—
Total operating expenses	32,736	18,135
Loss from operations	(32,623)	(17,997)
Other income (expenses):		
Investment income	1,206	1,864
Interest expenses	(48)	(117)
(Loss) gain in fair value of derivatives	(38)	296
Gain in fair value of common stock warrants liability	2,778	649
Gain in fair value of earnout liability	2,462	1,518
Other expenses, net	(119)	(8)
Total other income, net	6,241	4,202
Loss before income tax provision	(26,382)	(13,795)
Income tax provision	(59)	(118)
Net loss	\$ (26,441)	\$ (13,913)
Other comprehensive income (loss):		
Unrealized gain on marketable securities	\$ 159	\$ 570
Foreign currency translation adjustment	236	(3,844)
Total other comprehensive income (loss)	395	(3,274)
Total comprehensive loss	\$ (26,046)	\$ (17,187)
Net loss per share, basic	\$ (0.18)	\$ (0.10)
Net loss per share, diluted	\$ (0.18)	\$ (0.10)
Weighted-average common shares outstanding, basic	146,852,340	141,828,895
Weighted-average common shares outstanding, diluted	146,852,340	141,828,895

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ORIGIN MATERIALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited)
(In Thousands, Except Share Amounts)

Three Months Ended March 31, 2024	Common Stock		Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2023	145,706,531	\$ 15	\$ 382,854	\$ 45,570	\$ (5,932)	\$ 422,507
Common stock issued upon exercise of stock options	585,760	—	83	—	—	83
Vested common stock awards	212,633	—	—	—	—	—
Stock-based compensation	—	—	2,781	—	—	2,781
Net loss	—	—	—	(13,913)	—	(13,913)
Other comprehensive loss	—	—	—	—	(3,274)	(3,274)
Balance at March 31, 2024	146,504,924	\$ 15	\$ 385,718	\$ 31,657	\$ (9,206)	\$ 408,184

Three Months Ended March 31, 2025	Common Stock		Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2024	148,574,227	\$ 15	\$ 393,186	\$ (38,127)	\$ (16,709)	\$ 338,365
Common stock issued upon exercise of stock options	2,116	—	—	—	—	—
Vested common stock awards	930,333	—	—	—	—	—
Stock-based compensation	—	—	2,289	—	—	2,289
Net loss	—	—	—	(26,441)	—	(26,441)
Other comprehensive income	—	—	—	—	395	395
Balance at March 31, 2025	149,506,676	\$ 15	\$ 395,475	\$ (64,568)	\$ (16,314)	\$ 314,608

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ORIGIN MATERIALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

(in thousands)	Three Months Ended March 31,	
	2025	2024
Cash flows from operating activities		
Net loss	\$ (26,441)	\$ (13,913)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	2,714	2,311
Stock-based compensation	2,289	2,781
Impairment of assets	16,610	—
Realized loss on marketable securities	61	51
Amortization of premium and discount of marketable securities, net	(38)	(5)
Change in fair value of derivative	38	(296)
Change in fair value of common stock warrants liability	(2,778)	(649)
Change in fair value of earnout liability	(2,462)	(1,518)
Deferred tax provision	58	111
Other non-cash expenses	88	151
Changes in operating assets and liabilities:		
Accounts receivable net and other receivables	(521)	(1,252)
Inventory	—	(3)
Prepaid expenses and other current assets	300	31
Other long-term assets	60	(2,438)
Accounts payable	130	580
Accrued expenses	1,409	(1,951)
Operating lease liability	(79)	(122)
Other liabilities, current	134	(590)
Other liabilities, long-term	(11)	(14)
Net cash used in operating activities	(8,439)	(16,735)
Cash flows from investing activities		
Purchases of property, plant, and equipment	(6,994)	(1,939)
Purchases of marketable securities	(280,000)	(443,475)
Sales of marketable securities	282,405	441,432
Maturities of marketable securities	5,129	13,317
Net cash provided by investing activities	540	9,335
Cash flows from financing activities		
Payment of notes payable short-term	(4,542)	(1,532)
Proceeds from Canadian Government Research and Development Program	—	8,097
Proceeds from exercise of stock options	—	83
Net cash (used in) provided by financing activities	(4,542)	6,648
Effects of foreign exchange rate changes on the balance of cash and cash equivalents held in foreign currencies	(31)	1,023
Net (decrease) increase in cash and cash equivalents	(12,472)	271
Cash and cash equivalents beginning of the period	56,307	75,502
Cash and cash equivalents end of the period	\$ 43,835	\$ 75,773
Supplemental disclosure of cash flow information		
Purchases of fixed assets included in accounts payable and accrued expenses	\$ 4,166	\$ 1,159
Cash paid during the period:		
Income taxes payment	\$ —	\$ 7
Interest payment	\$ 50	\$ 646

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

ORIGIN MATERIALS, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Business

Unless the context otherwise requires, references in these notes to “Origin”, “the Company”, “we”, “us” and “our” and any related terms are intended to mean Origin Materials, Inc. and its consolidated subsidiaries.

In June 2021, Artius Acquisition Inc. (“Artius”), a special purpose acquisition company, completed a merger with Micromidas, Inc., a Delaware corporation (now known as Origin Materials Operating, Inc. (“Legacy Origin”). Pursuant to the terms of the Merger Agreement (the agreement formalizing the business combination between Artius and Legacy Origin), Legacy Origin became a wholly-owned subsidiary of Artius (the “Merger”) and Artius changed its name to Origin Materials, Inc. (together with its subsidiaries, the “Company”). The Company is a technology company with a mission to enable the world's transition to sustainable materials. Origin has developed multiple sustainable and performance-enhanced solutions for improving recycling and circularity, including our polyethylene terephthalate (“PET”) closures, as well as low-carbon material solutions for a wide variety of products and applications. The Company’s furanics technology can transform sustainable feedstocks, such as sustainably harvested wood, agricultural waste, wood waste and corrugated cardboard, into materials and products that are currently made from fossil feedstocks, such as petroleum and natural gas.

Origin announced its PET closures business in August 2023 after several years of application development related to its furanics technologies. Origin's announced products include the PCO 1881 compliant PET closure and a tethered PET closure designed to comply with European cap tethering mandates and keep caps connected to bottles. Origin has announced several manufacturing partnerships with machine subsystem suppliers, including slit and fold specialists and a provider of visual inspection systems. Mass production partnerships are in place in Europe and North America. In September 2024, Origin's first PET closure manufacturing system (“CapFormer”) successfully completed its Factory Acceptance Test (“FAT”), which involves a series of tests performed on the system to ensure that it meets our requirements and functions as intended.

The Company achieved the mechanical completion of its first furanics manufacturing plant in Ontario, Canada (“Origin 1”). The plant is currently operating on demand with reduced staffing, while preserving Origin's ability to generate product at small volumes sufficient to explore scale-up with strategic partners.

2. Summary of Significant Accounting Policies

Basis of Presentation

The Company’s unaudited condensed consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (“U.S. GAAP”) as determined by the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) and pursuant to the regulations of the U.S. Securities and Exchange Commission (“SEC”).

Use of Estimates

The preparation of the unaudited condensed consolidated financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of commitments and contingencies at the date of the financial statements as well as reported amounts of revenues, costs and expenses during the reporting periods. Estimates made by the Company include, but are not limited to, allowance for credit losses, valuation of the earnout liability, carrying amount and useful lives of property, plant and equipment and intangible assets, impairment assessments, stock-based compensation expense and probabilities of achievement of performance conditions on performance-based stock unit (“PSU”) awards, among others. The Company bases these estimates on historical experience and on various other assumptions that it believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying amounts of assets and liabilities that are not readily apparent from other sources. Actual results could differ materially from those estimates.

Unaudited Condensed Consolidated Financial Statements

The December 31, 2024 unaudited condensed consolidated balance sheet was derived from the annual audited consolidated financial statements included in the Company's Form 10-K as filed with the SEC on March 13, 2025 (the "Form 10-K"). The accompanying unaudited condensed consolidated balance sheet as of March 31, 2025, the unaudited condensed consolidated statements of operations and comprehensive loss, stockholders' equity, and cash flows for the three months ended March 31, 2025 and 2024, and the notes to such unaudited condensed consolidated financial statements are unaudited.

These unaudited condensed consolidated financial statements have been prepared in accordance with U.S. GAAP and the applicable rules and regulations of the SEC for interim financial information. As permitted under those rules, we condensed or omitted certain footnotes or other financial information that are normally required by GAAP for annual financial statements.

The unaudited condensed consolidated financial statements have been prepared on the same basis as the annual audited consolidated financial statements and, in management's opinion, include all adjustments consisting of only normal recurring adjustments necessary for the fair presentation of the Company's financial position as of March 31, 2025 and its results of operations and cash flows for the three months ended March 31, 2025 and 2024. The results of operations for the three months ended March 31, 2025 are not necessarily indicative of the results to be expected for the full fiscal year or any other period.

These unaudited condensed consolidated financial statements should be read in conjunction with the Company's audited annual financial statements and notes thereto for the year ended December 31, 2024 included in the Form 10-K.

Principles of Consolidation

The unaudited condensed consolidated financial statements have been prepared in accordance with U.S. GAAP and applicable rules and regulations of the SEC and include the accounts of the Company and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk are primarily cash, cash equivalents, marketable securities and accounts receivable. The Company maintains its cash and cash equivalents at financial institutions insured by the Federal Deposit Insurance Corporation ("FDIC") up to \$250,000 per institution. As the account balances at each institution periodically exceed the FDIC insurance coverage, there is a concentration of credit risk related to amounts in excess of such coverage. While the Company has not experienced losses of these deposits to date, future disruptions of financial institutions where we bank or have credit arrangements, or disruptions of the financial services industry in general, could adversely affect our ability to access our cash and cash equivalents. If we are unable to access our cash and cash equivalents as needed, our financial position and ability to operate our business could be adversely affected. The Company's marketable securities consists of investment-grade securities diversified among security types that are held at financial institutions that management believes to be of high credit quality.

The Company records the provision for credit losses within general and administrative expenses on the unaudited condensed consolidated statements of operations and comprehensive loss, up to the amount of total outstanding accounts receivable to date. Our top two customers from product sales, in the aggregate, accounted for approximately 93% as of each of March 31, 2025 and December 31, 2024, of total accounts receivable outstanding balances and accounted for approximately 99% and 92% of total revenue for the three months ended March 31, 2025 and 2024, respectively.

Accounts Receivable Net

Accounts receivable net consisted of the following as of:

<u>(in thousands)</u>	<u>March 31, 2025</u>	<u>December 31, 2024</u>
Accounts receivable	\$ 20,350	\$ 20,409
Allowance for credit losses	(1,230)	(1,230)
Accounts receivable net	<u>\$ 19,120</u>	<u>\$ 19,179</u>

Inventory

Inventory consisted of the following as of:

<i>(in thousands)</i>	March 31, 2025	December 31, 2024
Raw materials	\$ 827	\$ 827
Spare parts	39	39
Total	\$ 866	\$ 866

Intangible Assets

Intangible assets consisted of the following as of:

<i>(in thousands)</i>	March 31, 2025	December 31, 2024
Patents	\$ 381	\$ 381
Less accumulated amortization	(316)	(308)
Total intangible assets	\$ 65	\$ 73

The weighted average remaining useful life of the patents was 3.33 years as of March 31, 2025. For the three months ended March 31, 2025 and 2024, amortization expense was immaterial and annual amortization expense over the remaining useful life is not expected to be material.

Held for sale classification

Assets are classified as held for sale when management having the authority to approve the action commits to a plan to sell the assets, the sale is probable to occur within the next 12 months at a price that is reasonable in relation to its current fair value and certain other criteria are met. The assets classified as held for sale are recorded at the lower of their carrying amount or estimated fair value less cost to sell. When the proceeds expected to be received from the sale exceed the carrying amount of the assets, a gain is recognized when the sale closes. Assets classified as held for sale are presented separately on the face of the unaudited condensed consolidated balance sheets.

In April 2025, the Company sold 35 of the total 183 acres of land held for sale for proceeds of \$2.2 million, which approximates the carrying value.

Impairment of Long-Lived Assets

The Company reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be fully recoverable. If indicators of impairment exist, management identifies the asset group which includes the potentially impaired long-lived asset, at the lowest level at which there are separate, identifiable cash flows. The determination of recoverability is based on an estimate of undiscounted cash flows expected to result from the use of an asset group and its eventual disposition or its estimated fair value based on the best information available. If the total of the expected undiscounted future net cash flows or the estimated fair value for the asset group is less than the carrying amount of the asset group, a loss is recognized for the difference between the estimated fair value and carrying amount of the asset group.

During the period ended March 31, 2025, the Company determined that indicators of impairment existed for the other long-term assets related to the agreement for materials conversion produced by Origin 1 into certain derivatives (see Note 16 for additional details). On April 4, 2025, the Company entered and executed an agreement with the counterparty to discharge the advance payments of \$16.6 million paid and future commitment under the take-or-pay agreement. As such, the Company recorded an impairment charge of \$16.6 million to impairment of assets on the unaudited condensed consolidated statements of operations and comprehensive loss during the three months ended March 31, 2025.

Common Stock Warrants Liability

The Company assumed 24,149,960 public warrants (the “Public Warrants”) and 11,326,667 private placement warrants (the “Private Placement Warrants”, and the Public Warrants together with the Private Placement Warrants, the “Common Stock Warrants” or “Warrants”) upon the Merger, all of which were issued in connection with Artius’ initial public offering and entitle each holder to purchase one share of Class A common stock at an exercise price of at \$11.50 per share. As of March 31, 2025, 24,149,960 Public Warrants and 11,326,667 Private Placement Warrants are outstanding. The Public Warrants are publicly traded and are exercisable for cash unless certain conditions occur, such as the failure to have an effective registration statement related to the shares issuable upon exercise or redemption by the Company under certain conditions, at which time the Public Warrants may be cashless exercised. The Private Placement Warrants are transferable, assignable or salable in certain limited exceptions. The Private Placement Warrants are exercisable for cash or on a cashless basis, at the holder’s option, and are non-redeemable so long as they are held by the initial purchasers or their permitted transferees. If the Private Placement Warrants are held by someone other than the initial purchasers or their permitted transferees, the Private Placement Warrants will cease to be Private Placement Warrants, and become Public Warrants and be redeemable by the Company and exercisable by such holders on the same basis as the other Public Warrants. There were no Private Placement Warrants that became Public Warrants through March 31, 2025.

The Company evaluated the Common Stock Warrants under ASC 815-40, *Derivatives and Hedging-Contracts in Entity’s Own Equity (“ASC 815-40”)*, and concluded they do not meet the criteria to be classified in stockholders’ equity. Specifically, the exercise of the Common Stock Warrants may be settled in cash upon the occurrence of a tender offer or exchange that involves 50% or more of our Class A stockholders. Because not all of the voting stockholders need to participate in such tender offer or exchange to trigger the potential cash settlement and the Company does not control the occurrence of such an event, the Company concluded that the Common Stock Warrants do not meet the conditions to be classified in equity. Since the Common Stock Warrants meet the definition of a derivative under ASC 815, the Company recorded these Warrants as liabilities on the unaudited condensed consolidated balance sheets at fair value, with subsequent changes in their respective fair values recognized in the gain in fair value of common stock warrants liability within the unaudited condensed consolidated statements of operations and comprehensive loss at each reporting date. The Public Warrants were publicly traded and thus had an observable market price to estimate fair value, and the Private Placement Warrants were effectively valued similar to the Public Warrants, as described in Note 5.

Revenue Recognition

Our revenues are from product sales and service agreements. The majority of our contracts with customers typically contain multiple products and services. We account for individual products and services separately if they are distinct—that is, if a product or service is separately identifiable from other items in the contract and if a customer can benefit from it on its own or with other resources that are readily available to the customer.

The Company recognizes revenue in accordance with ASC 606, *Revenue from Contracts with Customers (“ASC 606”)*. The core principle of ASC 606 requires that an entity recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. In determining the appropriate amount of revenue to be recognized as we fulfill our obligations under our product revenue and service agreements, we perform the following steps:

1. Identifying the contract with a customer;
2. Identifying the performance obligations in the contract;
3. Determining the transaction price;
4. Allocating the transaction price to the performance obligations; and
5. Recognizing revenue when, or as, the performance obligations are satisfied.

We account for a contract with a customer when there is approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. Non-cancellable purchase orders received from customers to deliver a specific quantity of product, when combined with our order confirmation, in exchange for future consideration, create enforceable rights and obligations on both parties and constitute a contract with a customer.

Our service agreements are customized, specified, and often include various stages at which transaction prices are agreed to. These service agreements often include multiple performance obligations within each stage. We identify each performance obligation at contract inception and allocate the consideration to each distinct performance obligation based on the stand-alone selling price of each performance obligation. Our services are tailored to each individual customer and the stand-alone selling prices are not directly observable. As our service agreements include customers that are not in

similar geographic markets and for different services, therefore the Company uses the expected cost plus margin approach to estimate the stand-alone selling price for each of our performance obligations. We recognize revenue from the service agreements over the period during which the services are performed and recognize the associated costs as they are incurred.

In general, we recognize revenue when, or as, our performance obligations under the terms of a contract with our customer are satisfied. For product sales, this happens when we transfer control of our products and risk of loss to the customer or when title passes upon shipment. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring our products. Taxes collected from customers and remitted to governmental authorities are excluded from revenues. The Company recognizes its revenue from direct product sales which is recognized at a point in time when the performance obligation is satisfied upon delivery of the product.

For service agreements, the timing of satisfying performance obligations may differ from the timing of the invoicing of customers and the receipt of customer payments. The Company records a receivable prior to payment if there is an unconditional right to payment. Alternatively, when payment precedes the provision of the related services, the Company records contract liability (deferred revenue) until the performance obligations are satisfied.

Revenue is recorded in an amount that reflects that consideration we expect to be entitled to in exchange for those goods or services. We have elected to treat shipping and handling activities as fulfillment costs.

Basic and Diluted Net Loss Per Share

Basic net loss per common share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of common shares outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock and potentially dilutive securities outstanding for the period. For the purposes of the diluted net loss per share calculation, common stock options, restricted stock unit (“RSU”) awards, performance stock awards, warrants, earnout shares, and Sponsor Vesting Shares (as defined in Note 9) are considered to be potentially dilutive securities. For the periods presented that the Company has reported a net loss, diluted net loss per common share is the same as basic net loss per common share for those periods.

Reclassification

Certain amounts on the unaudited condensed consolidated statement of cash flows for the three months ended March 31, 2024 have been condensed to conform with the current presentation for the three months ended March 31, 2025.

3. Recent Accounting Pronouncements

In November 2023, the FASB issued Accounting Standards Update (“ASU”) 2023-07, *Segment Reporting (“Topic 280”) - Improvements to Reportable Segment Disclosures*, which amends the existing segment reporting guidance (Topic 280) to improve reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses that are regularly provided to the chief operating decision maker (“CODM”) and included within each reported measure of segment profit or loss, an amount for other segment items by reportable segment and a description of its composition, the title and position of the CODM and an explanation of how the CODM uses the reported measure(s) of segment profit or loss in assessing segment performance and deciding how to allocate resources. All disclosure requirements of ASU 2023-07 are required for entities with a single reportable segment. The Company adopted the new standard for the year ended December 31, 2024 for annual and retrospective reporting periods with all interim disclosures to begin in the first quarter of the year ending December 31, 2025. The adoption of the standard had no material impact on the Company’s financial position, results of operations or cash flows, but did result in new and expanded segment disclosures. The Company has included such disclosures in Note 13.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (“Topic 740”) - Improvements to Income Tax Disclosures*, which modifies the rules on income tax disclosures to require entities to disclose (1) specific categories in the rate reconciliation, (2) the income or loss from continuing operations before income tax expense or benefit (separated between domestic and foreign) and (3) income tax expense or benefit from continuing operations (separated by federal, state and foreign). ASU 2023-09 also requires entities to disclose their income tax payments to international, federal, state and local jurisdictions, among other changes. The guidance should be applied on a prospective basis however a retrospective application is permitted. The Company adopted the new standard as of January 1, 2025. The adoption of the standard had no material impact on the Company’s financial position, results of operations or cash flows, other than additional disclosures, which will be included in our annual consolidated financial statements for the year ending December 31, 2025.

In November 2024, the FASB issued ASU 2024-03, *Income Statement-Reporting Comprehensive Income-Expense Disaggregation Disclosures (Subtopic 220-40)*, to enhance the transparency and decision usefulness of financial information presented in the income statement by requiring disaggregated information about certain income statement expense line items. ASU 2024-03 is effective for annual periods beginning after December 15, 2026, and interim reporting periods within annual reporting periods beginning after December 15, 2027, and early adoption is permitted. The Company does not expect that the adoption of this guidance will have a material impact on its unaudited condensed consolidated financial statements, other than additional disclosures in our notes to the unaudited condensed consolidated financial statements.

The Company has determined that all other recently issued accounting pronouncements will not have a material impact on the Company’s unaudited condensed consolidated financial statements or do not apply to its operations.

4. Revenues

We recognize revenues when, or as, our performance obligations under the terms of a contract with our customer are satisfied (see Note 2 for additional details). We generally procure, will produce, and sell product to be utilized in the manufacturing of finished products, for which we recognize revenue upon shipment. Currently, the majority of our revenue is generated from the supply chain activation program in which the Company purchases materials from various vendors and sells them to our customers for a moderate margin as we establish the logistics and invoicing capabilities for our own products. Our service contracts generally pay us at the commencement of the agreement and then at additional intervals as outlined in each contract. We recognize contract liabilities for such payments and then recognize revenue as we satisfy the related performance obligations. To the extent collectible revenue recognized under this method exceeds the consideration received, we recognize contract assets for such unbilled consideration. We recognize revenue from the service agreements over the period during which the services are performed.

The Company did not receive payment before the provision of services during the three months ended March 31, 2025 and 2024. Therefore, deferred revenue was zero.

5. Fair Value Measurement

The Company's financial assets and liabilities subject to fair value measurements on a recurring basis and the level of inputs used for such measurements were as follows:

(in thousands)	Fair Value as of March 31, 2025			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	\$ 30,351	\$ —	\$ —	\$ 30,351
Marketable securities	—	39,213	—	39,213
Total fair value	\$ 30,351	\$ 39,213	\$ —	\$ 69,564
Liabilities:				
Common stock warrants (Public)	\$ 1,217	\$ —	\$ —	\$ 1,217
Common stock warrants (Private Placement)	—	571	—	571
Earnout liability	—	—	24	24
Derivative liability	—	23	—	23
Total fair value	\$ 1,217	\$ 594	\$ 24	\$ 1,835

(in thousands)	Fair Value as of December 31, 2024			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	\$ 46,953	\$ —	\$ —	\$ 46,953
Marketable securities	—	46,613	—	46,613
Derivative asset	—	15	—	15
Total fair value	\$ 46,953	\$ 46,628	\$ —	\$ 93,581
Liabilities:				
Common stock warrants (Public)	\$ 3,108	\$ —	\$ —	\$ 3,108
Common stock warrants (Private Placement)	—	1,458	—	1,458
Earnout liability	—	—	2,486	2,486
Total fair value	\$ 3,108	\$ 1,458	\$ 2,486	\$ 7,052

The Company performs routine procedures such as comparing prices obtained from independent sources to ensure that appropriate fair values are recorded. The cash equivalents and Public Warrants are categorized as Level 1 instruments as the fair value was determined based on the unadjusted quoted prices are available in active markets for identical assets or liabilities as of the reporting date. The marketable securities, derivative asset and derivative liability are categorized as Level 2 instruments as the estimated fair value was determined based on the estimated or actual bids and offers of the marketable securities in an over-the-counter market on the last business day of the period. The Private Placement Warrants are classified within Level 2 because the transfer of Private Placement Warrants to anyone outside of certain permitted transferees of Artius Acquisition Partners LLC (the "Sponsor") would result in the Private Placement Warrants having substantially the same terms as the Public Warrants, the Company determined that the fair value of each Private Placement Warrant is consistent with that of a Public Warrant. Accordingly, the Private Placement Warrants are classified as Level 2 financial instruments.

