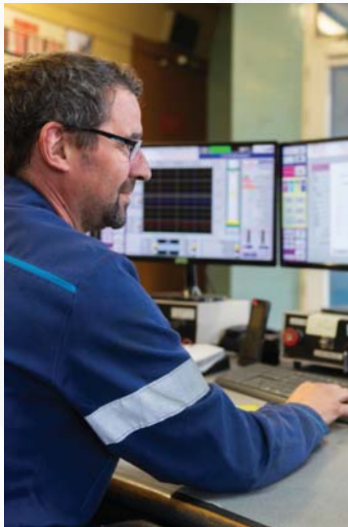


GRAFTECH INTERNATIONAL LTD.

ANNUAL REPORT

2023





ABOUT GRAFTECH

GrafTech International Ltd. is a leading manufacturer of high-quality graphite electrode products essential to the production of electric arc furnace steel and other ferrous and non-ferrous metals. The Company has a competitive portfolio of low-cost, ultra-high power graphite electrode manufacturing facilities, with some of the highest capacity facilities in the world. We are the only large-scale graphite electrode producer that is substantially vertically integrated into petroleum needle coke, our key raw material for graphite electrode manufacturing. This unique position provides us with competitive advantages in product quality and cost.

FINANCIAL HIGHLIGHTS

Key Financial Measures (in millions, except per share amounts)

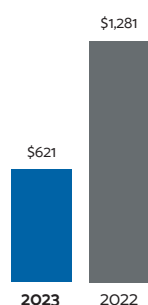
	2023	2022
Net sales	\$621	\$1,281
Net (loss) income	\$(255)	\$383
(Loss) earnings per share ⁽¹⁾	\$(0.99)	\$1.48
Adjusted EBITDA ⁽²⁾	\$20	\$536

Key Operating Measures

Sales volume (in thousands of metric tons)	92	149
Production volume (in thousands of metric tons) ⁽³⁾	88	157
Capital expenditures (in millions)	\$54	\$72

Net Sales

(in millions)



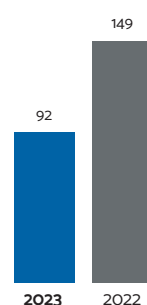
Adjusted EBITDA ⁽²⁾

(in millions)



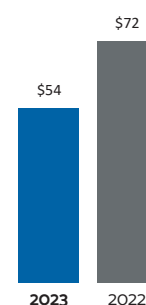
Sales Volume

(in thousands of metric tons)



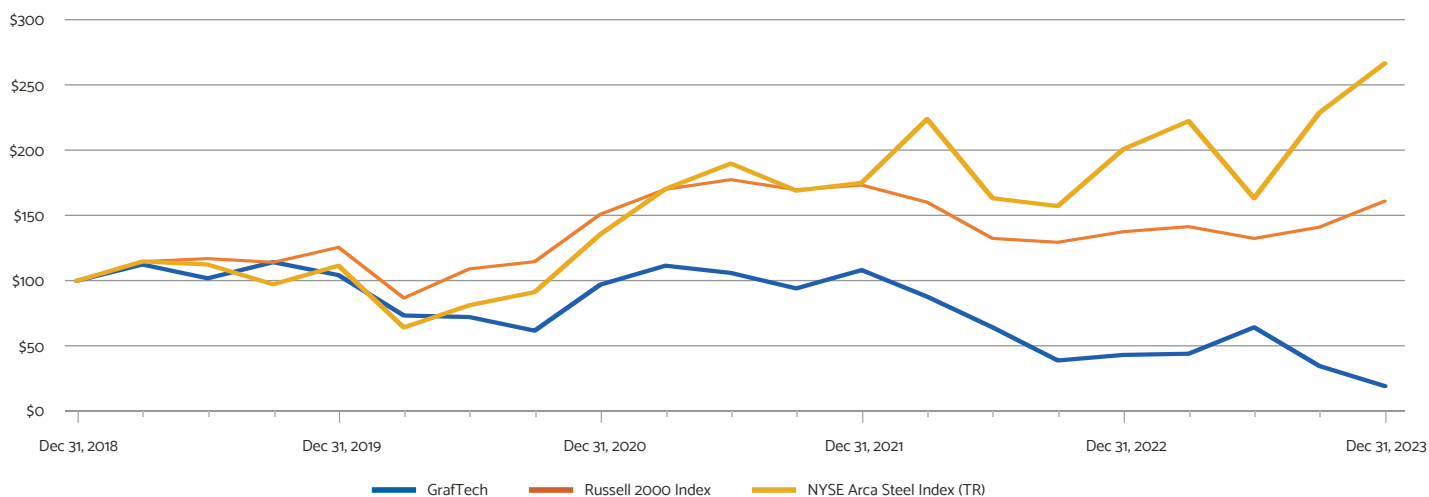
Capital Expenditures

(in millions)



Stock Performance

The following graph compares the cumulative total shareholder returns of our common shares, the Russell 2000 Index and the NYSE Arca Steel Index (TR). The graph assumes the investing of \$100 from December 31, 2018 through December 31, 2023, with dividends assumed to be reinvested when received. The performance reflected below is not necessarily indicative of future performance.



(1) (Loss) earnings per share represents diluted (loss) earnings per share.

(2) A non-GAAP financial measure, see page 33 of the enclosed Annual Report on Form 10-K for the year ended December 31, 2023 for information and a reconciliation to net (loss) income, the most directly comparable financial measure calculated and presented in accordance with GAAP.

(3) Production volume reflects graphite electrodes we produced during the period.

LETTER TO STOCKHOLDERS



Timothy K. Flanagan
Chief Executive Officer and President

Dear GrafTech Stockholders,

GrafTech is proud to be a leader in the manufacturing of high-quality graphite electrodes that are essential to the production of electric arc furnace ("EAF") steel. As a supplier to the steel industry, we operate in a cyclical industry and currently find ourselves in a challenging part of the cycle. As a result, our performance in 2023 fell short of expectations and our near-term outlook remains cautious. With a continued focus on managing what is within our control, we have taken and will continue to take a number of actions to reduce our costs,

manage our working capital levels and optimize our manufacturing footprint. We are confident in our ability to execute these plans while remaining relentlessly focused on meeting the needs of our customers. Further, we believe the actions we are taking will not only allow us to navigate near-term challenges but also preserve our ability to capitalize on long-term growth opportunities and deliver shareholder value. In this letter, I will expand on these points.

2023 Results

In 2023, global markets continued to be impacted by economic uncertainty, including the effects of ongoing inflation and a high interest rate environment. In addition, geopolitical conflicts contributed to expanding disruptions of commercial trade. These and other macro factors contributed to a constrained global steel industry, which resulted in persistently soft demand for graphite electrodes and weak pricing. As these dynamics played out in 2023, GrafTech was also pressured by the residual impact of the temporary suspension of our operations in Monterrey, Mexico that occurred in late 2022.

Reflecting this backdrop, we saw year-over-year declines in key financial and operating metrics in 2023. Our sales volume for 2023 of 92 thousand metric tons represented a decrease of 39% compared to 2022. In 2023, we reported a net loss of \$255 million, or \$0.99 per share⁽¹⁾, including the impact of a goodwill impairment charge. Adjusted EBITDA⁽²⁾ for 2023 was \$20 million, compared to 2022 adjusted EBITDA⁽²⁾ of \$536 million. In 2023, we generated \$77 million of cash flow from operating activities and invested \$54 million in our capital assets. We ended 2023 with liquidity of \$289 million, consisting of \$112 million of availability under our revolving credit facility and cash and cash equivalents of \$177 million.

The generation of positive cash flow in 2023 reflected the steps we have taken to navigate the current environment. Those included proactively reducing our production volume to align with our demand outlook, as well as closely managing our costs, capital expenditures and working capital levels. At the same time, we made targeted investments to further improve our operations and product offerings.

Lastly, in 2023, we continued to make progress regarding our environmental, social and governance ("ESG") initiatives. As a leading provider of a product that is mission critical to our customers, GrafTech is proud of our ongoing contributions towards the sustainability of steel. As we continued to execute our ESG strategy in 2023, key initiatives included investments to capture heat

to reduce fuel consumption at our production facilities and a significant expansion of our engagement within local communities in the areas where we operate. Further, in 2023, GrafTech joined the United Nations Global Compact, a voluntary leadership platform for the development, implementation and disclosure of responsible business practices. In the coming months, we will publish our 2023 sustainability report where we will highlight these and other elements of our ESG strategy.

Looking Ahead

Entering 2024, the softness in the commercial environment persists. In response, we are taking additional actions. In February, we announced a set of initiatives designed to reduce our cost structure and optimize our manufacturing footprint. These include the indefinite idling of certain assets and reducing GrafTech's overhead structure and expenses. Actions such as these that impact employees are never taken lightly. However, we believe they are the right steps for the long-term health of our business. They will support our ability to navigate the current headwinds while, at the same time, preserve our ability to capitalize on long-term growth opportunities.

To that point, our optimism about the long-term prospects for GrafTech remains intact. We operate in an industry that, while cyclical, also has significant long-term tailwinds. Decarbonization efforts are driving a transition in steel, with EAF steelmaking continuing to increase its share of total steel production. We expect this trend to continue and drive long-term demand growth for graphite electrodes. In addition, we anticipate the demand for petroleum needle coke, the key raw material we use to produce ultra-high power graphite electrodes, to accelerate driven by use in lithium-ion batteries for the growing electric vehicle market.

GrafTech possesses a distinct set of assets, capabilities and competitive advantages that position us well to capitalize on these trends. We operate some of the most efficient and highest capacity graphite electrode manufacturing facilities in the world. In addition, we are the only large-scale graphite electrode producer that is substantially vertically integrated into petroleum needle coke. These, and other attributes, support our ability to provide a compelling value proposition to our customers and are foundational to our ability to meet their needs.

In closing, we believe the actions we are taking, supported by our competitive advantages, will allow us to remain an industry leader and a preeminent supplier of mission critical products to the EAF industry. This would not be possible without the determination and resolve that continues to be demonstrated by our GrafTech team members located around the world. I would like to thank them for their ongoing dedication and commitment. I would also like to thank our customers, suppliers and the communities in which we operate for their continued support. Lastly, I would like to thank you, our stockholders, for your continued investment and confidence in GrafTech.

Timothy K. Flanagan
Chief Executive Officer and President
March 2024

(1) (Loss) earnings per share represents diluted (loss) earnings per share.

(2) A non-GAAP financial measure, see page 33 of the enclosed Annual Report on Form 10-K for the year ended December 31, 2023 ("Form 10-K") for information and a reconciliation to net (loss) income, the most directly comparable financial measure calculated and presented in accordance with GAAP.

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2023
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: **1-13888**

GRAF*Tech*
International

GRAFTECH INTERNATIONAL LTD.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

27-2496053

(I.R.S. Employer
Identification Number)

982 Keynote Circle

Brooklyn Heights, Ohio

44131

(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: **(216) 676-2000**

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, \$0.01 par value per share	EAF	New York Stock Exchange
Securities registered pursuant to Section 12(g) of the Act:		
None		

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes No

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

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

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

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

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

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant as of June 30, 2023 was \$970.6 million, based on the closing price of the registrant's common stock as reported on the New York Stock Exchange as of the last business day of the registrant's most recently completed second quarter.

On February 2, 2024, 256,831,870 shares of our common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement (the "Proxy Statement") to be filed with the Securities and Exchange Commission relative to the registrant's 2024 Annual Meeting of Stockholders are incorporated by reference into Part III of this Report.

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PART I

References herein to the “Company,” “GrafTech,” “we,” “our,” or “us” refer collectively to GrafTech International Ltd. and its subsidiaries.

Presentation of Financial, Market and Industry Data

We present our financial information on a consolidated basis. Unless otherwise noted, when we refer to dollars, we mean U.S. dollars.

Certain market and industry data included in this Annual Report on Form 10-K for the year ended December 31, 2023 (the “Annual Report” or “Report”) has been obtained from third-party sources that we believe to be reliable. Market estimates are calculated by using independent industry publications, government publications and third-party forecasts in conjunction with our assumptions about our markets. We cannot guarantee the accuracy or completeness of this market and market share data and have not independently verified it. None of the sources has consented to the disclosure or use of data in this Annual Report. While we are not aware of any misstatements regarding any market, industry or similar data presented herein, such data involves risks and uncertainties and is subject to change based on various factors, including those discussed under the headings “Cautionary Note Regarding Forward-Looking Statements” and “Risk Factors” in this Annual Report.

Cautionary Note Regarding Forward-Looking Statements

This Report may contain forward-looking statements within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements reflect our current views with respect to, among other things, financial projections, plans and objectives of management for future operations, and future economic performance. Examples of forward-looking statements include, among others, statements we make regarding future estimated volume, pricing and revenue, anticipated levels of capital expenditures and cost of goods sold, anticipated reduction in our costs resulting from our cost rationalization initiatives and one-time costs of implementation and guidance relating to adjusted EBITDA and free cash flow. You can identify these forward-looking statements by the use of forward-looking words such as “will,” “may,” “plan,” “estimate,” “project,” “believe,” “anticipate,” “expect,” “foresee,” “intend,” “should,” “would,” “could,” “target,” “goal,” “continue to,” “positioned to,” “are confident,” or the negative versions of those words or other comparable words. Any forward-looking statements contained in this Report are based upon our historical performance and on our current plans, estimates and expectations considering information currently available to us. The inclusion of this forward-looking information should not be regarded as a representation by us that the future plans, estimates, or expectations contemplated by us will be achieved. Our expectations and targets are not predictions of actual performance and historically our performance has deviated, often significantly, from our expectations and targets. These forward-looking statements are subject to various risks and uncertainties and assumptions relating to our operations, financial results, financial condition, business, prospects, growth strategy and liquidity. Accordingly, there are or will be important factors that could cause our actual results to differ materially from those indicated in these statements. We believe that these factors include, but are not limited to:

- our dependence on the global steel industry generally and the electric arc furnace (“EAF”) steel industry in particular;
- the cyclical nature of our business and the selling prices of our products, which may continue to decline in the future, and may lead to periods of reduced profitability and net losses or adversely impact liquidity;
- the sensitivity of our business and operating results to economic conditions, including any recession, and the possibility others may not be able to fulfill their obligations to us in a timely fashion or at all;
- the possibility that we may be unable to implement our business strategies in an effective manner;
- the possibility that global graphite electrode overcapacity may adversely affect graphite electrode prices;
- the competitiveness of the graphite electrode industry;
- our dependence on the supply of raw materials, including decant oil and petroleum needle coke, and disruptions in supply chains for these materials;
- our primary reliance on one facility in Monterrey, Mexico for the manufacturing of connecting pins;
- the availability and cost of electric power and natural gas, particularly in Europe;
- our manufacturing operations are subject to hazards;
- the legal, compliance, economic, social and political risks associated with our substantial operations in multiple countries;

- the possibility that fluctuation of foreign currency exchange rates could materially harm our financial results;
- the possibility that our results of operations could further deteriorate if our manufacturing operations were substantially disrupted for an extended period, including as a result of equipment failure, climate change, regulatory issues, natural disasters, public health crises, such as a global pandemic, political crises or other catastrophic events;
- the risks and uncertainties associated with litigation, arbitration, and like disputes, including disputes related to contractual commitments;
- our dependence on third parties for certain construction, maintenance, engineering, transportation, warehousing and logistics services;
- the possibility that we are subject to information technology systems failures, cybersecurity attacks, network disruptions and breaches of data security;
- the possibility that we are unable to recruit or retain key management and plant operating personnel or successfully negotiate with the representatives of our employees, including labor unions;
- the sensitivity of long-lived assets on our balance sheet to changes in the market;
- our dependence on protecting our intellectual property and the possibility that third parties may claim that our products or processes infringe their intellectual property rights;
- the impact of inflation and our ability to mitigate the effect on our costs;
- the impact of macroeconomic and geopolitical events on our business, results of operations, financial condition and cash flows, and the disruptions and inefficiencies in our supply chain that may occur as a result of such events;
- the possibility that our indebtedness could limit our financial and operating activities or that our cash flows may not be sufficient to service our indebtedness;
- recent increases in benchmark interest rates and the fact that any future borrowings may subject us to interest rate risk;
- the possibility that disruptions in or our ability to access the capital and credit markets could adversely affect our results of operations, cash flows and financial condition, or those of our customers and suppliers;
- the possibility that restrictive covenants in our financing agreements could restrict or limit our operations;
- changes in, or more stringent enforcement of, health, safety and environmental regulations applicable to our manufacturing operations and facilities; and
- the possibility that the cash dividends on our common stock, which are currently suspended, will remain suspended and we may not pay cash dividends on our common stock in the future.

These factors should not be construed as exhaustive and should be read in conjunction with the Risk Factors and other cautionary statements that are included in this Report. The forward-looking statements made in this Report relate only to events as of the date on which the statements are made. Except as required by law, we do not undertake any obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

If one or more of these or other risks or uncertainties materialize, or if our underlying assumptions prove to be incorrect, our actual results may vary materially from what we may have expressed or implied by these forward-looking statements. We caution that you should not place undue reliance on any of our forward-looking statements. You should specifically consider the factors identified in this Report that could cause actual results to differ before making an investment decision to purchase our common stock. Furthermore, new risks and uncertainties arise from time to time, and it is impossible for us to predict those events or how they may affect us.

For a more complete discussion of these and other factors, see “Risk Factors” in Part I of this Report and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in Part II of this Report.

Item 1. Business

Introduction

GrafTech International Ltd., founded in 1886 and incorporated in Delaware, is a leading manufacturer of high-quality graphite electrode products essential to the production of EAF steel and other ferrous and non-ferrous metals. We believe that we have a competitive portfolio of low-cost ultra-high power (“UHP”) graphite electrode manufacturing facilities, with some of the highest capacity facilities in the world. We have graphite electrode manufacturing facilities in Calais, France, Pamplona, Spain, Monterrey, Mexico and St. Marys, Pennsylvania. We are the only large-scale graphite electrode producer that is substantially vertically integrated into petroleum needle coke, our key raw material for graphite electrode manufacturing. This unique position provides us with competitive advantages in product quality and cost.

Our only reportable segment, Industrial Materials, is comprised of two major product categories: graphite electrodes and petroleum needle coke products. Our vision is to provide highly engineered graphite electrode products, services and solutions to EAF operators. Based on the high-quality of our graphite electrodes, reliability of our petroleum needle coke supply and our excellent customer service, we believe that we are viewed as a preferred supplier to the global EAF steel producer market.

As of December 31, 2023, our stated production capacity was approximately 202 thousand metric tons (“MT”)¹ through our primary manufacturing facilities in Calais, Pamplona and Monterrey. On February 14, 2024, the Company announced a cost rationalization and footprint optimization plan, in response to persistent softness in the commercial environment. This includes an indefinite suspension of production activities at our St. Marys facility, with the exception of graphite electrode and pin machining. We are also indefinitely idling certain assets within our remaining graphite electrode manufacturing footprint. As a result of these initiatives, beginning in 2024, our stated production capacity will be approximately 178 thousand MT¹.

Our principal executive offices are located at 982 Keynote Circle, Brooklyn Heights, Ohio 44131 and our telephone number is (216) 676-2000. Our website address is www.graftech.com. Information on, or accessible through, our website is not part of this Annual Report. We have included our website address only as an inactive textual reference and do not intend it to be an active link to our website.

Products and Raw Materials

Graphite Electrodes

Graphite electrodes are an industrial consumable product used primarily in EAF steel production, one of the two primary methods of steel production and the steelmaking technology used by all “mini-mills.” Electrodes act as conductors of electricity in the furnace, generating sufficient heat to melt scrap metal, iron ore-derived products or other raw materials used to produce steel or other metals. We estimate that, on average, the cost of graphite electrodes represents less than 5% of the total production cost of steel in a typical EAF, but they are essential to EAF steel production. Graphite electrodes are currently the only known commercially available products that have the high levels of electrical conductivity and the capability to sustain the high levels of heat generated in EAF steel production. As a result, EAF steel manufacturers require a reliable supply of high-quality graphite electrodes. Graphite electrodes are also used in steel refining ladle furnaces and in other processes, such as the production of titanium dioxide, stainless steel, silicon metals and other ferrous and non-ferrous metals.

With the growth of EAF steel production, graphite electrode production has become focused on the manufacturing of UHP electrodes, which have low electrical resistivity and strong durability to maximize efficient use of electricity in the EAF and minimize electrode consumption. The production of UHP electrodes requires an extensive proprietary manufacturing process and material science knowledge, including the use of higher quality needle coke blends. We manufacture graphite electrodes ranging in size up to 30 inches (750 millimeters) in diameter, over 11 feet (3,400 millimeters) in length, and weighing as much as 5,900 pounds (2.6 MT). In 2024, we anticipate expanding our product offerings to include the addition of an 800-millimeter super-sized electrode to our portfolio to serve a small but growing segment of the UHP electrode market. We also manufacture corresponding sizes of graphite connecting pins, which are used by customers to connect and fasten graphite electrodes together in a column for use in an EAF. For the past several years, all of our connecting pin production was performed at our Monterrey, Mexico facility. However, we recently added pin production capabilities at our Pamplona, Spain

¹ Production capacity reflects expected maximum production volume during the period through our Calais, Pamplona and Monterrey facilities depending on product mix and expected maintenance outage. Actual production may vary.

facility to provide alternative sources, if needed, for this critical component. The total manufacturing time of a UHP graphite electrode and its associated connecting pin is, on average and except for special requests, approximately six months.

The size of the electrodes used in EAF steel production varies depending on the size of the furnace, the size of the furnace's electric transformer and the planned productivity of the furnace. In a typical furnace using alternating electric current and operating at a typical number of production cycles per day, three UHP graphite electrodes are fully consumed (requiring the addition of new electrodes), on average, every eight to ten operating hours. UHP graphite electrodes are consumed at a rate of approximately 1.7 kilograms per MT of steel production, on average, in EAF facilities.

The actual rate of consumption and addition of electrodes for a particular furnace depends primarily on the efficiency and productivity of the furnace. Therefore, demand for graphite electrodes is directly related to the amount and efficiency of EAF steel production. EAF steel production requires significant heat (as high as 5,000° F) to melt the raw materials, primarily scrap metal, in the furnace. Heat is generated as electricity (as much as 150,000 amps) passes through the electrodes and creates an electric arc between the electrodes and the raw materials.