The value of the earnout liability is classified as Level 3 measurements under the fair value hierarchy, as these liabilities have been valued based on significant inputs not observable in the market (see Note 9 for additional details). A gain of \$2.5 million and \$1.5 million during the three months ended March 31, 2025 and 2024, respectively, was recorded on the unaudited condensed consolidated statements of operations and comprehensive loss in the gain in fair value of earnout liability.

The following table summarizes the activities for the earnout liability during the three months ended March 31, 2025 and 2024:

<i>(in thousands)</i>	Three Months Ended March 31,	
	2025	2024
Balance at beginning of period	\$ 2,486	\$ 1,783
Gain in fair value of earnout liability	(2,462)	(1,518)
Balance at end of period	\$ 24	\$ 265

As of March 31, 2025 and December 31, 2024, the carrying values of accounts receivable and unbilled receivable, other receivables, accounts payable, and accrued expenses approximate their respective fair values due to their short-term nature. We have determined the fair value of notes payable and Canadian government research and development program liability approximates the carrying value due to the standard terms of the arrangement including but not limited to the amount borrowed, the term, and the interest rate.

Marketable Securities

The Company's marketable securities that are measured at fair value on a recurring basis and are categorized using the fair value hierarchy. Amortized cost net of unrealized gain (loss) is equal to fair value. The following table summarizes the marketable securities by major security type as follows:

<i>(in thousands)</i>	As of March 31, 2025			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Corporate bonds	\$ 3,858	\$ 23	\$ —	\$ 3,881
Asset-backed securities	32,913	47	(1,179)	31,781
U.S. government and agency securities	3,550	1	—	3,551
Total marketable securities	\$ 40,321	\$ 71	\$ (1,179)	\$ 39,213

<i>(in thousands)</i>	As of December 31, 2024			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Corporate bonds	\$ 3,741	\$ 30	\$ —	\$ 3,771
Asset-backed securities	36,309	39	(1,349)	34,999
U.S. government and agency securities	7,829	14	—	7,843
Total marketable securities	\$ 47,879	\$ 83	\$ (1,349)	\$ 46,613

The realized gains and losses are included in other expenses, net in the unaudited condensed consolidated statements of operations and comprehensive loss.

We sold marketable securities for proceeds of \$282.4 million and \$441.4 million during the three months ended March 31, 2025 and 2024, respectively. As a result of those sales, we realized a loss of \$0.1 million during each of the three months ended March 31, 2025 and 2024. We regularly review our available-for-sale marketable securities in an unrealized loss position and evaluate the current expected credit loss by considering factors such as historical experience, market data, issuer-specific factors, and current economic conditions. The aggregate fair value of the marketable securities in an unrealized loss position was \$23.0 million and \$26.6 million as of March 31, 2025 and December 31, 2024, respectively. The unrealized losses were attributable to changes in interest rates that impacted the value of the investments, and not related to increased credit risk. Accordingly, we have not recorded an allowance for credit losses associated with these investments.

The contractual maturities of the investments classified as marketable securities are as follows:

(in thousands)	As of March 31, 2025			Fair Value
	Mature within one year	Mature after one year through two years	Mature over two years	
Corporate bonds	\$ —	\$ 3,180	\$ 701	\$ 3,881
Asset-backed securities	—	—	31,781	31,781
U.S. government and agency securities	1,895	—	1,656	3,551
Total marketable securities	\$ 1,895	\$ 3,180	\$ 34,138	\$ 39,213

(in thousands)	As of December 31, 2024			Fair Value
	Mature within one year	Mature after one year through two years	Mature over two years	
Corporate bonds	\$ —	\$ 2,869	\$ 902	\$ 3,771
Asset-backed securities	—	—	34,999	34,999
U.S. government and agency securities	5,984	—	1,859	7,843
Total marketable securities	\$ 5,984	\$ 2,869	\$ 37,760	\$ 46,613

Derivative Assets and Liabilities

The Company entered into foreign currency derivative contracts with financial institutions to reduce foreign exchange risk related to certain marketable securities denominated in foreign currency. Foreign currency derivative contracts are marked-to-market at the end of each reporting period with gains and losses recognized as other income (expenses). The Company recognized a net loss of less than \$0.1 million and a net gain of \$0.3 million during the three months ended March 31, 2025 and 2024, respectively, on the fair value adjustment of the foreign currency derivative contracts. The notional amount of foreign currency derivative contracts as of March 31, 2025 and December 31, 2024 was \$2.9 million and \$1.2 million, respectively.

6. Property, Plant and Equipment

Property, plant, and equipment consisted of the following as of:

(in thousands)	March 31, 2025	December 31, 2024
Land	\$ 56	\$ 56
Land improvements and infrastructure	58,547	58,452
Manufacturing equipment and pilot plant	111,185	111,053
Computer equipment and software	2,738	2,726
Lab equipment	3,507	3,496
Furniture, fixtures, and machinery	373	372
Leasehold improvements	4,765	4,765
Total	181,171	180,920
Less accumulated depreciation and amortization	(20,056)	(17,332)
Construction in process	50,453	40,331
Total property, plant, and equipment, net	\$ 211,568	\$ 203,919

The depreciation and amortization expense totaled \$2.7 million and \$2.3 million during the three months ended March 31, 2025 and 2024, respectively.

7. Notes Payable

In November 2016, Legacy Origin received a \$5.0 million prepayment from a legacy stockholder for product from Origin 1 pursuant to an “Offtake Agreement,” a type of agreement that generally provided for binding take-or-pay commitments to purchase certain annual volumes of product from our planned manufacturing facilities at specified prices, subject to satisfaction of certain conditions precedent, which was amended through August 2022. The prepayment was to be credited against the purchase of products over the term of the Offtake Agreement and was secured by a promissory note to be repaid in cash in the event that the prepayment could not be credited against the purchase of product. A repayment of \$2.7 million was made during 2024, \$1.9 million is due on September 1, 2025, and \$1.8 million is due on September 1, 2026 (inclusive of accrued but unpaid interest of 3.5% per annum). As of each of March 31, 2025 and December 31, 2024 the outstanding note principal balance was \$3.5 million of which \$1.7 million was included in notes payable, long-term and \$1.8 million was included in notes payable, short-term and the outstanding accrued interest of less than \$0.1 million was included in other liabilities, current. In addition, the legacy stockholder has exercised its option to enter into a new Offtake Agreement to buy a specified annual amount of product from Origin 2 for an initial term of up to 10 years.

Legacy Origin received a \$5.0 million prepayment from a legacy stockholder for product from Origin 1 pursuant to an Offtake Agreement entered into in November 2016, as amended through February 2024. The agreement was collateralized substantially by Origin 1 and other assets of Origin Material Canada Pioneer Limited. The agreement bore an annual interest rate of the three-month Secured Overnight Financing Rate (“SOFR”) plus 0.25% (4.94% at December 31, 2024). The December 31, 2024, outstanding principal of \$2.0 million was recorded in notes payable, short-term and less than \$0.1 million accrued interest outstanding was recorded in other liabilities, current. The Company repaid the notes payable and accrued interest in February 2025.

8. Other Liabilities

In September 2019, Legacy Origin entered into a \$5.0 million prepayment agreement with a counterparty for the purchase of products from Origin 1. In November 2024, the parties entered into a second memorandum of understanding providing for the return of the counterparty's first \$2.5 million prepayment, termination of the prepayment agreement, and a waiver of each party's rights, claims, and demands associated with that agreement. As of December 31, 2024, the total amount outstanding under this agreement was \$2.5 million which was included in other liabilities, current. The Company returned the prepayment on February 28, 2025.

9. Earnout Liability

As additional consideration for the Merger, within ten business days after the occurrence of a “Triggering Event,” as defined below, the Company shall issue or cause to be issued to each Legacy Origin stockholder a certain number of shares of the Company Class A common stock. The number of such shares is equal to the product of (i) the number of shares of Company common stock, Company Series A Preferred Stock, Company Series B Preferred Stock, Company Series C Preferred Stock, and the net number of shares of Company Capital Stock that would be issuable in respect of “Vested Company Options” in the event such options were exercised (on a net exercise basis with respect to only the applicable exercise price, immediately prior to the “Closing” and settled in the applicable number of shares of Company common stock, rounded down to the nearest whole share) held by such Legacy Origin stockholder as of immediately prior to the “Effective Time”; and (ii) the “Earnout Exchange Ratio” (such issued shares of Artius Class A common stock, collectively, the “Earnout Shares”), where “Vested Company Options,” “Closing,” “Effective Time,” and “Earnout Exchange Ratio” have the meanings set forth in the Merger Agreement. The Company cannot be required to issue more than 25,000,000 Earnout Shares in the aggregate. Additionally, such Earnout Shares will also become issuable in the event the Company enters into a definitive agreement with respect to an Artius Sale (as defined in the Merger Agreement) on or before the fifth anniversary of the Closing Date. A Triggering Event is defined as the following:

- (a) the volume weighted average price of common stock (“VWAP”) equaling or exceeding \$15.00 for ten consecutive trading days during the three year period following the closing date of June 25, 2021, ending June 25, 2024;
- (b) the VWAP equaling or exceeding \$20.00 for ten consecutive trading days during the four year period following the closing date, ending June 25, 2025; or
- (c) the VWAP equaling or exceeding \$25.00 for ten consecutive trading days during the five year period following the closing date, ending June 25, 2026.

A Sponsor Letter Agreement was delivered in connection with the Merger such that 4,500,000 of the shares held by Sponsor (“Sponsor Vesting Shares”) shall be subject to forfeiture based on the same vesting requirements as the Earnout Shares. The first Triggering Event was not met by its June 25, 2024 deadline and 1,500,000 shares were cancelled. As a result, there were 3,000,000 Sponsor Vesting Shares remaining and the value of Sponsor Vesting Shares in the earnout liability balance was reduced accordingly. These shares shall not be transferred prior to the date in which they vest. Dividends and other distributions with respect to Sponsor Vesting Shares shall be set aside by the Company and shall be paid to the Sponsor upon the vesting of such Sponsor Vesting Shares.

The Company evaluated the earnout liability under ASC 815-40, *Derivatives and Hedging-Contracts in Entity’s Own Equity* (“ASC 815-40”), and concluded they do not meet the criteria to be classified in stockholders’ equity. Specifically, there are contingent exercise provisions and settlement provisions that exist. Holders may receive differing amounts of shares depending on the company’s stock price or the price paid in a change of control. All remaining shares would be issuable (or the forfeiture provisions would lapse) upon any change of control involving the Company and all remaining shares would be issuable (or the forfeiture provisions would lapse) upon a bankruptcy or insolvency of the company. This means that settlement is not solely impacted by the share price of the Company (that is, the share price observed in or implied by a qualifying change-in-control event), but also by the occurrence of a qualifying change-in-control event. This causes the arrangement to not be indexed to the Company’s own shares and liability classification is appropriate. The Company records these instruments as liabilities on the unaudited condensed consolidated balance sheets at fair value, with subsequent changes in their respective fair values recognized in earnings at each reporting date. The earnout liability was fair valued using a Monte Carlo open-ended model. The inputs used for the model were a dividend yield of 0% and 0%, volatility of 100% and 136%, and interest rate of 3.92% and 4.12% at March 31, 2025 and December 31, 2024, respectively.

10. Canadian Government Research and Development Program Liability

In April 2019, the Company entered into a contribution agreement related to the research and development and construction associated with the operation of Origin 1 in which the Company will participate in a Canadian government research and development program (the “R&D Agreement”). Pursuant to the R&D Agreement, the Company will receive funding for eligible expenditures incurred through March 31, 2023 up to the lesser of approximately 18.48% of eligible costs and \$23.0 million (in Canadian dollars).

The funding will be repaid over 15 years after completion of Origin 1, commencing no sooner than the third fiscal year of consecutive revenues from a commercial plant, but no later than March 2028. The maximum amount to be repaid by the Company under the R&D Agreement is 1.25 times the actual funding received, subject to the following repayment ceiling formula. Once begun, repayments will be paid annually by April of each year through March 31, 2037. Payments will be determined by a formula of the funded amount based on the fiscal year gross business revenue, as defined in the R&D Agreement. The Company received zero and \$8.1 million during the three months ended March 31, 2025 and 2024, respectively, related to the eligible expenditures incurred before March 31, 2023.

11. Common Stock Warrants

As of March 31, 2025 and December 31, 2024 there are 35,476,627 warrants outstanding.

As part of Artius's initial public offering, 24,149,960 Public Warrants were sold. The Public Warrants entitle the holder thereof to purchase one share of common stock at a price of \$11.50 per share, subject to adjustments. The Public Warrants may be exercised only for a whole number of shares of common stock. No fractional shares will be issued upon exercise of the Public Warrants. The Public Warrants will expire on June 25, 2026 at 5:00p.m., New York City time, or earlier upon redemption or liquidation. The Public Warrants are listed on the Nasdaq under the symbol "ORGNW."

The Company may redeem the Public Warrants when exercisable, in whole and not in part, at a price of \$0.01 per warrant, so long as the Company provides not less than 30 days' prior written notice of redemption to each warrant holder, and if, and only if, the reported last sale price of the common stock equals or exceeds \$18.00 per share for any 20 trading days within a 30-trading day period ending on the third trading day prior to the date the Company sends the notice of redemption to the warrant holders.

Simultaneously with Artius's initial public offering, Artius consummated a private placement of 11,326,667 Private Placement Warrants with the Sponsor. The Private Placement Warrant is exercisable for one share of Class A common stock at a price of \$11.50 per share, subject to adjustment. The Private Placement Warrant expires on June 25, 2026 or earlier upon redemption or liquidation. The Private Placement Warrants are identical to the Public Warrants, except that: (1) the Private Placement Warrants and the shares of Class A common stock issuable upon exercise of the Private Placement Warrants are not transferable, assignable or salable until the earliest to occur of: (i) 365 days after the date of the Closing; (ii) the first day after the date on which the closing price of the Public Shares (or any successor securities thereto) equals or exceeds \$12.00 per share (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations and the like) for any 20 trading days within any 30-trading day period commencing at least 150 days after the date of the Closing; or (iii) the date on which Artius completes a liquidation, merger, capital stock exchange, reorganization or other similar transaction that results in all of Artius's Public Shareholders having the right to exchange their Public Shares (or any successor securities thereto) for cash, securities or other property, subject to certain limited exceptions, (2) the Private Placement Warrants will be exercisable on a cashless basis and be non-redeemable, except if the reference value equals or exceeds \$10.00 and is less than \$18.00 (as described above), so long as they are held by the initial purchasers or their permitted transferees, and (3) the Private Placement Warrants and the Class A ordinary shares issuable upon exercise of the Private Placement Warrants will be entitled to registration rights. If the Private Placement Warrants are held by someone other than the initial purchasers or their permitted transferees, the Private Placement Warrants will be redeemable under all redemption scenarios by the Company and exercisable by such holders on the same basis as the Public Warrants.

The Company concluded the Public Warrants and Private Placement Warrants, or Common Stock Warrants, meet the definition of a derivative under ASC 815 and are recorded as liabilities. Upon consummation of the Merger, the fair value of the Common Stock Warrants was recorded on the unaudited condensed consolidated balance sheets. The fair value of the Common Stock Warrants was remeasured at each reporting period (see Note 5 for additional details), and a gain of \$2.8 million and \$0.6 million during the three months ended March 31, 2025 and 2024, respectively, was recorded on the unaudited condensed consolidated statements of operations and comprehensive loss.

12. Stockholders' Equity

Common Stock

Holders of the common stock are entitled to dividends when, as, and if, declared by the board of directors (the "Board"), subject to the rights of the holders of all classes of stock outstanding having priority rights to dividends. As of March 31, 2025, the Company had not declared any dividends. The holder of each share of common stock is entitled to one vote.

Employee Stock Purchase Plan

The Company maintains an Employee Stock Purchase Plan (“ESPP”). The ESPP permits participants to purchase shares of our common stock with the purchase price of the shares at a price determined by our Board, which shall not be less than 85% of the lower of the fair market value of our common stock on the first day of an offering or on the date of purchase.

Initially, following adoption of the ESPP, the maximum number of shares of our common stock that may be issued under the ESPP was 1,846,710. The ESPP contains an “evergreen” share reserve feature that automatically increases the number of shares of common stock reserved for issuance under the plan on January 1 of each year for a period of ten years commencing on January 1, 2022 and ending on (and including) January 1, 2031 in an amount equal to the lesser of (1) one percent (1%) of the fully-diluted shares of our common stock on December 31st of the preceding calendar year, (2) 3,693,420 of common stock, or (3) such lesser number of shares as determined by our Board. As of December 31, 2024, the number of shares available for issuance under the ESPP was 5,639,944. Our Board made the decision not to increase the number of shares of common stock reserved for issuance under the ESPP as of January 1, 2025 as no stock has been offered or issued to employees under the ESPP to date. Shares subject to purchase rights granted under the ESPP that terminate without having been exercised in full will not reduce the number of shares available for issuance under the ESPP.

Equity Incentive Plans

The Company maintains the following equity incentive plans: the 2010 Stock Incentive Plan, the 2020 Equity Incentive Plan, and the 2021 Equity Incentive Plan, each as amended (together, the “Stock Plans”). Upon closing of the Merger, awards under the 2010 Stock Incentive Plan and 2020 Equity Incentive Plan were converted at the Exchange Ratio, which has the meaning set forth in the Merger Agreement, and the 2021 Equity Incentive Plan was adopted and approved.

Origin may grant a wide variety of equity securities under the Stock Plans, including incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, RSU awards, PSU awards, and other awards. The Company has granted incentive stock options, RSU awards, and PSU awards under the Stock Plans. Under the Stock Plans, options must be issued at exercise prices no less than the estimated fair value of the stock on the date of grant and are exercisable for a period not exceeding 10 years from the date of grant. Options granted to employees under the Stock Plans generally vest 25% one year from the vesting commencement date and 1/36th per month thereafter, although certain arrangements call for vesting over other periods. Options granted to non-employees under the Stock Plan vest over periods determined by the Board (generally immediate to four years). RSU awards granted to employees under the 2021 Equity Incentive Plan require a service period of three years and generally vest 33.3% annually over the three-year service period. Under the Stock Plans, the fair value of RSU awards and PSU awards are determined to be the grant date closing stock price. For awards with performance-based conditions, compensation is recorded once there is sufficient objective evidence the performance conditions are considered probable of being met. The PSU awards are subject to vesting based on a performance-based condition and a service-based condition. The PSU awards will vest in a percentage of the target number of shares between 0% and 300%, depending on the extent the performance conditions are achieved.

Initially, following adoption of the 2021 Equity Incentive Plan, there were 18,467,109 shares of common stock reserved for issuance under the Stock Plans. The 2021 Equity Incentive Plan contains an “evergreen” share reserve feature that automatically increases the number of shares of common stock reserved for issuance under the plan on January 1 of each year for a period of ten years commencing on January 1, 2022 and ending on (and including) January 1, 2031 in an amount equal to five percent (5%) of the fully-diluted common stock on December 31 of the preceding year unless our Board acts prior to January 1 to increase the share reserve by a lesser amount. The number of shares added to the share reserve on January 1 of a given year is reduced automatically to the extent necessary to avoid causing the share reserve to exceed fifteen percent (15%) of the fully-diluted common stock on December 31 of the preceding year. As of December 31, 2024, the number of shares available for issuance under the 2021 Equity Incentive Plan was 30,040,212. On January 1, 2025, the number of shares of common stock reserved for issuance under the 2021 Equity Incentive Plan was automatically increased by 712,137 shares pursuant to the 2021 Equity Incentive Plan’s “evergreen” provision to a total of 30,752,349 shares. As of March 31, 2025, there were 5,824,115 shares available for grant.

The following tables summarize stock option activity under the Stock Plans for the period ended March 31, 2025:

<i>(In thousands, except for share and per share amounts)</i>	Outstanding Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate intrinsic value
Balance as of December 31, 2024	3,917,974	\$ 0.17	5.52	
Exercised	(2,116)	0.14		
Expired	(1,058)	1.21		
Balance as of March 31, 2025	3,914,800	\$ 0.16	5.27	
Vested and expected to vest at March 31, 2025	3,914,800	\$ 0.16	5.27	\$ 1,973
Vested and exercisable at March 31, 2025	2,856,563	\$ 0.17	5.15	\$ 1,418

The total intrinsic value of the options exercised was less than \$0.1 million and \$0.2 million during the three months ended March 31, 2025 and 2024, respectively. The intrinsic value of options exercised during each fiscal year is calculated as the difference between the market value of the stock at the time of exercise and the exercise price of the stock option. As of March 31, 2025, the Company had stock-based compensation of less than \$0.1 million, related to unvested stock options not yet recognized that is expected to be recognized over an estimated weighted average period of 5.6 years.

The following table summarizes the RSU award activity for the period ended March 31, 2025:

	Unvested outstanding	Weighted-average grant date fair value	Vested-deferred outstanding	Weighted-average grant date fair value	Total
Balance at December 31, 2024	13,432,980	\$ 1.23	706,830	\$ 1.23	14,139,810
Granted - RSU awards	488,670	0.79	—	—	488,670
RSU awards vested and converted to shares	(265,201)	1.01	(513,342)	2.26	(778,543)
RSU awards vested and deferred	(407,548)	1.01	407,548	1.01	—
Forfeited - RSU awards	(169,801)	1.50	—	—	(169,801)
Balance at March 31, 2025	13,079,100	\$ 1.22	601,036	\$ 1.22	13,680,136

The RSU awards entitle the holder upon vesting to be issued on a future date the number of shares of common stock that is equal to the number of restricted stock units subject to the RSU awards. The total fair value of shares vested was \$0.4 million and \$0.1 million during the three months ended March 31, 2025 and 2024, respectively. As of March 31, 2025 the unvested-deferred outstanding balance of 601,036 RSU awards has been deferred at the election of the participant. The common shares for the deferred RSUs will be released sixty days following the participant's departure from the Company.

The vesting period for RSU awards is generally three years. Total remaining compensation expense for RSU awards to be recognized under the 2021 Equity Incentive Plan is \$12.6 million as of March 31, 2025, which is expected to be recognized over an estimated weighted average period of 1.4 years.

The following table summarizes the PSU award activity for the period ended March 31, 2025:

	Outstanding	Weighted-average grant date fair value
Unvested balance at December 31, 2024	1,590,227	\$ 5.33
Granted - PSU awards	785,227	0.84
PSU awards vested and converted to shares	(151,790)	0.93
Forfeited - PSU awards	(99,409)	6.81
Unvested balance at March 31, 2025	2,124,255	\$ 3.98

The performance conditions for the PSU awards granted in 2023 was met, therefore PSU award stock-based compensation expenses of \$72.2 thousand and \$27.6 thousand was recorded during the three months ended March 31, 2025 and 2024, respectively. The performance conditions for the remaining outstanding PSU awards were not probable of being met, therefore no PSU stock-based compensation expenses were recorded during the three months ended March 31, 2025 and 2024. Also, there were 391,575 PSU stock awards vested during 2022 but deferred based on the policy. The maximum amount of stock-based compensation expense for the unvested PSU awards, assuming maximum performance, is \$8.5 million. Total remaining compensation expense for PSU awards will be recognized over the requisite service periods once the performance-based conditions are met or deemed to be probable.

During the three months ended March 31, 2025 and 2024, stock-based compensation expense of \$1.8 million and \$2.1 million, respectively, was recognized in general and administrative expenses, and \$0.5 million and \$0.6 million, respectively, was recognized in research and development expenses on the unaudited condensed consolidated statements of operations and comprehensive loss.

13. Segment Reporting

Operating segments are identified as components of an enterprise for which separate discrete financial information is available for evaluation by the chief operating decision maker (“CODM”) for purposes of making decisions regarding resource allocation and evaluating financial performance. As of the year ended March 31, 2025, the Company has determined that its Chief Executive Officer and Chief Financial Officer/Chief Operating Officer are the CODMs. The CODMs review the unaudited condensed consolidated results of operations when making decisions about allocating resources and assessing the performance of the Company as a whole as the Company is still in an early stage of business. The Company does not distinguish between markets or segments for the purpose of internal reporting. Accordingly, the Company has determined that it operates in a single operating and single reportable segment at the consolidated entity level. The CODMs use net loss and loss from operations as the key performance measures to make key operating decisions.

Revenues are based on the location where services are provided and products are sold. All of the Company’s revenues are attributable to the U.S. for the periods presented. Reported segment net loss and loss from operations for the Company’s single reportable segment are shown in the unaudited condensed consolidated statements of operations and comprehensive loss.

The following table presents the significant segment expenses that are regularly provided to the CODMs:

(in thousands)	March 31, 2025	March 31, 2024
Total revenues	\$ 5,430	\$ 6,825
Cost of revenue	5,317	6,687
Operating expenses:		
Personnel Expenses	4,662	6,066
Other Expenses	8,750	9,758
Depreciation and amortization	2,714	2,311
Impairment of assets	16,610	—
Total operating expenses	32,736	18,135
Loss from operations	\$ (32,623)	\$ (17,997)

The personnel expenses represent payroll expenses excluding stock-based compensation. The other expenses represent research and development excluding personnel expenses, and general and administrative excluding personnel expenses.

Long-lived assets (excluding deferred tax assets) by geography

(in thousands)	March 31, 2025	December 31, 2024
United States	\$ 74,900	\$ 82,530
Non United States	154,005	155,702
Total	\$ 228,905	\$ 238,232

14. Income Taxes

The provision for income taxes is recorded at the end of each interim period based on the Company's best estimate of its effective income tax rate expected to be applicable for the full fiscal year, adjusted for any discrete items during the quarter. The Company has recorded an income tax provision of less than \$0.1 million and \$0.1 million during the three months ended March 31, 2025 and 2024, respectively, related to foreign income taxes in Canada. Other than Canadian income taxes, there is no provision for income taxes because the U.S. Company has incurred operating losses since inception. The Company's effective income tax rate was 0.22% and 0.86% for the three months ended March 31, 2025 and 2024, respectively. The Company continues to maintain a full valuation allowance on its net deferred tax assets in the U.S.

15. Leases

The Company leases office space and research and development space in Sacramento, California and Sarnia, Ontario under non-cancelable lease agreements and leases various office equipment, and warehouse space. Our operating leases have remaining lease terms of one to nine years.

16. Commitments and Contingencies

Commitments

The Company entered into multiple purchase agreements with various vendors to purchase equipment to fulfill a near-term demand for our PET closures during 2024. Pursuant to the agreements, the Company committed to purchase the equipment with installment payments. The Company made payments totaling of \$18.2 million through March 31, 2025, and has recorded the amount in property, plant, and equipment, net on the unaudited condensed consolidated balance sheets. The Company is obligated to make additional payments toward the remaining balances of up to approximately \$25.7 million subject to the achievement of certain milestones.

In April 2023, the Company entered into an agreement for conversion of materials produced by Origin 1 into certain derivatives. Pursuant to the agreement, the Company agreed to purchase conversion services for a certain minimum quantity of product on a take-or-pay basis for a term of 5 years beginning in 2025 for an aggregate total cost of \$33.0 million. Accordingly, the Company was obligated to purchase not less than \$5.0 million during 2025 and a minimum of \$7.0 million each of 2026 through 2029. The Company made advance payments totaling \$16.6 million to the counterparty as of December 31, 2024, which is included in the foregoing aggregate total, and the agreement provided for the Company to be fully reimbursed for the advance payments in the form of a discount on conversion services over the term. The Company recorded the advance payments in other long-term assets on the consolidated balance sheets. On April 4, 2025, the Company entered and executed an agreement with the counterparty to discharge the advance payments of \$16.6 million paid and future commitment under the take-or-pay agreement. The Company also paid an additional \$0.4 million to the counterparty in April 2025 for capital expenses in connection with the agreement. As such, the Company recorded an impairment charge of \$16.6 million to impairment of assets and \$0.4 million in general and administrative expense on the unaudited condensed consolidated statements of operations and comprehensive loss during the three months ended March 31, 2025 and accrued \$0.4 million in other liabilities, current on the unaudited condensed consolidated balance sheets as of March 31, 2025.

In February 2023, the Company entered into a nonexclusive patent license agreement for use in connection with production at a specific licensed facility. The license expires upon cessation of production at that facility. The Company made a nonrefundable \$5.0 million deposit in 2022 toward securing the license and, as a result of signing the license agreement, made an additional nonrefundable payment of \$7.9 million during 2023 and may make additional payments depending on the achievement of certain milestones. The total payment of \$12.9 million is included in other long-term assets on the unaudited condensed consolidated balance sheets. The Company also entered into a conditional offtake agreement under which, subject to certain conditions being met, the licensor was to supply the Company with a certain amount of the same type of products to be produced at the licensed facility in order to accelerate market development for these products and related applications. The Company issued a notice in January 2025 to terminate the conditional offtake agreement.

In July 2017, the Company entered into a nonexclusive patent license agreement for \$0.1 million, which expires upon expiration of the last to expire of the licensed patents. Under this agreement, the Company will pay less than \$0.1 million minimum royalty payments per year and, if the Company develops and sells certain products based on the licensed patents. Certain products that Origin is currently developing and anticipates selling are expected to utilize these patents.

In December 2016, the Company entered into a patent license agreement for \$0.5 million, which expires upon expiration of the last to expire of the licensed patents. Under this agreement, if the Company manufactures specific products at Origin 1 based on the patents and sells those products, the Company would pay a royalty up to a cumulative \$0.5 million. Thereafter, no further payments will be due for any production at Origin 1. If production of products based on the licensed patents occurs at other facilities, the Company will pay an upfront license fee royalty and a variable royalty based on production at that subsequent facility, capped at an aggregate \$10.0 million per such facility. Certain products that the Company is currently developing, if sold, are expected to utilize these patents. The Company does not currently anticipate such sales. No payments have been made under this agreement through March 31, 2025.

In September 2011, the Company entered into a nonexclusive patent license agreement, which expires upon expiration of the patent. Under this agreement, if the Company develops and sells specific products based on the patent, the Company would pay a royalty up to \$2.0 million per year and \$10.0 million in the aggregate. Certain products that the Company is currently developing, if sold, are expected to utilize these patents. The Company does not currently anticipate such sales. There were \$0.1 million and no payments for the annual royalties made during the three months ended March 31, 2025 and 2024, respectively.

In June 2011, the Company entered into a nonexclusive patent license agreement, which expires upon expiration of the licensed patent. Under this agreement, the Company pays less than \$0.1 million royalty fee annually and if the Company develops and sells specific products based on the patent, 0.4% of net sales. The pipeline of Company products and sales are not currently expected to be subject to this patent.

We enter into supply and service arrangements in the normal course of business. Supply arrangements are primarily for fixed-price manufacture and supply. Service agreements are primarily for the development of manufacturing processes and certain studies. Commitments under service agreements are subject to cancellation at our discretion which may require payment of certain cancellation fees. The timing of completion of service arrangements is subject to variability in estimates of the time required to complete the work.

Contingencies

At times there may be claims and legal proceedings generally incidental to the normal course of business that are pending or threatened against the Company. Since August 2023, the Company has been litigating a putative securities class action in the Eastern District of California against the Company and certain of its officers alleging violations of the federal securities laws in connection with the Company's announcement on August 9, 2023, that it expected the timeline for construction of its Origin 2 project to be delayed (*In re Origin Materials, Inc. Sec. Litig.*, No. 2:23-cv-01816-WBS-JDP (E.D. Cal.)). The Court has appointed a lead plaintiff. The Court has ruled twice on motions to dismiss the Complaint, most recently granting it in part and denying it in part. At this preliminary stage in the litigation, the Company cannot predict any particular outcome or financial impact thereof, if any.

In March 2025, two shareholders each filed a derivative complaint in the Eastern District of California against certain of the Company's current and former directors, with the Company as a nominal defendant. The cases are *Thomas Kaspar v. John Bissell, et al.*, Case No. 2:25-at-00326 (E.D. Cal. Mar. 7, 2025) and *Travis Tanasse v. John Bissell, et al.*, Case No. 2:25-at-00331 (E.D. Cal. Mar. 10, 2025). The complaints allege breaches of fiduciary duty and related state and federal claims in connection with the same August 9, 2023 announcement by the Company that is at issue in the *In re Origin Materials, Inc. Sec. Litig.* case. As relief, purportedly on behalf of the Company, each plaintiff seeks unspecified damages, fees and costs, and governance changes. The parties have filed a stipulation to consolidate and stay the separate derivative suits pending a final decision on any summary judgment motion filed by the defendants in the *In re Origin Materials, Inc. Sec. Litig.* matter. At this preliminary stage in the litigation, the Company cannot predict any particular outcome or financial impact thereof, if any.

17. Basic and Diluted Net Loss Per Share

The following table sets forth the computation of basic and diluted net loss per share attributable to common stockholders. Basic net loss per share is computed by dividing net loss for the period by the weighted-average number of common shares outstanding during the period, which excludes Sponsor Vesting Shares which are legally outstanding, but subject to return to the Company. Diluted net loss per share is computed by dividing net loss for the period by the weighted-average common shares outstanding during the period, plus the dilutive effect of the stock options and RSU awards, as applicable pursuant to the treasury stock method. The following table sets forth the computation of basic and diluted net loss per share:

(In thousands, except for share and per share amounts)

	Three Months Ended March 31,	
	2025	2024
Numerator:		
Net loss attributable to common stockholders—Basic	\$ (26,441)	\$ (13,913)
Net loss attributable to common stockholders—Diluted	\$ (26,441)	\$ (13,913)
Denominator:		
Weighted-average common shares outstanding—Basic ⁽¹⁾	146,852,340	141,828,895
Weighted-average common shares outstanding—Diluted ⁽¹⁾	146,852,340	141,828,895
Net loss per share—Basic	\$ (0.18)	\$ (0.10)
Net loss per share—Diluted	\$ (0.18)	\$ (0.10)

(1) Excludes weighted-average Sponsor Vesting Shares subject to return of 3,000,000 and 4,500,000 shares for the three months ended March 31, 2025 and 2024, respectively.

Diluted net loss per share reflects the potential dilution of securities that could dilute share in the earnings of an entity. The following potentially dilutive securities for common stock were outstanding and excluded from diluted net loss per share as they are subject to performance or market conditions that were not achieved as follows:

	Three Months Ended March 31,	
	2025	2024
Options to purchase common stock	1,058,231	1,481,531
Performance-based stock awards	2,124,255	1,794,893
Earnout shares	25,000,000	25,000,000
Sponsor Vesting Shares	3,000,000	4,500,000

The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share attributable to common stockholders for the periods presented because including them would have been antidilutive:

	Three Months Ended March 31,	
	2025	2024
Options to purchase common stock	2,856,569	3,381,132
Warrants to purchase common stock	35,476,627	35,476,627
RSU awards	13,079,100	11,053,204

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

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Origin Materials, Inc. (“the Company”, “Origin”, “we”, “us” and “our”) makes forward-looking statements in this Quarterly Report on Form 10-Q (this “Report”) and in documents incorporated herein by reference. All statements, other than statements of present or historical fact included in or incorporated by reference in this Report, regarding the Company’s future financial performance, as well as the Company’s strategy, future operations, financial position, estimated revenues, and losses, projected costs, prospects, plans and objectives of management are forward-looking statements. When used in this Report, the words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intends,” “may,” “might,” “plan,” “possible,” “potential,” “predict,” “project,” “should,” “will,” “would,” the negative of such terms and other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. These forward-looking statements are based on management’s current expectations, assumptions, hopes, beliefs, intentions and strategies regarding future events and are based on currently available information as to the outcome and timing of future events. The Company cautions you that these forward-looking statements are subject to all of the risks and uncertainties, most of which are difficult to predict and many of which are beyond the control of the Company, incident to its business.

These forward-looking statements are based on information available as of the date of this Report, and current expectations, forecasts and assumptions, and involve a number of risks and uncertainties. Accordingly, forward-looking statements in this Report and in any document incorporated herein by reference should not be relied upon as representing the Company’s views as of any subsequent date, and the Company does not undertake any obligation to update forward-looking statements to reflect events or circumstances after the date they were made, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws.

As a result of a number of known and unknown risks and uncertainties, the Company’s actual results or performance may be materially different from those expressed or implied by these forward-looking statements. Some factors that could cause actual results to differ include:

- the Company’s ability to complete construction and commissioning of closure manufacturing facilities for its PET closure and/or furanics products in the expected timeframe and in a cost effective manner;
- the effectiveness of the Company’s disclosure controls and procedures and internal control over financial reporting;
- the Company’s future financial and business performance, including financial projections and business metrics;
- changes in the Company’s strategy, future operations, financial position, estimated revenues and losses, projected costs, prospects and plans;
- the Company’s ability to scale in a cost-effective manner;
- the Company’s ability to raise capital, secure additional project financing and secure government incentives;
- the Company’s ability to procure necessary capital equipment and to produce its products in commercial quantities;
- the impact of laws and regulations and liabilities thereunder including, in particular, those hostile to environmental, social and governance (“ESG”) practices and DEI initiatives, and of existing and new tariffs and trade restrictions;
- the Company’s ability to procure and store necessary raw materials, works in process, and finished goods;
- any increases or fluctuations in raw material costs;
- the Company’s ability to avoid, mitigate, and recover from business and supply chain disruptions;
- the ability to maintain the listing of the Company’s common stock on the Nasdaq Capital Market (“Nasdaq”); and
- the impact of worldwide economic, political, industry, and market conditions, tariffs, geopolitical instability, supply chain disruptions, inflationary pressure, labor market constraints, bank failures, and other macroeconomic factors.

Other risks and uncertainties set forth in this Report, including risk factors discussed in Item 1A under the heading, “Risk Factors”.

Overview

Origin is a technology company with a mission to enable the world’s transition to sustainable materials. Our innovations include PET closures for an estimated global closures market opportunity of greater than \$65 billion. Our PET closures

enable fully-recyclable PET beverage containers and reduce waste through light-weighting, while providing enhanced performance such as greater oxygen and CO₂ barrier properties that can increase shelf-life. Our furanics technologies include our furanics platform for transforming carbon into sustainable materials for a wide range of end products capable of addressing an estimated \$1 trillion market opportunity, including food and beverage packaging, clothing, textiles, plastics, car parts, carpeting, tires, adhesives, soil amendments, and fuels.

Our PET closures and technologies for producing them reflect our mission to enable the world's transition to sustainable materials, as well as our polymer expertise and platform development capability. We are going to market with what we believe is the first commercially viable PET closure. We anticipate that our PET closure solutions can be transformative for packaging by designing for recycling circularity and improving the performance and sustainability of packaging. Our product candidates for markets include the PCO 1881 compliant PET closure and a tethered PET closure designed to comply with European cap tethering mandates and keep caps connected to bottles.

Our first Origin CapFormer System, a PET closure manufacturing system, successfully completed its FAT, which involves a series of tests performed on the system to ensure that the system meets the requirements and functions as intended, in September 2024. Since September 2024, our CapFormer System has produced caps for commercial qualification and has been delivered to our operations and manufacturing center in Reed City, Michigan, where it commenced commercial production in February 2025. We anticipate bringing additional CapFormer Systems online as part of our scale-up strategy with three additional lines expected to complete Factory Acceptance Testing on a rolling basis in Q2 and Q3 2025 and another three in Q4 2025 and Q1 2026.

In addition to our closures business, we have developed a number of technologies related to furanics, a class of chemicals with properties enabling the production of widespread and valuable materials, like plastics. These include our proprietary technology for transforming biomass, or plant-based carbon, into versatile intermediate chemicals. These intermediate chemicals include CMF and HTC, which we collectively refer to as Furanic Intermediates, as well as oils and extractives and other co-products. We believe that products made using our furanics technology at sufficient scale and maturity can compete directly with petroleum-derived products on both performance and price while being sustainable and lowering the carbon footprint.

The following discussion and analysis should be read in conjunction with our unaudited condensed consolidated financial statements and the related notes appearing elsewhere in this Report. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth in the sections titled "Cautionary Note Regarding Forward-Looking Statements" and "Risk Factors" as set forth elsewhere in this Report. Unless the context otherwise requires, references in this section to "Legacy Origin", "Origin", "the Company", "we", "us" and "our" refer to the business and operations of Legacy Origin and its consolidated subsidiaries prior to the Merger and to Origin Materials, Inc. and its consolidated subsidiaries, following the closing of the Merger.

Business Environment and Trends

Our business and financial performance depend on worldwide economic conditions. We face global macroeconomic challenges, particularly in light of increases and volatility in interest rates, uncertainty in markets, inflationary trends, navigating complex and evolving regulatory frameworks, and the dynamics of the global trade environment. We continue to observe market uncertainty, civil unrest, global sanctions, bank failures, inflationary pressures, supply constraints and labor shortages in the past few quarters, and potential and actual changes in tariffs and trade barriers on major trading partners of the US including Canada, Mexico, and European countries from which we source equipment to manufacture some of our products. In addition, several companies have announced products that may compete with our PET closures and biomass-derived chemicals and materials. These market dynamics, which we expect will continue into the foreseeable future, have and may continue to impact our business and financial results, including costs and revenues.

Historically, demand for PET closures has been strong. However, no company has yet been able to successfully commercialize a PET closure at meaningful scale because of, among other factors, technical challenges inherent in making caps from PET cost-effectively in a way that customers have been willing to accept. We have approached the problem of PET closure production differently, including with novel applications of thermoforming and slit and fold technologies, as well as key proprietary design elements. Our solution does not entail the use of custom polymers. As a result, we are going to market with what we believe is the first commercially viable PET closure.

Our PET closures can enable our customers to fulfill sustainability and performance objectives including lighter packaging weights, increased recycled content, enhanced container recyclability, and improved product shelf life due to the superior gas barrier properties of PET compared with HDPE and polypropylene. Leading food and beverage companies increasingly

embrace the vision of the circular economy, which seeks to minimize waste and keep valuable materials in circulation. Our PET closures offer clear value propositions for companies competing in this environment.

We believe demand for our PET closures is likely to continue to exceed supply for the foreseeable future. Our commercial strategy will focus on increasing PET closure production capacity and expanding our PET closure technology into new product types and packaging markets including food and home goods. Product development continues to progress quickly as we engage with technical, strategic, and supply chain partners.

Key Factors and Trends Affecting Our Operating Results

We are in the early stages of generating revenue. We believe that our performance and future success depend on several factors that present significant opportunities for us but also pose risks and challenges, including those discussed below and under “Risk Factors” appearing elsewhere in this Report.

Basis of Presentation

We currently conduct our business through one operating segment and our historical results are reported under accounting principles generally accepted in the United States of America (“U.S. GAAP”) and in U.S. Dollars. Upon commencement of commercial operations, we expect to expand our operations substantially in the United States and in other countries and, as a result, we expect our future results to be sensitive to foreign currency transaction and translation risks and other financial risks that are not reflected in our historical financial statements. As a result, we expect that the financial results we report for periods after we begin commercial operations will not be comparable to the financial results included in this Report.

Components of Results of Operations

We are in the relatively early stages of recognizing revenue and our historical results may not be indicative of our future results for reasons that may be difficult to anticipate. Accordingly, the drivers of our future financial results, as well as the components of such results, may not be comparable to our historical or projected results of operations.

Revenues

We evaluate financial performance and make resource allocation decisions based upon the results of our single operating and reportable segment. We generally procure, will produce, and sell product to be utilized in the manufacturing of finished products, for which we recognize revenue upon shipment. We purchase materials from various vendors and sell them to our customers for a moderate margin under our supply chain activation program as we establish the logistics and invoicing capabilities for our own products. Our service contracts generally pay us at the commencement of the agreement and then at additional intervals as outlined in each contract. We recognize revenue as we satisfy the related performance obligations.

Cost of Revenues

Cost of revenues for product sales consists primarily of cost associated with the purchase of finished goods. Cost of revenues for service agreements is based on the actual cost incurred, which mainly consists of the direct cost from vendors and overhead costs such as payroll and benefit related to our employees who provide the services to customers.

Research and Development Expenses

To date, our research and development (“R&D”) expenses have consisted primarily of development of a new manufacturing process for PET closures that is different from the injection and compression molding methods traditionally used for HDPE and polypropylene closures. Different closure formats have different geometries and technical needs, including tolerances to pressure and temperature. We are advancing the practice of thermoforming to meet the performance demands of closures. For our furanics technologies, including our biomass conversion platform, and related intermediates, we have been developing commercialization pathways focused on high-value applications. Our furanics development work has a characteristically longer development cycle than our closures R&D. Our R&D expenses also include personnel-related costs like stock-based compensation and professional fees.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel-related costs, including stock-based compensation and professional fees, including, the costs of accounting, audit, legal, regulatory and tax compliance.

Other Income (Expenses)

Our other income (expenses) consists of income from governmental grant programs, interest expenses for notes payable and other liabilities, interest and investment income (expenses) on marketable securities, realized gain or loss on marketable securities, investment fee, and gain or loss related to changes in the fair value of derivative assets and liabilities. We expect to incur incremental income (expenses) for the fair value adjustments of these assets and liabilities at the end of each reporting period.