Graphite Electrode Industry - Supply and Demand Trends

Supply trends

We estimate that as of the end of 2023, the graphite electrode industry globally (excluding China) had nameplate capacity to produce approximately 810 thousand MT of graphite electrodes. The industry is fairly consolidated, with the five largest global (excluding China) producers in the industry, GrafTech, Resonac Holdings Corporation, HEG Limited, Tokai Carbon Co., Ltd. and Graphite India Limited, collectively, representing over 80% of global (excluding China) graphite electrode production capacity. As of December 31, 2023, our stated production capacity was approximately 202 thousand MT through our Calais, Pamplona and Monterrey facilities and represented approximately one-quarter of the global (excluding China) graphite electrode production capacity. On February 14, 2024, the Company announced a cost rationalization and footprint optimization plan, in response to persistent softness in the commercial environment. As a result, beginning in 2024, our stated production capacity will be approximately 178 thousand MT.

We believe that no new graphite electrode production facilities have been built outside of China for several years. In recent years, additional production capacity has been generated by optimization and debottlenecking of existing assets and limited brownfield expansion.

We primarily compete in the UHP segment of the graphite electrode market. We estimate that, as of the end of 2023, global (excluding China) UHP graphite electrode capacity was approximately 690 thousand MT, or approximately 85% of the global (excluding China) graphite electrode capacity.

Although graphite electrode production capacity within China exceeds that of the rest of the world combined, the production landscape in China is fragmented, and the quality of Chinese graphite electrodes varies greatly. We estimate that as of the end of 2023, total production capacity within China for the UHP segment of graphite electrodes was approximately 825 thousand MT. However, we believe that a significant portion of the UHP electrodes produced in China do not meet the quality standards needed to be exported for use in the most demanding EAF applications. In addition, the imposition of customs duties and other tariffs in key EAF steelmaking regions, including the United States and the European Union ("EU"), have further limited the quantity of graphite electrodes exported from China.

Demand trends

We estimate that annual global (excluding China) UHP graphite electrode demand has been approximately 660 thousand MT, on average, over the past three years. UHP graphite electrodes are primarily used in the EAF steelmaking process, and long-term global growth of EAF steel production has driven increased demand for graphite electrodes over time. EAF steelmaking has historically been the fastest-growing segment of the global steel market. According to the World Steel Association ("WSA"), global (excluding China) EAF steel production grew at a 2%-3% compound annual growth rate from 2015 to 2022, the most recent year for which WSA has published such figures. This compares to a 1% compound annual growth rate for overall global (excluding China) steel production during this same period. As a result, the EAF method of steelmaking accounted for 49% of the global (excluding China) steel production in 2022, compared to 44% in 2015, with share growth in nearly every region.

EAF steelmaking is more energy efficient and is advantaged in terms of its environmental footprint, compared to steel produced through the basic oxygen furnace ("BOF") steelmaking model. According to the Steel Manufacturers Association ("SMA"), EAF steelmaking produces 75% fewer carbon dioxide emissions compared to BOF steelmaking. Further, SMA notes that the EAF process is a sustainable model for recycling scrap-based raw materials into new steel, which is 100% (and

infinitely) recyclable at the end of its useful life. In addition to these advantages, EAF steel producers benefit from their flexibility in sourcing iron units, being able to make steel from either scrap or alternative sources of iron, such as direct reduced iron and hot briquetted iron, both made directly from iron ore.

Reflecting these and other competitive advantages, we believe EAF steel production will continue to grow at a faster rate than BOF steel production. Based on industry announcements of planned incremental EAF capacity additions and factoring in further production increases at existing EAF steel plants, we estimate this could result in global (excluding China) UHP graphite electrode demand growing at a compound annual growth rate of approximately 3% to 4% through 2028.

Petroleum Needle Coke

Petroleum needle coke, a crystalline form of carbon derived from decant oil, is the key raw material we use in the production of graphite electrodes. It is also a primary raw material utilized in the production of synthetic graphite used in anodes for lithium-ion batteries that power electric vehicles (“EV”).

Petroleum needle coke is produced through a manufacturing process very similar to a refinery. The production process converts decant oil, a byproduct of the gasoline refining process, into petroleum needle coke. Pitch needle coke, used principally by Chinese graphite electrode manufacturers, is made from coal tar pitch, a byproduct of coking metallurgical coal used in BOF steelmaking. For the production of our graphite electrodes, we prefer petroleum needle coke because of the meaningfully shorter bake and graphitizing time required, compared to graphite electrodes produced using pitch needle coke.

We are substantially vertically integrated into petroleum needle coke through our Seadrift facility (“Seadrift”), located in Port Lavaca, Texas, which provides the majority of our petroleum needle coke requirements used to produce our graphite electrodes and insulates us from rapid changes in the petroleum needle coke market. In addition, we believe the quality of Seadrift’s petroleum needle coke is superior for graphite electrode production compared to most of the petroleum needle coke available to our peers on the open market, allowing us to produce high-quality electrodes in a cost-efficient manner. Seadrift sources all of its decant oil requirements from reputable U.S.-based suppliers. Seadrift has developed a well-diversified pool of suppliers, which we believe is sufficient to meet our needs.

Graphite electrode producers combine petroleum needle coke and/or pitch needle coke with binders and other ingredients to form graphite electrodes. Petroleum needle coke and pitch needle coke, relative to other varieties of coke, are distinguished by their needle-like structure and their quality, which is measured by the presence of impurities, principally sulfur, nitrogen and ash. Petroleum needle coke and pitch needle coke are typically low in these impurities. Additionally, the needle-like structure of petroleum and pitch needle coke creates expansion along the length of the electrode, rather than the width, which reduces the likelihood of fractures.

Petroleum Needle Coke Industry - Supply and Demand Trends

Supply Trends

We estimate that, as of the end of 2023, the petroleum needle coke industry globally (excluding China) had capacity to produce approximately 750 thousand MT of petroleum needle coke. The global (excluding China) industry is highly concentrated as it is comprised of four producers, Phillips 66, GrafTech (via Seadrift), Petrocokes Japan Ltd. (a subsidiary of Sumitomo Corporation) and ENEOS Holdings, Inc. Our Seadrift facility, with nameplate capacity to produce approximately 140 thousand MT of calcined petroleum needle coke, represents nearly one-fifth of the global (excluding China) production capacity.

Petroleum needle coke production capacity outside of China has remained relatively flat for many years due to the capital intensity, technical know-how and long permitting lead times required to build greenfield needle coke production facilities.

Chinese petroleum needle coke production capacity is expected to grow significantly in the coming years, with a primary focus on serving the EV market, as China is currently the largest producer of EV batteries. Although this may provide sufficient capacity to meet global petroleum needle coke needs for the next several years, as demand from emerging non-Chinese EV battery producers continues to increase, we believe that regional supply-demand imbalances will occur, particularly in North America and Europe, in the coming years.

Demand Trends

We estimate that global (excluding China) needle coke demand for use in UHP graphite electrode production has been approximately 550 thousand MT, on average, over the past three years with the majority being petroleum needle coke. With demand for UHP graphite electrodes expected to increase at a compound annual growth rate of approximately 3% to 4%

through 2028 (see “Graphite Electrode” section above), we expect this to result in a similar increase in demand for needle coke used in graphite electrode production.

While the vast majority of petroleum needle coke produced globally (excluding China) is currently used in the production of graphite electrodes, its use in lithium-ion batteries for the EV market is expected to grow with the increased production of these vehicles. Most EVs rely on lithium-ion batteries as their key performance component, with graphite being the key material used for the carbon anode portion of the batteries. Although both natural and synthetic graphite are used in anodes for lithium-ion batteries, EV manufacturers prefer synthetic graphite, which is produced using needle coke, because of its advantages in terms of charging rate and capacity, providing batteries with longer driving ranges and longevity.

Based on Benchmark Mineral Intelligence estimates for growth in battery anodes, we estimate this could result in global needle coke demand for use in EV applications increasing at a 20% or more compound annual growth rate through 2028. While synthetic graphite can be produced from either petroleum needle coke or pitch needle coke, petroleum needle coke has superior characteristics for EV battery applications, as it does with graphite electrode applications. As a result, demand growth for petroleum needle coke for use in the EV market is expected to be higher than that of overall needle coke demand growth. As noted above, with North American and European EV manufacturers increasing focus on domestic sourcing of battery material needs, we believe that regional supply-demand imbalances will occur for petroleum needle coke in the coming years.

Contracts and Customers

Our customers include major steel producers and other ferrous and non-ferrous metal producers in Europe, the Middle East and Africa (collectively, “EMEA”), the Americas, and Asia-Pacific (“APAC”), which sell their products primarily into the automotive, construction, appliance, machinery, equipment and transportation industries.

We sell our products under short-term purchase agreements, multi-year purchase agreements (which includes our take-or-pay agreements with initial term of three-to-five years (“LTAs”)) and spot sales.

Our short-term agreements are either annual, semi-annual or quarterly. Because of the long production time, the book building process is largely concentrated in the fourth quarter of each year for the annual short-term agreements as well as for the semi-annual agreements related to the first half of the upcoming year. Spot purchase orders are entered into with deliveries usually starting three or more months later. The price of our short-term agreements is determined through contract negotiations with our customers and is influenced by the then-prevailing price on spot purchase orders as well as the anticipated supply-demand situation at the time of the planned deliveries. There is a lag between the time we negotiate prices for our short-term agreements and when our electrodes are delivered and recognized in revenue.

There is no widely accepted graphite electrode reference price. Pricing has historically been cyclical, reflecting the demand trends of the global EAF steelmaking industry and supply of graphite electrodes. Moreover, as petroleum needle coke represents a significant percentage of the raw material cost of graphite electrodes, graphite electrodes have typically been priced at a spread to petroleum needle coke. Over the period from 2004 to 2023, the average graphite electrode spread over petroleum needle coke was approximately \$3,900 per MT, on an inflation-adjusted basis using constant 2023 dollars. In tight demand markets, this spread has increased, resulting in higher graphite electrode prices. Historically, between 2004 and 2023, our weighted-average realized price of graphite electrodes, excluding volume sold under LTAs, was approximately \$6,000 per MT, on an inflation-adjusted basis using constant 2023 dollars.

Our LTAs were entered into between the end of 2017 and early 2019, which coincided with a period of elevated market prices for graphite electrodes. As graphite electrodes are an essential consumable in the EAF steel production process, the LTAs provided certainty of supply of reliable, high-quality graphite electrodes in an at-times volatile market. These LTAs have fixed prices. Within the contract, our customers are contractually bound to purchase the specified volume of product at the price under the contract. Sales from our LTAs represented 41%, 68% and 77% of our net sales in 2023, 2022 and 2021, respectively.

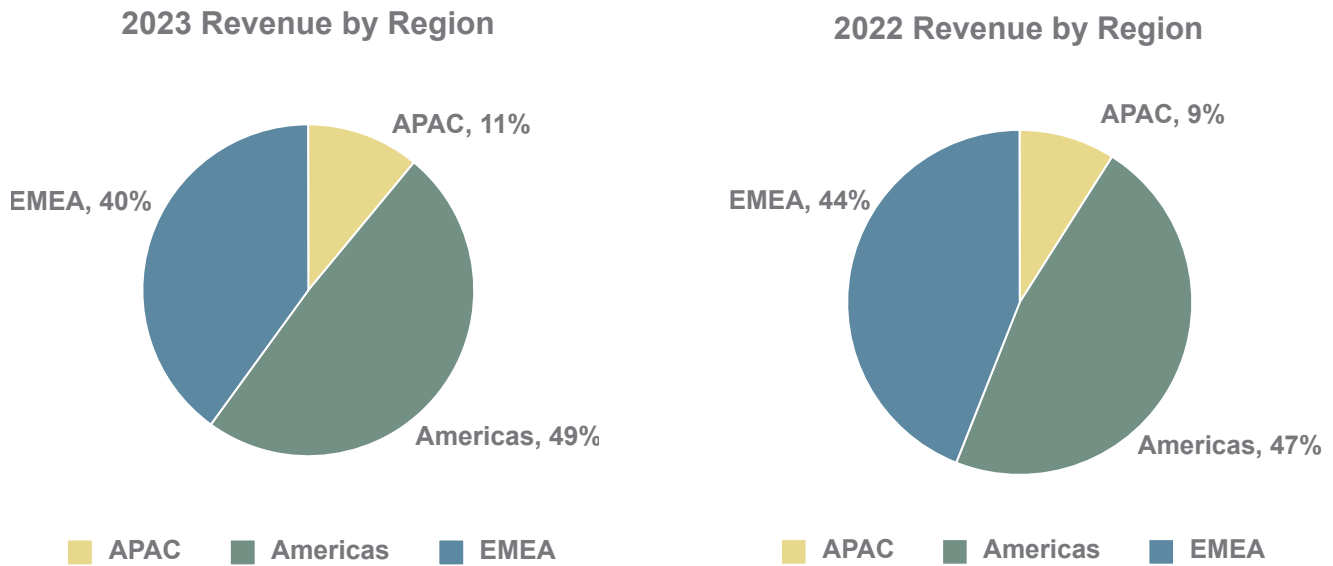
As our LTAs are nearing the end of their terms, our mix of business has shifted towards short-term purchase agreements and spot purchase orders (“non-LTAs”). We will continue to offer multi-year agreements, also known as electrode supply agreements, as an important part of our commercialization strategy and value proposition. Our substantial vertical integration into petroleum needle coke supports our ability to offer contracts with varying durations, providing our customers with flexibility and surety of supply. However, we do not anticipate that multi-year agreements will make up the majority of our portfolio moving forward.

2023 Revenue and Production By Region

Approximately 89% of our graphite electrodes were purchased by EAF steel producers in 2023. The remaining portion is primarily used in various other ferrous and non-ferrous melting applications, fused materials, chemical processing, and alloy

metals. We sell our products in every major geographic region globally. Sales of our products to buyers outside the United States accounted for approximately 67%, 73% and 79% of net sales in 2023, 2022 and 2021, respectively. Overall, in 2023, we generated 89% of our net sales from EMEA and the Americas.

The charts below show our revenue by region for 2023 and 2022:



Sales and Customer Service

We differentiate and sell the value of our graphite electrodes primarily based on price, product quality and performance, delivery reliability and customer technical service.

We have a large customer technical service organization, with supporting application engineering and scientific groups and approximately 30 engineers and specialists around the world serving in this area. We believe that we are one of the industry leaders in providing value-added technical services to our customers.

Our direct sales force currently operates from 13 sales offices located around the world. We sell our graphite electrodes primarily through our direct sales force, independent sales representatives, and distributors, all of whom are trained and experienced with our products.

We have customer technical service personnel based around the world to assist customers to maximize their production and minimize their costs. A portion of our engineers and technicians provide technical service and advice to key steel and other metals customers. These services relate to furnace applications and operation, as well as furnace upgrades to reduce energy consumption, improve raw material costs and increase output.

We believe we have a competitive advantage in offering customers ArchiTech® Furnace Productivity System 6.0 (“ArchiTech”), which is an advanced support and technical service platform in the graphite electrode industry. ArchiTech, which has been installed in customer furnaces worldwide, enables our engineers to work with our customers seamlessly to maximize the performance of their furnaces and provide real-time diagnostics and troubleshooting. The arc furnace monitoring system team is continuously listening to our customers’ needs and develops new functionalities for the ArchiTech environment.

Distribution

We deploy various demand management and inventory management techniques to seek to ensure that we can meet our customers’ delivery requirements while still maximizing the utilization of our production capacity. We can experience significant variation in our customers’ delivery requirements as their specific needs vary and change throughout the year. We generally seek to maintain appropriate inventory levels, taking into account these factors as well as the significant differences in manufacturing cycle times for graphite electrode products and our customers’ products.

Finished products are usually stored at our manufacturing facilities. Limited quantities of some finished products are also stored at local warehouses around the world to meet customer needs.

Research and Development

We have over 135 years of experience in the research and development (“R&D”) of graphite- and carbon-based solutions. By focusing our management’s attention and R&D spending on the graphite electrode business, we have been able to improve the quality of our graphite electrodes, maintain our position as an industry leader and improve our relationships with strategic customers. Our focus on improving the quality of petroleum needle coke through R&D has led to our petroleum needle coke production at Seadrift being best-in-class for use in the manufacturing of highly durable UHP electrodes. Simultaneously, the R&D team helps to evaluate technology in adjacent markets where GrafTech may have technological advantages. We believe that the above strengths and capabilities provide us with a competitive advantage.

Intellectual Property

We believe that our intellectual property, consisting primarily of patents and proprietary know-how, provides us with competitive advantages and is important to our growth opportunities. Our intellectual property portfolio is extensive, with approximately 100 U.S. and foreign patents and pending patent applications.

We own, have the right to use or have obtained licenses for various trade names and trademarks used in our businesses. For example, the UCAR trademark is owned by Union Carbide Corporation (“Union Carbide”) (which was acquired by Dow Chemical Company) and is licensed to us on a worldwide, exclusive and royalty-free basis until January 2035. This particular license automatically renews for successive 10-year periods. It permits non-renewal by Union Carbide at the end of any renewal period upon five years notice of non-renewal.

We rely on patent, trademark, copyright and trade secret laws, as well as appropriate agreements to protect our intellectual property. Among other things, we seek to protect our proprietary know-how and information by requiring employees, consultants, strategic partners and others who have access to such proprietary information and know-how to enter into confidentiality or restricted use agreements.

Insurance

We maintain insurance against civil liabilities relating to personal injuries to third parties, for loss of or damage to property, for business interruptions and for certain environmental matters, that provides coverage, subject to the applicable coverage limits, deductibles and retentions, and exclusions, that we believe is appropriate upon terms and conditions and for premiums that we consider fair and reasonable in the circumstances. There can be no assurance that we will not incur losses beyond the limits of or outside the coverage of our insurance.

Regulatory Matters

As a company with global operations, we are subject to the laws and regulations of the United States and the multiple foreign jurisdictions in which we operate or conduct business as well as the rules, reporting obligations and interpretations of all such requirements and obligations by various governing bodies, which may differ among jurisdictions. These include federal, state, local and foreign environmental laws and regulations, increasingly complex and changing laws and regulations enacted to protect business and personal data in the United States and other jurisdictions, including the EU’s General Data Protection Regulation (“GDPR”), anti-corruption laws, import/export controls, anti-competition laws, U.S. securities laws and a variety of regulations including work-related and community safety laws. We believe we operate in compliance in all material respects with applicable laws and regulations, and maintaining compliance with them is not expected to materially affect our capital expenditures, earnings and competitive position. Estimates of future costs for compliance with U.S. and foreign environmental protection laws and regulations, and for environmental liabilities, are necessarily imprecise due to numerous uncertainties, including the impact of potential new laws and regulations, the availability and application of new and diverse technologies, the extent of insurance coverage, the potential discovery of contaminated properties, or the identification of new hazardous substance disposal sites at which we may be a potentially responsible party (“PRP”) and, in the case of sites subject to the Comprehensive Environmental Response, Compensation and Liability Act and similar state and foreign laws, the final determination of remedial requirements and the ultimate allocation of costs among the PRPs. Subject to the inherent imprecision in estimating such future costs, but taking into consideration our experience to date regarding environmental matters of a similar nature and facts currently known, we estimate that our costs and capital expenditures (in each case, before adjustment for inflation) for environmental protection regulatory compliance programs and for remedial response actions will not be material over the next several years. Furthermore, we establish accruals for environmental liabilities when it is probable that a liability has been or will be incurred, and the amount of the liability can be reasonably estimated. We adjust the accrual as

new remedial actions or other commitments are made, as well as when new information becomes available that changes the prior estimates previously made and we believe our existing accruals are reasonable.

Human Capital Resources

Employment

As of December 31, 2023, we had 1,249 employees (excluding contractors), 758 of which were hourly employees. A total of 435 employees were in Mexico, 414 were in Europe and the Middle East, 358 were in the United States, 37 were in Brazil and five were in the Asia Pacific region.

As of December 31, 2023, approximately 440 employees, or 35% of our worldwide employees, were covered by collective bargaining or similar agreements that expire, or are subject to renegotiation, at various times through December 31, 2024. We believe that, in general, our relationships with our employees' unions are good and that we will be able to renew or extend our collective bargaining or similar agreements on reasonable terms as they expire. We have not had any material work stoppages or strikes initiated by our employees during the past year.

Health and Safety

The health and safety of our global team is a top priority and is a core value of the Company. Our comprehensive programs strive to achieve zero injuries and no harm done. Our total recordable incident rate in 2023 was 0.61 per 200,000 work hours, compared to 0.94 per 200,000 work hours in 2022. Our global Health, Safety and Environmental Protection ("HS&EP") policy applies to all employees and governs our actions and decisions every day. We also have a Code of Conduct and Ethics for Suppliers and Contractors that includes HS&EP guidelines required for doing business with GrafTech. GrafTech's focus on HS&EP is a top priority for all employees. We have built risk recognition into our HS&EP programs. From pre-job planning, safety walks and inspections, planned job observations, or training employees on health and safety best practices, we strive to identify and mitigate risks. In the spirit of continuous improvement, regular inspections, internal reviews and corporate audits are conducted to foster compliance with our high standards.

Diversity and Inclusion

Diversity and inclusion are foundational to our culture, and all employees are expected to uphold these values in their day-to-day work. Our recruitment policies and hiring practices support our diversity and inclusion objectives. At both the corporate and site levels, we assign responsibilities for upholding policies, procedures, and practices for diverse and inclusive hiring and talent management. GrafTech affirms its position as an Equal Opportunity Employer and is committed to recruiting, employing, and promoting qualified veterans and disabled individuals, and we aim to ensure our people have equal opportunities related to job promotions, compensation and benefits, and personal development.

Our global footprint lends itself to organic diversity, and our employee base has varied educational backgrounds and life experiences. However, we strive to go beyond this organic diversity and we are currently developing a strategy to better measure our ability to do so. As of December 31, 2023, 40% of our senior leadership team and 14% of our Board members were female. We are committed to intentional talent acquisition, retention, and development practices to support our diversity initiatives and to build a competitive workforce.

Compensation and Total Rewards

We aim to attract and retain top talent from a diverse pool of skilled workers by providing competitive compensation and benefit programs to help meet the needs of our employees. Our programs are designed to support the profitable growth of our business; attract, reward, and retain the talent we need to succeed; support the health and overall well-being of our employees; and reinforce a performance-based culture.

In addition to base compensation, we offer individual and group-based performance bonuses. Benefits packages include, depending on the country, medical, dental, prescription, vision, group life insurance, short- and long-term disability, paid vacation and holidays, and tuition reimbursement. The tuition reimbursement program, in particular, helps employees who want to continue their education or seek specialized job training, and illustrates our commitment to continued learning and focus on professional development.

Employee Engagement

Employee engagement is a priority at GrafTech because we believe that engaged employees help us provide high-quality products and services to our customers. We conducted our last employee engagement survey in October 2022. We expect the next survey will be distributed in 2024 and we intend to conduct our employee engagement surveys every other year moving forward. Approximately 56% of full-time GrafTech employees participated in the October 2022 survey. The survey requested feedback from our employees on a variety of important topics, including safety, pay, communication and training.

Employee Training and Development

As committed stakeholders in the professional development of our employees, we look for opportunities to help employees grow, innovate, and impact our business and industry. Each role within our organization has a detailed job profile, including job-specific competencies. These profiles help us measure performance, and they work in conjunction with our performance management system, which enables employees to create individualized career and growth paths. The performance management system connects employees with job-specific professional development training and continuing education opportunities to help them progress along their career and growth path.

We conduct mid-year and annual performance reviews for all salaried employees to assess both job competencies and performance relative to GrafTech's core competencies. During annual performance reviews, we discuss progress towards personal career goals, refine career aspirations, and connect employees with specific pathways to achievement. Employees are encouraged to work with their manager or human resources to further refine their career and growth paths at each annual review.

Available Information

We make available, free of charge, on or through our website, our annual reports on Form 10-K, our quarterly reports on Form 10-Q, our current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities and Exchange Act of 1934 (the "Exchange Act") as soon as reasonably practicable after we electronically file them with, or furnish them to, the U.S. Securities and Exchange Commission ("SEC"). We maintain our website at <http://www.graftech.com>. Information on, or accessible through, our website is not part of this Annual Report. We have included our website address only as an interactive textual reference and do not intend it to be an active link to our website.

Item 1A. Risk Factors

Our business, financial condition, results of operations, and cash flow can be affected by a number of factors, whether currently known or unknown, including but not limited to those described below. You should carefully read all of the information included in this Report and carefully consider, among other matters, the following risk factors, as well as any discussed under Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations." Although the risks are organized by headings, and each risk is discussed separately, many are interrelated. Moreover, the risks below are not the only risks we face and additional risks not currently known to us or that we presently deem immaterial may emerge or become material at any time. The occurrence of any of the following risks could materially and adversely affect our business, financial condition, results of operations, and cash flow, in which case, the market price of our securities could decline. You should not interpret the disclosure of any risk factor to imply that the risk has not already materialized.

Risks related to our business and industry

We are dependent on the global steel industry generally and the EAF steel industry in particular, which historically have been highly cyclical, and a downturn in these industries may materially adversely affect our business.

We sell our products primarily to the EAF steel production industry. The EAF steel production industry historically has been highly cyclical and is affected significantly by general economic conditions. As a result, we have experienced periods of significant net losses.

Significant customers for the steel industry include companies in the automotive, construction, appliance, machinery, equipment and transportation industries, which are industries that were negatively affected by the general economic downturn and the deterioration in financial markets, including severely restricted liquidity and credit availability, in the past.

Our customers, including major steel producers, have in the past experienced and may again experience downturns or financial distress that could adversely impact our ability to collect our accounts receivable on a timely basis or at all.

Pricing for graphite electrodes has historically been cyclical and the price of graphite electrodes may continue to decline in the future.

Pricing for graphite electrodes has historically been cyclical, reflecting the demand trends of the global EAF steelmaking industry and the supply of graphite electrodes. In addition, as petroleum needle coke reflects a significant percentage of the raw material cost of graphite electrodes, graphite electrodes have historically been priced at a spread to petroleum needle coke, which in the past has increased in tight demand markets. Between 2004 and 2023, our weighted-average realized price of graphite electrodes for non-LTAs was approximately \$6,000 per MT (on an inflation-adjusted basis using constant 2023 dollars).

During the last demand trough in 2016, our weighted-average realized price of graphite electrodes for non-LTAs fell to approximately \$3,000 per MT, on an inflation-adjusted basis using constant 2023 dollars. Following the significant rationalization of graphite electrode production globally, the resumption of growth in EAF steel production, falling scrap prices, reductions in Chinese steel exports and constrained supply of needle coke, graphite electrode prices reached record highs in 2018.

Prices as of December 31, 2023 have receded from the highs of 2018, and the price of graphite electrodes may continue to decline in the future. Supply and demand normalized in 2019, tipping towards overcapacity that exerts downward pressure on graphite electrode prices, and spot prices fell 25% during 2019. Spot prices decreased further in 2020, bottoming out in the spring of 2021 before beginning to increase. However, beginning in 2023, spot prices began decreasing given the softer commercial environment. Spot prices as of December 31, 2023 were below our weighted-average contract price for LTA contracted volume. Our business, financial condition and operating results could be materially and adversely affected to the extent prices for graphite electrodes continue to decline in the future.

Global graphite electrode overcapacity has adversely affected graphite electrode prices in the past, and may adversely affect them again, which could negatively impact our sales, margins and profitability.

Overcapacity in the graphite electrode industry has adversely affected pricing in the past and may do so again. An increase in global graphite electrode production capacity that outpaces an increase in demand for graphite electrodes could adversely affect the price of graphite electrodes. While growth in the EAF steel market may support some of these capacity additions, the additional graphite electrode capacity may exceed demand. Excess production capacity may result in manufacturers producing and exporting electrodes at prices that are lower than prevailing domestic prices, and sometimes at or below their cost of production. Excessive imports into the Americas and EMEA, which markets collectively made up 89% of our net sales for the year ended December 31, 2023, can also exert downward pressure on graphite electrode prices, which negatively affects our sales, margins and profitability.

The graphite industry is highly competitive. Our market share, net sales or net income could decline due to vigorous price and other competition.

Competition in the graphite industry (other than, generally, with respect to new products) is based primarily on price, quality/performance, local presence, product portfolio, delivery reliability and customer service. Graphite electrodes, in particular, are subject to rigorous price competition. Competition with respect to new products is, and is expected to continue to be, based primarily on price, performance and cost effectiveness, customer service and product innovation. Competition could prevent implementation of price increases, require price reductions or require increased spending on R&D, marketing and sales that could adversely affect us. In such a competitive market, changes in market conditions, including customer demand and technological development, as well as increased exports by Chinese EAF steel suppliers could adversely affect our competitiveness, sales and/or profitability.

We are dependent on the supply of petroleum needle coke. Our results of operations could deteriorate if disruptions in the supply of petroleum needle coke occur for an extended period.

Petroleum needle coke is our key raw material used in the production of graphite electrodes. At full operating levels, Seadrift provides a substantial portion of our petroleum needle coke requirements, with third party purchases making up the balance. A disruption in Seadrift's production of petroleum needle coke could adversely affect our results of operations if we are forced to purchase petroleum needle coke from external sources at a higher cost.

We rely primarily on one facility in Monterrey, Mexico for the manufacturing of connecting pins, a necessary component of our graphite electrodes. Our results of operations could deteriorate if this facility would become unable to provide us with the required volume of connecting pins.

We manufacture graphite connecting pins, which are used by customers to connect and fasten graphite electrodes together in a column for use in an EAF. For the past several years, all of our connecting pin production was performed at our Monterrey, Mexico facility. While we have added capability at our Pamplona, Spain facility, we primarily rely on one production location for this critical component. If our Monterrey, Mexico facility were to become unable to continue to provide us with connecting pins in required volumes, at suitable quality levels, or in a cost-effective manner, we would be required to shift production to our Pamplona, Spain facility or identify and obtain additional replacement manufacturing sources. There is no assurance that we would be able to obtain acceptable alternative sources on a cost-effective or timely basis, or at all. An extended interruption in the supply of connecting pins would result in the loss of sales, which could have a material adverse effect on our business, financial condition or operating results.

We are dependent on supplies of raw materials (in addition to petroleum needle coke). Our results of operations could deteriorate if those supplies increase in cost or are substantially disrupted for an extended period.

We purchase raw materials from a variety of sources. In many cases, we purchase them under short-term contracts or on the spot market, in each case at fluctuating prices. The availability and price of raw materials may be subject to curtailment or change due to:

- limitations, which may be imposed under new legislation or regulation;
- suppliers' allocations to meet demand from other purchasers during periods of shortage;
- interruptions or terminations in production by suppliers; and
- market and other events and conditions.

Petroleum and coal products, including decant oil and coal tar pitch, which are our principal raw materials other than petroleum needle coke, and energy, have been subject to significant price fluctuations. For example, Seadrift may not always be able to obtain an adequate quantity of suitable low-sulfur decant oil for the manufacture of petroleum needle coke, and capital may not be available to install equipment to allow use of higher sulfur decant oil (which is more readily available in the United States) if supplies of low-sulfur decant oil become more limited in the future. Further, low-sulfur emissions regulations adopted in 2020 by the International Maritime Organization have at times negatively affected pricing for low-sulfur decant oil and they may again in the future cause similar adverse impacts.

We have in the past entered into, and may continue in the future to enter into, derivative contracts and short-duration fixed-rate purchase contracts to effectively fix a portion of our exposure to certain products. These hedging strategies may not be available or successful in eliminating our exposure. A substantial increase in raw material prices that cannot be mitigated or passed on to customers or a continued interruption in supply, particularly in the supply of decant oil, would have a material adverse effect on our business, financial condition, results of operations or cash flows. These hedges may be insufficient or ineffective in protecting against the impact of these fluctuations.

Our business and our customers are subject to market changes in the availability and cost of electricity and natural gas that could adversely affect our business.

We are in an energy intensive industry that requires both natural gas and electricity in our manufacturing process. We primarily rely on third parties for the supply of our energy resources consumed in the manufacture of our products. The prices for and availability of third-party electricity and natural gas are subject to volatile market conditions, particularly in Europe. These market conditions often are affected by factors beyond our control and we may be unable to raise the price of our products to mitigate the effects of increased energy costs in our manufacturing processes. In addition, our customers are subject to these same market conditions.

Failure to retain our existing senior management team or the inability to attract and retain qualified personnel could hurt our business and inhibit our ability to operate and grow successfully.

Our success will continue to depend to a significant extent on the continued service of our executive management team and the ability to recruit, hire and retain other key management and plant operating personnel, including factory and production workers and other staff to support our growth and operational initiatives and replace those who retire or resign. Failure to retain our leadership team and workforce and to attract and retain other important management and technical personnel could place a constraint on our global growth and operational initiatives, possibly resulting in inefficient and ineffective management and operations, which would likely harm our revenues, operations and product development efforts and eventually result in a decrease in profitability.

Our operations are subject to hazards which could result in significant liability to us.

Our operations are subject to hazards associated with manufacturing and the related use, storage, transportation and disposal of raw materials, products and wastes. These hazards include explosions, fires, severe weather (including but not limited to hurricanes or other adverse weather that may be increasing as a result of climate change) and natural disasters, industrial accidents, mechanical failures, discharges or releases of toxic or hazardous substances or gases, transportation interruptions, human error and terrorist activities. These hazards can cause personal injury and loss of life, severe damage to or destruction of property and equipment as well as environmental damage, and may result in suspension of operations and the imposition of civil and criminal liabilities, including penalties and damage awards. While we believe our insurance policies are in accordance with customary industry practices, such insurance may not cover all risks associated with the hazards of our business and is subject to limitations, including deductibles and maximum liabilities covered. We may incur losses beyond the limits, or outside the coverage, of our insurance policies. In the future, we may not be able to obtain coverage at current levels, and our premiums may increase significantly on coverage that we maintain. Costs associated with unanticipated events in excess of our insurance coverage could have a material adverse effect on our business, competitive or financial position or our ongoing results of operations.

We are subject to a variety of legal, economic, social and political risks associated with our substantial operations in multiple countries, which could have a material adverse effect on our financial and business operations.

A substantial majority of our net sales are derived from sales outside the United States, and a majority of our operations and our property, plant and equipment and other long-lived assets are located outside the United States. As a result, we are subject to risks associated with operating in multiple countries, including:

- currency fluctuations and devaluations in currency exchange rates, including impacts of transactions in various currencies, translation of various currencies into dollars for U.S. reporting and financial covenant compliance purposes, and impacts on results of operations due to the fact that the costs of our non-U.S. operations are primarily incurred in local currencies while their products are primarily sold in dollars and euros;
- imposition of or increase in customs duties and other tariffs or the loss of the protection thereof;
- imposition of or increases in currency exchange controls, including imposition of or increases in limitations on conversion of various currencies into dollars, euros, or other currencies, making of intercompany loans by subsidiaries or remittance of dividends, interest or principal payments or other payments by subsidiaries;
- imposition of or increases in revenue, income or earnings taxes and withholdings and other taxes on remittances and other payments by subsidiaries;
- inflation, deflation and stagflation in any country in which we have a manufacturing facility;
- imposition of or increases in investment or trade restrictions by the United States or other jurisdictions or trade sanctions adopted by the United States;
- compliance with laws on anti-corruption, export controls, customs, sanctions, environmental and other laws governing our operations, including in challenging jurisdictions;
- inability to determine or satisfy legal requirements, effectively enforce contract or legal rights, including our rights under our LTAs and intellectual property rights, and obtain complete financial or other information under local legal, judicial, regulatory, disclosure and other systems; and
- nationalization or expropriation of assets, and other risks that could result from a change in government or government policy, or from other political, social or economic instability.

Any of these risks could have a material adverse effect on our business, financial condition, results of operations or cash flows, and we may not be able to mitigate these effects.

Our results of operations could deteriorate if our manufacturing operations were substantially disrupted for an extended period for any reason, including equipment failure, legal proceedings, climate change, natural disasters, public health crises, political crises or other catastrophic events.

Our manufacturing operations are subject to disruption due to equipment failure, extreme weather conditions, floods, hurricanes and tropical storms and similar events, major industrial accidents, including fires or explosions, cybersecurity attacks, strikes and lockouts, adoption of new laws or regulations, changes in interpretations of existing laws or regulations or

changes in governmental enforcement policies, civil disruption, riots, terrorist attacks, war, public health crises, such as the COVID-19 pandemic, and other events. These events may also impact the operations of one or more of our suppliers. For example, the potential physical impacts of climate change on our operations are uncertain and will likely be particular to the geographic circumstances. These physical impacts may include changes in rainfall and storm patterns, shortages of water or other natural resources, changing sea levels, and changing global average temperatures. For instance, our Seadrift facility in Texas and our Calais facility in France are located in geographic areas less than 50 feet above sea level. As a result, any future rising sea levels could have an adverse impact on their operations and on their suppliers. In the event manufacturing operations are substantially disrupted at one of our primary operating facilities, such as the September 2022 temporary suspension of our operations located in Monterrey, Mexico, we may not have the ability to increase production at our remaining operating facilities in order to compensate without considerable time and expense. To the extent any of these events occur, our business, financial condition and operating results could be materially and adversely affected.

Plant operational improvements may be delayed or may not achieve the expected benefits.

Our ability to complete future operational improvements may be delayed, interrupted or otherwise limited by the need to obtain environmental and other regulatory approvals, unexpected cost increases, financial constraints, availability of labor and materials, unforeseen hazards such as weather conditions, and other risks customarily associated with construction projects. Moreover, the costs of these activities could have a negative impact on our results of operations. In addition, these operational improvements may not achieve the expected benefits as a result of changes in market conditions, raw material shortages or other unforeseen contingencies.

We depend on third parties for certain construction, maintenance, engineering, transportation, warehousing and logistics services.

We contract with third parties for certain services relating to the design, construction and maintenance of various components of our production facilities and other systems. If these third parties fail to comply with their obligations, the facilities may not operate as intended, which may result in delays in the production of our products and materially adversely affect our ability to meet our production targets and satisfy customer requirements or we may be required to recognize impairment charges. In addition, production delays could cause us to miss deliveries and breach our contracts, which could damage our relationships with our customers and subject us to claims for damages under our contracts. Any of these events could have a material adverse effect on our business, financial condition, results of operations or cash flows.

We also rely primarily on third parties for the transportation of the products we manufacture. In particular, a significant portion of the goods we manufacture are transported to different countries, which requires sophisticated warehousing, logistics and other resources. If any of the third parties that we use to transport products are unable to deliver the goods we manufacture in a timely manner, we may be unable to sell these products at full value or at all, which could cause us to miss deliveries and breach our contracts, which could damage our relationships with our customers and subject us to claims for damages under our contracts. Any of these events could have a material adverse effect on our business, financial condition, results of operations or cash flows.

We may be subject to information technology systems failures, cybersecurity attacks, network disruptions and breaches of data security, which could compromise our information and expose us to liability.

Our information technology systems are an important element for effectively operating our business. Information technology systems or processes, and the information technology systems or processes of our customers, our third-party service providers, our vendors or other parties that have been entrusted with our information, including risks associated with any failure to maintain or upgrade our systems, network disruptions and breaches of data security could disrupt our operations by impeding our processing of transactions, our ability to protect customer or company information or our financial reporting, leading to increased costs. It is possible that future technological developments could adversely affect the functionality of our computer systems and require further action and substantial funds to prevent or repair computer malfunctions. Our computer systems, including our back-up systems, could be damaged or interrupted by power outages, computer and telecommunications failures, computer viruses, cybercrimes, internal or external security breaches, events such as fires, earthquakes, floods, tornadoes and hurricanes, or errors by our employees. Although we have taken steps to address these concerns by implementing network security, back-up systems and internal control measures, these steps may be insufficient or ineffective. Security and/or privacy breaches, acts of vandalism or terror, computer viruses, misplaced or lost data, programming, and/or human error or other similar events with respect to our information technology systems or processes or the information technology systems or processes of third-parties that have been entrusted with our information expose us to a risk of loss or misuse of this information, litigation and potential liability, which could have a material adverse effect on our business, financial condition, results of operations or cash flows.

If we are unable to successfully negotiate with the representatives of our employees, including labor unions, we may experience strikes and work stoppages.

We are party to collective bargaining agreements and similar agreements with our employees. As of December 31, 2023, approximately 440 employees, or 35% of our worldwide employees, were covered by collective bargaining or similar agreements, all of which were covered by agreements that expire, or are subject to renegotiation, at various times through December 31, 2024. Although we believe that, in general, our relationships with our employees are good, we cannot predict the outcome of current and future negotiations and consultations with employee representatives, which could have a material adverse effect on our business. We may not succeed in renewing or extending these agreements on terms satisfactory to us. Although we have not had any material work stoppages or strikes initiated by our employees during the past decade, they may occur in the future during renewal or extension negotiations or otherwise. A material work stoppage, strike or other union dispute could adversely affect our business, financial condition, results of operations and cash flows.

Our ability to grow and compete effectively depends on protecting our intellectual property. Failure to protect our intellectual property could adversely affect our business.

We believe that our intellectual property, consisting primarily of patents and proprietary know-how and information, is important to our growth. Our intellectual property portfolio is extensive, with approximately 100 U.S. and foreign patents and pending patent applications, which we believe is more than any of our major competitors in the businesses in which we operate. Failure to protect our intellectual property may result in the loss of the exclusive right to use our technologies. We rely on patent, trademark, copyright and trade secret laws and confidentiality and restricted-use agreements to protect our intellectual property. However, some of our intellectual property is not covered by any patent or patent application or any such agreement. Intellectual property protection does not protect against technological obsolescence due to developments by others or changes in customer needs.

Patents are subject to complex factual and legal considerations. Accordingly, the validity, scope and enforceability of any particular patent can be uncertain. Therefore, we cannot assure you that:

- any of the U.S. or non-U.S. patents now or hereafter owned by us, or that third parties have licensed to us or may in the future license to us, will not be circumvented, challenged or invalidated;
- any of the U.S. or non-U.S. patents that third parties have non-exclusively licensed to us, or may non-exclusively license to us in the future, will not be licensed to others; or
- any of the patents for which we have applied or may in the future apply will be issued at all or with the breadth of claim coverage we seek.

Moreover, patents, even if valid, only provide protection for a specified limited duration. In addition, effective patent, trademark and trade secret protection may be limited or unavailable or we may not apply for it in the United States or in any of the other countries in which we operate.

The protection of our intellectual property rights may be achieved, in part, by prosecuting claims against others who we believe have misappropriated our technology or have infringed upon our intellectual property rights, as well as by defending against misappropriation or infringement claims brought by others against us. Our involvement in litigation to protect or defend our rights in these areas could result in a significant expense to us, adversely affect the development of sales of the related products, and divert the efforts of our technical and management personnel, regardless of the outcome of such litigation.

We cannot assure you that agreements designed to protect our proprietary know-how and information will not be breached, that we will have adequate remedies for any such breach, or that our strategic alliance suppliers and customers, consultants, employees or others will not assert rights against us with respect to intellectual property arising out of our relationships with them.

Third parties may claim that our products or processes infringe their intellectual property rights, which may cause us to pay unexpected litigation costs or damages or prevent us from selling our products or services.

From time to time, we may become subject to legal proceedings, including allegations and claims of alleged infringement or misappropriation by us of the patents and other intellectual property rights of third parties. We cannot assure you that the use of our patented technology or proprietary know-how or information does not infringe the intellectual property rights of others. In addition, attempts to enforce our own intellectual property claims may subject us to counterclaims that our intellectual property rights are invalid, unenforceable or are licensed to the party against whom we are asserting the claim or that we are infringing that party's alleged intellectual property rights. We may also be obligated to indemnify affiliates or other

partners who are accused of violating third parties' intellectual property rights by virtue of those affiliates or partners' agreements with us, and this could increase our costs in defending such claims and our damages.

Legal proceedings involving intellectual property rights, regardless of merit, are highly uncertain and can involve complex legal and scientific analyses, can be time consuming, expensive to litigate or settle and can significantly divert resources, even if resolved in our favor. Our failure to prevail in such matters could result in loss of intellectual property rights or judgments awarding substantial damages and injunctive or other equitable relief against us. If we were to be held liable or discover or be notified that our products or processes potentially infringe or otherwise violate the intellectual property rights of others, we may face a loss of reputation and may not be able to exploit some or all of our intellectual property rights or technology. If necessary, we may seek licenses to intellectual property of others. However, we may not be able to obtain the necessary licenses on terms acceptable to us or at all. Our failure to obtain a license from a third-party for that intellectual property necessary for the production or sale of any of our products could cause us to incur substantial liabilities and/or suspend the production or shipment of products or the use of processes requiring the use of that intellectual property. We may be required to substantially re-engineer our products or processes to avoid infringement.

Any of the foregoing may require considerable effort and expense, result in substantial increases in operating costs, delay or inhibit sales or preclude us from effectively competing in the marketplace, which in turn could have a material adverse effect on our business and financial results.