(Loss) Gain in Fair Value of Common Stock Warrants Liability

The (loss) gain in fair value of common stock warrants liability consists of the change in fair value of the Warrants (the Public Warrants together with the Private Placement Warrants, the “Common Stock Warrants” or “Warrants”). We expect to incur incremental income (expenses) for the fair value adjustments for the outstanding common stock warrants liability at the end of each reporting period or through the exercise of the warrants.

(Loss) Gain in Fair Value of Earnout Liability

The (loss) gain in fair value of earnout liability consists of the change in fair value of the future contingent equity shares related to the Merger. We recognize incremental income (expense) for the fair value adjustments of the outstanding liability at the end of each reporting period.

Income Tax (Provision) Benefit

Our income tax provision consists of an estimate for U.S. federal, state, and foreign income taxes based on enacted rates, as adjusted for allowable credits, deductions, uncertain tax positions, changes in deferred tax assets and liabilities, and changes in the tax law. We maintain a valuation allowance against the full value of our U.S. federal and state, net deferred tax assets and certain foreign net deferred tax assets because we believe the recoverability of the tax assets is not more likely than not.

Results of Operations

Comparison of the three months ended March 31, 2025 and 2024

The following table summarizes our results of operations with respect to the items set forth in such table for the three months ended March 31, 2025 and 2024 together with the change in such items in dollars and as a percentage.

(in thousands)	Three Months Ended March 31,		Variance \$	Variance %
	2025	2024		
Revenues:				
Products	\$ 5,430	\$ 6,822	\$ (1,392)	(20)%
Services	—	3	(3)	(100)%
Total revenues	5,430	6,825	(1,395)	(20)%
Cost of revenues (exclusive of depreciation and amortization shown separately below)	5,317	6,687	(1,370)	(20)%
Operating expenses:				
Research and development	3,301	5,819	(2,518)	(43)%
General and administrative	10,111	10,005	106	1 %
Depreciation and amortization	2,714	2,311	403	17 %
Impairment of assets	16,610	—	16,610	100 %
Total operating expenses	32,736	18,135	14,601	81 %
Loss from operations	(32,623)	(17,997)	(14,626)	81 %
Other income (expenses):				
Investment income	1,206	1,864	(658)	(35)%
Interest expenses	(48)	(117)	69	(59)%
(Loss) gain in fair value of derivatives	(38)	296	(334)	(113)%
Gain in fair value of common stock warrants liability	2,778	649	2,129	328 %
Gain in fair value of earnout liability	2,462	1,518	944	62 %
Other expenses, net	(119)	(8)	(111)	1388 %
Total other income, net	6,241	4,202	2,039	49 %
Loss before income tax provision	(26,382)	(13,795)	(12,587)	91 %
Income tax provision	(59)	(118)	59	(50)%
Net loss	<u>\$ (26,441)</u>	<u>\$ (13,913)</u>	<u>\$ (12,528)</u>	<u>90 %</u>

Revenues

Revenues decreased \$1.4 million, or 20%, during the three months ended March 31, 2025 compared to the same period in 2024. The decrease in product revenue is primarily due to the planned reduction in the Company's supply chain activation program.

Cost of Revenues

Cost of revenues decreased \$1.4 million, or 20%, during the three months ended March 31, 2025 compared to the same period in 2024. The decrease is primarily attributable to the decrease in revenue associated with our supply chain activation program.

Research and Development Expenses

Research and development expenses decreased \$2.5 million, or 43%, during the three months ended March 31, 2025 compared to the same period in 2024. The changes are mainly attributable to \$1.2 million decrease in payroll expenses resulting from a reduction in headcount and \$1.2 million decrease in facilities expenses.

Impairment of Assets

Impairment of assets increased \$16.6 million, or 100%, during the three months ended March 31, 2025 compared to the same period in 2024. The increase is comprised of the non-cash impairment loss of \$16.6 million for the other long-term assets related to the agreement for conversion of materials produced by Origin 1 (see Note 16 “Commitments and Contingencies” to the unaudited condensed consolidated financial statements in this Report for additional details). On April 4, 2025, the Company entered and executed an agreement with the counterparty to discharge the advance payments of \$16.6 million paid and the take-or-pay agreement. As such, the Company recorded an impairment charge of \$16.6 million to impairment of assets on the unaudited condensed consolidated statements of operations and comprehensive loss during the three months ended March 31, 2025

Changes in Fair Value of Derivatives, Common Stock Warrants Liability, and Earnout Liability

We recognized an aggregate gain related to the changes in fair values of derivative, common stock warrant liability, and earnout liability of \$5.2 million during the three months ended March 31, 2025 compared to an aggregate gain of \$2.5 million during the same period in 2024. The aggregate gain related to the change in fair values increased \$2.7 million. The increase in the gain related to the change in fair value of earnout liability of \$0.9 million is the result of the revaluation of the earnout liability with the fair value of such liability decreasing significantly in the three months ended March 31, 2025 as compared to decreasing less during the same period in 2024. The \$2.1 million increase in the gain related to the change in fair value of common stock warrant liability is the result of a significant decrease in the fair value of the common stock warrants in the three months ended March 31, 2025 as compared to a small decrease during the same period in 2024. The movement in these instruments’ fair values are driven by the price of our common stock. The decrease of \$0.3 million in the loss from change in fair value of derivative was associated with our foreign currency exchange purchases or sales.

Non-GAAP Measures

To provide investors with additional information in connection with our results as determined in accordance with U.S. GAAP, we disclose Adjusted Earnings before Interest, Taxes, Depreciation, and Amortization (“Adjusted EBITDA”) as a non-GAAP measure. Adjusted EBITDA is a key metric used by management and our board to assess our financial performance. Adjusted EBITDA is also frequently used by analysts, investors, and other interested parties to evaluate companies in our industry, when considered alongside other U.S. GAAP measures. We use Adjusted EBITDA to supplement U.S. GAAP measures of performance to evaluate the effectiveness of our business strategies, make budgeting decisions and compare our performance against that of other companies using similar measures. This measure is not a financial measure calculated in accordance with U.S. GAAP, and it should not be considered as a substitute for net income, operating income, or any other measure calculated in accordance with U.S. GAAP, and may not be comparable to similarly titled measures reported by other companies.

Adjusted EBITDA

We believe that the presentation of Adjusted EBITDA is appropriate to provide additional information to investors about our operating profitability adjusted for certain non-cash items, non-routine items that we do not expect to continue at the same level in the future, as well as other items that are not core to our operations. Further, we believe Adjusted EBITDA provides a meaningful measure of operating profitability because we use it for evaluating our business performance, making budgeting decisions, and comparing our performance against that of other peer companies using similar measures.

We define Adjusted EBITDA as net income or loss adjusted for certain non-cash and non-recurring items, including (i) stock-based compensation, (ii) depreciation and amortization, (iii) impairment of assets, (iv) investment income, (v) interest expenses, (vi) change in fair value of derivatives, (vii) change in fair value of common stock warrants liability, (viii) change in fair value of earnout liability, (ix) other expenses, net and (x) income tax provision.

Reconciliation of GAAP net loss to non-GAAP adjusted EBITDA

(in thousands)	Three months ended March 31,	
	2025	2024
Net loss	\$ (26,441)	\$ (13,913)
Stock-based compensation	2,289	2,781
Depreciation and amortization	2,714	2,311
Impairment of assets	16,610	—
Investment income	(1,206)	(1,864)
Interest expenses	48	117
Loss (gain) in fair value of derivatives	38	(296)
Gain in fair value of common stock warrants liability	(2,778)	(649)
Gain in fair value of earnout liability	(2,462)	(1,518)
Other expenses, net	119	8
Income tax provision	59	118
Adjusted EBITDA	\$ (11,010)	\$ (12,905)

Liquidity and Capital Resources

Sources of Liquidity

Since inception, we have financed our operations principally from the sales and issuances of common stock, and governmental grant programs. We had \$83.0 million in cash, cash equivalents, and marketable securities as of March 31, 2025, and we believe that this balance will be able to fund our planned operations for at least the twelve months following the filing of this Report. Our cash equivalents are invested primarily in U.S. Treasury money market funds and our marketable securities are primarily U.S. government and agency securities, corporate bonds, asset-backed securities, foreign government and agency securities, and municipal bonds.

We began generating revenue from our business operations in 2023. Our ability to successfully develop the products, commence commercial operations and expand the business will depend on many factors, including our ability to meet the working capital needs, the availability of equity or debt financing and, over time, our ability to generate cash flows from operations.

We will require a significant amount of cash for capital expenditures as we invest in manufacturing lines for our PET closures business. In addition to our cash on hand, we anticipate that we will need substantial additional project financing, including from strategic partners, and government incentives to meet our financial projections, execute our growth strategy and expand our manufacturing capability. We may also enter into additional strategic partnerships to finance the development of closures manufacturing lines. Our ability to obtain financing for the construction of future Origin manufacturing facilities may depend in part on our ability to first enter into customer agreements sufficient to demonstrate adequate demand to justify the capital expenditure. We may also raise additional capital through equity offerings or debt financings, as well as through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties. Our future capital requirements will depend on many factors, including actual costs of our manufacturing lines or plants, changes in the costs in our supply chain, expanded operating activities and our ability to secure customers. If our financial projections are inaccurate, we may need to seek additional equity or debt financing from outside sources, which may not be available on acceptable terms, if at all. If we are unable to raise additional capital when required, our business, financial condition and results of operations would be harmed.

We expect to continue to incur operating losses in the near term as our operating and capital expenses are needed to support the growth of the business. We expect that our general and administrative expenses will continue to increase as we develop our PET closures business, increase our spending on strategic partnerships, increase our sales and marketing activities, produce materials and operate as a public company.

Indebtedness

As of March 31, 2025 and December 31, 2024, we had \$14.4 million of indebtedness under a Canadian government program, of which zero and \$8.1 million was received during the three months ended March 31, 2025 and 2024, respectively. Additionally, as of March 31, 2025, we had liability balances consisting of \$1.7 million notes payable, long-term, \$1.8 million notes payable, short-term, and less than \$0.1 million of unpaid accrued interest recorded in other liabilities, current. As of December 31, 2024, we had liability balances consisting of \$1.7 million notes payable, long-term, \$3.8 million notes payable, short-term, \$0.1 million unpaid accrued interest recorded in other liabilities, current, and a \$2.5 million customer prepayment recorded in other liabilities, current.

In November 2016, Legacy Origin received a \$5.0 million prepayment from a legacy stockholder for product from Origin 1 pursuant to an “Offtake Agreement,” a type of agreement that generally provided for binding take-or-pay commitments to purchase certain annual volumes of product from our planned manufacturing facilities at specified prices, subject to satisfaction of certain conditions precedent, which was amended through August 2022. The prepayment was to be credited against the purchase of products over the term of the Offtake Agreement and was secured by a promissory note to be repaid in cash in the event that the prepayment could not be credited against the purchase of product. A repayment of \$2.7 million was made during 2024, \$1.9 million is due on September 1, 2025, and \$1.8 million is due on September 1, 2026 (inclusive of accrued but unpaid interest of 3.5% per annum). As of each of March 31, 2025 and December 31, 2024 the outstanding note principal balance was \$3.5 million of which \$1.7 million was included in notes payable, long-term and \$1.8 million was included in notes payable, short-term and the outstanding accrued interest of less than \$0.1 million was included in other liabilities, current. In addition, the legacy stockholder has exercised its option to enter into a new Offtake Agreement to buy a specified annual amount of product from Origin 2 for an initial term of up to 10 years.

Legacy Origin received a \$5.0 million prepayment from a legacy stockholder for product from Origin 1 pursuant to an Offtake Agreement entered into in November 2016, as amended through February 2024. The agreement was collateralized substantially by Origin 1 and other assets of Origin Material Canada Pioneer Limited. The agreement bore an annual interest rate of the three-month Secured Overnight Financing Rate (“SOFR”) plus 0.25% (4.94% at December 31, 2024). The December 31, 2024, outstanding principal of \$2.0 million was recorded in notes payable, short-term and less than \$0.1 million accrued interest outstanding was recorded in other liabilities, current. The Company repaid the notes payable and accrued interest in February 2025.

Prepayments

In September 2019, Legacy Origin entered into a \$5.0 million prepayment agreement with a counterparty for the purchase of products from Origin 1. In November 2024, the parties entered into a second memorandum of understanding providing for the return of the counterparty's first \$2.5 million prepayment, termination of the prepayment agreement, and a waiver of each party's rights, claims, and demands associated with that agreement. As of December 31, 2024, the total amount outstanding under this agreement was \$2.5 million which was included in other liabilities, current. The Company returned the prepayment on February 28, 2025.

Cash Flows for the Three Months Ended March 31, 2025 Compared to the Three Months Ended March 31, 2024

The following table shows a summary of cash flows for the three months ended March 31, 2025 and 2024:

(in thousands)	Three Months Ended March 31,	
	2025	2024
Net cash used in operating activities	\$ (8,439)	\$ (16,735)
Net cash provided by investing activities	540	9,335
Net cash (used in) provided by financing activities	(4,542)	6,648
Effects of foreign exchange rate changes on the balance of cash and cash equivalents held in foreign currencies	(31)	1,023
Net (decrease) increase in cash and cash equivalents	\$ (12,472)	\$ 271

Cash Used in Operating Activities

Net cash used in operating activities for the three months ended March 31, 2025 was \$8.4 million. Non-cash expenses recognized that were added back to the net loss of \$26.4 million include \$16.6 million impairment loss, \$2.7 million depreciation and amortization, and \$2.3 million stock-based compensation. Also, there were \$1.4 million increase in accrued expenses. These adjustments were partially offset by the \$2.8 million change in fair value of common stock warrants liability and \$2.5 million change in fair value of earnout liability.

Net cash used in operating activities for the three months ended March 31, 2024 was \$16.7 million. Non-cash income recognized for the \$1.5 million change in the fair value of earnout liability were deducted from net loss of \$13.9 million, in addition to the \$2.4 million increase in other long-term assets and the \$2.0 million decrease in accrued expenses. These adjustments were partially offset by non-cash charges of \$2.8 million for stock-based compensation and \$2.3 million for depreciation and amortization.

Cash Provided by Investing Activities

Net cash provided by investing activities was \$0.5 million for the three months ended March 31, 2025, compared to net cash provided by investing activities of \$9.3 million over the same period in 2024. The change was primarily related to the increase in purchases of property, plant and equipment of \$5.1 million to scale up our PET closures business and a decrease in maturities of marketable securities of \$8.2 million which was partially offset by the increase in net sales of marketable securities of \$4.4 million to \$2.4 million for the three months ended March 31, 2025 from net purchases of \$2.0 million for the same period in 2024.

Cash (Used in) Provided by Financing Activities

Net cash used in financing activities was \$4.5 million for the three months ended March 31, 2025, compared to net cash provided by financing activities of \$6.6 million over the same period in 2024. The \$11.1 million change was primarily related to an increase of \$3.0 million in payment of notes payable, short-term, offset by a decrease of \$8.1 million in proceeds from Canadian Government Research and Development Program as the Company did not receive any funding in the current year.

Material Cash Requirements from Known Contractual and Other Obligations

Our material cash requirements from known contractual and other obligations as of March 31, 2025, consisted of:

- Operating lease liabilities that are included on our unaudited condensed consolidated balance sheets consists of future non-cancelable minimum rental payments under operating leases for our office space, research and development space, and leases of various office equipment, warehouse space. Operating lease liabilities of \$0.3 million are short term and the remaining \$3.8 million is long-term.
- In the near-term, the Company anticipates making payments related to the repayment agreement associated with one of the notes payable. The remaining repayment in the amount of \$1.9 million is due on September 1, 2025, and \$1.8 million is due on September 1, 2026 (inclusive of accrued but unpaid interest). However, the prepayment could be used to credit against the purchase of products over the term of the associated Offtake Agreement. For additional information regarding this repayment, see Note 7 “Notes Payable” to the unaudited condensed consolidated financial statements in this Report.
- Lastly, the operating cost of Origin 1 and our ongoing operating loss are expected to be funded through a combination of Company cash and marketable securities in addition to substantial project financing and government incentives.

Critical Accounting Policies and Estimates

Our financial statements have been prepared in accordance with U.S. GAAP. In the preparation of these unaudited condensed consolidated financial statements, we are required to use judgment in making estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities as of the date of the financial statements, as well as the reported expenses incurred during the reporting periods. On an ongoing basis, we evaluate our estimates and assumptions. Our actual results may differ from these estimates under different assumptions or conditions.

We consider an accounting judgment, estimate or assumption to be critical when (1) the estimate or assumption is complex in nature or requires a high degree of judgment and (2) the use of different judgments, estimates and assumptions could have a material impact on the unaudited condensed consolidated financial statements. Our significant accounting policies are described in Note 2 “Summary of Significant Accounting Policies” to our unaudited condensed consolidated financial statements included elsewhere in this Report. Our critical accounting policies and estimates were described in Part II, Item 7, Critical Accounting Policies and Estimates in our Annual Report on Form 10-K for the year ended December 31, 2024, which was filed with the SEC on March 13, 2025. Accordingly, these are the policies and estimates we believe are the most critical to aid in fully understanding and evaluating our consolidated financial condition and results of operations:

- The revenue recognition from contracts with customers
- The impairment of long-lived assets

Recent Accounting Pronouncements

See Note 3 “Recent Accounting Pronouncements” to the unaudited condensed consolidated financial statements in this Report for more information about recent accounting pronouncements, the timing of their adoption, and our assessment, to the extent we have made one, of their potential impact on our financial condition and results of operations and cash flows.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

As a "smaller reporting company" as defined by Item 10 of Regulation S-K, we are not required to provide the information required by Item 305 of Regulation S-K.

Item 4. Controls and Procedures

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating our “disclosure controls and procedures,” as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and “internal controls over financial reporting,” as such term is defined in Rule 13a-15(f) under the Exchange Act, our management, including our Chief Executive Officer and Chief Financial Officer/Chief Operating Officer, believe that our disclosure controls and procedures and our internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. Our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all instances of fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control deficiencies and instances of fraud, if any, have been detected. The design of any system of controls also is based partly on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Evaluation of Disclosure Controls and Procedures

Our management, under the direction of our Chief Executive Officer and Chief Financial Officer/Chief Operating Officer, has evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the period covered by this Quarterly Report on Form 10-Q. Based on this evaluation, our management, including our Chief Executive Officer and Chief Financial Officer/Chief Operating Officer, has concluded that, as of March 31, 2025, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There has been no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act), during the three months ended March 31, 2025 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. — OTHER INFORMATION

Item 1. Legal Proceedings

For a description of our legal proceedings, please see the description set forth in Note 16 “Commitments and Contingencies” in the notes to the unaudited condensed consolidated financial statements included in Item 1 of Part I of this Form 10-Q, which is incorporated herein by reference.

Item 1A. Risk Factors

The following risk factors summary and other information included in this Report should be carefully considered. The summary risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not currently known to us or that we currently deem less significant may also affect our business operations or financial results. If any of the following risks actually occur, our stock price, business, operating results and financial condition could be materially adversely affected. For more information, see below for more detailed descriptions of each risk factor.

- We are an early stage company with a history of losses and our future profitability is uncertain.
- Our business plan assumes we can secure substantial additional project financing and/or government incentives, which may be unavailable on favorable terms, if at all.
- We have not yet produced any of our products in large commercial quantities and some of our products, like our PET closures, have never been made by anyone before. As a result, we have faced, and may continue to face challenges and delays in the design, production, launch, commercialization, and/or maintenance of those products.
- Construction of manufacturing lines for production of our PET closures, or of additional plants beyond Origin 1, may not be completed in a timely or cost-effective manner or at all. Any delays in or failure to finance and complete the construction of manufacturing facilities could severely impact the implementation and commercialization of our PET closures and furanics technologies.
- We currently rely on, and plan to rely on, a limited number of manufacturing facilities to meet near-term customer demand for our PET closures and for our future intermediate chemical sales.
- We expect to rely on a limited number of customers for a significant portion of our near-term revenue.
- Our industry is highly competitive, and we may lose market share to producers of products that can be substituted for our products, which may have an adverse effect on our results of operations and financial condition.
- Increases or fluctuations in the costs of our raw materials may adversely affect our cost structure.
- We are dependent on third-party suppliers and service providers, some of which are sole source suppliers, who may fail, and in some cases have failed, to deliver raw materials or equipment or fail to supply needed services at all or according to schedules, prices, quality, and volumes that are acceptable to us, or we may be unable to manage these supplies effectively.
- We have entered into and may in the future enter into collaborations, strategic alliances, or licensing arrangements, which expose us and our intellectual property to competitive risks and limitations associated with third-party collaborations and that may not produce the benefits we anticipate.
- Compliance with extensive environmental, health, and safety laws could require material expenditures, changes in our operations or site remediation.
- Our business relies on proprietary information and other intellectual property, and our failure to protect our intellectual property rights could harm our competitive advantages with respect to the use, manufacturing, sale or other commercialization of our processes, technologies and products, which may have an adverse effect on our results of operations and financial condition.
- We may face patent infringement and other intellectual property claims that could be costly to defend, result in injunctions and significant damage awards or other costs (including indemnification of third parties or costly licensing arrangements, if licenses are available at all) and limit our ability to use certain key technologies in the future or require development of non-infringing products or technologies, which may cause us to incur significant unexpected costs, prevent us from commercializing our products and otherwise harm our business.

- We rely on trade secrets to protect our technology, and our failure to maintain trade secret protection could limit our ability to compete.
- Our management team has relatively limited experience operating a public company.
- If we fail to maintain effective internal control over financial reporting, it may result in material misstatements of our unaudited condensed consolidated financial statements or cause us to fail to meet our periodic reporting obligations.
- We have failed, and may continue to fail, to meet the listing standards of Nasdaq, and as a result our common stock may become delisted, which could have a material adverse effect on its liquidity.

The following risk factors apply to our business and operations. These risk factors are not exhaustive, and investors are encouraged to perform their own investigation with respect to our business, financial condition and prospects. We may face additional risks and uncertainties that are not presently known to us, or that we currently deem immaterial, which may also impair our business. The following discussion should be read in conjunction with the unaudited condensed consolidated financial statements and notes to such unaudited condensed consolidated financial statements included elsewhere in this Report and the “Management’s Discussion and Analysis of Financial Condition and Results of Operations” section of this Report.

Risks Related to Our Business

We are an early stage company with a history of losses and our future profitability is uncertain.

We have had a history of net losses due to our primary focus on research and development, plant construction, capital expenditures and early-stage commercial activities. Substantially all of our net losses since inception have resulted from our plant construction, research and development, and general and administrative costs associated with our operations. We have only recently begun generating revenue, and we expect that our net losses from operations will continue for the foreseeable future. Based on our estimates and projections, which are subject to significant risks and uncertainties, we expect our commercial scale production to be limited for several years and challenges with the design, construction, funding, and labor and equipment supply for our closures manufacturing lines and plants may further delay this timeline. Even as we commercialize and begin to generate revenue, we may not become profitable for many years, if at all.

Our potential profitability is dependent upon many factors, including our ability to complete development of our closures manufacturing lines and effectively operate those lines, as well as our current Origin 1 plant, maintain an adequate supply chain, anticipate and react to demand for our products, manufacture our products on a commercial scale, secure additional customer commitments, and otherwise execute our growth plan. The rate at which we incur losses may be higher in future periods as we:

- develop our PET closure business;
- increase our spending on strategic partnerships;
- increase production at our Origin 1 plant;
- increase our sales and marketing activities; and
- expand our commercial production capabilities and incur costs associated with developing and commercializing our closures and furanics technologies.