Our business, financial condition and results of operations could be adversely impacted by increased costs.

Our business may be negatively impacted by increased costs for manufacturing inputs, including needle coke, energy, and freight. We may not be able to offset or pass on these costs, which could lead to further adverse impacts on our business, financial condition and results of operations.

We currently benefit from U.S. and EU anti-dumping duties and tariffs against certain Chinese and Indian imports that if reduced or not extended could have a material adverse effect on our results of operations, cash flow, liquidity and financial condition.

These anti-dumping duties and tariffs are generally subject to periodic reviews and challenges, which can result in their revocation or reduction. There can be no assurance that these anti-dumping duties and tariffs will be continued in the future or that such anti-dumping duties and tariffs will adequately combat unfairly traded imports. If these anti-dumping duties and tariffs were to be revoked or reduced in the future, our business, financial condition and results would be adversely impacted.

Risks related to our indebtedness

Our indebtedness could limit our financial and operating activities and adversely affect our ability to incur additional debt to fund future needs and our ability to fulfill our obligations under our existing and future indebtedness.

Our credit agreement (as amended, the "2018 Credit Agreement") currently provides for a \$330 million senior secured revolving credit facility after giving effect to the May 2022 amendment (the "Third Amendment") that increased the revolving commitments under the 2018 Credit Agreement by \$80 million from \$250 million (the "2018 Revolving Credit Facility"). As any borrowings under the 2018 Revolving Credit Facility remain subject to compliance with the financial covenant in our 2018 Revolving Credit Facility, our operating performance resulted in a reduction of the availability under our 2018 Revolving Credit Facility.

As of December 31, 2023, we had approximately \$925.5 million of secured indebtedness outstanding including borrowings under our 4.625% Senior Secured Notes due 2028 (the "2020 Senior Secured Notes") and our 9.875% Senior Secured Notes due 2028 (the "2023 Senior Secured Notes"). As of December 31, 2023, we had \$112.4 million available for borrowing under the 2018 Revolving Credit Facility (taking into account approximately \$3.1 million of outstanding letters of credit issued thereunder).

Interest expense for the years ended December 31, 2023 and December 31, 2022 was \$58.1 million and \$36.6 million, respectively.

Our indebtedness could:

- require us to dedicate a substantial portion of our cash flow to the payment of principal and interest, thereby reducing the funds available for operations and future business opportunities;
- make it more difficult for us to satisfy our obligations;

- limit our ability to borrow additional money if needed for other purposes, including working capital, capital expenditures, debt service requirements, acquisitions and general corporate or other purposes, on satisfactory terms or at all;
- limit our ability to adjust to changing economic, business and competitive conditions;
- place us at a competitive disadvantage with competitors who may have less indebtedness or greater access to financing;
- require us to reduce or delay capital expenditures or sell assets or operations to meet our scheduled debt service obligations;
- make us more vulnerable to a downturn in our operating performance or a decline in general economic conditions; and
- make us more susceptible to changes in credit ratings, which could impact our ability to obtain financing in the future and increase the cost of such financing.

Compliance with our debt obligations under the 2018 Revolving Credit Facility, 2020 Senior Secured Notes, and 2023 Senior Secured Notes, and any future indebtedness could materially limit our financial or operating activities, or hinder our ability to adapt to changing industry conditions, which could result in our losing market share, a decline in our revenue or a negative impact on our operating results.

The 2018 Revolving Credit Facility and the indentures governing the 2020 Senior Secured Notes and 2023 Senior Secured Notes include covenants that could restrict or limit our financial and business operations.

The 2018 Revolving Credit Facility and the indentures governing the 2020 Senior Secured Notes and the 2023 Senior Secured Notes contain a number of restrictive covenants that, subject to certain exceptions and qualifications, restrict or limit our ability and the ability of our subsidiaries to, among other things:

- incur, repay or refinance indebtedness;
- create liens on or sell our assets;
- engage in certain fundamental corporate changes or changes to our business activities;
- make investments or engage in mergers or acquisitions;
- pay dividends or repurchase stock;
- engage in certain affiliate transactions;
- enter into agreements or otherwise restrict our subsidiaries from making distributions or paying dividends to the borrowers under the 2018 Revolving Credit Facility or to us or certain of our subsidiaries, as applicable; and
- repay intercompany indebtedness or make intercompany distributions or pay intercompany dividends.

The 2018 Revolving Credit Facility also contains certain affirmative covenants and contains a financial covenant that requires us to maintain a senior secured first lien net leverage ratio not greater than 4.00:1.00 when the aggregate principal amount of borrowings under the 2018 Revolving Credit Facility and outstanding letters of credit issued under the 2018 Revolving Credit Facility (except for undrawn letters of credit in an aggregate amount equal to or less than \$35 million), taken together, exceed 35% of the total amount of commitments under the 2018 Revolving Credit Facility.

These covenants and restrictions could affect our ability to operate our business and may limit our ability to react to market conditions or take advantage of potential business opportunities as they arise. Additionally, our ability to comply with these covenants may be affected by events beyond our control, including general economic and credit conditions and industry downturns.

If we fail to comply with the covenants in the 2018 Revolving Credit Facility and the indentures governing the 2020 Senior Secured Notes and the 2023 Senior Secured Notes, and are unable to obtain a waiver or amendment, an event of default would result, and the lenders and noteholders could, among other things, declare outstanding amounts due and payable or, with respect to the 2018 Revolving Credit Facility, refuse to lend additional amounts to us or require deposit of cash collateral in respect of outstanding letters of credit. If we were unable to repay or pay the amounts due, the lenders under the 2018 Revolving Credit Facility and the noteholders could, among other things, proceed against the collateral granted to them to

secure the indebtedness, which includes substantially all of our and our U.S. subsidiaries' assets and, with respect to the 2018 Revolving Credit Facility, certain assets of certain of our non-U.S. subsidiaries.

Risks related to tax matters

We are required to make payments under a Tax Receivable Agreement for certain tax benefits we may claim in the future, and the amounts we may pay could be significant.

In connection with the completion of our initial public offering ("IPO"), we entered into a tax receivable agreement (as amended and restated, the "Tax Receivable Agreement") that provides Brookfield Corporation and its affiliates (together, "Brookfield") the right to receive future payments from us of 85% of the amount of cash savings, if any, in U.S. federal income tax and Swiss tax that we and our subsidiaries realize as a result of the utilization of certain tax assets attributable to periods prior to our IPO, including certain federal net operating losses ("NOLs"), previously taxed income under Section 959 of the Code, foreign tax credits, and certain NOLs in GrafTech Switzerland S.A. (collectively, the "Pre-IPO Tax Assets"). In addition, we pay interest on the payments we make to Brookfield with respect to the amount of this cash savings from the due date (without extensions) of our tax return where we realize this savings to the payment date at a rate equal to the forward looking term rate based on the secured overnight financing rate administered by the Federal Reserve Bank of New York (or a successor administrator of the secured overnight financing rate) for a one-month period plus 1.10%. The term of the Tax Receivable Agreement commenced on April 23, 2018 and will continue until there is no potential for any future tax benefit payments.

We have made payments of approximately \$58.1 million related to the Tax Receivable Agreement. We expect that, based on current tax laws, future payments under the Tax Receivable Agreement relating to the Pre-IPO Tax Assets will be approximately \$11.2 million in the aggregate. The maximum amount over the term of the agreement is approximately \$70.0 million.

Risks related to our legal and regulatory environment

Stringent health, safety and environmental laws and regulations applicable to our manufacturing operations and facilities could result in substantial costs related to compliance, sanctions or material liabilities and may affect the availability of raw materials.

We are subject to stringent environmental, health and safety laws and regulations relating to our current and former properties (including former onsite landfills over which we have retained ownership), other properties that neighbor ours or to which we sent wastes for treatment or disposal, as well as our current raw materials, products, and operations. Some of our products (including our raw materials) are subject to extensive environmental and industrial hygiene regulations governing the registration and safety analysis of their component substances. Coal tar pitch, which is classified as a substance of very high concern under the EU's Registration, Evaluation, Authorization and Restriction of Chemical Regulation ("REACH") regulations, is used in certain of our processes but in a manner that we believe does not currently require us to obtain a specific authorization under the REACH guidelines. Violations of these laws and regulations, or of the terms and conditions of permits required for our operations, can result in damage claims, reputational harm, the imposition of substantial fines and sanctions and require the installation of costly pollution control or safety equipment or costly changes in operations to limit pollution or decrease the likelihood of injuries. In addition, we are currently conducting remediation and/or monitoring at certain current and former properties, including at our Monterrey, Mexico facility, and may become subject to material liabilities in the future for the investigation and cleanup of contaminated properties, including with respect to emerging contaminants or for properties on which we have ceased operations. We have been in the past, and could be in the future, subject to claims alleging personal injury, death or property damage resulting from exposure to hazardous substances, accidents or otherwise for conditions creating an unsafe workplace. Further, noncompliance or alleged noncompliance with or stricter enforcement of, or changes in interpretations of, existing laws and regulations, adoption of more stringent new laws and regulations, discovery of previously unknown contamination or imposition of new or increased requirements could require us to incur costs or become the basis of new or increased liabilities or reputational harm that have a material adverse impact on our operations, costs or results of operations. It is also possible that the impact of safety and environmental regulations on our suppliers could affect the availability and cost of our raw materials.

For example, legislators, regulators and others, as well as many companies, are considering ways to reduce emissions of greenhouse gases ("GHGs") due to scientific, political and public concern that GHG emissions are altering the atmosphere in ways that are affecting, and are expected to continue to affect, the global climate. The EU has established GHG regulations and is revising its emission trading system for the period after 2020 in a manner that may require us to incur additional costs. The United States has required annual reporting of GHG emissions from certain large sources beginning in 2011 and various and regional state efforts to reduce GHG emissions have also been implemented. Further measures, in the United States, EU and many other countries, may be enacted in the future. In particular, in December 2015, more than 190 countries participating in the United Nations Framework Convention on Climate Change reached an international agreement related to curbing GHG

emissions (the “Paris Agreement”). Further GHG regulations under the Paris Agreement or otherwise may take the form of a national or international cap-and-trade emissions permit system, a carbon tax, emissions controls, reporting requirements, or other regulatory initiatives. For more information, see the section entitled “Business.”

The further regulation of GHG emissions or other environmental regulations in countries in which we operate or market our products could impose additional costs, both direct and indirect, on our business, and on the businesses of our customers and suppliers, such as increased energy and insurance rates, higher taxes, new environmental compliance program expenses, including capital improvements, environmental monitoring and the purchase of emission credits, and other administrative costs necessary to comply with current and potential future requirements or limitations that may be imposed, as well as other unforeseen or unknown costs. To the extent that similar requirements and limitations are not imposed globally, this regulation may impact our ability to compete with companies located in countries that do not have these requirements or limitations. We may also experience a change in competitive position relative to industry peers, changes in prices received for products sold and changes to profit or loss arising from increased or decreased demand for our products. The impact of any future GHG regulatory requirements on our global business will be dependent upon the design of the regulatory schemes that are ultimately adopted and, as a result, we are unable to predict their significance to our operations at this time.

Global data and privacy protection laws applicable to us require substantial costs related to compliance, and any failure to comply could result in significant liability to us, including fines and penalties.

We collect data, including personally identifiable information of our employees, in the course of our business activities and transfer such data between our affiliated entities, to and from our business partners and to third-party service providers, which may be subject to global data privacy laws and cross-border transfer restrictions. While we take steps to comply with these legal requirements, any changes to such laws may impact our ability to effectively transfer data across borders in support of our business operations and any breach of such laws may lead to administrative, civil or criminal liability, as well as reputational harm to the Company and its employees. For example, the GDPR introduced a number of obligations for subject companies, including obligations relating to data transfers and the security of personal data they process. We take steps to protect the security and integrity of the information we collect, but there is no guarantee that the steps we have taken will prevent inadvertent or unauthorized use or disclosure of such information, or prevent third parties from gaining unauthorized access to this information despite our efforts. Any such incident could result in legal claims or proceedings, liability under laws that protect the privacy of personally identifiable information (including the GDPR) and damage to our reputation.

The cost of ongoing compliance with global data protection and privacy laws and the potential fines and penalties levied in the event of a breach of such laws may have an adverse effect on our business and operations. For example, the GDPR currently provides that supervisory authorities in the EU may impose administrative fines for non-compliance of up to €20.0 million or 4% of the subject company’s annual, group-wide turnover (whichever is higher) and individuals who have suffered damage as a result of a subject company’s non-compliance with the GDPR also have the right to seek compensation from such company. We will need to continue dedicating financial resources and management time to compliance efforts with respect to global data protection and privacy laws, including the GDPR.

We are involved in certain arbitrations as respondents/counterclaimants with a few customers who, among other things, have failed to perform under their LTAs and in certain instances are seeking to modify or frustrate their contractual commitments to us, and the outcome of these arbitrations could have a material adverse effect on our results of operations, cash flow, liquidity and financial condition.

In particular, Aperam South America LTDA, Aperam Sourcing S.C.A., ArcelorMittal Sourcing S.C.A., and ArcelorMittal Brasil S.A. initiated a single arbitration proceeding against two of the Company’s subsidiaries in the International Chamber of Commerce in June 2020. The claimants argue, among other things, that they should no longer be required to comply with the terms of the LTAs that they signed due to an alleged drop in market prices for graphite electrodes in January 2020. Alternatively, the claimants argue that they should not be required to comply with the LTAs that they signed due to alleged market circumstances at the time of execution. The claimants are alleging damages in the amount of approximately \$188.2 million, including interest, for the period covering the first quarter of 2020 through the first quarter of 2023. Although we believe we have valid defenses to these claims, arbitrations, like litigation, are inherently subject to many uncertainties, and we ultimately may not prevail, which would have adverse impacts on our business, financial condition and results of operations.

Risks related to our common stock

Certain provisions, including in our Amended Certificate of Incorporation and our Amended By-Laws, could hinder, delay or prevent a change in control, which could adversely affect the price of our common stock.

Our Amended Certificate of Incorporation and Amended By-Laws contain provisions that could make it more difficult for a third-party to acquire us without the consent of our Board of Directors, including:

- provisions in our Amended Certificate of Incorporation and Amended By-Laws that prevent stockholders from calling special meetings of our stockholders, except where the Delaware General Corporation Law (“DGCL”) confers the right to fix the date of such meetings upon stockholders;
- advance notice requirements by stockholders with respect to director nominations and actions to be taken at annual meetings;
- provisions in our Amended Certificate of Incorporation provide for a classified Board of Directors such that only one of three classes of directors is elected each year, which prevents our stockholders from replacing the majority our directors at once;
- no provision in our Amended Certificate of Incorporation or Amended By-Laws provides for cumulative voting in the election of directors, which means that the holders of a majority of the outstanding shares of our common stock can elect all the directors standing for election;
- under our Amended Certificate of Incorporation, our Board of Directors have authority to cause the issuance of preferred stock from time to time in one or more series and to establish the terms, preferences and rights of any such series of preferred stock, all without approval of our stockholders; and
- nothing in our Amended Certificate of Incorporation precludes future issuances without stockholder approval of the authorized but unissued shares of our common stock.

These provisions may make it difficult and expensive for a third-party to pursue a tender offer, change in control or takeover attempt that is opposed by our Board of Directors. Stockholders who might desire to participate in these types of transactions may not have an opportunity to do so, even if the transaction is favorable to such stockholders. These anti-takeover provisions could substantially impede the ability of stockholders to benefit from a change in control or to change our management and Board of Directors and, as a result, may adversely affect the market price of our common stock and your ability to realize any potential change of control premium.

Our Amended Certificate of Incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our Amended Certificate of Incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us arising under the DGCL, our Amended Certificate of Incorporation or our Amended By-Laws; and
- any action asserting a claim against us that is governed by the internal-affairs doctrine.

This exclusive forum provision may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers, and other employees. If a court were to find the exclusive forum provision in our Amended Certificate of Incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could harm our business.

We cannot guarantee that our stock repurchase program will be fully consummated or that it will enhance long-term stockholder value. Stock repurchases could also increase the volatility of the trading price of our stock and will diminish our cash reserves.

Although our Board of Directors has authorized a stock repurchase program that does not have an expiration date, the program does not obligate us to acquire any particular amount of shares of common stock, and the stock repurchase program may be suspended or discontinued at any time at our discretion. We cannot guarantee that the program will be fully consummated or that it will enhance long-term stockholder value. The program could affect the trading price of our stock, and increase volatility, and any announcement of a termination of this program may result in a decrease in the trading price of our common stock. In addition, our use of this program will diminish our cash.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

Risk Management and Strategy

We have an overarching cybersecurity program for assessing, identifying, and managing material risks from cybersecurity threats that includes documented policies and procedures and incorporates a layered cybersecurity defense. We utilize a variety of technologies that target detection of malicious attempts to infiltrate our information systems. We also maintain an endpoint threat detection and response tool which uses artificial intelligence to alert our managed security service provider. On a regular basis, we hire a third-party cybersecurity service provider that performs a penetration test on our information systems. The Company seeks to address vulnerabilities that are found. We also utilize a third-party cybersecurity training company to educate our employees about cybersecurity threats. On a regular basis, we send out test phishing emails with a follow up email explaining to end users the “red flags” in these emails. Where appropriate, we utilize dual-factor authentication on our information systems. On an annual basis we receive system and organization control reports from many of our key external IT vendors as these will reveal any sort of potential security issues these companies have had in the past year.

We have experienced cybersecurity threats to our information technology infrastructure and have experienced non-material cybersecurity attacks, attempts to breach our systems, fraudulent activity and other similar incidents. As of the filing of this Annual Report, we are not aware of any such incidents that have occurred that have materially affected, or are reasonably likely to materially affect, the Company, including our business strategy, results of operations, or financial condition. However, future security and/or privacy breaches, acts of vandalism or terror, computer viruses, misplaced or lost data, programming, and/or human error or other similar events with respect to our information technology systems or processes or the information technology systems or processes of third-parties that have been entrusted with our information expose us to a risk of loss or misuse of this information, litigation and potential liability, which could have a material adverse effect on our business, financial condition, results of operations or cash flows. Risks related to cybersecurity events are detailed in the section of this Annual Report titled “Risk Factors—Risks related to our business and industry—We may be subject to information technology systems failures, cybersecurity attacks, network disruptions and breaches of data security, which could compromise our information and expose us to liability.”

Governance

The Board oversees risks from cybersecurity threats through the same framework it uses to oversee the management of our risk exposure in general. Cybersecurity risks, including operations disruptions, outdated enterprise software and damage reputation, have been specifically incorporated into our enterprise risk management processes. These risks are scored based on impact, likelihood and established controls. Action plans are then established for each of the risks and are incorporated into objectives. Risks are then tracked and integrated into reporting and disclosure processes. Risks are reviewed at least bi-annually by a committee made up of representatives from finance, internal audit, treasury, operations, legal and others. Management at least annually provides to the Board updated information concerning cybersecurity threats as well as management’s efforts to mitigate such threats. The Board then is responsible for overseeing that management responds appropriately. The Audit Committee, which is made up solely of independent directors, is responsible for overseeing Company policies and practices with respect to cybersecurity issues.

Our Vice President, Information Technology leads our information security program and team, which is comprised of several members devoted to infrastructure and information systems security and management. Our Vice President, Information Technology has over 20 years of industry experience, including over 15 years at our Company, serving in roles throughout his career such as engineer, infrastructure manager, Director of Information Technology Infrastructure, and Global Director of IT.

Item 2. Properties

The Company uses the following principal physical properties in connection with the manufacturing, sales and services of graphite electrodes, pins and corporate administrative operations, all of which serve its only reportable segment, Industrial Materials. The total capacity utilization, reflecting production volume as a percentage of production capacity, of our graphite electrode manufacturing facilities in Calais, France, Monterrey, Mexico and Pamplona, Spain, was 44% and 78% for the years ended December 31, 2023 and December 31, 2022, respectively. Production capacity reflects expected maximum production volume during the period depending on product mix and expected maintenance outage. Actual production may vary. Our properties located in St. Marys, Pennsylvania and Port Lavaca, Texas are encumbered by our 2018 Credit Agreement, 2020 Senior Secured Notes and our 2023 Senior Secured Notes.

<u>Location of Facility</u>	<u>Primary Use</u>	<u>Owned or Leased</u>
<i>Americas</i>		
Brooklyn Heights, Ohio	Corporate Headquarters, Innovation and Technology Center and Sales Office	Leased
Monterrey, Mexico	Graphite Electrode and Pin Manufacturing Facility, Sales and Service Office	Owned
St. Marys, Pennsylvania	Graphite Electrode Manufacturing Facility, Sales and Service Office	Owned
Port Lavaca, Texas	Petroleum Needle Coke Manufacturing Facility (Seadrift)	Owned
Salvador, Bahia, Brazil	Graphite Electrode Machine Shop, Sales and Service Office	Owned
<i>Europe</i>		
Calais, France	Graphite Electrode Manufacturing Facility, Sales and Service Office	Owned
Pamplona, Spain	Graphite Electrode Manufacturing Facility, Sales and Service Office	Owned
Bussigny, Switzerland	Global Sales and Production Planning Office	Leased

Item 3. Legal Proceedings

We are involved in various investigations, lawsuits, claims, demands, labor disputes and other legal proceedings, including with respect to environmental and human exposure or other personal injury matters, arising out of or incidental to the conduct of our business. While it is not possible to determine the ultimate disposition of each of these matters and proceedings, we do not believe that their ultimate disposition will have a material adverse effect on our financial position, results of operations or cash flows. Additionally, we are involved in the following legal proceedings.

Arbitrations

We are involved in certain arbitrations as respondents/counterclaimants, pending before the International Chamber of Commerce with a few customers who, among other things, have failed to perform under their LTAs and in certain instances are seeking to modify or frustrate their contractual commitments to us. In particular, Aperam South America LTDA, Aperam Sourcing S.C.A., ArcelorMittal Sourcing S.C.A., and ArcelorMittal Brasil S.A. (collectively, the “Claimants”) initiated a single arbitration proceeding against two of the Company’s subsidiaries in the International Chamber of Commerce in June 2020. The Claimants argue, among other things, that they should no longer be required to comply with the terms of the LTAs that they signed due to an alleged drop in market prices for graphite electrodes in January 2020. Alternatively, the Claimants argue that they should not be required to comply with the LTAs that they signed due to alleged market circumstances at the time of execution. In June 2021, the Claimants filed their statement of claim, seeking approximately \$61.0 million plus interest in monetary relief and/or reimbursement in respect of several fixed price LTAs that were executed between such subsidiaries and the Claimants in 2017 and 2018. On December 16, 2022, the Claimants revised their calculation of alleged damages to approximately \$178.9 million including interest, with damages covering the period from the first quarter of 2020 through the end of the third quarter of 2022 and interest covering the period from June 2020 through December 16, 2022. In March 2023, an International Chamber of Commerce hearing was held before the party-appointed sole arbitrator with the Claimants, the Company, and witnesses in attendance. On March 31, 2023, the Claimants further revised their calculation of alleged damages to approximately \$171.7 million, including interest, for the period covering the first quarter of 2020 through 2022. In June of 2023, the Claimants again revised their calculation of alleged damages to approximately \$188.2 million, including interest, for the period covering the first quarter of 2020 through the first quarter of 2023. We believe we have valid defenses to these claims. We intend to vigorously defend them and enforce our rights under the LTAs.

Monterrey, Mexico Suspension of Operations

Background

On September 15, 2022, inspectors from the State Attorney's Office for the Secretary of Environment of the State of Nuevo León, Mexico visited GrafTech Mexico S.A. De C.V.'s ("GrafTech Mexico") graphite electrode manufacturing facility located in Monterrey, Mexico to inspect GrafTech Mexico's facility and certain of the facility's environmental and operating permits. At the conclusion of the inspection, the inspectors issued a Record of Inspection providing for the results of the inspection, their observations, and the imposition of a temporary suspension of GrafTech Mexico's facilities within seven days. In parallel, the Director of Comprehensive Atmospheric Management of the Undersecretary of Climate Change and Air Quality of the Ministry of the Environment of the State of Nuevo León formally denied GrafTech Mexico's previously requested modification to its operating license stating that such license was no longer valid. On September 22, 2022, GrafTech Mexico submitted observations and responses to the Record of Inspection, requested an extension of the shutdown of the facility until October 7, 2022, and requested a clarification of the scope of the shutdown. On September 23, 2022, inspectors from the State Attorney's Office for the Secretary of Environment visited GrafTech Mexico's manufacturing facility to verify the information presented in GrafTech Mexico's observations and responses submitted on September 22, 2022. On October 4, 2022, the State Attorney's Office for the Secretary of Environment granted an extension of the shutdown of the facility until October 7, 2022 and clarified the suspension permitting GrafTech Mexico to perform several activities, including extracting or withdrawing finished or unfinished product. On November 17, 2022, the State Attorney's Office for the Secretary of Environment lifted the suspension notice, subject to the completion of certain agreed-upon activities, including the submission of an environmental impact study with respect to the facility's operations, allowing the Monterrey facility to resume operations. Notwithstanding that the suspension notice has been conditionally lifted and that the Monterrey facility has resumed operations, GrafTech Mexico believes it is prudent to continue to pursue the related legal proceeding set forth below.

Administrative Proceeding

On November 17, 2022, the State Attorney's Office for the Secretary of Environment issued a summons opening an administrative proceeding against GrafTech Mexico, citing the lack of an environmental impact authorization and environmental risk study with respect to the facility's operations. The summons ordered GrafTech Mexico to submit an environmental impact authorization and risk study within 30 business days. GrafTech Mexico submitted its environmental impact authorization and risk study for the full site on November 25, 2022, and filed its response to the summons on December 2, 2022. Once the State Attorney's Office for the Secretary of Environment initiates the summary argument period, GrafTech Mexico will have three business days to provide its summary arguments. A final resolution is expected to be issued within fifteen business days from submission of the summary arguments, but can be extended up to an additional three months and is subject to appeal.

Brazil Clause IV

Pending litigation in Brazil has been brought by employees seeking to recover additional amounts and interest thereon under certain wage increase provisions applicable in 1989 and 1990 under collective bargaining agreements to which employers in the Bahia region of Brazil were a party (including our subsidiary in Brazil). Companies in Brazil have settled claims arising out of these provisions and, in May 2015, the litigation was remanded by the Brazilian Supreme Court in favor of the employees union. After denying an interim appeal by the Bahia region employers on June 26, 2019, the Brazilian Supreme Court finally ruled in favor of the employees union on September 26, 2019. The employers union has determined not to seek annulment of such decision. Separately, on October 1, 2015, a related action was filed by current and former employees against our subsidiary in Brazil to recover amounts under such provisions, plus interest thereon, which amounts together with interest could be material to us. If the Brazilian Supreme Court proceeding above had been determined in favor of the employers union, it would also have resolved this proceeding in our favor. In the first quarter of 2017, the state court initially ruled in favor of the employees. We appealed this state court ruling, and the appellate court issued a decision in our favor on May 19, 2020. The employees have further appealed and, on December 16, 2020, the court upheld the decision in favor of GrafTech Brazil. On February 22, 2021, the employees filed a further appeal and, on April 28, 2021, the court rejected the employees' appeal in favor of GrafTech Brazil. The employees filed a further appeal and on September 12, 2022, we filed our response in opposition. We intend to vigorously defend our position. As of December 31, 2023, we are unable to assess the potential loss associated with these proceedings as the claims do not currently specify the number of employees seeking damages or the amount of damages being sought.

Mexico Value-Added Tax ("VAT")

In July 2019, the Mexican Tax Authority ("MTA") opened an audit of the VAT filings of GrafTech Comercial de Mexico S. de R.L. de C.V. ("GrafTech Commercial Mexico") for the period of January 1 to April 30, 2019. In September 2021, the MTA issued a tax assessment, claiming improper use of a certain VAT exemption rule for purchases from a foreign

affiliate. As of December 31, 2023, the tax assessment for the four month period under audit amounted to approximately \$28.8 million, including penalties, inflation and interest. Interest will continue to accrue up to five years from the date the corresponding VAT returns were filed and inflation will continue to accrue with the passage of time. GrafTech Commercial Mexico filed an administrative appeal against the tax assessment with the MTA's appeals office. In November 2022, the MTA's appeals office concluded its review and confirmed the tax assessment. GrafTech Commercial Mexico believes that the purchases from a foreign affiliate are exempt from VAT back-up withholding, and in December 2022 GrafTech Commercial Mexico filed a Claim for Nullity with the Chamber Specialized in exclusive resolution of substance of the Federal Court of Administrative Justice. On February 17, 2023, the MTA filed the response to the nullity petition. On May 31, 2023, the court held a hearing to determine the scope of the issues to be decided in the proceedings. At the court's request, GrafTech Commercial Mexico submitted formal pleadings on August 1, 2023. On January 8, 2024, the court ruled in GrafTech Commercial Mexico's favor and annulled the tax assessment. On January 31, 2024, the MTA filed an appeal for review.

In March 2022, the MTA opened another audit of the VAT filings of GrafTech Commercial Mexico for the period January 1 to December 31, 2018. In the proposed assessment received in January 2023, the MTA is alleging the same improper use of certain VAT exemption rules on purchases from a foreign affiliate and has provided notice of its intent to assess approximately \$51.0 million, including penalties, inflation and interest. In Mexico, each tax assessment requires a separate claim. In the first quarter of 2023, GrafTech Commercial Mexico requested a conclusive agreement with the Mexican ombudsman ("PRODECON") to reach a settlement with the MTA. The MTA responded to GrafTech Commercial Mexico's request on May 30, 2023. On August 2, 2023, GrafTech Commercial Mexico filed a motion exhibiting additional information and reaffirming its position. On September 22, 2023, the MTA responded to GrafTech Commercial Mexico's motion. On October 2, 2023, GrafTech Commercial Mexico filed a motion requesting a formal meeting with the MTA and PRODECON, which occurred on November 14, 2023. During the meeting, the parties agreed that GrafTech Commercial Mexico will provide additional documentation and information to be evaluated by the MTA, and, on November 29, 2023, GrafTech Commercial Mexico filed the information requested. On January 24, 2024, the MTA filed its response. On that same day, GrafTech Commercial Mexico submitted before PRODECON the favorable ruling it obtained on January 8, 2024 in connection with the 2019 proceeding for the MTA's consideration. On February 1, 2024, the MTA confirmed its position, holding that GrafTech Commercial Mexico was required to withhold the VAT. GrafTech Commercial Mexico plans to challenge the assessment. The \$51.0 million includes interest and inflation. Interest will continue to accrue up to five years from the date the corresponding VAT returns were filed and inflation will continue to accrue with the passage of time.

As evidenced by the favorable court decision issued on January 8, 2024, GrafTech Commercial Mexico's application of the VAT exemption rules is appropriate and, accordingly, GrafTech Commercial Mexico does not believe that it is probable that it will incur a loss related to this matter for either of the two periods under the MTA's audit. The Company intends to vigorously defend its position in these proceedings.

Stockholder Class Action

On January 25, 2024, a stockholder of the Company filed a class action complaint on behalf of all purchasers of GrafTech common stock between February 8, 2019 and August 3, 2023 in the United States District Court of the Northern District of Ohio. The complaint names the Company, certain past and present executive officers, and two entities associated with Brookfield as defendants. The complaint alleges that certain public filings and statements made by the Company contained material misrepresentations or omissions relating to the circumstances before and after the prior temporary suspension of the Company's graphite electrode facility located in Monterrey, Mexico, in September 2022. The plaintiff seeks compensatory damages, which are unquantified at this time, costs and expenses, and unspecified equitable or injunctive relief. We believe we have valid defenses to these claims and we intend to vigorously defend them.

Item 4. Mine Safety Disclosures

Not applicable.

Supplemental Item. Information about our Executive Officers

The following table sets forth information with respect to our current executive officers, including their ages.

Name	Age	Position
Timothy K. Flanagan	46	Interim Chief Executive Officer and President
Catherine Hedoux-Delgado	59	Interim Chief Financial Officer and Treasurer
Jeremy S. Halford	51	Executive Vice President, Chief Operating Officer
Gina K. Gunning	57	Chief Legal Officer and Corporate Secretary
Iñigo Perez Ortiz	52	Senior Vice President, Commercial and CTS

Timothy K. Flanagan became Interim Chief Executive Officer and President in November 2023. Mr. Flanagan joined the Company as Chief Financial Officer, Senior Vice President of Finance and Treasurer in November 2021. Mr. Flanagan previously served as Executive Vice President, Chief Financial Officer of Cleveland-Cliffs Inc. (NYSE: CLF), a flat-rolled steel producer and supplier of iron ore pellets, from January 2017 to February 2019. Prior to being promoted to Executive Vice President, Chief Financial Officer of Cleveland-Cliffs, he held a variety of financial leadership roles at Cleveland-Cliffs Inc. since joining in 2008, including being responsible for the accounting, reporting, treasury and financial planning and analysis functions and serving as the Vice President, Corporate Controller and Chief Accounting Officer from March 2012 to December 2016. Before joining the Company, Mr. Flanagan served as Chief Financial Officer of Benesch, Friedlander, Coplan & Aronoff LLP, an AmLaw 200 law firm, from June 2019 to November 2021. He has a B.S. in Accounting from the University of Dayton.

Catherine Hedoux-Delgado became Interim Chief Financial Officer and Treasurer in November 2023. Ms. Hedoux-Delgado joined the Company as Vice President, Corporate Controller in April 2012 where she was responsible for the accounting and financial reporting of the Company. Prior to joining the Company, she spent 20 years at Lexmark International Inc., a multinational printing product and services company, where she most recently served as Director of SEC Reporting and Corporate Consolidation. Prior to that, she held numerous finance and accounting leadership roles at Lexmark, including Corporate Director of Internal Controls, Finance Director of the Consumer Printing Division for EMEA (Europe, Middle East and Africa) and Finance Director of Lexmark Canada. Ms. Hedoux-Delgado holds a B.S. in Management from the ESCP Business School in France.

Jeremy S. Halford became Executive Vice President, Chief Operating Officer in October 2021. Mr. Halford joined the Company in May 2019 as Senior Vice President, Operations and Development. Mr. Halford previously served as the President of Arconic Engineered Structures, a producer of highly engineered titanium and aluminum components for the aerospace, defense and oil and gas markets, a position he held since January 2017. Mr. Halford also was President of Doncasters Aerospace, a manufacturer of components and assemblies for the civil and military aero engine and airframe markets, from 2014 to 2016, and Vice President, Global Business Development, Doncasters Group Limited from 2013 to 2014. Previously, he also was President of Mayfran International from 2012 to 2013, and spent seven years at Alcoa Corporation (NYSE: AA) ("Alcoa") in a variety of general management and strategy roles. Mr. Halford holds a Master of Business Administration degree from Harvard University and a Bachelor of Science degree in Mechanical Engineering from GMI Engineering and Management Institute (now Kettering University).

Gina K. Gunning joined the Company as Chief Legal Officer and Corporate Secretary in July 2018. She has more than 25 years of law firm and in-house corporate legal experience across multiple industries. Prior to joining GrafTech, she was an Associate General Counsel at FirstEnergy Corp., a distributor and generator of electricity, from 2012 to 2018, where she was responsible for legal matters involving SEC reporting, business development, and capital markets, as well as corporate and executive compensation topics. She also served as a partner at Jones Day. Ms. Gunning holds a Juris Doctor from Notre Dame Law School and a Bachelor of Arts in English from the University of Notre Dame.

Iñigo Perez Ortiz joined the Company as Senior Vice President, Commercial and CTS in February 2020. Mr. Perez most recently served as Vice President, Europe and Asia, Sales and Customer Service at Alcoa, a global industry leader in bauxite, alumina, and aluminum products, a position he held since 2017. Previously at Alcoa, Mr. Perez was Commercial Director, Europe and Asia Pacific from 2011 to 2017, Sales Manager, Europe from 2007 to 2011 and Sales Office Manager from 2002 to 2007. Prior to his career at Alcoa, Mr. Perez served in a variety of senior commercial roles at Autopulit S.A., Warner Electric and Babcock Wilcox Espanola, S.A. Mr. Perez holds a Master in Industrial Plans Management, Lean Manufacturing and Engineering degree from Polytechnic University of Barcelona, an Executive Master of Business Administration degree from Instituto de Empresa and a Mining Engineer degree from the University of the Basque Country.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our common stock is listed on the NYSE under the trading symbol “EAF.”

Holders

As of December 31, 2023, there were seven registered holders of record of our common stock. A substantially greater number of holders of our common stock are “street name” or beneficial holders, whose shares of record are held by banks, brokers, and other financial institutions.

Dividend Policies and Restrictions

Through the second quarter of 2023, we paid a quarterly cash dividend of \$0.01 per common share. On August 2, 2023, our Board of Directors elected to suspend the quarterly cash dividend of \$0.01 per common share.

There can be no assurance that we will resume paying dividends in the future in these amounts or at all. Our Board of Directors may change the timing and amount of any future dividend payments, if reinstated, or eliminate the payment of future dividends in its sole discretion, without any prior notice to our stockholders. Our ability to pay dividends will depend upon many factors, including our financial position and liquidity, results of operations, legal requirements, restrictions that may be imposed by the terms of our current and future credit facilities and other debt obligations and other factors deemed relevant by our Board of Directors.

For further discussion of the factors that may affect our business and our ability to pay dividends, see “Risk Factors—Risks related to our business and industry” in Part 1, Item 1A, Risk Factors.

Equity Compensation Plan Information

The information about our common stock that may be issued under our Omnibus Equity Incentive Plan as of December 31, 2023 is set forth in Part III, Item 12, “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” of this Report under the caption “Equity Compensation Plan Information.”

Issuer Purchases of Equity Securities

On July 31, 2019, we announced that our Board of Directors approved the repurchase of up to \$100.0 million of our common stock in open market purchases, including under Rule 10b5-1 and/or Rule 10b-18 plans. On November 4, 2021, we announced that our Board of Directors approved the repurchase of an additional \$150.0 million of our common stock under this program. Approximately \$99.0 million of the total \$250.0 million authorized remained available for stock repurchases as of December 31, 2023. The stock repurchase program has no expiration date. During the quarter ended December 31, 2023, there was no share repurchase activity.

Item 6. [Reserved]

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read together with our Consolidated Financial Statements and the accompanying notes and other financial information appearing elsewhere in this Annual Report. Discussion and analysis regarding our financial condition and results of operations for 2022 as compared to 2021 is included in Item 7 of our Annual Report for the year-ended December 31, 2022, filed with the SEC on February 14, 2023. Information in this section is intended to assist the reader in obtaining an understanding of our Consolidated Financial Statements, the changes in certain key items in those financial statements from year-to-year, the primary factors that accounted for those changes, any known trends or uncertainties that we are aware of that may have a material effect on our future performance, as well as how certain accounting principles affect our Consolidated Financial Statements. This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. See “Cautionary Note Regarding Forward-Looking Statements.” Our actual results could differ materially from those forward-looking statements as a result of many factors, including those discussed in “Risk Factors” and elsewhere in this Annual Report.

Operational and Commercial Update

Sales volume for 2023 was approximately 92 thousand MT, consisting of LTA volume of 29 thousand MT and non-LTA volume of 63 thousand MT, representing a decrease of 39% compared to 149 thousand MT in 2022, consisting of LTA volume of 91 thousand MT and non-LTA volume of 58 thousand MT.

In 2023, our weighted-average realized price from LTAs was approximately \$8,800 per MT and our weighted-average realized price for non-LTA business sales of graphite electrodes was approximately \$5,400 per MT. Our weighted-average realized non-LTA price decreased 10% compared to 2022, reflecting the soft commercial environment. In 2022, our weighted-average realized price from LTAs was approximately \$9,500 per MT and our weighted-average realized price for non-LTA business sales of graphite electrodes was approximately \$6,000 per MT.

Production volume for 2023 was approximately 88 thousand MT, decreasing 44% compared to 2022, as we proactively reduced our graphite electrode production volume to align with our evolving demand outlook and to manage our working capital levels. We also temporarily idled needle coke production at our Seadrift facility for a portion of 2023 to align our needle coke inventory with our graphite electrode production needs.

Capital Structure and Liquidity

As of December 31, 2023, we had liquidity of \$289.3 million, consisting of \$112.4 million of availability under our 2018 Revolving Credit Facility and cash and cash equivalents of \$176.9 million. As of December 31, 2023, we had total debt of approximately \$950.1 million. We continue to have adequate liquidity in 2024 to navigate the persistent softness in the commercial environment.

Outlook

As we enter 2024, we expect demand for graphite electrodes in the near term will remain weak, reflecting persistent softness in the commercial environment as steel industry production remains constrained by global economic uncertainty. However, we anticipate a modest year-over-year improvement in our sales volume for 2024, most notably in the first quarter of 2024, as the first quarter of 2023 was significantly impacted by the temporary suspension of our Monterrey, Mexico facility in late 2022.

Reflecting industry-wide softness in graphite electrode demand, challenging pricing dynamics have persisted in most regions. As a result, we are being selective in the commercial opportunities we choose to pursue.

In addition, the Company has announced a set of initiatives designed to reduce our cost structure and optimize our manufacturing footprint while, at the same time, preserving our ability to deliver excellent customer service and to capitalize on long-term growth opportunities for our Company. Key elements include the following:

- Indefinitely suspending production activities at our St. Marys, Pennsylvania facility, with the exception of graphite electrode and pin machining, as well as indefinitely idling certain assets within our remaining graphite electrode manufacturing footprint.
- Reducing the Company's overhead structure and expenses.

- Operating our remaining graphite electrode production facilities at reduced levels, as needed, to align production with our view on market demand.

These initiatives, most notably the indefinite suspension of production at St. Marys and the reduction in Company overhead, are expected to result in annualized cost savings of approximately \$25.0 million once fully implemented, excluding the impact of one-time costs. Of the anticipated cost savings, approximately \$15.0 million are expected to be realized in cost of goods sold with the remainder in selling and administrative expenses. One-time costs are expected to be approximately \$5.0 million, of which the majority are cash-related.

These actions, combined with the benefit of reduced market pricing for certain raw materials and energy as well as the anticipated improvement in our sales and production volume levels, are expected to result in a low teen percentage point year-over-year decline in our cash cost of goods sold per MT.

As of December 31, 2023, our stated graphite electrode production capacity was approximately 202 thousand MT. As a result of indefinitely idling certain assets, beginning in 2024, our stated production capacity will be approximately 178 thousand MT, a reduction of 12%.

Further, during 2024, we will continue to operate these facilities at reduced levels, as needed, to align production with our view on electrode demand. In addition to being a key component of the incremental actions we are taking in response to weak market conditions, this will also support our efforts to further reduce our inventory levels and manage capital expenditures in 2024. Specific to capital expenditures, for 2024 we anticipate spending to be in the range of \$35.0 million to \$40.0 million. This compares to capital expenditures of \$54.0 million for the year ended December 31, 2023.

Longer term, we remain confident that the steel industry's accelerating efforts to decarbonize will lead to increased adoption of the EAF method of steelmaking, driving long-term demand growth for graphite electrodes. We also anticipate the demand for petroleum needle coke, the key raw material we use to produce graphite electrodes, to accelerate driven by its utilization in producing synthetic graphite for use in lithium-ion batteries for the growing electric vehicle market. We believe that the near-term actions we are taking, supported by an industry-leading position and our sustainable competitive advantages, including our substantial vertical integration into petroleum needle coke via our Seadrift facility, will optimally position GrafTech to benefit from that long-term growth.

The table of estimated shipments of graphite electrodes under existing LTAs is as follows, reflecting our current expectations for 2024:

	2024
Estimated LTA volume ⁽¹⁾	13-16
Estimated LTA revenue ⁽²⁾	\$100-\$135 ⁽³⁾

(1) In thousands of MT

(2) In millions

(3) Includes expected termination fees from a few customers that have failed to meet certain obligations under their LTAs

The majority of the LTAs are defined as pre-determined fixed annual volume contracts while a small portion are defined with a specified volume range. For 2024, the contractual revenue amounts above are based upon the minimum volume for those contracts with specified ranges. The actual revenue realized from these contracted volumes may vary in timing and total due to contract non-performance, force majeure notices, arbitrations, credit risk associated with certain customers facing financial challenges and customer demand related to contracted volume ranges.

Key metrics used by management to measure performance

In addition to measures of financial performance presented in our Consolidated Financial Statements in accordance with generally accepted accounting principles in the United States ("GAAP"), we use certain other financial measures and operating metrics to analyze the performance of our Company. The "non-GAAP" financial measures consist of EBITDA, adjusted EBITDA, adjusted net (loss) income and adjusted (loss) earnings per share, which help us evaluate growth trends, establish budgets, assess operational efficiencies and evaluate our overall financial performance. The key operating metrics consist of sales volume, production volume, production capacity and capacity utilization.