Because we will incur the costs and expenses from these efforts before receiving meaningful revenue, our losses in future periods could be significant. We may find that these efforts are more expensive than we currently estimate or that these efforts may not result in revenues, which would further increase our losses.

We may not manage growth effectively.

Our failure to manage growth effectively could harm our business, results of operations and financial condition. We anticipate that a period of expansion may be required to address potential growth. This expansion will place a significant strain on our management, operational and financial resources. To manage the growth of our operations and personnel, we must establish appropriate and scalable operational and financial systems, procedures and controls and establish and maintain a qualified finance, administrative and operations staff. We may be unable to hire, train, retain and manage the necessary personnel or to identify, manage and exploit potential strategic relationships and market opportunities.

Our business plan assumes we can secure substantial additional project financing which may be unavailable on favorable terms, if at all.

We expect to need substantial additional project financing in order to execute our growth strategy and expand our manufacturing capability to advance our PET closures and furanics technology. We have not yet secured all such project financing and may not in the future, and they may not be available on commercially reasonable terms, if at all. In particular, our ability to obtain financing for the construction of future manufacturing lines and plants may depend, in part, on our ability to first enter into customer agreements that demonstrate sufficient demand to justify such construction. If we are unable to obtain such financing, or secure sufficient customer agreements, on commercially reasonable terms, or at all, we will not be able to execute our growth strategy.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of those securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making acquisitions or capital expenditures or declaring dividends. Debt financing could also have significant negative consequences for our business, results of operations and financial condition, including, among others, increasing our vulnerability to adverse economic and industry conditions, limiting our ability to obtain additional financing, requiring the dedication of a substantial portion of our cash flow from operations to service our indebtedness, thereby reducing the amount of our cash flow available for other purposes, limiting our flexibility in planning for, or reacting to, changes in our business, and placing us at a possible competitive disadvantage compared to less leveraged competitors or competitors that may have better access to capital resources.

If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or products, grant licenses on terms that may not be favorable to us, or make other concessions. If we are unable to raise additional funds through equity or debt financings or other arrangements when needed, we may be required to delay, limit, reduce or terminate our commercialization, research and development efforts or grant rights to third parties to market and/or develop products that we would otherwise prefer to market and develop ourselves.

Government grants, incentives or subsidies, may have terms that limit or restrict certain of our planned operations, thereby requiring us to alter our operating plans and materially impacting our financial projections and projected results of operations. Government grants may also be terminated, modified or recovered under certain conditions without our consent.

We are exposed to credit risk in our activities related to potential nonperformance by customers.

In the normal course of our business, we provide payment terms to certain of our customers. As a result, our business could be adversely affected if our customers' financial condition deteriorates and they are unable to repay us. This risk may increase if the general economic downturn continues and further affects a large number of our customers or if our customers fail to manage their business effectively or adequately disclose their financial condition to us. Certain of our suppliers, including suppliers of equipment used in some of our manufacturing facilities, have in the past and may in the future declare bankruptcy or become insolvent, which disrupted our supply chain and required us to identify alternative suppliers, and may again in the future resulting in delay and/or additional cost. In addition, certain of our supply chain activation vendors have failed to pay and/or expressed doubt about their ability to timely pay, or pay at all, amounts due to the Company. The Company manages the risk of customer default through a combination of due diligence, contractual terms, and a diversified customer base. The number of customers, as well as our ability to discontinue service, contributes to reduce credit risk with respect to accounts receivable. Despite such mitigation efforts, customer defaults may occur and we may be unable to recover all or any of the amounts due to the Company, or we may be forced to incur, and in one case in which a supply chain activation vendor accepted prepayments from us for product the vendor failed to deliver, have incurred, legal and other collection costs to recover such amounts.

Our outstanding secured and unsecured indebtedness, ability to incur additional debt and the provisions in the agreements governing our current debt, and certain other agreements, could harm our business, financial condition, results of operations and prospects.

Our debt service and similar obligations could have important consequences to us for the foreseeable future, including that our ability to obtain additional financing for capital expenditures, working capital or other general corporate purposes may be impaired and we may be or become substantially more leveraged than some of our competitors, which could place us at

a relative competitive disadvantage and make us more vulnerable to changes in market conditions and governmental regulations.

We are required to maintain compliance with covenants under our debt and similar agreements. There are and will be operating or financial restrictions and covenants in certain of our debt and similar agreements, including the promissory notes and prepayment agreements we are party to, as well as certain other agreements to which we are or may become a party. These limit, among other things, our ability to incur certain additional debt, create certain liens or other encumbrances and sell assets. These covenants could limit our ability to engage in activities that may be in our best long-term interests. Our failure to comply with certain covenants in these agreements could result in an event of default under the various debt and similar agreements, allowing lenders to accelerate the maturity for the debt under these agreements and to foreclose upon any collateral securing the debt. Under such circumstances, we might not have sufficient funds or other resources to satisfy all of our obligations.

Risks Related to Our Operations and Industry

Some of our products have never been made by anyone before, and, as a result, we have experienced, and may continue to experience, significant delays or other obstacles in the design, production, launch and/or maintenance of our products, and we may be unable to successfully or timely commercialize those products, which could harm our business, financial condition, and results of operations.

Some of our products, like our PET closures, are brand new, and have never been made by anyone before. We face challenges inherent to commercializing such “never been done before” products based on a new material and design. We have experienced, and may continue to experience, design, manufacturing, quality, support, marketing and other challenges that could delay or prevent the development, commercialization or marketing of our products. In addition, we have invested and will continue to invest significant amounts in the design, production, launch and maintenance of our products, such as our PET closures and furanic intermediates. These products have never been successfully produced at large commercial scales. Developing our products is complex and involves uncertainties, including whether they will work as intended in the applications for which they are designed or at all, or whether they will deliver the performance and sustainability benefits that we believe differentiate our products from those with which they must compete. Moreover, for our PET closures product, customer qualification can take months, even for a single iteration, because the process is dynamic, can vary by customer, and requires multiple cycles of design, production, shipment, testing, gathering feedback, and design updates. Delays in any of stages of a qualification cycle can in turn delay our ability to earn revenue from our products.

Furthermore, the introduction of new products, such as our PET closures and furanic intermediates, requires us to manage the transition from existing/incumbent products, such as HDPE and polypropylene closures and the machines that apply them to packaging, in accordance with customer requirements. For example, products like our PET closures depend on the ability to operate with third-party systems such as capping machines, and these systems will not necessarily work with our products as well as they do with existing alternatives like HDPE or polypropylene closures. Furthermore, one bottling line can behave differently from another and, with larger customers operating hundreds of bottling lines in multiple regions, customer requirements can be demanding to ensure consistent performance of our closures across those lines and regions. If we fail to achieve and maintain compatibility with our customers’ infrastructure, the products with which our products will be used, and our customers’ supply and distribution networks, then demand for our products will decline, reducing our revenue and market share, which could harm our business, financial condition and results of operations.

We also expect to introduce new products as we encounter changing customer and regulatory requirements, such as tethered caps to comply with European regulations, and increasing competitive pressures, including those from incumbent HDPE and polypropylene closure manufacturers and others trying to develop PET closures. If we cannot make and increase sales of our products, keep pace with technological and regulatory developments to meet customer needs, or compete with evolving standards, or if the technologies we invest in fail to meet customer needs or are not adopted by customers in the timeframes we expect, our financial condition and results of operations will be adversely affected.

We have not yet produced any of our products in large commercial quantities.

We have no experience in producing large quantities of our products. While we have succeeded in producing small amounts of our intermediate chemicals in our pilot plants and Origin 1 plant, as well as relatively small amounts of our PET closures, for customer evaluation, we have only relatively recently commenced commercial-scale production of our chemical intermediates and PET closures. There are significant technological and logistical challenges associated with producing, marketing, selling, and distributing products in the specialty chemicals and closures industries, including our products, and we may not be able to resolve all of the difficulties that arise in a timely or cost-effective manner, or at all. While we believe that we understand the engineering and process characteristics necessary to successfully build and operate additional planned facilities and scale up to larger and/or additional facilities, we may be unable to cost-effectively

manage such construction and operation at a scale or quality consistent with customer demand in a timely or economical manner or at all.

Construction of manufacturing lines for production of our PET closures, or of additional plants beyond Origin 1, may not be completed in a timely manner or completed in a cost-effective manner, or at all. Any delays in or failure to finance and complete the construction of manufacturing facilities could severely impact the implementation and commercialization of our PET closures and furanics technologies.

Our ability to satisfy our customer demand for PET closures and to implement our furanics technology platform depends, in part, on our ability to secure additional funding. We have not selected a site for any of our future planned furanics plants or many of our planned PET closures manufacturing lines. We may have difficulty finding sites with appropriate infrastructure and access to raw materials and skilled labor. With respect to future plants, we also do not have agreements with engineering, procurement or construction firms, or with some of the firms we expect to rely on for our PET closures supply chain. Consequently, we cannot predict on what terms such firms may agree to design and construct our future manufacturing facilities. Our business, financial condition, results of operations and prospects could be severely impacted, we may lose customers and customer demand, and we could face litigation if we are unable to construct these facilities and procure and set up our manufacturing lines within the planned timeframes, which are relevant to some of our customers' carbon reduction, sustainability, marketing, or other goals, or in a cost-effective manner, or at all due to a variety of factors. Such factors include, without limitation, a failure to acquire or lease property on which to build and operate our manufacturing facilities, tariffs and other trade limitations, travel and visa restrictions, imposed by or in response to the United States, a stoppage of construction as a result of epidemics, disruptions caused by global sanctions imposed against Russia following its military incursion into Ukraine, a major supplier of certain metals such as nickel used in materials of construction, unexpected construction problems, permitting and other regulatory issues, severe weather, inflationary pressures, labor disputes, or issues with subcontractors or vendors, including payment disputes, which we have previously experienced.

The construction and commissioning of any new project is dependent on a number of contingencies some of which are beyond our control. There is a risk that significant unanticipated costs or delays could arise due to, among other things, errors or omissions, unanticipated or concealed project site conditions, including subsurface conditions and changes to such conditions, unforeseen technical issues or increases in plant and equipment costs, insufficiency of water supply and other utility infrastructure, inadequate contractual arrangements, or design changes and associated or additional technical development work related, for example, to new or different process steps or product streams, or changes in the scale of equipment or operations. Should these or other significant unanticipated costs or delays arise, this could have a material adverse impact on our business, financial performance and operations. No assurance can be given that construction will be completed on time or at all, or as to whether we will have sufficient funds available to complete construction.

We currently rely on, and plan to rely on, a limited number of manufacturing facilities to meet near-term customer demand for our PET closures and for our future intermediate chemical sales.

Our operating plan assumes that we will rely on a limited number of manufacturing facilities to meet customer demand and that these facilities will supply most of our products until additional facilities can be brought online. Adverse changes or developments affecting these facilities could impair our ability to produce our products. Any shutdown or period of reduced production at these facilities, which may be caused by regulatory noncompliance or other issues, as well as other factors beyond our control, such as severe weather conditions, natural disaster, fire, power interruption, work stoppage, disease outbreaks or pandemics, equipment failure or delay in supply delivery, would, among other things, significantly disrupt our ability to recognize revenue, execute our expansion plans, and meet our contractual obligations and customer demand. In addition, our facilities' equipment may be costly to replace or repair, and our equipment supply chains may be disrupted in connection with potential changes in tariffs and trade barriers (such as those recently imposed on China, Canada, and Mexico by the United States, including a blanket 10% tariff on goods from Europe, which have recently begun impacting equipment we require for our CapFormer lines, as well as retaliatory tariffs and barriers imposed by those countries), pandemics, sanctions (such as those imposed against Russia following its military incursion into Ukraine), or other factors. In addition, certain of our suppliers, including of equipment used in some of our manufacturing facilities, have in the past and may in the future declare bankruptcy or become insolvent, which could disrupt our supply chain or require us to identify alternative suppliers, resulting in delay and/or additional cost. If any material amount of our equipment is damaged, we could be unable to predict when, if at all, we could replace or repair such equipment or find suitable alternative equipment, which could adversely affect our business, financial condition, results of operations and prospects. Performance guarantees may not be sufficient to cover damages or losses, or the guarantors under such guarantees may not have the ability to pay. We may be unable to obtain appropriate types or amounts of insurance, and any insurance coverage we have may be insufficient to cover all of our potential losses or continue to be available to us on acceptable terms, or at all.

We may be delayed in procuring or be unable to procure necessary capital equipment.

While much of the equipment we use to produce our products is currently widely available, we rely on outside companies to continue to manufacture the equipment necessary to produce our products. In addition, some equipment we use to produce our products requires significant lead time to manufacture. If our suppliers of manufacturing equipment are unable or unwilling to provide us, or if we experience significant delays in obtaining the necessary manufacturing equipment, or parts necessary to repair and maintain that equipment, our business, we may be unable to make our products and our results of operations and financial condition could be adversely affected. The repair, maintenance, or construction of our manufacturing equipment may also require a substantial portion of certain materials and supplies relative to the overall global supply of such materials and supplies. If we are unable to secure an adequate supply of such materials and supplies on commercially reasonable terms, or at all, such repair, maintenance, or construction may be delayed or terminated.

We expect to rely on a limited number of customers for a significant portion of our near-term revenue.

We currently have commercial arrangements with a limited number of customers from which we expect to derive a significant portion of near-term revenue. Our top two customers from product sales, in the aggregate, accounted for approximately 93% as of each of March 31, 2025 and December 31, 2024, of total accounts receivable outstanding balances and accounted for approximately 99% and 92% of total revenue for the three months ended March 31, 2025 and 2024, respectively. Our business, results of operations, and financial condition may be harmed by the loss of one or more of our significant customers, a substantial reduction in their orders, their failure to enter into offtake agreements or purchase commitments that support necessary financing, or at all, or to purchase product, their unwillingness to extend contractual deadlines if we fail to meet production, product, or specification requirements, their inability to perform under their contracts or a significant deterioration in their financial condition. If we fail to perform under the terms of these agreements, the customers could seek to terminate the agreements and/or pursue damages against us, which could harm our business.

Our products may not achieve market success, but will still require significant costs to develop, which could harm our business, financial condition, and results of operations.

We believe that we must dedicate significant resources to develop and commercialize our products before knowing whether there will be market acceptance of our products. We may never commercialize the products we develop, and even if commercialized, the performance of these products is uncertain. For example, we currently have predominantly non-binding customer commitments for commercial quantities of our products. Some prospective customers are currently evaluating and testing our products prior to making large-scale purchase decisions. Other products we expect to develop have not yet started customer evaluation and testing. The successful commercialization of our products depends on our customers' ability to commercialize the end-products that use our products, which may gain market acceptance slowly, if at all. Furthermore, the technology for our products is new, and the economic and physical performance, including their ultimate carbon footprint, recyclability, circularity, or other expected sustainability benefits, is uncertain. The market for our PET closures and for decarbonized materials made from our furanics technology, still is nascent and subject to significant risks and uncertainties.

Market acceptance of our products will depend on numerous factors, many of which are outside of our control, including, among others:

- public acceptance of such products;
- our ability to produce products of consistent quality that offer functionality comparable or superior to existing or new products;
- our ability to produce products fit for their intended purpose;
- our ability to produce new products or customizations of existing products to match changes in public demand;
- our ability to timely obtain necessary regulatory approvals for our products;
- the speed at which potential customers qualify our products for use in their products;
- the price, performance (e.g., gas barrier, weight), and sustainability (e.g., carbon intensity, recyclability) of our products compared to competitive and alternative products, including petroleum-based plastics or incumbent HDPE and polypropylene closures, as well as similar products made by different methods such as PET closures made using injection or compression molding methods;

- the strategic reaction of companies that market competitive products or have intellectual property rights that may be necessary to produce our products economically, effectively, or at all;
- our reliance on third parties who support or control distribution channels; and
- general market conditions, including fluctuating demand for our products.

Our industry is highly competitive, and we may lose market share to producers of products that can be substituted for our products, which may have an adverse effect on our results of operations and financial condition.

The closures and specialty chemicals industries are highly competitive, and we face significant competition from incumbent HDPE and polypropylene closures businesses as well as incumbent injection and compression molding technologies, which have been widely adopted. Our furanics products are expected to compete with those of large established producers of fossil-based materials, recycled fossil-based materials, and a variety of current and future producers of low-carbon, biodegradable, or renewable resource-based materials. Many of our current competitors have longer operating histories, greater name recognition, larger customer bases and significantly greater financial, sales and marketing, manufacturing, distribution, technical and other resources than us. Recently, certain of our competitors in the closures industry, as well as others in the specialty chemicals industry, have announced products that may compete directly with our own. Our competitors may be able to adapt more quickly to new or emerging technologies, changes in customer requirements and changes in laws and regulations. In addition, current and potential competitors have established or may establish financial or strategic relationships among themselves or with existing or potential customers or other third parties. Accordingly, new competitors or alliances among competitors could emerge and rapidly acquire significant market share.

Our competitors may also improve their relative competitive position by successfully introducing new products or products that can be substituted for our products, improving their manufacturing processes, or expanding their capacity or manufacturing capabilities. Further, if our competitors are able to compete at advantageous cost positions, this could make it increasingly difficult for us to compete in markets for less-differentiated applications. If we are unable to keep pace with our competitors' product and manufacturing process innovations or cost position, it could harm our results of operations, financial condition and cash flows.

The commercial success of our closures business may be influenced by the price of incumbent HDPE or polypropylene, and of closures made from these materials, relative to the price of PET, and of closures made from this material, while commercial success of our furanics technology may be influenced by the price of petroleum relative to the price of non-fossil feedstocks like forest residues or old corrugated cardboard.

Our commercial success may be influenced by the cost of HDPE or polypropylene relative to PET, as well as the relative price of closures made from these materials, while commercial success of our furanics technology could be influenced by the cost of our biomass-derived products relative to petroleum-based products. Negative impacts could result from changes in the relative prices of HDPE, polypropylene, and PET, and of closures made from these materials. Cheaper HDPE or polypropylene relative to PET could drive our customers to shift purchases away from our PET closures and toward closures made from HDPE or polypropylene, which they currently use in large numbers. The cost of petroleum-based products is in part based on the price of petroleum, which is subject to historically fluctuating prices. Our furanics technology is designed to use biomass feedstocks such as timber and forest residues, which historically have experienced low volatility relative to petroleum. Increases in the price of bio-based feedstocks or decreases in the price of petroleum, or our use of bio-based feedstocks such as sugars or starches that may have higher volatility or cost than timber and forest residues, could make products derived from our furanics technology less competitive than their petroleum-based counterparts and require price reductions to stay attractive in the marketplace, harming our revenues.

Increases or fluctuations in the costs of our raw materials may adversely affect our cost structure.

The price of raw materials may be impacted by external factors, including uncertainties associated with war, terrorist attacks, weather and natural disasters, potential changes in tariffs and trade barriers (such as those recently imposed on China, Canada, Mexico, and European countries by the United States as well as retaliatory tariffs and barriers imposed by those countries), health epidemics or pandemics (such as COVID-19), civil unrest, the effects of climate change or political instability, plant or production disruptions, strikes or other labor unrest, inflationary pressures, breakdown or degradation of transportation infrastructure used in the delivery of raw materials, changes in laws or regulations in any of the countries in which we have significant suppliers, or tariffs or other trade restrictions imposed on or by such countries.

Our PET closures are designed to use PET, including recycled PET, as a raw material. Similarly, our furanics technology is designed to use biomass such as local timber and forest residues as raw materials. The cost of these raw materials is

generally influenced by supply and demand factors, and our operating plans include assumptions that the materials we intend to use as feedstocks will be available at prices similar to historic levels with low volatility. As we continue to expand our production, we will increase our demand for PET to produce our PET closures, and of timber and forest residues to produce our chemical intermediates, which may alter the anticipated stability in the costs of our raw materials and potentially drive an increase in their cost. Additionally, we are not the only company seeking to convert timber and forest residuals into products that replace traditionally petroleum-derived equivalents. Positive momentum gained by other companies may impact the supply/demand balance.

Our results of operations will be directly affected by the cost of raw materials and other inputs, like the amount and cost of steam in the manufacturing process. The cost of raw materials and energy, such as to produce the steam required during feedstock processing, comprises a significant amount of our total cost of goods sold and, as a result, movements in the cost of raw materials, and in the cost of other inputs, will impact our profitability. Because a significant portion of our cost of goods sold is represented by these raw materials, our gross profit margins could be adversely affected by changes in the cost of these raw materials if we are unable to pass the increases on to our customers.

If our raw material prices experience volatility, there can be no assurance that we can continue to recover raw material costs or retain customers in the future. As a result of our pricing actions, customers may become more likely to consider competitors' products, some of which may be available at a lower cost. Significant loss of customers could adversely impact our results of operations, financial condition and cash flows.

We are dependent on third-party suppliers and service providers, some of which are sole source suppliers, who may fail, and in some cases have failed to deliver raw materials or equipment or fail to supply needed services at all or according

to schedules, prices, quality and volumes that are acceptable to us, or we may be unable to manage these supplies effectively.

Parts of our supply chain currently are dependent on a limited number, and in some cases a single, third-party supplier or service provider for key inputs, equipment, and services including for production of our PET closures. We recently terminated our sole contract for conversion of chemical intermediates produced by our Origin 1 plant into downstream derivatives and applications and, as such, would need to enter in a new contract for such services if we wish to procure or sell these downstream derivatives or applications. We have not yet secured agreements with our preferred (or the only) supplier of some inputs, equipment, and services, and we may be unable to do so on a time frame or terms we find acceptable, or at all. Our reliance on few or single suppliers in a limited number of locations risks multiple supply chain vulnerabilities. For example, certain of our suppliers have in the past and may in the future declare bankruptcy or become insolvent, which could disrupt our supply chain or require us to identify alternative suppliers, resulting in delay and/or additional cost. Locating our first CapFormers in the United States means we are subject to cost increases on the components used to make these systems, which predominantly come from Europe, due to tariffs imposed by the United States including a blanket 10% tariff on goods from European countries. We are likewise exposed to cost increases on the closures produced by our CapFormers due to retaliatory tariffs imposed by other countries in which we may sell those closures. The military conflict in Ukraine can exacerbate the risks to our supply chain to the extent our suppliers depend on raw materials, components, or parts from Russia or Ukraine including, for example, certain metals, like nickel, used in materials of construction.

Finding substitute suppliers and service providers, to the extent they exist, may be expensive, time-consuming, or impossible and could interrupt or delay the supply of our products causing us to lose revenue and potentially harm our customer relationships or reputation and expose us to contractual remedies under our supply agreements. To the extent we do not have firm commitments from our third-party suppliers or service providers for a specific time period or capacity, quantity, and/or pricing, our suppliers may allocate capacity to their other customers, which could make that capacity unavailable to us when needed or at reasonable prices and prevent us from delivering our products on time or at all. For instance, if we are unable to timely obtain shipping services for our PET closures, we may need to store those closures for extended periods during which they could degrade or become unusable, forcing us to dispose of them and/or replace them at additional cost. Any of these occurrences could adversely affect our supply chain and cause serious harm to our business.