Key financial measures

(in thousands, except per share amounts)	Year ended December 31,	
	2023	2022
Net sales	\$ 620,500	\$ 1,281,250
Net (loss) income	(255,250)	382,962
(Loss) earnings per share ⁽¹⁾	(0.99)	1.48
EBITDA ⁽²⁾	(162,227)	539,902
Adjusted net (loss) income ⁽²⁾	(100,752)	379,666
Adjusted (loss) earnings per share ⁽¹⁾⁽²⁾	(0.39)	1.47
Adjusted EBITDA ⁽²⁾	20,484	536,464

⁽¹⁾ (Loss) earnings per share represents diluted (loss) earnings per share. Adjusted (loss) earnings per share represents adjusted diluted (loss) earnings per share.

⁽²⁾ Non-GAAP financial measure; see below for information and reconciliations to the most directly comparable financial measures calculated and presented in accordance with GAAP.

Key operating measures

In addition to measures of financial performance presented in accordance with GAAP, we use certain operating metrics to analyze the performance of our company. The key operating metrics consist of sales volume, production volume, production capacity and capacity utilization. These metrics align with management's assessment of our revenue performance and profit margin, and will help investors understand the factors that drive our profitability.

Sales volume reflects the total volume of graphite electrodes sold for which revenue has been recognized during the period. For a discussion of our revenue recognition policy, see “—Critical accounting policies—Revenue recognition” in this section. Sales volume helps investors understand the factors that drive our net sales.

Production volume reflects graphite electrodes produced during the period. Production capacity reflects expected maximum production volume during the period depending on product mix and expected maintenance outage. Actual production may vary. Capacity utilization reflects production volume as a percentage of production capacity. Production volume, production capacity and capacity utilization help us understand the efficiency of our production and evaluate cost of goods sold.

(in thousands, except percentages)	Year ended December 31,	
	2023	2022
Sales volume (MT)	91.6	149.1
Production volume (MT) ⁽¹⁾	88.1	157.1
Total production capacity(MT) ⁽²⁾⁽³⁾	230.0	230.0
Total capacity utilization ⁽³⁾⁽⁴⁾	38 %	68 %
Production capacity excluding St. Marys (MT) ⁽²⁾⁽⁵⁾	202.0	202.0
Capacity utilization excluding St. Marys ⁽⁴⁾⁽⁵⁾	44 %	78 %

⁽¹⁾ Production volume reflects graphite electrodes we produced during the period.

⁽²⁾ Production capacity reflects expected maximum production volume during the period depending on product mix and expected maintenance outage. Actual production may vary.

⁽³⁾ Includes graphite electrode facilities in Calais, France; Monterrey, Mexico; Pamplona, Spain; and St. Marys, Pennsylvania. During the periods presented in this table, our St. Marys, Pennsylvania facility graphitized and machined a limited number of electrodes and pins sourced from our Monterrey, Mexico facility. The remaining production processes at St. Marys were restarted beginning in the second quarter of 2023. In the first quarter of 2024, in response to persistent softness in the commercial environment, we announced an indefinite suspension of production activities at St. Marys, with the exception of graphite electrode and pin machining.

⁽⁴⁾ Capacity utilization reflects production volume as a percentage of production capacity.

⁽⁵⁾ Includes graphite electrode facilities in Calais, France; Monterrey, Mexico; and Pamplona, Spain.

As of December 31, 2023, our stated production capacity was approximately 202 thousand MT through our primary manufacturing facilities in Calais, Pamplona and Monterrey. On February 14, 2024, the Company announced a cost rationalization and footprint optimization plan, in response to persistent softness in the commercial environment. This includes an indefinite suspension of production activities at our St. Marys facility, with the exception of graphite electrode and pin machining. We are also indefinitely idling certain assets within our remaining graphite electrode manufacturing

footprint. As a result of these initiatives, beginning in 2024, our stated production capacity will be approximately 178 thousand MT.

Non-GAAP financial measures

In addition to providing results that are determined in accordance with GAAP, we have provided certain financial measures that are not in accordance with GAAP. EBITDA, adjusted EBITDA, adjusted net (loss) income, adjusted (loss) earnings per share, free cash flow, adjusted free cash flow and cash cost of goods sold per MT are non-GAAP financial measures.

We define EBITDA, a non-GAAP financial measure, as net income or loss plus interest expense, minus interest income, plus income taxes and depreciation and amortization. We define adjusted EBITDA as EBITDA plus any pension and other post-employment benefit (“OPEB”) plan expenses or benefits, adjustments for public offerings and related expenses, non-cash gains or losses from foreign currency remeasurement of non-operating assets and liabilities in our foreign subsidiaries where the functional currency is the U.S. dollar, stock-based compensation expense, non-cash fixed asset write-offs, related party payable - Tax Receivable Agreement adjustments and goodwill impairment charges. Adjusted EBITDA is the primary metric used by our management and our Board of Directors to establish budgets and operational goals for managing our business and evaluating our performance.

We monitor adjusted EBITDA as a supplement to our GAAP measures, and believe it is useful to present to investors, because we believe that it facilitates evaluation of our period-to-period operating performance by eliminating items that are not operational in nature, allowing comparison of our recurring core business operating results over multiple periods unaffected by differences in capital structure, capital investment cycles and fixed asset base. In addition, we believe adjusted EBITDA and similar measures are widely used by investors, securities analysts, ratings agencies, and other parties in evaluating companies in our industry as a measure of financial performance and debt-service capabilities.

Our use of adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP. Some of these limitations are:

- adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- adjusted EBITDA does not reflect our cash expenditures for capital equipment or other contractual commitments, including any capital expenditure requirements to augment or replace our capital assets;
- adjusted EBITDA does not reflect the interest expense or the cash requirements necessary to service interest or principal payments on our indebtedness;
- adjusted EBITDA does not reflect tax payments that may represent a reduction in cash available to us;
- adjusted EBITDA does not reflect expenses or benefits relating to our pension and OPEB plans;
- adjusted EBITDA does not reflect public offerings and related expenses;
- adjusted EBITDA does not reflect the non-cash gains or losses from foreign currency remeasurement of non-operating assets and liabilities in our foreign subsidiaries where the functional currency is the U.S. dollar;
- adjusted EBITDA does not reflect stock-based compensation expense;
- adjusted EBITDA does not reflect the non-cash write-off of fixed assets;
- adjusted EBITDA does not reflect related party payable - Tax Receivable Agreement adjustments;
- adjusted EBITDA does not reflect goodwill impairment charges; and
- other companies, including companies in our industry, may calculate EBITDA and adjusted EBITDA differently, which reduces its usefulness as a comparative measure.

We define adjusted net (loss) income, a non-GAAP financial measure, as net (loss) income, excluding the items used to calculate adjusted EBITDA, less the tax effect of those adjustments. We define adjusted (loss) earnings per share, a non-GAAP financial measure, as adjusted net (loss) income divided by the weighted average diluted common shares outstanding during the period. We believe adjusted net (loss) income and adjusted (loss) earnings per share are useful to present to investors because we believe that they assist investors’ understanding of the underlying operational profitability of the Company.

We define free cash flow, a non-GAAP financial measure, as net cash provided by operating activities less capital expenditures. We define adjusted free cash flow, a non-GAAP financial measure, as free cash flow adjusted by payments made or received from the settlement of interest rate swap contracts and payments of the Change in Control charges that were triggered as a result of the ownership of our largest stockholder falling below 30% of our total outstanding shares. We use free cash flow and adjusted free cash flow as critical measures in the evaluation of liquidity in conjunction with related GAAP amounts. We also use these measures when considering available cash, including for decision-making purposes related to dividends and discretionary investments. Further, these measures help management, the audit committee, and investors evaluate the Company's ability to generate liquidity from operating activities. For the purpose of this measure, a Change in Control occurred when Brookfield and any affiliates thereof ceased to own stock of the Company that constitutes at least thirty percent (30%) or thirty-five percent (35%), as applicable, of the total fair market value or total voting power of the stock of the Company (the "Change in Control").

We define cash cost of goods sold per MT, a non-GAAP financial measure, as cost of goods sold less depreciation and amortization and less cost of goods sold associated with the portion of our sales that consists of deliveries of by-products of the manufacturing processes, with this total divided by our sales volume measured in MT. We believe this is an important measure as it is used by our management and Board of Directors to evaluate our costs on a per MT basis.

In evaluating EBITDA, adjusted EBITDA, adjusted net (loss) income, adjusted (loss) earnings per share, free cash flow and adjusted free cash flow you should be aware that in the future, we will incur expenses similar to the adjustments in the reconciliations presented below. Our presentations of EBITDA, adjusted EBITDA, adjusted net (loss) income adjusted (loss) earnings per share, free cash flow and adjusted free cash flow should not be construed as suggesting that our future results will be unaffected by these expenses or any unusual or non-recurring items. When evaluating our performance, you should consider EBITDA, adjusted EBITDA, adjusted net (loss) income, adjusted (loss) earnings per share, free cash flow and adjusted free cash flow alongside other measures of financial performance and liquidity, including our net (loss) income, (loss) earnings per share and cash flow from operating activities, respectively, and other GAAP measures.

The following tables reconcile our non-GAAP key financial measures to the most directly comparable GAAP measures:

Reconciliation of Net (Loss) Income to Adjusted Net (Loss) Income	Year Ended December 31,	
	2023	2022
	<i>(Dollars in thousands, except per share data)</i>	
Net (loss) income	\$ (255,250)	\$ 382,962
<u>Diluted (loss) income per common share:</u>		
Net (loss) income per share	\$ (0.99)	\$ 1.48
Weighted average common shares outstanding	257,042,843	258,791,228
Net (loss) income	\$ (255,250)	\$ 382,962
Adjustments, pre-tax:		
Pension and OPEB plan expenses (benefits) ⁽¹⁾	6,309	(7,355)
Public offerings and related expenses ⁽²⁾	—	100
Non-cash losses on foreign currency remeasurement ⁽³⁾	603	521
Stock-based compensation expense ⁽⁴⁾	4,433	2,311
Non-cash fixed asset write-off ⁽⁵⁾	—	1,068
Related party Tax Receivable Agreement adjustment ⁽⁶⁾	249	(83)
Goodwill impairment charges ⁽⁷⁾	171,117	—
Total non-GAAP adjustments pre-tax	\$ 182,711	\$ (3,438)
Income tax impact on non-GAAP adjustments ⁽⁸⁾	28,213	(142)
Adjusted net (loss) income	\$ (100,752)	\$ 379,666

- (1) Net periodic benefit cost (credit) for our pension and OPEB plans, including a mark-to-market loss (gain), representing actuarial gains and losses that result from the remeasurement of plan assets and obligations due to changes in assumptions or experience. We recognize the actuarial gains and losses in connection with the annual remeasurement in earnings in the fourth quarter of each year.
- (2) Legal, accounting, printing and registration fees associated with the public offerings and related expenses.

- (3) Non-cash losses from foreign currency remeasurement of non-operating assets and liabilities of our non-U.S. subsidiaries where the functional currency is the U.S. dollar.
- (4) Non-cash expense for stock-based compensation grants.
- (5) Non-cash fixed asset write-off recorded for obsolete assets.
- (6) Non-cash expense adjustment for future payment to our sole pre-IPO stockholder for tax assets that are expected to be utilized.
- (7) Non-cash goodwill impairment charges.
- (8) The tax impact on the non-GAAP adjustments is affected by their tax deductibility and the applicable jurisdictional tax rates.

Reconciliation of (Loss) Earnings Per Share to Adjusted (Loss) Earnings Per Share

	Year Ended December 31,	
	2023	2022
(Loss) Earnings per share	\$ (0.99)	\$ 1.48
Adjustments per share:		
Pension and OPEB plan expenses (benefits) ⁽¹⁾	0.02	(0.03)
Public offerings and related expenses ⁽²⁾	—	—
Non-cash losses on foreign currency remeasurement ⁽³⁾	—	—
Stock-based compensation expense ⁽⁴⁾	0.02	0.01
Non-cash fixed asset write-off ⁽⁵⁾	—	0.01
Related party Tax Receivable Agreement adjustment ⁽⁶⁾	—	—
Goodwill impairment charges ⁽⁷⁾	0.67	—
Total non-GAAP adjustments pre-tax per share	0.71	(0.01)
Income tax impact on non-GAAP adjustments per share ⁽⁸⁾	0.11	—
Adjusted (Loss) Earnings per share	\$ (0.39)	\$ 1.47

- (1) Net periodic benefit cost (credit) for our pension and OPEB plans, including a mark-to-market loss (gain), representing actuarial gains and losses that result from the remeasurement of plan assets and obligations due to changes in assumptions or experience. We recognize the actuarial gains and losses in connection with the annual remeasurement in earnings in the fourth quarter of each year.
- (2) Legal, accounting, printing and registration fees associated with the public offerings and related expenses.
- (3) Non-cash losses from foreign currency remeasurement of non-operating assets and liabilities of our non-U.S. subsidiaries where the functional currency is the U.S. dollar.
- (4) Non-cash expense for stock-based compensation grants.
- (5) Non-cash fixed asset write-off recorded for obsolete assets.
- (6) Non-cash expense adjustment for future payment to our sole pre-IPO stockholder for tax assets that are expected to be utilized.
- (7) Non-cash goodwill impairment charges.
- (8) The tax impact on the non-GAAP adjustments is affected by their tax deductibility and the applicable jurisdictional tax rates.

Reconciliation of Net (Loss) Income to Adjusted EBITDA

	Year Ended December 31,	
	2023	2022
	<i>(Dollars in thousands)</i>	
Net (loss) income	\$ (255,250)	\$ 382,962
Add:		
Depreciation and amortization	56,889	55,496
Interest expense	58,087	36,568
Interest income	(3,439)	(4,480)
Income taxes	(18,514)	69,356
EBITDA	(162,227)	539,902
Adjustments:		
Pension and OPEB plan expenses (benefits) ⁽¹⁾	6,309	(7,355)
Public offerings and related expenses ⁽²⁾	—	100
Non-cash losses on foreign currency remeasurement ⁽³⁾	603	521
Stock-based compensation expense ⁽⁴⁾	4,433	2,311
Non-cash fixed asset write-off ⁽⁵⁾	—	1,068
Related party Tax Receivable Agreement adjustment ⁽⁶⁾	249	(83)
Goodwill impairment charges ⁽⁷⁾	171,117	—
Adjusted EBITDA	\$ 20,484	\$ 536,464

- (1) Net periodic benefit cost (credit) for our pension and OPEB plans, including a mark-to-market loss (gain), representing actuarial gains and losses that result from the remeasurement of plan assets and obligations due to changes in assumptions or experience. We recognize the actuarial gains and losses in connection with the annual remeasurement in earnings in the fourth quarter of each year.
- (2) Legal, accounting, printing and registration fees associated with the public offerings and related expenses.
- (3) Non-cash losses from foreign currency remeasurement of non-operating assets and liabilities of our non-U.S. subsidiaries where the functional currency is the U.S. dollar.
- (4) Non-cash expense for stock-based compensation grants.
- (5) Non-cash fixed asset write-off recorded for obsolete assets.
- (6) Non-cash expense adjustment for future payment to our sole pre-IPO stockholder for tax assets that are expected to be utilized.
- (7) Non-cash goodwill impairment charges.

Reconciliation of Net Cash Provided by Operating Activities to Free Cash Flow and Adjusted Free Cash Flow

	Year Ended December 31,	
	2023	2022
	<i>(Dollars in thousands)</i>	
Net cash provided by operating activities	\$ 76,561	\$ 324,628
Capital expenditures	(54,040)	(72,165)
Free cash flow	22,521	252,463
Interest rate swap settlements ⁽¹⁾⁽²⁾	27,453	6,423
Change in Control payment ⁽³⁾	—	443
Adjusted free cash flow	\$ 49,974	\$ 259,329

- (1) Receipt of cash related to the monthly settlement of our outstanding interest rate swap contracts.
- (2) The year ended December 31, 2023 includes cash received from the termination of our interest rate swap contracts.
- (3) In the second quarter of 2021, we incurred pre-tax Change in Control charges of \$88 million as a result of the ownership of our largest stockholder, Brookfield, moving below 30% of our total shares outstanding. Of the \$88 million in pre-tax Change in Control charges, \$73 million were cash and \$15 million were non-cash. An aggregate of \$72 million of the cash charges have been paid through the fourth quarter of 2023 and an additional \$1 million will be paid in subsequent quarters, as a result of the timing of related payroll tax payments.

Reconciliation of Cost of Goods Sold to Cash Cost of Goods Sold per MT

	Year Ended December 31,	
	2023	2022
	<i>(Dollars in thousands)</i>	
Cost of goods sold	\$ 571,857	\$ 726,373
Depreciation and amortization ⁽¹⁾	50,124	48,680
Cost of goods sold - by-products and other ⁽²⁾	14,500	41,611
Cash cost of goods sold	507,233	636,082
Sales volume (in thousands of MT)	91.6	149.1
Cash cost of goods sold per MT	\$ 5,537	\$ 4,266

(1) Reflects the portion of depreciation and amortization that is recognized in cost of goods sold.

(2) Primarily reflects cost of goods sold associated with the portion of our sales that consists of deliveries of by-products of the manufacturing processes.

Results of Operations

Results of operations for 2023 as compared to 2022

The tables presented in our period-over-period comparisons summarize our Consolidated Statements of Operations and illustrate key financial indicators used to assess the consolidated financial results. Throughout our Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A"), insignificant changes may be deemed not meaningful and are generally excluded from the discussion.

(in thousands)	Year Ended December 31,		Increase/ Decrease	% Change
	2023	2022		
Net sales	\$ 620,500	\$ 1,281,250	\$ (660,750)	(52)%
Cost of goods sold	571,857	726,373	(154,516)	(21)%
Lower of cost or market inventory valuation adjustment	12,431	—	12,431	NM
Gross profit	36,212	554,877	(518,665)	(93)%
Research and development	5,520	3,641	1,879	52 %
Selling and administrative expenses	74,012	76,977	(2,965)	(4)%
Goodwill impairment charges	171,117	—	171,117	NM
Operating (loss) income	(214,437)	474,259	(688,696)	(145)%
Other expense (income), net	4,679	(10,147)	(14,826)	(146)%
Interest expense	58,087	36,568	21,519	59 %
Interest income	(3,439)	(4,480)	(1,041)	(23)%
(Loss) income before (benefit) provision for income taxes	(273,764)	452,318	(726,082)	(161)%
(Benefit) provision for income taxes	(18,514)	69,356	(87,870)	(127)%
Net (loss) income	<u>\$ (255,250)</u>	<u>\$ 382,962</u>	<u>\$ (638,212)</u>	(167)%

NM = Not Meaningful.

Net sales decreased \$660.8 million, or 52%, compared to the prior year, primarily reflecting lower sales volume driven by the residual impact of the temporary suspension of our operations in Monterrey, Mexico in late 2022 and industry-wide softness in graphite electrode demand. A shift in the mix of our business from LTA volume to non-LTA volume and lower weighted-average realized prices also contributed to the decline in net sales.

Cost of goods sold decreased \$154.5 million, or 21%, in 2023 compared to 2022, primarily reflecting lower sales volume. Reduced sales volume was partially offset by an increase in our costs on a per MT basis as higher priced inventory was sold during 2023, reflecting the full-year impact of raw material, energy and freight cost increases that occurred throughout

2022. In addition, due to reduced production levels, we recorded fixed manufacturing costs of \$62.4 million and \$16.0 million that would have otherwise been inventoried for years ended December 31, 2023 and 2022, respectively.

Lower of cost or market (“LCM”) inventory valuation adjustment represents a write-down of inventory recorded in 2023. The net realizable value of certain of our inventories fell below their carrying amounts as of December 31, 2023, and as a result, we recorded a LCM inventory valuation adjustment of \$12.4 million in order to state our inventories at market.

Selling and administrative expenses decreased \$3.0 million, or 4%, in 2023 compared to 2022, primarily due to reduced selling expenses driven by reduced sales volumes.

Goodwill impairment charges includes non-recurring charges relating to goodwill. Refer to Note 6, “Goodwill and Other Intangible Assets,” to the Consolidated Financial Statements for additional discussion.

Other expense (income), net was expense of \$4.7 million in 2023, compared to income of \$10.1 million in 2022. 2023 included mark-to-market losses on our pension and OPEB plans of \$3.0 million, while 2022 included mark-to-market gains of \$9.6 million.

Interest expense increased \$21.5 million, or 59%, in 2023 compared to 2022 primarily due to higher interest incurred on debt associated with our 2023 Senior Secured Notes that carry a fixed interest rate of 9.875%. In addition, there was a \$6.4 million reduction of net gains recognized on our interest rate swaps in 2023, compared to 2022. See Note 7, “Interest Expense,” to the Consolidated Financial Statements for additional details.

(Benefit) provision for income taxes. The following table summarizes the (benefit) provision for income taxes in 2023 and 2022:

	<u>Year Ended December 31, 2023</u>	<u>Year Ended December 31, 2022</u>
(Benefit) provision for income taxes	\$ (18,514)	\$ 69,356
(Loss) income before (benefit) provision for income taxes	\$ (273,764)	\$ 452,318
Effective income tax rate	6.8 %	15.3 %

The provision for income taxes represented a benefit for the year ended December 31, 2023 compared to an expense for the year ended December 31, 2022. Total pre-tax earnings shifted from a profit position to a loss position and the Company recorded a goodwill impairment charge that is not tax deductible.

Currency Translation and Transactions

We translate the assets and liabilities of our non-U.S. subsidiaries into U.S. dollars for consolidation and reporting purposes in accordance with the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) 830, *Foreign Currency Matters*. Foreign currency translation adjustments are generally recorded as part of stockholders’ equity and identified as part of accumulated other comprehensive loss on the Consolidated Balance Sheets until such time as their operations are sold or substantially or completely liquidated.

We account for our Russian, Swiss, Luxembourg, United Kingdom and Mexican subsidiaries using the U.S. dollar as the functional currency, as sales and purchases are predominantly U.S. dollar-denominated. Our remaining subsidiaries use their local currency as their functional currency.

We also record foreign currency transaction gains and losses from non-permanent intercompany balances as part of cost of goods sold and other expense (income), net.

Significant changes in currency exchange rates impacting us are described under “—Effects of Changes in Currency Exchange Rates” and “—Results of Operations” in this section.

Effects of Changes in Currency Exchange Rates

When the currencies of non-U.S. countries in which we have a manufacturing facility decline (or increase) in value relative to the U.S. dollar, this has the effect of reducing (or increasing) the U.S. dollar equivalent cost of goods sold and other expenses with respect to those facilities. In certain countries in which we have manufacturing facilities, and in certain export

markets, we sell in currencies other than the U.S. dollar. Accordingly, when these currencies increase (or decline) in value relative to the U.S. dollar, this has the effect of increasing (or reducing) net sales. The result of these effects is to increase (or decrease) operating and net (loss) income.

Many of the non-U.S. countries in which we have a manufacturing facility have been subject to significant economic and political changes, which have significantly impacted currency exchange rates. We cannot predict changes in currency exchange rates in the future or whether those changes will have net positive or negative impacts on our net sales, cost of goods sold or net (loss) income.

The impact of these changes in the average exchange rates of other currencies against the U.S. dollar on our net sales was an increase of \$1.5 million in 2023, a decrease of \$11.7 million in 2022 and an increase of \$5.5 million in 2021.

The impact of these changes in the average exchange rates of other currencies against the U.S. dollar on our cost of goods sold was an increase of \$12.4 million in 2023, a decrease of \$20.6 million in 2022 and an increase of \$10.1 million in 2021.

As part of our cash management, we also have intercompany loans between our subsidiaries. These loans are deemed to be temporary and, as a result, remeasurement gains and losses on these loans are recorded as currency gains or losses in other expense (income), net on the Consolidated Statements of Operations.

We have in the past and may in the future use various financial instruments to manage certain exposures to risks caused by currency exchange rate changes, as described under "Quantitative and Qualitative Disclosures about Market Risk."

Liquidity and Capital Resources

Our sources of funds have consisted principally of cash flow from operations and debt, including our credit facilities (subject to continued compliance with the financial covenants and representations). Our uses of those funds (other than for operations) have consisted principally of dividends, capital expenditures, scheduled debt repayments, optional debt repayments, stock repurchases and general purposes. Disruptions in the U.S. and international financial markets could adversely affect our liquidity and the cost and availability of financing to us in the future.

We believe that we have adequate liquidity to meet our needs for at least the next twelve months and for the foreseeable future thereafter. As of December 31, 2023, we had liquidity of \$289.3 million, consisting of \$112.4 million of availability under our 2018 Revolving Credit Facility, after giving effect to \$3.1 million of letters of credit, and cash and cash equivalents of \$176.9 million. As any borrowings under the 2018 Revolving Credit Facility remain subject to compliance with the financial covenant thereunder (see below and Note 5, "Debt and Liquidity"), our operating performance as of December 31, 2023 resulted in a reduction of the availability under the facility. We do not anticipate the need to borrow against our 2018 Revolving Credit Facility. We had gross long-term debt of \$950.0 million and short-term debt of \$0.1 million as of December 31, 2023. As of December 31, 2022, we had liquidity of \$461.6 million, consisting of \$327.0 million available under our 2018 Revolving Credit Facility, after giving effect to \$3.0 million of letters of credit, and cash and cash equivalents of \$134.6 million. We had gross long-term debt of \$933.8 million and short-term debt of \$0.1 million as of December 31, 2022.

As of December 31, 2023 and 2022, \$75.3 million and \$92.3 million, respectively, of our cash and cash equivalents were located outside of the U.S. We repatriate funds from our foreign subsidiaries through dividends. All of our subsidiaries face the customary statutory limitation that distributed dividends do not exceed the amount of retained and current earnings. Upon repatriation to the United States, the foreign source portion of dividends we receive from our foreign subsidiaries is not subject to U.S. federal income tax because the amounts were either previously taxed or are exempted from tax by Section 245A of the Internal Revenue Service Code (the "Code").

Cash flow and plans to manage liquidity. Our cash flow typically fluctuates significantly between quarters due to various factors. These factors include customer order patterns, fluctuations in working capital requirements, timing of tax and interest payments and other factors. During the second quarter of 2023, GrafTech Global Enterprises Inc. issued \$450 million of 2023 Senior Secured Notes. This transaction extended our debt maturities to 2028 as the net proceeds from this offering were used to repay the debt outstanding under the 2018 Term Loan Facility that was scheduled to mature in 2025 under our credit agreement. We had positive cash flow from operating activities during each of the last three years.

Uses of Liquidity

In July 2019, our Board of Directors authorized a program to repurchase up to \$100.0 million of our outstanding common stock. In November 2021, our Board of Directors authorized the repurchase of an additional \$150.0 million of stock repurchases under this program. We may purchase shares from time to time on the open market, including under Rule 10b5-1 and/or Rule 10b-18 plans. The amount and timing of repurchases are subject to a variety of factors including liquidity, stock

price, applicable legal requirements, other business objectives and market conditions. In 2023, we did not repurchase any shares of our common stock. As of December 31, 2023, we had \$99.0 million remaining under our stock repurchase authorization.

Throughout 2022 and through the second quarter of 2023, we paid a quarterly dividend of \$0.01 per share. On August 2, 2023, the Company's Board of Directors elected to suspend the quarterly cash dividend of \$0.01 per share. There can be no assurance that we will resume paying dividends in the future in these amounts or at all. Our Board of Directors may change the timing and amount of any future dividend payments, if reinstated, or eliminate the payment of future dividends in its sole discretion, without any prior notice to our stockholders. Our ability to pay dividends will depend upon many factors, including our financial position and liquidity, results of operations, legal requirements, restrictions that may be imposed by the terms of our current and future credit facilities and other debt obligations and other factors deemed relevant by our Board of Directors.

Potential uses of our liquidity (other than operations) include capital expenditures, debt repayments, dividends, share repurchases and other general purposes. Any such potential uses of our liquidity may be funded by existing available liquidity, the incurrence of new secured or unsecured loans or capital market issuances. An improving economy, while resulting in improved results of operations, could increase our cash requirements to purchase inventories, make capital expenditures and fund payables and other obligations until increased accounts receivable are converted into cash. A downturn, including any recession or potential resurgence of a global pandemic, could significantly and negatively impact our results of operations and cash flows, which, coupled with increased borrowings, could negatively impact our credit ratings, our ability to comply with debt covenants, our ability to secure additional financing and the cost and availability of such financing.

In order to seek to reduce our credit risks, we may reduce our sales of, or refuse to sell (except for prepayment, cash on delivery or under letters of credit or parent guarantees), our products to some customers and potential customers. Our unrecovered trade receivables worldwide have not been material during the last two years individually or in the aggregate.

We manage our capital expenditures by taking into account quality, plant reliability, safety, environmental and regulatory requirements, prudent or essential maintenance requirements, global economic conditions, available capital resources, liquidity, long-term business strategy and return on invested capital for the relevant expenditures, cost of capital and return on invested capital of the Company as a whole among other factors. Capital expenditures totaled \$54.0 million in 2023. We anticipate capital expenditures between \$35.0 million and \$40.0 million in 2024.

In the event that operating cash flows fail to provide sufficient liquidity to meet our business needs, including capital expenditures, any such shortfall would be expected to be made up by borrowings under our 2018 Revolving Credit Facility, to the extent available. The Company also maintains access to credit and capital markets and may incur additional debt or issue equity securities from time to time, which may provide an additional source of liquidity. However, there can be no guarantee that we would be able to access the credit or capital markets on commercially satisfactory terms or at all.

Related Party Transactions

We have engaged in transactions with affiliates or related parties during 2023 and 2022 and we expect to continue to do so in the future. These transactions include ongoing obligations under the Tax Receivable Agreement, stockholders rights agreement, as amended, and registration rights agreement, each with Brookfield.

Cash flows

The following table summarizes our cash flow activities:

	Year Ended December 31,	
	2023	2022
	<i>(Dollars in thousands)</i>	
Cash flow provided by (used in):		
Operating activities	\$ 76,561	\$ 324,628
Investing activities	(53,820)	(71,970)
Financing activities	18,713	(176,267)
Net change in cash and cash equivalents	<u>\$ 41,454</u>	<u>\$ 76,391</u>

Operating activities

Cash provided by operating activities totaled \$76.6 million in 2023 versus \$324.6 million in the prior-year period. The decrease in operating cash flow was primarily due to a \$638.2 million decrease in net income, which included a non-cash goodwill impairment charge of \$171.1 million in 2023. Partially offsetting reduced net income was an increase in cash provided

by working capital of \$207.1 million. Cash flow provided by inventories increased \$261.4 million, compared to 2022, primarily driven by reduced quantities on hand. Cash flow provided by accounts receivable decreased \$14.8 million, compared to 2022, primarily due to reduced sales volume. Cash flow used for accounts payable and accruals was \$23.9 million in 2023 compared to a source of cash of \$7.7 million in 2022 primarily due to a reduced amount of purchases in 2023 versus 2022.

Investing activities

Net cash used in investing activities was \$53.8 million in the year ended December 31, 2023 compared to \$72.0 million in the year ended December 31, 2022 primarily driven by decreased capital expenditures.

Financing activities

Net cash provided by financing activities was \$18.7 million in 2023 compared to \$176.3 million of net cash used in financing activities in 2022. The change was primarily due to the issuance of \$450.0 million of 2023 Senior Secured Notes net of an \$11.4 million original issue discount, the absence of \$60.0 million of stock repurchases in 2023 compared to 2022 and \$21.0 million of increased cash received from the settlement of interest rate swaps, partially offset by a \$323.7 million increase in cash used to repay the 2018 Term Loan Facility.

Financing transactions

2018 Term Loan and 2018 Revolving Credit Facility

In February 2018, the Company entered into a credit agreement (as amended, the "2018 Credit Agreement"), which provided for (i) a \$2,250 million senior secured term facility (the "2018 Term Loan Facility") after giving effect to the June 2018 amendment (the "First Amendment") that increased the aggregate principal amount of the 2018 Term Loan Facility from \$1,500 million to \$2,250 million and (ii) a \$330 million senior secured revolving credit facility after giving effect to the Third Amendment that increased the revolving commitments under the 2018 Credit Agreement by \$80 million from \$250 million (the "2018 Revolving Credit Facility"). GrafTech Finance Inc. ("GrafTech Finance") was the sole borrower under the 2018 Term Loan Facility while GrafTech Finance, GrafTech Switzerland SA ("Swissco") and GrafTech Luxembourg II S.à.r.l. ("Luxembourg Holdco" and, together with GrafTech Finance and Swissco, the "Co-Borrowers") are co-borrowers under the 2018 Revolving Credit Facility. The 2018 Revolving Credit Facility matures on May 31, 2027. The net proceeds from the 2023 Senior Secured Notes (as defined below) were used to repay outstanding borrowings under our 2018 Term Loan Facility. As of December 31, 2023 and 2022, the availability under our 2018 Revolving Credit Facility was \$112.4 million and \$327.0 million, respectively. As any borrowings under the 2018 Revolving Credit Facility remain subject to compliance with the financial covenant thereunder, our operating performance as of December 31, 2023 resulted in a reduction of the availability under the facility. As of December 31, 2023 and December 31, 2022, there were no borrowings outstanding on the 2018 Revolving Credit Facility and there was \$3.1 million and \$3.0 million of letters of credit drawn against the 2018 Revolving Credit Facility as of each date, respectively.

The 2018 Revolving Credit Facility bears interest, at our option, at a rate equal to either (i) the Adjusted Term SOFR Rate, and Adjusted EURIBOR Rate (each, as defined in the 2018 Credit Agreement), plus an applicable margin initially equal to 3.00% per annum or (ii) the ABR Rate, plus an applicable margin initially equal to 2.00% per annum, in each case with two 25 basis point step downs based on achievement of certain senior secured first lien net leverage ratios. In addition, we are required to pay a quarterly commitment fee on the unused commitments under the 2018 Revolving Credit Facility in an amount equal to 0.25% per annum.

The 2018 Revolving Credit Facility is guaranteed by each of our domestic subsidiaries, subject to certain customary exceptions, and by GrafTech Luxembourg I S.à.r.l., a Luxembourg *société à responsabilité limitée* and an indirect wholly owned subsidiary of GrafTech, Luxembourg HoldCo, and Swissco (collectively, the "Guarantors") with respect to all obligations under the 2018 Revolving Credit Facility of each of our foreign subsidiaries that is a Controlled Foreign Corporation (within the meaning of Section 956 of the Internal Revenue Code of 1986, as amended from time to time (the "Code")).

All obligations under the 2018 Revolving Credit Facility are secured, subject to certain exceptions, by: (i) a pledge of all of the equity securities of each domestic Guarantor and of each other direct, wholly owned domestic subsidiary of GrafTech and any Guarantor, (ii) a pledge on no more than 65% of the equity interests of each subsidiary that is a Controlled Foreign Corporation (within the meaning of Section 956 of the Code), and (iii) security interests in, and mortgages on, personal property and material real property of each domestic Guarantor, subject to permitted liens and certain exceptions specified in the 2018 Revolving Credit Facility. The obligations of each foreign subsidiary of GrafTech that is a Controlled Foreign Corporation under the 2018 Revolving Credit Facility are secured by (i) a pledge of all of the equity securities of each Guarantor that is a Controlled Foreign Corporation and of each direct, wholly owned subsidiary of any Guarantor that is a Controlled Foreign

Corporation, and (ii) security interests in certain receivables and personal property of each Guarantor that is a Controlled Foreign Corporation, subject to permitted liens and certain exceptions specified in the 2018 Revolving Credit Facility.

The 2018 Revolving Credit Facility contains customary representations and warranties and customary affirmative and negative covenants applicable to GrafTech and restricted subsidiaries, including, among other things, restrictions on indebtedness, liens, investments, fundamental changes, dispositions, and dividends and other distributions. The 2018 Revolving Credit Facility contains a financial covenant that requires GrafTech to maintain a senior secured first lien net leverage ratio not greater than 4.00:1.00 when the aggregate principal amount of borrowings under the 2018 Revolving Credit Facility and outstanding letters of credit issued under the 2018 Revolving Credit Facility (except for undrawn letters of credit in an aggregate amount equal to or less than \$35 million), taken together, exceed 35% of the total amount of commitments under the 2018 Revolving Credit Facility. The 2018 Revolving Credit Facility also contains customary events of default. We were in compliance with all of our debt covenants as of December 31, 2023 and 2022.

2020 Senior Secured Notes

In December 2020, GrafTech Finance issued \$500.0 million aggregate principal amount of the 2020 Senior Secured Notes at an issue price of 100% of the principal amount thereof in a private offering to qualified institutional buyers in accordance with Rule 144A under the Securities Act of 1933 (the "Securities Act") and to non-U.S. persons outside the United States under Regulation S under the Securities Act.

The 2020 Senior Secured Notes are guaranteed on a senior secured basis by the Company and all of its existing and future direct and indirect U.S. subsidiaries that guarantee, or borrow under, the 2018 Revolving Credit Facility, other than GrafTech Finance. The 2020 Senior Secured Notes are secured on a pari passu basis by the collateral securing the debt under the 2018 Revolving Credit Facility and the 2023 Senior Secured Notes. GrafTech Finance, the Company and the other guarantors granted a security interest in such collateral, consisting of substantially all of their respective assets, as security for the obligations of GrafTech Finance, the Company and the other guarantors under the 2020 Senior Secured Notes and the indenture governing the 2020 Senior Secured Notes (the "2020 Indenture") pursuant to a collateral agreement, dated as of December 22, 2020 (the "Collateral Agreement"), among GrafTech Finance, the Company, the other subsidiaries of the Company named therein as grantors and U.S. Bank National Association, as collateral agent.

The 2020 Senior Secured Notes bear interest at the rate of 4.625% per annum, which accrues from December 22, 2020 and is payable in arrears on June 15 and December 15 of each year, commencing on June 15, 2021. The 2020 Senior Secured Notes will mature on December 15, 2028, unless earlier redeemed or repurchased, and are subject to the terms and conditions set forth in the 2020 Indenture.

GrafTech Finance may redeem some or all of the 2020 Senior Secured Notes at the redemption prices and on the terms specified in the 2020 Indenture. If the Company or GrafTech Finance experiences specific kinds of changes in control or the Company or any of its restricted subsidiaries sells certain of its assets, then GrafTech Finance must offer to repurchase the 2020 Senior Secured Notes on the terms set forth in the 2020 Indenture.

The 2020 Indenture contains certain covenants that, among other things, limit the Company's ability, and the ability of certain of its subsidiaries, to incur or guarantee additional indebtedness or issue preferred stock, pay distributions on, redeem or repurchase capital stock or redeem or repurchase subordinated debt, incur or suffer to exist liens securing indebtedness, make certain investments, engage in certain transactions with affiliates, consummate certain asset sales and effect a consolidation or merger, or sell, transfer, lease or otherwise dispose of all or substantially all assets. The 2020 Indenture contains events of default customary for agreements of its type (with customary grace periods, as applicable) and provides that, upon the occurrence of an event of default arising from certain events of bankruptcy or insolvency with respect to the Company or GrafTech Finance, all outstanding 2020 Senior Secured Notes will become due and payable immediately without further action or notice. If any other type of event of default occurs and is continuing, then the trustee or the holders of at least 30% in principal amount of the then outstanding 2020 Senior Secured Notes may declare all of the 2020 Senior Secured Notes to be due and payable immediately. We were in compliance with all of our debt covenants as of December 31, 2023 and 2022.

2023 Senior Secured Notes

In June 2023, GrafTech Global Enterprises Inc. issued \$450.0 million aggregate principal amount of 2023 Senior Secured Notes, including \$11.4 million of original issue discount. The 2023 Senior Secured Notes were issued at an issue price of 97.456% of the principal amount thereof in a private offering to qualified institutional buyers in accordance with Rule 144A under the Securities Act and to non-U.S. persons outside the United States under Regulation S under the Securities Act.

The 2023 Senior Secured Notes are or will be, as applicable, guaranteed on a senior secured basis by (i) GrafTech Finance, (ii) the Company and all of its direct and indirect U.S. subsidiaries that, as of the date of the 2023 Senior Secured

Notes, guarantee (or are borrowers of) the debt under the 2018 Revolving Credit Facility, other than GrafTech Global Enterprises Inc., and (iii) all of the Company's future direct and indirect subsidiaries that guarantee (or are borrowers of) debt under the 2018 Revolving Credit Facility, the 2020 Senior Secured Notes and certain other future indebtedness, in each case, other than certain excluded foreign subsidiaries and GrafTech Global Enterprises Inc. The 2023 Senior Secured Notes and the note guarantees are secured on a first-priority basis by liens on the collateral of GrafTech Global Enterprises Inc. and the U.S. guarantors securing the debt under the 2018 Revolving Credit Facility and the 2020 Senior Secured Notes, on an equal and ratable basis with the debt under the 2018 Revolving Credit Facility and 2020 Senior Secured Notes, in each case subject to permitted liens and certain exceptions, pursuant to a collateral agreement, dated as of June 26, 2023 among GrafTech Global Enterprises Inc., the Company, the other subsidiaries of the Company named therein as grantors and U.S. Bank Trust Company, National Association, as collateral agent.

The 2023 Senior Secured Notes bear interest at a rate of 9.875% per annum which accrued from June 26, 2023 and is payable in arrears on June 15 and December 15 of each year, commencing on December 15, 2023. The 2023 Senior Secured Notes will mature on December 15, 2028, unless earlier redeemed or repurchased, and are subject to the terms of the indenture governing the 2023 Senior Secured Notes (the "2023 Indenture").

GrafTech Global Enterprises Inc. may redeem some or all of the 2023 Senior Secured Notes at the redemption prices and on the terms specified in the 2023 Indenture. If the Company or GrafTech Global Enterprises experiences specific kinds of changes in control or the Company or any of its restricted subsidiaries sells certain of its assets, then GrafTech Global Enterprises Inc. must offer to repurchase the 2023 Senior Secured Notes on the terms set forth in the 2023 Indenture.

The 2023 Indenture contains certain covenants that, among other things, limit the Company's ability, and the ability of certain of its subsidiaries, to incur or guarantee additional indebtedness or issue preferred stock, pay distributions on, redeem or repurchase capital stock or redeem or repurchase subordinated debt, incur or suffer to exist liens securing indebtedness, make certain investments, engage in certain transactions with affiliates, consummate certain asset sales and effect a consolidation or merger, or sell, transfer, lease or otherwise dispose of all or substantially all assets. The 2023 Indenture contains events of default customary for agreements of its type (with customary grace periods, as applicable) and provides that, upon the occurrence of an event of default arising from certain events of bankruptcy or insolvency with respect to the Company or GrafTech Global Enterprises Inc., all outstanding 2023 Senior Secured Notes will become due and payable immediately without further action or notice. If any other type of event of default occurs and is continuing, then the trustee or the holders of at least 30% in principal amount of the then outstanding 2023 Senior Secured Notes may declare all of the 2023 Senior Secured Notes to be due and payable immediately. We were in compliance with all of our debt covenants as of December 31, 2023.

Material Cash Requirements. The following table summarizes our contractual and other material cash obligations as of December 31, 2023:

	Payments Due by Year Ending December 31,				
	Total	2024	2025-2026	2027-2028	2029+
	<i>(Dollars in Thousands)</i>				
Contractual and Other Obligations					
Long-term debt (a)	\$ 950,139	\$ 139	\$ —	\$ 950,000	\$ —
Interest on long-term debt (b)	334,999	67,563	135,126	132,310	—
Total contractual obligations	1,285,138	67,702	135,126	1,082,310	—
Pension plan contributions (c)	5,386	5,386	—	—	—
Committed purchase obligations (d)	21,000	7,000	14,000	—	—
Related party Tax Receivable Agreement (e)	11,154	5,417	5,737	—	—
Total contractual and other obligations (f)	<u>\$ 1,322,678</u>	<u>\$ 85,505</u>	<u>\$ 154,863</u>	<u>\$ 1,082,310</u>	<u>\$ —</u>

- (a) Represents our total debt from our 2020 Senior Secured Notes with an outstanding balance of \$500.0 million due in 2028 and our 2023 Senior Secured Notes with an outstanding balance of \$450.0 million due 2028 (see "Financing transactions" in this section for full details of these obligations).
- (b) Represents estimated interest payments on the 2020 and 2023 Senior Secured Notes through December 15, 2028.
- (c) Represents estimated contributions under our defined benefit pension plans. Contributions in future periods will be dependent upon regulatory requirements, the plans' funded ratios, plan investment performance, discount rates, actuarial assumptions, plan amendments, our contribution objectives and other factors. We anticipate funding those contributions with cash on hand or cash generated from operations. It is not practical to estimate the required contributions beyond 2024 at the present time.
- (d) Represents committed purchases of raw materials.