We may be unable to secure agreements with local suppliers for the necessary amount of raw materials needed to produce our PET closures or Furanic Intermediates in certain circumstances. Additionally, if our suppliers do not accurately forecast and effectively allocate sufficient materials to us or if they are not willing to allocate sufficient supplies to us, it may reduce our access to raw materials needed for our manufacturing and require us to search for new suppliers. The unavailability of any raw materials could result in production delays, idle manufacturing facilities, product design changes and loss of access to important residues supporting our production, as well as impact our capacity to fulfill our obligations under our supply agreements. In addition, unexpected changes in business conditions, materials pricing, labor issues, wars, trade policies, natural disasters, epidemics or pandemics, trade and shipping disruptions, and other factors beyond our or our suppliers' control could also affect these suppliers' ability to deliver components to us or to remain solvent and operational.

Additionally, we may be unsuccessful in our continuous efforts to negotiate with existing suppliers to obtain cost reductions and avoid unfavorable changes to terms, or source less expensive suppliers for certain materials, especially in light of the overall increases in supply and shipment pricing. Any of these occurrences may harm our business, prospects, financial condition and operating results.

If we are required to obtain alternate sources for raw materials, for example because a supplier is unwilling or unable to execute or perform under raw material supply agreements, if a supplier terminates its agreements with us, if a supplier is unable to meet increased demand as our commercial scale production expands, if we are unable to renew its contracts or if we are unable to obtain new long-term supply agreements to meet changing demand, we may not be able to obtain these raw materials in sufficient quantities, on economic terms, or in a timely manner, and we may not be able to enter into long-term supply agreements on terms as favorable to us, if at all. A lack of availability of raw materials could limit our production capabilities, require us to use alternate raw materials such as non-timber feedstocks that may be more expensive or have inferior carbon reduction or other performance characteristics, and prevent us from fulfilling customer orders, and therefore harm our results of operations and financial condition.

As the scale of our manufacturing increases, we will also need to accurately forecast, purchase, warehouse and transport raw materials at high volumes to our manufacturing facilities internationally. If we are unable to accurately match the timing and quantities of raw material purchases to our actual needs or successfully implement inventory management and warehousing systems, we may incur unexpected production disruption, storage, transportation and write-off costs, which may harm our business and operating results.

Maintenance, expansion and refurbishment of our facilities, the construction of new facilities and production lines, and the development and implementation of new manufacturing processes involve significant risks.

Our facilities may require regular or periodic maintenance, upgrading, expansion, refurbishment or improvement. Any unexpected operational or mechanical failure, including failure associated with breakdowns and forced outages, could reduce our facilities' production capacity below expected levels, which would reduce our production capabilities and ultimately our revenues. Unanticipated capital expenditures associated with maintaining, upgrading, expanding, repairing, refurbishing, or improving our facilities may also reduce our profitability. Our facilities may also be subject to unanticipated damage as a result of natural disasters, terrorist attacks or other events.

If we make any major modifications to our facilities or those of third parties in our supply chain, such modifications likely would result in substantial additional capital expenditures and could prolong the time necessary to bring the facility online. We may also choose to refurbish or upgrade facilities based on our assessment that such activity will provide adequate financial returns. However, such activities require time for development and capital expenditures before commencement of commercial operations, and key assumptions underpinning a decision to make such an investment may prove incorrect, including assumptions regarding construction costs and timing, which could harm our business, financial condition, results of operations and cash flows.

The development of new manufacturing facilities entails a number of risks and assumptions, including the ability to begin production within the cost and timeframe estimated and to attract a sufficient number of skilled workers to meet the needs of the new facility. For example, the anticipated costs of constructing our future plants are far higher than initially estimated and timelines have been delayed as a result of efforts to redesign the project to reduce those costs. Additionally, our assessment of the projected benefits associated with the construction of new manufacturing facilities, including production lines for our PET closures, is subject to a number of estimates and assumptions, which in turn are subject to significant economic, competitive and other uncertainties that are beyond our control. If we experience delays or increased costs, our estimates and assumptions are incorrect, or other unforeseen events occur, our business, ability to supply customers, financial condition, results of operations and cash flows could be adversely impacted.

Finally, we may not be successful or efficient in developing or implementing new production processes. Innovation in production processes involves significant expense and carries inherent risks. Such risks may include difficulties in designing, developing, implementing, and scaling up new process technologies, development and production timing delays, lower than anticipated manufacturing yields, product defects, and inability to consistently meet customers' product specifications, performance and carbon intensity, or cost requirements, among others. Errors, defects in materials, operating permit and license delays, customer product returns, interruption in our supply of materials or resources, and disruptions at our facilities or those of our partners due to accidents, maintenance issues, or unsafe working conditions, all could affect the timing, efficiency, or success of our production processes. Such production issues can lead to increased costs and may affect our ability to meet product demand, which could adversely impact our business and results from operations.

We may not be successful in finding future strategic partners for continuing development of our manufacturing facilities and feedstock opportunities, or tolling and downstream conversion of our products.

We may seek to develop additional strategic partnerships to develop our manufacturing facilities, increase feedstock supply due to manufacturing constraints or capital costs required to develop our products and plants. We may not be successful in our efforts to establish such strategic partnerships or other alternative arrangements for our products, technology, or manufacturing facilities because our research and development pipeline may be insufficient, our products or manufacturing facility designs or processes may be deemed to be at too early of a stage of development for collaborative effort, or third parties may not view our products or manufacturing facilities as having the requisite potential to demonstrate commercial success. In particular, if we are unable to advance strategic partnerships to fund our development of closures manufacturing lines or plants in addition to our Origin 1, we may be delayed or may never be complete development and construction, which may adversely impact our operation and financial results.

If we are unable to reach agreements with suitable collaborators on a timely basis, on acceptable terms, or at all, we may have to curtail the development of our products, delay commercialization or development of manufacturing facilities, reduce the scope of any sales or marketing activities or increase expenditures and undertake development or commercialization activities at our own expense. If we elect to fund development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we fail to enter into collaborations and do not have sufficient funds or expertise to undertake the necessary development and commercialization activities, we may not be able to develop additional products or plants, and our business, financial condition, results of operations and prospects may be materially and adversely affected.

We may rely heavily on future collaborative and supply chain partners.

We have entered into, and may enter into, strategic partnerships to develop and commercialize our current and future research and development programs with other companies to accomplish one or more of the following:

- obtain capital, equipment, and facilities;
- obtain funding for research and development programs, product development programs, and commercialization activities;
- obtain expertise in relevant markets;
- obtain access to raw materials;
- obtain sales and marketing services or support;
- obtain conversion services and other supply chain support; and/or
- obtain access to intellectual property and ensure freedom to operate.

We may not be successful in establishing or maintaining suitable partnerships, and we may not be able to negotiate collaboration agreements having terms satisfactory to us, or at all. Failure to make or maintain these arrangements or a delay or failure in a collaborative partner's performance under any such arrangements could harm our business and financial condition.

In addition, global supply chain disruptions have caused, and may continue to cause, delays in the shipment of goods, particularly those made in Asian countries. We have incurred, and may continue to incur, additional costs to expedite deliveries of such goods or to obtain substitute goods that are available to us sooner. Continued supply chain disruptions and our efforts to mitigate them may adversely impact our financial condition, results of operations, and cash flows.

We have entered into and may in the future enter into collaborations, strategic alliances, or licensing arrangements, which expose us and our intellectual property to competitive risks and limitations associated with third-party collaborations and that may not produce the benefits we anticipate.

We have entered, and may in the future enter, into license and collaboration arrangements for the development and production of some of our materials and products. In the future, we may enter into additional license and collaboration arrangements. Any collaboration we enter into is subject to numerous risks. Such risks may include, among others, collaborators' significant discretion to determine the effort and resources they will apply to the collaboration, to delay or elect not to continue development of a product or process under the collaboration, or to develop, independently or with third parties, products or processes that compete directly or indirectly with our products or manufacturing processes. A collaborator's development, sales, or marketing activities or other operations may not comply with applicable laws resulting in civil or criminal proceedings.

In addition, we could grant exclusive rights to our collaborators that would prevent us from collaborating with others. Collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability. Our collaborators may own or co-own intellectual property covering products that result from our collaboration with them, depriving us of the exclusive right to develop or commercialize such intellectual property. For example, we currently co-own with one of our development partners intellectual property that is or may be used in the production of our PET closures. Disputes may arise with respect to the ownership of any intellectual property developed pursuant to our collaborations.

Disputes between us and a collaborator may delay or terminate the development or commercialization of our products or result in costly litigation or arbitration that diverts management attention and resources. Termination of a collaboration may also result in a need for additional capital to pursue further development of the applicable current or future products.

We may seek to enter into additional collaborations, joint ventures, licenses and other similar arrangements for the development of our products, due to capital costs required to develop the product or potential manufacturing constraints. We may not be successful in our efforts to establish such collaborations for our products because our products may be deemed to be at too early of a stage of development for collaborative effort or third parties may not view our products as having the requisite potential to demonstrate a significant commercial opportunity. In addition, we face significant competition in seeking appropriate strategic partners, and the negotiation process can be time consuming and complex. Further, any future collaboration agreements may restrict us from entering into additional agreements with potential collaborators. We cannot be certain that, following a strategic transaction or license, we will achieve an economic benefit that justifies such transaction. Even if we are successful in our efforts to establish such collaborations, the terms that we agree upon may not be favorable to us, and we may not be able to maintain such collaborations.

In addition, any potential future collaborations may be terminable by our strategic partners, and we may not be able to adequately protect our rights under these agreements. Furthermore, strategic partners may negotiate for certain rights to control decisions regarding the development of our products, and may not conduct those activities in the same manner as we do. Any termination of collaborations we enter into in the future, or any delay in the development of products under such collaborations, could delay the manufacturing and sales of our products, which could have a material adverse effect on our business, financial condition and results of operations.

We may become subject to product liability claims that may not be covered by insurance and could require us to pay substantial sums.

We are subject to an inherent risk of, and adverse publicity associated with, product liability and other liability claims, whether or not such claims are valid. In addition, our customers are subject to product liability claims, and could seek indemnification or contribution from us. A successful product liability claim or series of claims against us could adversely impact the specialty chemicals or closures industries, our reputation or our financial condition or results of operations. Product liability insurance may not be available to us on commercially acceptable terms, or at all. Even if such insurance is available, product liability or other claims may exceed our insurance coverage limits. A successful product liability claim that exceeds our insurance coverage limits, for which we are not otherwise indemnified, could require us to pay substantial sums and could harm our business, financial condition or results of operations.

Climate change may impact the availability of our facilities and, in addition, we may incur substantial costs to comply with climate change legislation and related regulatory initiatives.

Changing weather patterns and the increase in frequency of severe storms such as hurricanes and tornadoes could cause disruptions or the complete loss of our facilities or delay the construction of future facilities. In addition, climate change concerns, and changes in the regulation of such concerns, including greenhouse gas emissions, could also subject us to additional costs and restrictions, including increased energy and raw materials costs which could negatively impact our financial condition and results of operations. Climate change may also negatively impact our labor force by, for example, reducing the hours during which construction or other outdoor work can be performed safely in extreme heat or under conditions of poor air quality. In addition, climate change may negatively impact the availability of our feedstock, for example, by increasing the prevalence of certain pests harmful to the growth or quality of the biomass we use in our processes to produce Furanic Intermediates. The effects of climate change can not only adversely impact our operations, but also that of our suppliers and customers, and can lead to increased regulations and changes in consumer preferences, which could adversely affect our business, results of operations and financial condition. Any governmental efforts to dismantle or defund federal agencies and projects aimed at monitoring and mitigating climate change may also adversely impact our ability to prepare for the impacts of climate change on our business, results of operations, and financial condition.

Unfavorable global economic conditions could adversely affect our business, financial condition and results of operations.

Our results of operations could be adversely affected by general conditions in the global economy and in the global financial markets, including inflation and supply disruption. A domestic or global financial crisis can cause extreme volatility and disruptions in the capital and credit markets. A severe or prolonged economic downturn, which could result from an event like the COVID-19 pandemic, the imposition of tariffs on virtually all countries with which the United States trades and those countries' retaliatory tariffs, or the global sanctions imposed against Russia following its military intervention in Ukraine, or inflation in fuel costs resulting from regional instability due to Israel's military action in Gaza, the West Bank, and Lebanon, or Saudi Arabia's and the United States' military intervention in Yemen and retaliatory attacks on civilian shipping by Houthi rebels, could result in a variety of risks to our business, including our inability to purchase necessary supplies on acceptable terms, if at all, and our inability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could strain our suppliers, possibly resulting in supply disruption, or cause delays in payments for our services by third-party payers or our collaborators. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business. See also "Risks Related to Government Regulation."

Our operating results may fluctuate significantly as a result of a variety of factors, many of which are outside of our control.

We are subject to, among other things, the following factors that may negatively affect our operating results:

- the announcement or introduction of new products by our competitors;
- our ability to upgrade and develop our systems and infrastructure to accommodate growth;
- our ability to attract and retain key personnel in a timely and cost-effective manner;
- our ability to attract new customers and retain existing customers;
- technical difficulties;
- the amount and timing of operating costs and capital expenditures relating to the expansion of our business, operations and infrastructure;
- our ability to identify and enter into relationships with appropriate and qualified third-party providers of necessary testing and manufacturing services;
- regulation by federal, state or local governments; and
- general economic conditions, as well as economic conditions specific to the closures industry, and the chemicals, plastics, carbon products, and fuels industries, and other industries related to compostable or biodegradable substitutes for non-biodegradable plastics, as well as changes to commodity prices to which prices in some of our contracts are indexed.

As a result of our limited operating history and the nature of the markets in which we compete, it is difficult for us to forecast our revenues or earnings accurately. We have based our anticipated future expense levels largely on our investment plans and estimates of future events, although certain of our expense levels will, to a large extent, become fixed. As a strategic response to changes in the competitive environment, we may from time to time make certain decisions concerning expenditures, pricing, service or marketing that could harm our business, results of operations and financial condition. Due to the foregoing factors, our revenues and operating results are difficult to forecast.

Changes in tax laws or tax rulings could materially affect our financial position, results of operations, and cash flows.

The tax regimes we are subject to or operate under, including income and non-income taxes, are unsettled and may be subject to significant change. Changes in tax laws, regulations, or rulings, or changes in interpretations of existing laws and regulations, could materially affect our financial position and results of operations. For example, the 2017 Tax Cuts and Jobs Act (the “Tax Act”) made broad and complex changes to the U.S. tax code. Future guidance from the IRS with respect to the Tax Act may affect us, and certain aspects of the Tax Act could be repealed or modified in future legislation. The Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) has already modified certain provisions of the Tax Act. More recently, the Inflation Reduction Act of 2022 (the “IRA”) includes provisions that will impact the U.S. federal income taxation of corporations, including imposing a minimum tax on the book income of certain large corporations and an excise tax on certain corporate stock repurchases that would be imposed on the corporation repurchasing such stock. In addition, it is uncertain if and to what extent various states will conform to the Tax Act, the CARES Act, the IRA, or any newly enacted federal tax legislation. The issuance of additional regulatory or accounting guidance related to the Tax Act could materially affect our tax obligations and effective tax rate in the period issued. In addition, many countries in Europe and a number of other countries and organizations, have recently proposed or recommended changes to existing tax laws or have enacted new laws that could significantly increase our tax obligations in the countries where we do business or require it to change the manner in which we operate our business.

The Organization for Economic Cooperation and Development has been working on a Base Erosion and Profit Shifting Project, and issued a report in 2015, an interim report in 2018, and is expected to continue to issue guidelines and proposals that may change various aspects of the existing framework under which our tax obligations are determined in many of the countries in which we do business. Similarly, the European Commission and several countries have issued proposals that would change various aspects of the current tax framework under which we are taxed. These proposals include changes to the existing framework to calculate income tax, as well as proposals to change or impose new types of non-income taxes, including taxes based on a percentage of revenue.

As we expand the scale of our international business activities, these types of changes to the taxation of our activities could increase our worldwide effective tax rate, increase the amount of taxes imposed on our business, and harm our financial position. Such changes may also apply retroactively to our historical operations and result in taxes greater than the amounts estimated and recorded in our financial statements.

Unanticipated changes in effective tax rates or adverse outcomes resulting from examination of our income or other tax returns could adversely affect our operating results and financial condition.

We are subject to taxation in Canada and the United States with increasingly complex tax laws, the application of which can be uncertain. The amount of taxes we pay in these jurisdictions could increase substantially as a result of changes in the applicable tax principles, including increased tax rates, new tax laws or revised interpretations of existing tax laws and precedents, which could have an adverse impact on our liquidity and results of operations. In addition, the authorities in several jurisdictions could review our tax returns and impose additional tax, interest and penalties, which could have an impact on us and on our results of operations. We have previously participated in government programs with the Canadian federal government and Canadian provincial governments that provide investment tax credits based upon qualifying research and development expenditures. If Canadian taxation authorities successfully challenge such expenses or the correctness of such income tax credits claimed, our historical operating results could be adversely affected. As a public company, we will no longer be eligible for refundable tax credits under the Canadian federal Scientific Research and Experimental Development Program credits.

Our future effective tax rates could be subject to volatility or adversely affected by a number of factors.

Our future effective tax rates could be subject to volatility or adversely affected by a number of factors, including:

- changes in the valuation of our deferred tax assets and liabilities;
- expected timing and amount of the release of any tax valuation allowances;
- tax effects of stock-based compensation;
- costs related to intercompany restructurings;
- changes in tax laws, regulations or interpretations thereof; or
- future earnings being lower than anticipated in countries where we have lower statutory tax rates and higher than anticipated earnings in countries where we have higher statutory tax rates.

We may conduct activities in other jurisdictions through our subsidiaries pursuant to transfer pricing arrangements and may in the future conduct operations in other jurisdictions pursuant to similar arrangements. If two or more affiliated companies are located in different countries, the tax laws or regulations of each country generally will require that transfer prices be the same as those between unrelated companies dealing at arms' length. While we intend to operate in compliance with applicable transfer pricing laws, our transfer pricing procedures are not binding on applicable tax authorities. If tax authorities in any of these countries were to successfully challenge our transfer prices as not reflecting arm's length transactions, they could require us to adjust our transfer prices and thereby reallocate our income to reflect these revised transfer prices, which could result in a higher tax liability to us.

Our ability to use net operating loss carryforwards and other tax attributes may be limited in connection with the Merger or other ownership changes.

We have incurred losses during our history. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire, if at all.

Under the Tax Act, as modified by the CARES Act, U.S. federal NOL carryforwards generated in taxable periods beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such net operating loss carryforwards in taxable years beginning after December 31, 2020, is limited to 80% of taxable income. In addition, our NOL carryforwards are subject to review and possible adjustment by the IRS, and state tax authorities. Under Sections 382 and 383 of the Code, our federal net operating loss carryforwards and other tax attributes may become subject to an annual limitation in the event of certain cumulative changes in the ownership of our stock. An "ownership change" pursuant to Section 382 of the Code generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company's stock increase their ownership (as measured by value) by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Our ability to utilize our NOL carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including potential changes in connection with the Merger or other transactions. Similar rules may apply under state tax laws. We have recorded a valuation allowance related to the majority of our NOL carryforwards and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

Risks Related to Government Regulation

Compliance with extensive environmental, health and safety laws could require material expenditures, changes in our operations or site remediation.

We use hazardous materials in our production process, and our operations also produce hazardous waste. The manufacture, transportation and sale of our products can present potentially significant health and safety concerns and are also under increased public and governmental scrutiny. Our products are also used in a variety of applications that have specific regulatory requirements such as those relating to products that have contact with food or are used for medical applications.

Accordingly, our operations are subject to environmental, health and safety laws and regulations at the international, national, state and local level in multiple jurisdictions. These laws and regulations govern, among other things, air emissions, wastewater discharges, solid and hazardous waste management and disposal, occupational health and safety, including dust and noise control, site remediation programs and chemical use and management. Many of these laws and regulations have become more stringent over time and the costs of compliance with these requirements may increase, including costs associated with any necessary capital investments. In addition, Health and Human Services Secretary Kennedy has directed the US Food and Drug Administration to explore rule making that could eliminate a pathway for companies to self-affirm food ingredients are safe. If implemented, such a rule could make it more difficult for us to timely or cost-effectively bring products like our PET closures to market, which could adversely affect our business and results of operations.

Our manufacturing facilities will require operating permits that are subject to renewal and, in some circumstances, revocation. The necessary permits may not be issued or continue in effect, and renewals of any issued permits may contain significant new requirements or restrictions. The nature of the specialty chemicals industry exposes us to risks of liability due to the use, production, management, storage, transportation and sale of materials that are heavily regulated or hazardous and can cause contamination or personal injury or damage if released into the environment.

Compliance with environmental laws and regulations generally increases the costs of transportation and storage of raw materials and finished products, as well as the costs of storage and disposal of wastes. We may incur substantial costs, including fines, damages, criminal or civil sanctions and remediation costs, or experience interruptions in our operations for violations arising under environmental laws, regulations or permit requirements. In addition, the market for bioplastics, and for plastic products like our PET closures generally, is heavily influenced by applicable federal, state and local

government laws, regulations and policies, such as the European Union's Single-Use Plastic Directive, which came into effect in July 2024, and minimum recycled content requirements for beverage bottle packaging in the European Union, Peru, South Africa, and certain states in the United States, as well as public perception. Changes in these laws, regulations and policies or how these laws, regulations and policies are implemented and enforced could cause the demand for our products to decline and deter investment in the research and development of such product. Concerns associated with bioplastics, including land usage, national security interests, deforestation, food crop usage, and other environmental concerns with bioplastics as well as plastic products generally, continue to receive legislative, industry and public attention. This attention could result in future legislation, regulation and/or administrative action that could adversely affect our business.

Furthermore, various petrochemical products, including plastics like PET used in our closures products, have faced increased public scrutiny due to negative coverage of plastic waste in the environment, which has resulted in local, state, federal and foreign governments proposing and in some cases approving, restrictions or bans on the manufacture, consumption and disposal of certain petrochemical products. Although our biomass-derived chemical products and materials made from them are intended to replace petrochemical products, increased regulation on the use of such products or other products in the specialty chemicals industry, whatever their scope or form, could increase our costs of production, impact overall consumption of our products or result in misdirected negative publicity. Any inability to address these requirements and any regulatory or policy changes could harm our business, financial condition and results of operations.

We are subject to U.S. and foreign anti-corruption and anti-money laundering laws and regulations. We could face criminal liability and other serious consequences for violations, which would harm our business.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act and possibly other anti-bribery and anti-money laundering laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors and other collaborators from authorizing, promising, offering or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We can also be held liable for the corrupt or other illegal activities of our employees, agents, contractors and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm and other consequences.

Our operating plan may require us to source feedstock and supplies internationally, and foreign currency exchange rate fluctuations and changes to international trade agreements, tariffs, import and excise duties, taxes or other governmental rules and regulations could adversely affect our business, financial condition, results of operations and prospects.

Our expansion model is global and we expect to need to source feedstock and supplies from suppliers around the world. In particular, we expect to source PET, including recycled PET, from suppliers local to our closures manufacturing lines, or to arrange for transport of PET to the site of those lines. Similarly, our furanics chemical manufacturing process is designed to use local timber and forest residues as our primary raw materials, which must be sourced locally. For the Origin 1 plant, this means we will need to source feedstock, as well as other supplies, from Canadian suppliers or arrange for transport of such feedstock and supplies into Canada. The U.S. federal government or other governmental bodies may propose changes to international trade agreements, tariffs, taxes and other government rules and regulations, and may impose sanctions limiting trade with other countries. If foreign currency exchange rates fluctuate or any restrictions or significant increases in costs or tariffs or sanctions are imposed related to feedstock and supplies sourced to our plants as a result of amendments to existing trade agreements or otherwise, this may increase our supply and shipping costs, resulting in potential decreased margins. We may expand our operations to countries with unstable governments that are subject to instability, corruption, changes in rules and regulations and other potential uncertainties that could harm our business, financial condition, results of operations and prospects. The extent to which our margins could decrease in response to any future tariffs is uncertain. We continue to evaluate the impact of trade agreements, as well as foreign currency exchange rate fluctuations and other recent changes in foreign trade policy on our supply chain, costs, sales and profitability. In addition, pandemics such as COVID-19 may result in increased travel restrictions and the extended shutdown of certain businesses throughout the world, and prolonged closures in Canada, Europe, Asia and elsewhere may disrupt the operations of certain suppliers of feedstock and other supplies, which could, in turn, negatively impact our business, financial condition, results of operations and prospects.

International trade disputes and the U.S. government's trade policy could adversely affect our business.

International trade disputes could result in tariffs and other protectionist measures that could adversely affect our business. Tariffs could increase the cost of our products and the components and raw materials that go into making them. These increased costs could adversely impact the gross margin that we earn on our products. Countries may also adopt other protectionist measures that could limit our ability to offer our products.

We operate in a global economy, which includes utilizing third-party suppliers in several countries outside the United States. There is inherent risk, based on the complex relationships among the U.S. and the countries in which we conduct our business, that political, diplomatic, and national security factors can lead to global trade restrictions and changes in trade policies and export regulations that may adversely affect our business and operations. The current international trade and regulatory environment is subject to significant ongoing uncertainty.

The U.S. government has indicated its intent to adopt a new approach to trade policy and in some cases to renegotiate, or potentially terminate, certain existing bilateral or multi-lateral trade agreements. It has also initiated tariffs on certain foreign goods and has raised the possibility of imposing significant, additional tariff increases or expanding the tariffs to capture other types of goods. Although the tariffs that have been initiated to date have not had a material impact on our operating results, to the extent that significant additional tariffs are imposed, depending on the extent of such tariffs, they could have a material impact on our operating results. For example, the President indicated during his campaign that he would seek to impose a 25% tariff against all goods imported from Canada and Mexico, a 60% tariff on goods from China and a blank tariff of 10% to 20% on other imports to the U.S. On February 1, 2025, the President issued an Executive Order imposing tariffs on imports from Canada, Mexico, and China. The newly imposed tariffs have resulted in immediate threats of retaliatory tariffs against U.S. goods, some of which have now come into effect. These and other potential tariffs and trade restrictions, including a blanket 10% tariff on goods from European countries, have begun to increase the cost of components used with our CapFormers, many of which currently are derived from European suppliers. While the tariff-related cost increases we have experienced have been minimal to date, they may become substantial. Tariffs and trade restrictions could significantly increase the costs of our CapFormers, the components and raw materials we use with them, and the prices of our products or those of our customers with which our products are used. This, in turn, could reduce demand for such products, or reduce our, or our customers' margins, and adversely impact our, or their revenues, financial results, and ability to service debt.

We import many components for our CapFormer systems from countries in Europe and a 10% to 20% tariff on imports of such components would increase the cost of CapFormers, adversely impacting our business, results of operations, financial condition and cash flows. For example, the cost of a replacement for one of the components used in our CapFormer systems has increased 10% due to tariffs on European imports. Similarly, we currently have manufacturing operations in Canada to produce Furanic Intermediates, a 25% tariff on all imports from Canada would increase the cost of our Furanic Intermediates manufactured in Canada, which could and adversely impact our business, results of operations, financial condition and cash flows.

The complexity of announced or future tariffs may also increase the risk that we or our customers or suppliers may be subject to civil or criminal enforcement actions in the United States or foreign jurisdictions related to compliance with trade regulations. Foreign governments may also adopt non-tariff measures, such as procurement preferences or informal disincentives to engage with, purchase from or invest in U.S. entities, which may limit our ability to compete internationally and attract non-U.S. investment, employees, customers and suppliers. Foreign governments may also take other retaliatory actions against U.S. entities, such as decreased intellectual property protection, increased enforcement actions, or delays in regulatory approvals, which may result in heightened international legal and operational risks. In addition, the United States and other governments have imposed and may continue to impose additional sanctions, such as trade restrictions or trade barriers, which could restrict us from doing business directly or indirectly in or with certain countries or parties and may impose additional costs and complexity to our business.

We cannot predict the extent to which the United States or other countries will impose quotas, duties, tariffs, taxes or other similar restrictions upon the import or export of our products in the future, nor can we predict future trade policy or the terms of any renegotiated trade agreements and their impact on our business. The adoption and expansion of trade restrictions, the occurrence of a trade war, or other governmental action related to tariffs or trade agreements or policies has the potential to adversely impact demand for our products, our costs, our consumers, our suppliers, and the U.S. economy, which in turn could have an adverse effect on our business, financial condition, results of operations and prospects.

Trade disputes, tariffs, restrictions and other political tensions between the United States and other countries may also exacerbate unfavorable macroeconomic conditions including inflationary pressures, foreign exchange volatility, financial market instability, and economic recessions or downturns. The ultimate impact of current or future tariffs and trade restrictions remains uncertain and could materially and adversely affect our business, financial condition, and prospects. While we actively monitor these risks, any prolonged economic downturn, escalation in trade tensions, or deterioration in

international perception of U.S.-based companies could materially and adversely affect our business, ability to access the capital markets or other financing sources, results of operations, financial condition and prospects. In addition, tariffs and other trade developments have and may continue to heighten the risks related to the other risk factors described elsewhere in this report.

We are subject to ESG risks, including in relation to our counterparties, which may adversely affect our reputation and ability to retain employees and customers.

Companies across many industries are facing increasing scrutiny related to their environmental, social and governance (ESG) practices and reporting, both in the United States and internationally, including risks related to climate, workforce and other sensitive matters. To the extent we share information about our ESG practices, we could be criticized for the accuracy, adequacy, or completeness of such disclosures. Further, we may experience backlash from customers, government entities, advocacy groups, employees, or other stakeholders who disagree with our actual or perceived positions, or with our lack of position on ESG, political, public policy, economic, geopolitical, or other sensitive issues. Any perceived lack of transparency about these matters could harm our brand and reputation, our employees' engagement and retention, and the willingness of our customers and partners to do business with us.

We may be exposed to negative publicity based on the identity and activities of our customers and others with whom we do business, and the public's view of our customers' and business partners' approach to ESG matters. Our management may incur additional costs and need to dedicate increased of time and attention to ESG matters and to comply with a rapidly changing landscape of regulations and expectations. For example, the President has recently issued an Executive Order mandating the United States' withdrawal from the Paris Agreement, and other climate-focused international agreements and commitments. Some states also have introduced or passed bills to restrict, regulate, or prohibit DEI initiatives. Our failure to comply with any applicable rules or regulations with respect to ESG matters could lead to penalties and adversely impact our access to capital and employee retention, and could impact third parties on whom we rely, adversely affecting our business, financial condition, or results of operations. For example, if our customers back away from carbon emission reduction or other sustainability goals in response to the President's Executive Orders, demand for our products may decline because environmental and sustainability benefits are part of the value proposition of those products.

A decline in the value of carbon credits associated with our products, if any, could harm our results of operations, cash flow and financial condition.

The value of our products may be dependent on the value of carbon credits, programs relating to low-carbon materials and products standards and other similar regulatory regimes or the implicit value of decarbonized materials. The value of these credits fluctuates based on market and regulatory forces outside of our control. There is a risk that the supply of low-carbon alternative materials and products outstrips demand, resulting in the value of carbon credits declining. Any such declines could mean that the economic benefits from our customers' efforts to decarbonize their operations might not be realized. Any decline in the value of carbon credits associated with our products could harm our results of operations, cash flow and financial condition.

Risks Related to Our Intellectual Property

Our business relies on proprietary information and other intellectual property, and our failure to protect our intellectual property rights could harm our competitive advantages with respect to the use, manufacturing, sale or other commercialization of our processes, technologies and products, which may have an adverse effect on our results of operations and financial condition.

We intend to make significant capital investments into the research and development of proprietary information and other intellectual property as we develop, improve and scale our processes, technologies and products, and failure to fund and make these investments, or underperformance of the technology funded by these investments, could severely impact our business, financial condition, results of operations and prospects.

If we fail to adequately protect our intellectual property rights, such failure could result in the reduction or loss of our competitive advantage. We may be unable to prevent third parties from using our proprietary information and other intellectual property without our authorization or from independently developing proprietary information and other intellectual property that is similar to ours, particularly in those countries where the laws do not protect our proprietary rights to the same degree as in the U.S. or those countries where we do not have intellectual property rights protection. Some of our vendors have filed, and may in the future file, patent applications claiming intellectual property that we contend belongs to us. In some cases, we have been able to resolve disputes over such intellectual property amicably and in a manner that we believe will be beneficial to our business. There can be no guarantee we will be able to reach an amicable resolution of all such disputes or that the resolution, if any, will in fact be beneficial to our business. In some cases, litigation or arbitration may be necessary to resolve disputes over intellectual property, and we might be unable to continue working with vendors and other parties as a result of such disputes, all of which could cause significant cost and disruption to our business and fail to vindicate our claims to the intellectual property. The use of our proprietary information and other intellectual property by others could reduce or eliminate competitive advantages that we have developed, potentially causing us to lose sales or actual or potential customers, or otherwise harm our business. We have been, and may again be, involved in litigation and administrative actions to protect these rights, and such proceedings could be burdensome and costly, could result in counterclaims challenging our intellectual property (including validity or enforceability) or accusing us of infringement, and we may not prevail.

Our patent applications and issued patents may be practiced by third parties without our knowledge. Our competitors may also attempt to design around our patents or copy or otherwise obtain and use our proprietary information and other intellectual property. Moreover, our competitors may already hold or have applied for patents in the U.S. or abroad that, if enforced, could possibly prevail over our patent rights or otherwise limit our ability to manufacture, sell or otherwise commercialize one or more of our products in the U.S. or abroad. With respect to our pending patent applications, we may not be successful in securing issued patents, or the claims of such patents may be narrowed, any of which may limit our ability to protect inventions that these applications were intended to cover, which could harm our ability to prevent others from exploiting our technologies and commercializing products similar to our products. In addition, the expiration of a patent can result in increased competition with consequent erosion of profit margins.

The applicable governmental authorities may not approve our pending service mark and trademark applications. A failure to obtain trademark registrations in the U.S. and in other countries could limit our ability to obtain and retain our trademarks in those jurisdictions. Moreover, third parties may seek to oppose our applications or otherwise challenge the resulting registrations. In the event that our trademarks are not approved or are successfully challenged by third parties, we could be forced to rebrand our products, which could result in loss of brand recognition and could require us to devote significant resources to rebranding and advertising and marketing new brands. The failure of our patents, trademarks, trade secrets, or confidentiality agreements to protect our proprietary information and other intellectual property, including our processes, apparatuses, technology, trade secrets, trade names and proprietary manufacturing expertise, methods and compounds, could have a material adverse effect on our business and results of operations.

Some of our intellectual property has been or will be discovered, conceived or developed through research funded by the Canadian government and thus may be subject to federal regulations providing for certain rights for the Canadian government or imposing certain obligations on us, such as limitations on exploiting such intellectual property outside of Canada. Compliance with such regulations may limit our exclusive rights and ability to commercialize our products and technology outside of Canada.

We may face patent infringement and other intellectual property claims that could be costly to defend, result in injunctions and significant damage awards or other costs (including indemnification of third parties or costly licensing arrangements, if licenses are available at all) and limit our ability to use certain key technologies in the future or require development of non-infringing products or technologies, which may cause us to incur significant unexpected costs, prevent us from commercializing our products and otherwise harm our business.

The various markets in which we plan to operate are subject to frequent and extensive litigation regarding patents, trade secrets and other intellectual property rights. Many of our competitors have a substantial amount of intellectual property. We cannot guarantee that our processes and products do not and will not infringe issued patents (whether present or future) or other intellectual property rights belonging to others.

From time to time, we may oppose third-party patents that we consider overbroad or otherwise invalid in order to maintain the necessary freedom to operate fully in our various business lines without the risk of being sued for patent infringement. If, however, the oppositions are unsuccessful, we could be liable for infringement or have to take other remedial or curative actions to continue our manufacturing and sales activities with respect to one or more products.

We may also be subject to legal proceedings and claims in the ordinary course of our business, including claims of alleged infringement or misappropriation of the patents, trademarks, trade secrets and other intellectual property rights of third parties by us or our licensees in connection with their use of our products. Intellectual property litigation is expensive and time-consuming, regardless of the merits of any claim, and could divert our management's attention from operating our business.

If we were to discover that our processes, technologies or products infringe or misappropriate the valid intellectual property rights of others, we might need to obtain licenses from these parties or substantially re-engineer our processes, technologies or products in order to avoid infringement. We may not be able to obtain the necessary licenses on acceptable terms, or at all, or be able to re-engineer our processes, technologies or products successfully. Moreover, if we or our licensees are sued for infringement or misappropriation and lose, we could be required to pay substantial damages, indemnify our licensees and/or be enjoined from using or selling the infringing processes, technologies or products. If we incur significant costs to litigate infringement or misappropriation claims or to obtain licenses, or if our inability to obtain required licenses prevents us from using or selling our processes, technologies or products, it could have a material adverse effect on our business and results of operations.

We rely on trade secrets to protect our technology, and our failure to maintain trade secret protection could limit our ability to compete.

We rely on trade secrets to protect some of our technology and proprietary information, especially where we believe patent protection is not appropriate or obtainable. We have security measures in place to safeguard our trade secrets database and limit the access to a need-to-know basis. However, trade secrets can be difficult to protect. The misappropriation or other compromise of our trade secrets may lead to a reduction or loss of our competitive advantages resulting from such trade secrets. Further, litigating a claim that a third party had misappropriated our trade secrets would be expensive and time consuming, and the outcome would be unpredictable. Moreover, if our competitors independently develop similar knowledge, methods and know-how, it will be difficult for us to enforce our rights and our business could be harmed.

Our confidentiality agreements could be breached or may not provide meaningful protection for our trade secrets or proprietary manufacturing expertise. Adequate remedies may not be available in the event of an unauthorized use or disclosure of our trade secrets and manufacturing expertise. Violations by others of our confidentiality agreements and the loss of employees who have specialized knowledge and expertise could harm our competitive position resulting from the exclusive nature of such knowledge and expertise and cause our sales and operating results to decline as a result of increased competition. In addition, others may obtain knowledge of our trade secrets through independent development or other access by legal means.

Other Risks Related to Our Business

Our management team has relatively limited experience in operating a public company.

Many of our executive officers have limited experience in the management of a publicly traded company subject to significant regulatory oversight and reporting obligations under federal securities laws. We may not have adequate personnel with the appropriate level of knowledge, experience and training in the accounting policies, practices or internal control over financial reporting required of public companies in the United States. It is possible that we will be required to expand our employee base and hire additional employees to support our operations as a public company, which will increase our operating costs in future periods.

We are dependent on management and key personnel, and our business could suffer if we fail to retain our key personnel or attract additional highly skilled employees.

Our success depends on the specialized skills of our management team and key operating personnel. This may present particular challenges as we operate in a highly specialized industry sector, which may make replacement of our management team and key operating personnel difficult. A loss of our managers or key employees, or their failure to satisfactorily perform their responsibilities, could have an adverse effect on our business, financial condition, results of operations and prospects.

Our future success will depend on our ability to identify, hire, develop, motivate and retain highly qualified personnel for all areas of our organization, particularly research and development, engineering, operations, and sales. Trained and experienced personnel are in high demand and may be in short supply. Many of the companies that we compete with for experienced employees have greater resources than us and may be able to offer more attractive terms of employment. In addition, we invest significant time and expense in training employees, which increases their value to competitors that may seek to recruit them. We may not be able to attract, develop and maintain the skilled workforce necessary to operate our business, and labor expenses may increase as a result of a shortage in the supply of qualified personnel, which could negatively impact our business, financial condition, results of operations and prospects.

We may not realize the expected benefits from our September 2024 workforce reduction, and it could result in total costs and expenses that are greater than expected and could disrupt our business.

In September 2024, we implemented a reduction in our workforce. We may incur additional expenses not currently contemplated due to events associated with the reduction in force, and our restructuring activities may subject us to reputational risks and litigation risks and expenses. We may not fully realize the anticipated benefits and savings from this operational realignment due to unforeseen difficulties, disruptions, delays or unexpected costs, which could adversely affect our financial condition. The changes to our operations and the reduction in workforce may yield unintended consequences and costs, such as the loss of institutional knowledge and expertise, attrition beyond our intended reductions in force, and a reduction in morale among our remaining employees, all of which may have an adverse effect on our development activities, our business, results of operations or financial condition. If we are unable to realize the expected operational efficiencies, our business, results of operations and financial condition would be adversely affected. In addition, to the extent we do not realize such anticipated operational efficiencies, we may need to undertake workforce reductions or restructuring activities in the future. Furthermore, our reductions in force may be disruptive to our operations. If employees who were not affected by the reductions in force seek alternative employment, this could result in our seeking contractor support at unplanned additional expense or harm our productivity. Our workforce reductions could also harm our ability to attract and retain qualified management, technical and manufacturing personnel who are critical to our business. Any failure to attract or retain qualified personnel could prevent us from successfully developing our products. We may also discover that the reductions in workforce could make it difficult for us to pursue new opportunities and initiatives and require us to hire qualified replacement personnel, which may require us to incur additional and unanticipated costs and expenses. Our failure to successfully accomplish any of the above activities and goals may have a material adverse impact on our business, results of operations and financial condition.

If we fail to maintain effective internal control over financial reporting, it may result in material misstatements of our unaudited condensed consolidated financial statements or cause us to fail to meet our periodic reporting obligations.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of its annual or interim financial statements will not be prevented or detected on a timely basis.

If we are unable to successfully remediate any future material weaknesses in our internal control over financial reporting, or if we identify any material weaknesses, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports in addition to applicable Nasdaq listing requirements, investors may lose confidence in our financial reporting and our stock price may decline as a result. We also could become subject to investigations by Nasdaq, the SEC or other regulatory authorities.

As a public company, we are also required, pursuant to Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of its internal control over financial reporting for our annual reports on Form 10-K to be filed with the SEC. This assessment needs to include disclosure of any material weaknesses identified by management in our internal control over financial reporting. We are required to disclose changes made in our internal control over financial reporting on a quarterly basis. Failure to comply with the Sarbanes-Oxley Act could potentially subject us to sanctions or investigations by the SEC, the applicable stock exchange or other regulatory authorities, which would require additional financial and management resources. In order to evaluate the effectiveness of internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act, management has conducted an assessment, including testing, using the criteria in Internal Control – Integrated Framework, issued by the Committee of Sponsoring Organizations of the Treadway Commission using the 2013 framework. Our system of internal control over financial reporting is designed 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. Because of its inherent limitations, internal control over financial reporting may not prevent or detect all misstatements.

We and the third parties with whom we work are subject to stringent and changing U.S. and foreign laws, regulations, rules, contractual obligations, policies and other obligations related to data privacy and security. Our (or the third parties with whom we work) actual or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation (including class action claims) and mass arbitration demands; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse business consequences.

In the ordinary course of business, we collect, receive, store, process, generate, use, transfer, disclose, make accessible, protect, secure, dispose of, transmit, and share (commonly known as processing) personal data and other sensitive information, including proprietary and confidential business data, trade secrets, and intellectual property. Our data processing activities subject us to various data privacy and security obligations, which can include laws, regulations, guidance, industry standards, external and internal privacy and security policies, contracts, and other obligations that govern the processing of personal data by us and on our behalf.

In the United States, federal, state, and local governments have enacted numerous data privacy and security laws, including data breach notification laws, personal data privacy laws, and consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and other similar laws (e.g., wiretapping laws). Numerous U.S. states have enacted comprehensive privacy laws that impose certain obligations on covered businesses, including providing specific disclosures in privacy notices and affording residents with certain rights concerning their personal data. Certain states also impose stricter requirements for processing certain personal data, including sensitive information, such as conducting data privacy impact assessments. For example, the California Consumer Privacy Act of 2018 (“CCPA”) imposes obligations on businesses to which it applies, such as providing specific disclosures in privacy notices and affording California residents certain rights related to their personal data. The CCPA also applies to personal data of consumers, business representatives, and employees who are California residents and provides for fines and allows private litigants affected by certain data breaches to recover significant statutory damages. In addition, the California Privacy Rights Act of 2020 (“CPRA”), expanded the CCPA, including by establishing a California Privacy Protection Agency to implement and enforce the CPRA. Similar laws are being considered in several other states, as well as the federal, state, and local levels in recent years, which could further complicate compliance efforts.

Outside the United States, an increasing number of laws, regulations, and industry standards apply to data privacy and security. For example, the European Union’s General Data Protection Regulation (“EU GDPR”) and the United Kingdom’s GDPR (“UK GDPR”) impose strict requirements for processing the personal data of individuals located in the European Economic Area and the UK, respectively. For example, under the EU GDPR, government regulators may impose temporary or definitive bans on data processing, as well as fines of up to €20 million or 4% of annual global revenue, whichever is greater. The GDPR also allows for private litigation related to processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests. Additionally, in Canada, the Personal Information Protection and Electronic Documents Act and various related provincial laws, as well as Canada’s Anti-Spam Legislation, apply to our operations. We also have customers in Asia, and may be subject to new and emerging data privacy regimes in Asia, such as China’s Personal Information Protection Law and Japan’s Act on the Protection of Personal Information.

In addition, certain jurisdictions have enacted data localization laws and cross-border personal data transfer laws, which could make it more difficult to transfer information across jurisdictions (such as transferring or receiving personal data that originates in Europe or other jurisdictions). Existing mechanisms that may facilitate cross-border personal data transfers may change or be invalidated. Regulators in the United States such as the Department of Justice are also increasingly scrutinizing certain personal data transfers and have proposed and enacted data localization requirements, for example, the Biden Administration’s executive order Preventing Access to Americans’ Bulk Sensitive Personal Data and United States Government-Related Data by Countries of Concern.

We are also bound by contractual obligations related to data privacy and security, and our efforts to comply with such obligations may not be successful. We publish privacy policies, marketing materials, white papers, and other statements, such as statements related to compliance with certain certifications or self-regulatory principles, concerning data privacy and security. Regulators in the United States are increasingly scrutinizing these statements, and if these policies, materials or statements are found to be deficient, lacking in transparency, deceptive, unfair, misleading, or misrepresentative of our practices, we may be subject to investigation, enforcement actions by regulators or other adverse consequences.

Obligations related to data privacy and security (and consumers' data privacy expectations) are quickly changing becoming increasingly stringent and creating uncertainty. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or in conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources (including, without limitation, financial and time-related resources). These obligations may necessitate changes to our information technologies, systems, and practices and to those of any third

parties that process personal data on our behalf. In addition, these obligations may require us to change our business model.

Although we endeavor to comply with all applicable data privacy and security obligations, we may at times fail (or be perceived to have failed) to do so. Moreover, despite our efforts, our personnel or third parties with whom we work may fail to comply with such obligations, which could negatively impact our business operations and compliance posture. For example, any failure by a third-party processor to comply with applicable law, regulations, or contractual obligations could result in material adverse effects, including inability to or interruptions in our ability to operate our business and proceedings against us by governmental entities or others.

If we or the third parties with whom we work fail, or are perceived to have failed, to address or comply with data privacy and security obligations, we could face significant consequences. These consequences may include, but are not limited to, government enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class-related claims); additional reporting requirements and/or oversight; bans on processing personal data; and orders to destroy or not use personal data.

Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to: loss of customers; interruptions or stoppages in our business operations; inability to process personal data or to operate in certain jurisdictions; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or revision or restructuring of our operations.

If our information technology systems or data, or those of third parties with whom we work, are or were compromised, we could experience adverse consequences resulting from such compromise, including but not limited to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers; and other adverse consequences.

In the ordinary course of our business, we and the third parties with whom we work process proprietary, confidential, and sensitive data, including personal data, intellectual property, and trade secrets (collectively, sensitive information).

Cyberattacks, malicious internet-based activity, and online and offline fraud are prevalent and continue to increase. These threats are becoming increasingly difficult to detect and come from a variety of sources, including traditional computer “hackers,” threat actors, personnel (such as through theft or misuse), sophisticated nation-states, and nation-state-supported actors. Some actors now engage and are expected to continue to engage in cyber-attacks, including without limitation nation-state actors for geopolitical reasons and in conjunction with military conflicts and defense activities. During times of war and other major conflicts, we and the third parties with whom we work may be vulnerable to a heightened risk of these attacks, including retaliatory cyber-attacks, that could materially disrupt our systems and operations, supply chain, and ability to produce, sell and distribute our products.

We and the third parties with whom we work are subject to a variety of evolving threats, including but not limited to social-engineering attacks (including through deep fakes, which may be increasingly more difficult to identify as fake, and phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks credential stuffing, credential harvesting, personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, earthquakes, fires, floods, attacks enhanced or facilitated by AI and other similar threats.

Ransomware attacks, including those perpetrated by organized criminal threat actors, nation-states, and nation-state-supported actors, are becoming increasingly prevalent and severe – particularly for companies like ours that are engaged in manufacturing – and can lead to significant interruptions in our operations, loss of data and income, reputational harm, and diversion of funds. Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments due to, for example, applicable laws or regulations prohibiting such payments. Additionally, remote work has increased risks to our information technology systems and data, as our employees utilize network connections, computers and devices outside our premises or network, including working at home, while in transit and in public locations. Future or past business transactions (such as acquisitions or integrations) could also expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities’ systems and technologies. A security incident or other interruption could result in unauthorized, unlawful, or accidental acquisition, modification, destruction, loss, alteration, encryption, disclosure of, or access to our sensitive information. A security incident or other interruption could disrupt our ability (and that of third parties with whom we work) to provide our products. Furthermore, we may discover security issues that were not found during due diligence of such acquired or integrated entities, and it may be difficult to integrate companies into our information technology environment and security program.

We rely on third-parties to operate critical business systems to process sensitive information in a variety of contexts, including, without limitation, third-party providers of cloud-based infrastructure, encryption and authentication technology, employee email, content delivery to customers, manufacturing processing, process orders and invoices, payments, inventory management and other functions. We also depend on these systems to respond to customer inquiries, support our overall internal control process, maintain property, plant and equipment records, and pay amounts due to vendors and other creditors. Our ability to monitor these third parties' information security practices is limited, and these third parties may not have adequate information security measures in place. While we may be entitled to damages if a third party with whom we work fails to satisfy their privacy or security-related obligations to us, any award may be insufficient to cover our damages, or we may be unable to recover such award. In addition, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties' infrastructure in our supply chain or that the third-parties with whom we work have not been compromised. We may share or receive sensitive information with or from third parties.

We may expend significant resources or modify our business activities in an effort to protect against security incidents. Certain data privacy and security obligations have required us to implement and maintain specific security measures, industry-standard or reasonable security measures to protect our information technology systems and sensitive information.

While we have implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. We take steps to detect and remediate vulnerabilities in our information systems (such as our hardware and/or software, including that of third parties with whom we work). However, we may not be able to detect and remediate all vulnerabilities, including in a timely basis. Therefore, such vulnerabilities could be exploited and result in a security incident. These vulnerabilities pose material risks to our business.

Despite our efforts to identify and remediate vulnerabilities, if any, in our information technology systems, our efforts may not be successful. Further, we may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities. Applicable data privacy and security obligations may require us, or we may choose, to notify relevant stakeholders including affected individuals, customers, regulators, and investors, of security incidents or to take other actions, such as providing credit monitoring and identity theft protection services. Such disclosures and related actions are costly, and the disclosures or the failure to comply with such requirements could lead to adverse consequences.

If we (or third parties with whom we work) experience a security incident or are perceived to have experienced a security incident, we may experience adverse consequences. These consequences may include: government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on processing data (including personal data); litigation (including class-action claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in our operations (including availability of data); financial loss; and other similar harms. Security incidents and attendant material consequences may negatively impact our ability to grow and operate our business. Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. We cannot be sure that our insurance coverage will be adequate or sufficient to protect us from or to mitigate liabilities arising out of our data privacy and security practices, that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims. In addition to experiencing a security incident, third parties may gather, collect, or infer sensitive information about us from public sources, data brokers, or other means that reveals competitively sensitive details about our organization and could be used to undermine our competitive advantage or market position.

Risks Related to Ownership of Our Shares

Our Certificate of Incorporation provides, subject to limited exceptions, that the Delaware Court of Chancery is the sole and exclusive forum for certain stockholder litigation matters, which could limit our stockholders' ability to obtain a chosen judicial forum for disputes with us or our directors, officers, employees or stockholders.

Our Certificate of Incorporation requires, to the fullest extent permitted by law, that derivative actions brought in our name, actions against directors, officers and employees for breach of fiduciary duty and other similar actions may be brought in the Delaware Court of Chancery or, if that court lacks subject matter jurisdiction, another federal or state court situated in the State of Delaware. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the forum provisions in our Certificate of Incorporation. In addition, our Certificate of Incorporation provides that the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action under the Securities Act.

This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum of its choosing for disputes with us or any of our directors, officers, other employees or stockholders, which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provision contained in our Certificate of Incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, operating results and financial condition.

Our charter documents and Delaware law could prevent a takeover that stockholders consider favorable and could also reduce the market price of our stock.

Our Certificate of Incorporation and Bylaws contain provisions that could delay or prevent a change in control of us. These provisions could also make it more difficult for stockholders to elect directors and take other corporate actions. These provisions include:

- initially providing for a classified Board with staggered, three-year terms;
- authorizing our Board to issue Preferred Stock with voting or other rights or preferences that could discourage a takeover attempt or delay changes in control;
- prohibiting cumulative voting in the election of directors;
- providing that vacancies on our Board may generally be filled only by a majority of directors then in office, even though less than a quorum;
- prohibiting the adoption, amendment or repeal of the Bylaws or the repeal of the provisions of our Certificate of Incorporation regarding the election and removal of directors without the required approval of at least two-thirds of the shares entitled to vote at an election of directors;
- prohibiting stockholder action by written consent;
- limiting the persons who may call special meetings of stockholders; and
- requiring advance notification of stockholder nominations and proposals.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board, which is responsible for appointing the members of our management. In addition, the provisions of Section 203 of the General Corporation Law of the State of Delaware ("DGCL") will govern us. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time without the consent of our Board. These and other provisions in our Certificate of Incorporation and our Bylaws under Delaware law could discourage potential takeover attempts, reduce the price investors might be willing to pay in the future for shares of our common stock and result in the market price of our common stock being lower than it would be without these provisions.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our Certificate of Incorporation and Bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the DGCL, the Bylaws and its indemnification agreements that we entered into with our directors and officers provide that:

- we will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful;
- we may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law;
- we will be required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification;

- we will not be obligated pursuant to our Bylaws to indemnify a person with respect to proceedings initiated by that person against us or our other indemnities, except with respect to proceedings authorized by our Board or brought to enforce a right to indemnification;
- the rights conferred in the Bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons; and
- we may not retroactively amend our Bylaw provisions to reduce our indemnification obligations to directors, officers, employees and agents.

We do not intend to pay dividends for the foreseeable future.

We have never declared or paid any cash dividends on our capital stock and do not intend to pay any cash dividends in the foreseeable future. We expect to retain future earnings, if any, to fund the development and growth of our business. Any future determination to pay dividends on our capital stock will be at the discretion of our Board. In addition, our loan agreements contain restrictions on our ability to pay dividends.

The market price and trading volume of our common stock has been and may be volatile and could decline significantly.

The stock markets, including Nasdaq on which we have listed the shares of our common stock under the symbol “ORGN,” have from time to time experienced significant price and volume fluctuations. Even if an active, liquid and orderly trading market is sustained for our common stock, the market price of our common stock has been and may be volatile and could decline significantly. Our common stock experienced such a decline in August 2023. In addition, the trading volume in our common stock may fluctuate and cause significant price variations to occur. If the market price of our common stock declines significantly, you may be unable to resell your shares at or above the market price of our common stock at which you purchased our common stock. We cannot assure you that the market price of common stock will not fluctuate widely or decline significantly in the future in response to a number of factors, including, among others, the following:

- the realization of any of the risk factors presented in this Report;
- actual or anticipated differences in our estimates, or in the estimates of analysts, for our revenues, results of operations, level of indebtedness, liquidity or financial condition;
- additions and departures of key personnel;
- failure to comply with the requirements of Nasdaq;
- failure to comply with the Sarbanes-Oxley Act or other laws or regulations;
- future issuances, sales, resales or repurchases or anticipated issuances, sales, resales or repurchases, of our securities;
- publication of research reports about us;
- the performance and market valuations of other similar companies;
- commencement of, or involvement in, litigation involving us;
- broad disruptions in the financial markets, including sudden disruptions in the credit markets;
- speculation in the press or investment community;
- actual, potential or perceived control, accounting or reporting problems;
- changes in accounting principles, policies and guidelines; and
- other events or factors, including those resulting from infectious diseases, health epidemics and pandemics, natural disasters, war, acts of terrorism or responses to these events.

In the past, securities class-action litigation has often been instituted against companies following periods of volatility in the market price of their shares. This type of litigation, including the matter in which we are currently involved, could result in substantial costs and divert our management’s attention and resources, which could materially adversely affect us.

In addition, litigation, including securities class action litigation, has often followed announcements of significant business transactions, such as the sale of a company or announcement of any other strategic transaction, or the announcement of negative events, such as negative earnings results. We are, and may in the future be, the target of this type of litigation. These events may also result in investigations by the Securities and Exchange Commission.

Our quarterly operating results may fluctuate significantly and could fall below the expectations of securities analysts and investors due to seasonality and other factors, some of which are beyond our control, resulting in a decline in our stock price.

Our quarterly operating results may fluctuate significantly because of several factors, including:

- labor availability and costs for hourly and management personnel;
- profitability of our products;
- changes in interest rates;
- impairment of long-lived assets;
- macroeconomic conditions, such as inflation and increasing interest rates, tariffs and other trade restrictions, which may increase the risk of a potential recession;
- negative publicity relating to products we serve;
- changes in consumer preferences and competitive conditions;
- expansion to new markets; and
- fluctuations in commodity prices.

If securities or industry analysts do not publish or cease publishing research or reports about us, our business, or our market, or if they change their recommendations regarding our common stock adversely, then the price and trading volume of our common stock could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts may publish about us, our business, our market, or our competitors. Accordingly, we must maintain confidence among current and future analysts, ratings agencies and other parties in our long-term financial viability and business prospects. Maintaining such confidence may be particularly complicated by certain factors including those that are largely outside of our control, such as limited operating history, market unfamiliarity, any delays in scaling manufacturing to meet demand and our eventual production and sales performance compared with the market expectations. If any of the analysts who may cover us change their recommendation regarding our common stock adversely, or provide more favorable relative recommendations about our competitors, the price of our common stock would likely decline. If any analyst who may cover us were to cease coverage of us, which occurred in November 2023 and may occur again in the future, or if any analyst fails to regularly publish reports on us, we could lose in the financial markets, which could cause our stock price or trading volume to decline.

Future issuances of debt securities and equity securities may adversely affect us, including the market price of our common stock and may be dilutive to existing stockholders.

In the future, we may incur debt or issue equity ranking senior to our common stock. Those securities will generally have priority upon liquidation. Such securities also may be governed by an indenture or other instrument containing covenants restricting its operating flexibility. Additionally, any convertible or exchangeable securities that we issue in the future may have rights, preferences and privileges more favorable than those of our common stock. Because our decision to issue debt or equity in the future will depend on market conditions and other factors beyond our control, we cannot predict or estimate the amount, timing, nature or success of our future capital raising efforts. As a result, future capital raising efforts may reduce the market price of our common stock and be dilutive to existing stockholders.

We have failed, and may continue to fail, to meet the listing standards of Nasdaq, and as a result our common stock may become delisted, which could have a material adverse effect on its liquidity.

Our common stock and the public warrants that were issued in connection with Artius' initial public offering (the "Public Warrants") are currently listed on Nasdaq. If we fail to continue to satisfy the continued listing requirements of Nasdaq, such as the corporate governance or public float requirements, or the minimum closing bid price requirement, Nasdaq will take steps to delist our common stock. The per share price of our common stock has declined below the minimum bid price threshold required for continued listing. On April 7, 2025, we received a deficiency letter from the Listing Qualifications Department of the Nasdaq, notifying us that, for the last 31 consecutive business days, the closing bid price for our common stock had closed below the minimum \$1.00 per share required for continued listing on the Nasdaq pursuant to Nasdaq Listing Rule 5550(a)(2) ("Rule 5550(a)(2)"). The Company has 180 calendar days, or until October 6, 2025, to regain compliance with the minimum bid price requirement. If our common stock does not achieve compliance with the minimum bid price requirement by October 6, 2025, we may be eligible for an additional 180-day period to regain compliance if we meet the continued listing requirement for market value of publicly held shares and all other initial listing standards for the Nasdaq Capital Market, with the exception of the minimum bid price requirement, and provide written notice to Nasdaq of our intention to cure the deficiency during the second compliance period by effecting a reverse stock split, if necessary. However, if it appears to the Nasdaq staff that we will not be able to cure the deficiency, or if we do not meet the other listing standards, Nasdaq could provide notice that our common stock will become subject to delisting. In the event we receive notice that our common stock is being delisted, Nasdaq rules permit us to appeal any delisting determination by the Staff to a Hearings Panel. There can be no assurance that we will regain compliance with the minimum bid price requirement or be successful in maintaining our listing of our common stock on the Nasdaq Capital Market.

There are many factors that may adversely affect our minimum bid price. Many of these factors are outside of our control. As a result, even if we regain compliance, we may not be able to sustain compliance with Rule 5550(a)(2) in the long term. A failure to meet the requirements of the listing standards of Nasdaq may result in additional deficiency letters in the future. Any potential delisting of our common stock from the Nasdaq would likely result in decreased liquidity and increased volatility for our common stock and would adversely affect our ability to raise additional capital or to enter into strategic transactions, in addition to adversely impacting the perception of our financial condition and could cause reputational harm to investors and parties conducting business with us. Any potential delisting of our common stock from the Nasdaq would also make it more difficult for our stockholders to sell our common stock.

Additionally, if our common stock is delisted from Nasdaq, the liquidity of our common stock would be adversely affected, the market price of our common stock could decrease, our ability to obtain sufficient additional capital to fund our operations and transactions in our common stock could lose federal preemption of state securities laws. Furthermore, there could also be a further reduction in our coverage by securities analysts and the news media and broker-dealers may be deterred from making a market in or otherwise seeking or generating interest in our common stock, which could cause the price of our common stock to decline further. Moreover, delisting may also negatively affect our clients', customers' and employees' confidence in us and employee morale.

Sales of a substantial number of shares of our common stock by our existing stockholders could cause the price of our common stock to decline.

At any time, sales of a substantial number of shares of our common stock in the public market could occur, or there could be a perception in the market that the holders of a large number of shares of common stock intend to sell shares, and any such event could reduce the market price of our common stock. Substantially all of the shares of our common stock outstanding and shares issued upon the exercise of stock options outstanding under our equity incentive plans, subject to applicable securities law restrictions and excluding shares of restricted stock that will remain unvested, may be able to be sold in the public market. We are unable to predict the effect that sales may have on the prevailing market price of common stock and Public Warrants.

To the extent our Warrants are exercised, additional shares of common stock will be issued, which will result in dilution to the holders of common stock and increase the number of shares eligible for resale in the public market. Sales, or the potential sales, of substantial numbers of shares in the public market by the selling securityholders could increase the volatility of the market price of common stock or adversely affect the market price of common stock.

There is no guarantee that the Warrants will be in the money at the time they become exercisable, and they may expire worthless.

The exercise price for our Warrants is \$11.50 per share of common stock. There is no guarantee that the Warrants will be in the money following the time they become exercisable and prior to their expiration, and as such, the Warrants may expire worthless. Our Warrants became exercisable on July 25, 2021.

We may amend the terms of the Warrants in a manner that may be adverse to holders with the approval by the holders of at least 50% of the then-outstanding Public Warrants. As a result, the exercise price of your Warrants could be increased, the exercise period could be shortened and the number of shares of our common stock purchasable upon exercise of a Warrant could be decreased, all without your approval.

Our Warrants are issued in registered form under the Warrant Agreement between the warrant agent and us. The Warrant Agreement provides that the terms of the Warrants may be amended without the consent of any holder to cure any ambiguity or correct any defective provision, but requires the approval by the holders of at least 50% of the then-outstanding Public Warrants to make any change that adversely affects the interests of the registered holders of Public Warrants. Accordingly, we may amend the terms of the Public Warrants in a manner adverse to a holder if holders of at least 50% of the then-outstanding Public Warrants approve of such amendment. Although our ability to amend the terms of the Public Warrants with the consent of at least 50% of the then-outstanding Public Warrants is unlimited, examples of such amendments could be amendments to, among other things, increase the exercise price of the Warrants, convert the Warrants into cash or stock (at a ratio different than initially provided), shorten the exercise period or decrease the number of shares of our common stock purchasable upon exercise of a Warrant.

We may redeem unexpired Warrants prior to their exercise at a time that is disadvantageous to warrant holders, thereby making such Warrants worthless.

We have the ability to redeem outstanding Warrants at any time after they become exercisable and prior to their expiration, at a price of \$0.01 per Warrant, provided that the last reported sales price of our common stock equals or exceeds \$18.00 per share (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations and the like) for any 20 trading days within a 30 trading-day period ending on the third trading day prior to the date on which we give proper notice of such redemption and provided certain other conditions are met. If and when the Warrants become redeemable by us, we may exercise our redemption right even if we are unable to register or qualify the underlying securities for sale under all applicable state securities laws. Redemption of the outstanding Warrants could force you (a) to exercise your Warrants and pay the exercise price therefor at a time when it may be disadvantageous for you to do so, (b) to sell your Warrants at the then-current market price when you might otherwise wish to hold your Warrants or (c) to accept the nominal redemption price which, at the time the outstanding Warrants are called for redemption, is likely to be substantially less than the market value of your Warrants.

In addition, we may redeem your Warrants after they become exercisable for a number of shares of common stock determined based on the redemption date and the fair market value of our common stock. Any such redemption may have similar consequences to a cash redemption described above. In addition, such redemption may occur at a time when the Warrants are “out-of-the-money,” in which case, you would lose any potential embedded value from a subsequent increase in the value of our common stock had your Warrants remained outstanding.

We may issue additional shares of common stock or other equity securities without shareholder approval, which would dilute shareholders’ ownership interests and may depress the market price of our common stock.

As of March 31, 2025 we have Warrants outstanding to purchase an aggregate of 35,476,627 shares of common stock. Pursuant to the Merger Agreement, we may issue up to 25,000,000 shares of our common stock as Earnout Shares. In addition, pursuant to the 2021 Equity Incentive Plan and the ESPP, we may issue an aggregate of up to 36,392,293 shares of common stock, which amount is subject to increase from time to time. We may also issue additional shares of common stock or other equity securities of equal or senior rank in the future in connection with, among other things, future acquisitions or repayment of outstanding indebtedness, without stockholder approval, in a number of circumstances. The issuance of additional shares or other equity securities of equal or senior rank would have the following effects:

- existing stockholders’ proportionate ownership interest in us will decrease;
- the amount of cash available per share, including for payment of dividends in the future, may decrease;
- the relative voting strength of each previously outstanding share of common stock may be diminished; and
- the market price of the common stock may decline.

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

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

Not applicable.

Item 6. Exhibits

Exhibit No.	Description	Form	Incorporated by Reference		
			File No.	Exhibit	Filing Date
3.1	Amended and Restated Certificate of Incorporation of the Company.	8-K	001-39378	3.3	July 1, 2021
3.2	Bylaws of the Company.	8-K	001-39378	3.2	June 29, 2021
31.1*	Certification of Principal Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as amended.				
31.2*	Certification of Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as amended.				
32.1+	Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				
101.INS*	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File as its XBRL tags are embedded within the Inline XBRL document				
101.SCH*	Inline XBRL Taxonomy Extension Schema with Embedded Linkbase Documents				
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)				

* Filed herewith.

+ Furnished herewith and not deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.

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.

ORIGIN MATERIALS, INC.

Date: May 15, 2025

By: /s/ John Bissell
John Bissell
Chief Executive Officer

Date: May 15, 2025

By: /s/ Matt Plavan
Matt Plavan
Chief Financial Officer and Chief Operating Officer

**CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, John Bissell, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Origin Materials, 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 15, 2025

By: /s/ John Bissell
John Bissell
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Matthew Plavan, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Origin Materials, 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 15, 2025

By: /s/ Matthew Plavan

Matthew Plavan
Chief Financial Officer and Chief Operating Officer
(Principal Financial and Accounting Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. § 1350), John Bissell, Chief Executive Officer of Origin Materials, Inc. (the "Company"), and Matthew Plavan, Chief Financial Officer and Chief Operating Officer of the Company, each hereby certifies that, to the best of their knowledge:

1. The Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2025, to which this Certification is attached as Exhibit 32.1 (the "Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 15, 2025

By: /s/ John Bissell

John Bissell
Chief Executive Officer
(Principal Executive Officer)

By: /s/ Matthew Plavan

Matthew Plavan
Chief Financial Officer and Chief Operating Officer
(Principal Financial and Accounting Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Origin Materials, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.