- (e) Represents Brookfield's right to receive future payments from us for 85% of the amount of cash savings, if any, in U.S. federal income tax and Swiss tax that we and our subsidiaries realize as a result of the utilization of certain tax assets attributable to periods prior to our IPO, including certain federal NOLs, previously taxed income under Section 959 of the Code, foreign tax credits, and certain NOLs in Swissco. In addition, we will pay interest on the payments we will make to Brookfield with respect to the amount of these cash savings from the due date (without extensions) of our tax return where we realize these savings to the payment date at a rate equal to the one-month period secured overnight financing rate administered by the Federal Reserve Bank of New York plus 1.10% per annum. The term of the Tax Receivable Agreement commenced on April 23, 2018 and will continue until there is no potential for any future tax benefit payments.
- (f) In addition, letters of credit of \$3.1 million were issued under the 2018 Revolving Credit Facility as of December 31, 2023.

Costs Relating to Protection of the Environment

We have been and are subject to stringent environmental protection laws and regulations. In addition, we have an on-going commitment to rigorous internal environmental protection standards. Environmental considerations are part of all significant operating and capital expenditure decisions. The following table sets forth certain information regarding environmental expenses and capital expenditures.

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Expenses relating to environmental protection	\$ 12,085	\$ 22,395	\$ 16,914
Capital expenditures related to environmental protection	7,588	6,012	7,014

Critical accounting policies

Critical accounting policies are those that require difficult, subjective or complex judgments by management, often as a result of the need to make estimates about the effect of matters that are inherently uncertain and may change in subsequent periods. We use and rely on estimates in determining the economic useful lives of our assets, obligations under our employee benefit plans, provisions for doubtful accounts, provisions for restructuring charges and contingencies, tax valuation allowances, evaluation of goodwill, other intangible assets, pension and OPEB and various other recorded or disclosed amounts, including inventory valuations. Estimates require us to use our judgment. While we believe that our estimates for these matters are reasonable, if the actual amount is significantly different than the estimated amount, our assets, liabilities or results of operations may be overstated or understated. The following accounting policies are deemed to be critical.

Goodwill. Goodwill arises from the purchase price for acquired businesses exceeding the fair value of tangible and intangible assets acquired less assumed liabilities. The Company has two reporting units, Graphite Electrodes and Needle Coke. The acquisition of the Company by Brookfield in 2015 generated a goodwill amount of \$171.1 million, which was allocated entirely to the Graphite Electrode reporting unit.

Goodwill is tested for impairment annually as of December 31 and between annual tests whenever events or circumstances indicate that the carrying value of a reporting unit may exceed its fair value. When reviewing goodwill for impairment, we first perform a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value.

In performing a qualitative assessment, we consider business conditions and other factors including, but not limited to (i) adverse industry or economic trends, (ii) lower projections that may impact future operating results, (iii) sustained decline in our share price and (iv) overall financial performance and other events affecting the reporting units. If we conclude that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then a quantitative impairment test is performed by estimating the fair value of the reporting unit and comparing it to its carrying value. If the carrying value of a reporting unit exceeds its fair value, we would record an impairment charge equal to the excess of the carrying value of the reporting unit over its fair value.

Application of the goodwill impairment test requires judgment, including the identification of reporting units, assignment of assets and liabilities to reporting units, assignment of goodwill to reporting units and determination of the fair value of each reporting unit. We estimate the fair value of each reporting unit using a discounted cash flow methodology under the income approach. This requires us to use significant judgment including estimation of future cash flows, which is based

upon relevant market data, internal forecasts, estimation of the long-term growth for our business and determination of the weighted average cost of capital for purposes of establishing a discount rate.

For the 2023 annual impairment testing, the Company performed a quantitative assessment of the fair value of the reporting unit, using a combination of the income approach and the market approach (Level 3 in the fair value hierarchy) from a market participant's perspective. The valuation of the Graphite Electrode reporting unit is performed with cash flows that are adjusted to present this reporting unit as purchasing petroleum needle coke entirely from third parties at anticipated market prices.

The income approach was based on discounted projected debt-free cash flows for the graphite electrode reporting unit. The forecast of cash flows included several assumptions regarding future sales growth, revenues, earnings before interest, taxes, depreciation and amortization ("EBITDA"), capital expenditures and working capital changes. In addition to the estimates of future cash flows, the income approach involves the determination of the discount rate based upon market participant's assumptions.

The market approach fair value was based on valuation multiples that were applied to the graphite electrode reporting unit's actual and projected EBITDA. The multiples were derived under the guideline public company method from analyzing market multiples of EBITDA for a group of comparable public companies. The techniques used in the Company's assessment incorporate a number of assumptions that the Company believes to be reasonable and to reflect known market conditions at the measurement date.

Key assumptions relate to customer demand and sales growth, graphite electrode and needle coke pricing trends, operating costs and capital expenditures. Assumptions in estimating future cash flows are subject to a degree of judgement.

The testing determined that the fair value of the Graphite Electrode reporting unit was less than its carrying amount by more than the amount of goodwill. As a result, we recorded a full impairment charge of \$171.1 million, which was recorded in Goodwill impairment charges in the Consolidated Statements of Income. The goodwill impairment was caused primarily by reduced sales of graphite electrodes due to softening demand and the deterioration of the electrode spot pricing.

For the 2022 and 2021 annual goodwill impairment testing, the Company performed a qualitative assessment first to determine whether it was more likely than not that the fair value of the Graphite Electrode reporting unit was less than its carrying amount. We assessed relevant events and circumstances, including industry, market and macroeconomic conditions, as well as Company and reporting unit-specific factors. Based on this review, we determined that it was not more likely than not that the fair value of the Graphite Electrode reporting unit was less than its carrying amount and concluded that the quantitative goodwill impairment test was not required. No impairment of goodwill resulted from our annual impairment tests in 2022 and 2021.

Refer to Note 1, "Business and Summary of Significant Accounting Policies" and Note 6, "Goodwill and Other Intangible Assets" to the Consolidated Financial Statements for information regarding our goodwill impairment testing.

Employee benefit plans. We sponsor various retirement and pension plans, including defined benefit and defined contribution plans and post-employment benefit plans that cover most employees worldwide. Excluding the defined contribution plans, accounting for these plans requires assumptions as to the discount rate, expected return on plan assets, expected salary increases and health care cost trend rate. See Note 11, "Retirement Plans and Post-employment Benefits," to the Consolidated Financial Statements for further details.

Impairments of long-lived assets. We may record impairment losses on long-lived assets used in operations when events and circumstances indicate that the assets might be impaired and the future undiscounted cash flows estimated to be generated by those assets are less than the carrying amount of those assets. Assets to be disposed are reported at the lower of the carrying amount or fair value less estimated costs to sell. Estimates of the future cash flows are subject to significant uncertainties and assumptions. If the actual value is significantly less than the estimated fair value, our assets may be overstated. Future events and circumstances, some of which are described below, may result in an impairment charge:

- new technological developments that provide significantly enhanced benefits over our current technology;
- significant negative economic or industry trends;
- changes in our business strategy that alter the expected usage of the related assets; and
- future economic results that are below our expectations used in the current assessments.

As of December 31, 2023, we tested our long-lived assets for impairment and determined that their carrying value was recoverable.

Accounting for income taxes. We are required to estimate our income taxes in each of the jurisdictions in which we operate. This process requires us to make the following assessments:

- estimate our actual current tax liability in each jurisdiction;
- estimate our temporary differences resulting from differing treatment of items for tax and accounting purposes (which result in deferred tax assets and liabilities that we include within the Consolidated Balance Sheets); and
- assess the likelihood that our deferred tax assets will be recovered from future taxable income and, if we believe that recovery is not more likely than not, a valuation allowance is established.

If our estimates are incorrect, our deferred tax assets or liabilities may be overstated or understated.

As of December 31, 2023, we had a valuation allowance of \$9.0 million against certain deferred tax assets. Our losses in certain tax jurisdictions in recent periods represented sufficient negative evidence to require a full valuation allowance. We also have a partial valuation allowance related to certain U.S. state net operating losses where realizability is unlikely due to discontinued operations in these states. Until we determine that we will generate sufficient jurisdictional taxable income to realize our net operating losses and deferred tax assets, we continue to maintain a valuation allowance.

Related-party Tax Receivable Agreement. On April 23, 2018, the Company entered into the Tax Receivable Agreement, which provides Brookfield, as the sole pre-IPO stockholder, the right to receive future payments from us for 85% of the amount of cash savings, if any, in U.S. federal income tax and Swiss tax that we and our subsidiaries realize as a result of the utilization of certain tax assets attributable to periods prior to our IPO, including the pre-IPO Tax Assets. In addition, we will pay interest on the payments we will make to Brookfield with respect to the amount of these cash savings from the due date (without extensions) of our tax return where we realize these savings to the payment date at a rate equal to the one-month period secured overnight financing rate administered by the Federal Reserve Bank of New York plus 1.10%. The term of the Tax Receivable Agreement commenced on April 23, 2018 and will continue until there is no potential for any future tax benefit payments.

The calculation of the Tax Receivable Agreement liability requires significant judgment with regards to the assumptions underlying the forecast of future taxable income, in total and by jurisdiction, as well as their timing.

Revenue recognition. Revenue is recognized when a customer obtains control of promised goods, in an amount that reflects the consideration which we expect to receive in exchange for those goods.

To determine revenue recognition for arrangements that we determine are within the scope of ASC 606, the following five steps are performed: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, we assess the goods or services promised within each contract and determine those that are performance obligations, and assess whether each promised good or service is distinct. We then recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Our revenue streams primarily consist of LTAs and short-term purchase orders (deliveries within the year) directly with steel manufacturers. The promises of delivery of graphite electrodes represent the distinct performance obligations to which the contract consideration is allocated, based upon the electrode stand-alone selling prices for the class of customers at the time the agreements are executed. The performance obligations are considered to be satisfied at a point in time when control of the electrodes has been transferred to the customer. The Company has elected to treat the transportation of the electrodes from our premises to the customer's facilities as a fulfillment activity, and outbound freight cost is accrued when the graphite electrode performance obligation is satisfied. Any variable consideration is recognized up to its unconstrained amount (i.e., up to the amount for which it is probable that a significant reversal of the variable revenue will not happen).

Revenue recognition requires the estimation of the electrode stand-alone selling price, using a variety of inputs, from market observable information to internal pricing guidelines. The estimate of stand-alone selling price on the various classes of contracts is the basis for the allocation of revenue amongst periods for new and modified contracts. Historically the amount of contract assets and liabilities resulting from these estimates has been immaterial. See Note 2, "Revenue from Contracts with Customers," to the Consolidated Financial Statements for additional information.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risks, primarily from changes in interest rates, currency exchange rates, energy commodity prices and commercial energy rates. From time to time, we enter into transactions that have been authorized according to documented policies and procedures in order to manage these risks. These transactions primarily relate to the financial instruments described below. Since the counterparties to these financial instruments are large commercial banks and similar financial institutions, we do not believe that we are exposed to material counterparty credit risk. We do not use financial instruments for trading purposes.

If we utilized our 2018 Revolving Credit Facility, we would be exposed to changes in interest rates. Our 2018 Revolving Credit Facility bears interest, at our option, at a rate to either (i) the Adjusted Term SOFR Rate and Adjusted EURIBOR Rate (each, as defined in the 2018 Credit Agreement), plus an applicable margin initially equal to 3.00% per annum or (ii) the ABR Rate, plus an applicable margin initially equal to 2.00% per annum, in each case with two 25 basis point step downs based on achievement of certain senior secured first lien net leverage ratios.

Our exposure to changes in currency exchange rates results primarily from:

- sales made by our subsidiaries in currencies other than local currencies;
- raw material purchases made by our foreign subsidiaries in currencies other than local currencies; and
- investments in and intercompany loans to our foreign subsidiaries and our share of the earnings of those subsidiaries, to the extent denominated in currencies other than the U.S. dollar.

Our exposure to changes in energy commodity prices and commercial energy rates results primarily from the purchase or sale of refined oil products and the purchase of natural gas and electricity for use in our manufacturing operations.

Interest rate risk management. We have previously entered into agreements with financial institutions that were intended to limit our exposure to additional interest expense due to increases in variable interest rates. These instruments effectively capped our interest rate exposure. As of December 31, 2023, we did not have any outstanding interest rate swaps. As of December 31, 2022, we recorded unrealized pre-tax gains of \$27.4 million on our interest rate swaps. As of December 31, 2023, we no longer had any variable rate debt outstanding and therefore no exposure to variability in interest rates. See Note 8, "Fair Value Measurements and Derivative Instruments" in the Notes to the Consolidated Financial Statements for further discussion.

Currency rate management. We enter into foreign currency derivatives from time to time to attempt to manage exposure to changes in currency exchange rates. These foreign currency derivatives, which include, but are not limited to, forward exchange contracts and purchased currency options, attempt to hedge global currency exposures. Forward exchange contracts are agreements to exchange different currencies at a specified future date and at a specified rate. Purchased currency options are instruments which give the holder the right, but not the obligation, to exchange different currencies at a specified rate at a specified date or over a range of specified dates. Forward exchange contracts and purchased currency options are carried at fair value.

Our outstanding foreign currency derivatives represented a net unrealized pre-tax gain of \$0.1 million at December 31, 2023 and a net unrealized pre-tax loss of \$0.2 million at December 31, 2022.

Energy commodity management. We previously entered into commodity derivative contracts to effectively fix some or all of our exposure to refined oil products. As of December 31, 2023 and 2022, there were no commodity derivative contracts outstanding.

Sensitivity analysis. We use sensitivity analysis to quantify potential impacts that market rate changes may have on the underlying exposures as well as on the fair values of our derivatives. The sensitivity analysis for the derivatives represents the hypothetical changes in value of the hedge position and does not reflect the related gain or loss on the forecasted underlying transaction.

As of December 31, 2023, a 10% appreciation or depreciation in the value of the U.S. dollar against foreign currencies from the prevailing market rates would result in a corresponding decrease of \$2.0 million or a corresponding increase of \$2.0 million, respectively, in the fair value of the foreign currency hedge portfolio.

For further information related to the financial instruments described above, see Note 1, "Business and Summary of Significant Accounting Policies" and Note 8, "Fair Value Measurements and Derivative Instruments" in the Notes to the Consolidated Financial Statements for additional information.

Item 8. Financial Statements and Supplementary Data

(Unless otherwise noted, all dollars are presented in thousands)

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See the Table of Contents located at the beginning of this Report for more detailed page references to information contained in this Item.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of GrafTech International Ltd.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of GrafTech International Ltd. and subsidiaries (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of operations and comprehensive (loss) income, stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2023, and the related notes (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

Basis for Opinions

The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on these financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Goodwill - Refer to Notes 1 and 6 to the financial statements

Critical Audit Matter Description

The Company's evaluation of goodwill for impairment involves the comparison of the fair value of each reporting unit to its carrying value. The Company determines the fair value of its reporting units using the income and market approaches. The determination of the fair value using the income approach requires management to make significant estimates and assumptions related to forecasts of future revenues, earnings before interest, taxes, depreciation, and amortization (EBITDA), capital expenditures, and discount rates. The determination of the fair value using the market approach requires management to make significant estimates and assumptions related to the forecasts of future revenues, EBITDA, and multiples that are applied to management's forecasted EBITDA estimates. The goodwill balance of \$171.1 million as of December 31, 2023, which entirely related to the Graphite Electrode reporting unit, was fully impaired as part of the Company's annual assessment and an impairment charge of \$171.1 million was recorded within the Consolidated Statement of Operations for the year ended December 31, 2023.

Given the nature of the reporting unit's operations, the sensitivity of the reporting unit to changes in the economy, the reporting unit's historical performance, and the difference between its fair value and the carrying value, auditing management's judgments regarding forecasts of future revenues, EBITDA, and capital expenditures, as well as the selection of the discount rate and the multiples applied to management's forecasted EBITDA estimates for the reporting unit, required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the forecasts of future revenues and EBITDA ("forecasts"), and the selection of the discount rate and selection of multiples applied to management's forecasted EBITDA estimates ("market multiples") for the Graphite Electrode reporting unit included the following, among others:

- We tested the effectiveness of controls over management's goodwill impairment evaluation, such as controls related to management's forecasts and the selection of the discount rate and market multiples used.
- We evaluated management's ability to accurately forecast by comparing actual results to management's historical forecasts.
- We evaluated the reasonableness of management's forecasts by comparing the current forecasts to (1) historical results, (2) internal communications to management and the Board of Directors, and (3) forecasted information included in industry reports for the various industries the reporting unit operates within.
- With the assistance of our fair value specialists, we evaluated the discount rate, including testing the underlying source information and the mathematical accuracy of the calculations, and developing a range of independent estimates and comparing those to the discount rate selected by management.
- With the assistance of our fair value specialists, we evaluated the market multiples by evaluating the selected comparable publicly traded companies and the adjustments made for differences in growth prospects and risk profiles between the reporting unit and the comparable publicly traded companies. We tested the underlying source information and mathematical accuracy of the calculations.

/s/ DELOITTE & TOUCHE LLP

Cleveland, Ohio
February 14, 2024

We have served as the Company's auditor since 2015.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(Dollars in thousands, except share data)

	December 31,	
	2023	2022
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 176,878	\$ 134,641
Accounts and notes receivable, net of allowance for doubtful accounts of \$7,708 as of December 31, 2023 and \$8,019 as of December 31, 2022	101,387	145,574
Inventories	330,146	447,741
Prepaid expenses and other current assets	66,382	87,272
Total current assets	674,793	815,228
Property, plant and equipment	920,444	869,168
Less: accumulated depreciation	398,330	350,022
Net property, plant and equipment	522,114	519,146
Deferred income taxes	31,542	11,960
Goodwill	—	171,117
Other assets	60,440	86,727
Total assets	\$ 1,288,889	\$ 1,604,178
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 83,268	\$ 103,156
Long-term debt, current maturities	134	124
Accrued income and other taxes	10,022	40,592
Other accrued liabilities	91,702	89,349
Related party payable - Tax Receivable Agreement	5,417	4,631
Total current liabilities	190,543	237,852
Long-term debt	925,511	921,803
Other long-term obligations	55,645	50,822
Deferred income taxes	33,206	45,065
Related party payable - Tax Receivable Agreement long-term	5,737	10,921
Commitments and contingencies – Note 12		
Stockholders' equity:		
Preferred stock, par value \$0.01, 300,000,000 shares authorized, none issued	—	—
Common stock, par value \$0.01, 3,000,000,000 shares authorized, 256,831,870 and 256,597,342 shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively	2,568	2,566
Additional paid-in capital	749,527	745,164
Accumulated other comprehensive loss	(11,458)	(8,070)
Accumulated deficit	(662,390)	(401,945)
Total stockholders' equity	78,247	337,715
Total liabilities and stockholders' equity	\$ 1,288,889	\$ 1,604,178

See accompanying Notes to the Consolidated Financial Statements

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE (LOSS) INCOME
(Dollars in thousands, except per share data)

	Year Ended December 31,		
	2023	2022	2021
STATEMENTS OF OPERATIONS			
Net sales	\$ 620,500	\$ 1,281,250	\$ 1,345,788
Cost of goods sold	571,857	726,373	701,335
Lower of cost or market inventory valuation adjustment	12,431	—	—
Gross profit	36,212	554,877	644,453
Research and development	5,520	3,641	3,771
Selling and administrative expenses	74,012	76,977	132,608
Goodwill impairment charges	171,117	—	—
Operating (loss) income	(214,437)	474,259	508,074
Other expense (income), net	4,679	(10,147)	(16,220)
Interest expense	58,087	36,568	68,760
Interest income	(3,439)	(4,480)	(872)
(Loss) income before (benefit) provision for income taxes	(273,764)	452,318	456,406
(Benefit) provision for income taxes	(18,514)	69,356	68,076
Net (loss) income	\$ (255,250)	\$ 382,962	\$ 388,330
Basic (loss) income per common share:			
Net (loss) income per share	\$ (0.99)	\$ 1.48	\$ 1.46
Weighted average common shares outstanding	257,042,843	258,781,843	266,251,097
Diluted (loss) income per common share:			
Net (loss) income per share	(0.99)	1.48	1.46
Weighted average common shares outstanding	257,042,843	258,791,228	266,317,194
STATEMENTS OF COMPREHENSIVE (LOSS) INCOME			
Net (loss) income	\$ (255,250)	\$ 382,962	\$ 388,330
Other comprehensive income (loss):			
Foreign currency translation adjustments, net of tax of \$(8), \$0 and \$0, respectively	10,166	(7,024)	(19,605)
Commodities, interest rate and foreign currency derivatives, net of tax of \$4,424, \$(2,591) and \$(8,632), respectively	(13,554)	6,398	31,802
Other comprehensive (loss) income, net of tax:	(3,388)	(626)	12,197
Comprehensive (loss) income	\$ (258,638)	\$ 382,336	\$ 400,527

See accompanying Notes to the Consolidated Financial Statements

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(Dollars in thousands)

	Year Ended December 31,		
	2023	2022	2021
Cash flow from operating activities:			
Net (loss) income	\$ (255,250)	\$ 382,962	\$ 388,330
Adjustments to reconcile net (loss) income to cash provided by operations:			
Depreciation and amortization	56,889	55,496	65,716
Deferred income tax (benefit) provision	(28,123)	17,022	(3,657)
Non-cash stock-based compensation expense	4,433	2,311	16,631
Non-cash interest expense	8,786	(2,428)	12,051
Goodwill impairment charges	171,117	—	—
Lower of cost or market inventory valuation adjustment	12,431	—	—
Other adjustments	5,077	(8,023)	7,107
Net change in working capital*	107,562	(99,575)	(16,377)
Change in related party Tax Receivable Agreement	(4,398)	(3,828)	(21,568)
Change in long-term assets and liabilities	(1,963)	(19,309)	(5,193)
Net cash provided by operating activities	<u>76,561</u>	<u>324,628</u>	<u>443,040</u>
Cash flow from investing activities:			
Capital expenditures	(54,040)	(72,165)	(58,257)
Proceeds from the sale of fixed assets	220	195	397
Net cash used in investing activities	<u>(53,820)</u>	<u>(71,970)</u>	<u>(57,860)</u>
Cash flow from financing activities:			
Interest rate swap settlements	27,453	6,423	(4,170)
Debt issuance and modification costs	(8,152)	(2,232)	(3,109)
Proceeds from the issuance of long-term debt, net of original issuance discount	438,552	—	—
Principal payments on long-term debt	(433,841)	(110,124)	(400,142)
Repurchase of common stock	—	(60,000)	(50,000)
Payments for taxes related to net share settlement of equity awards	(129)	(230)	(4,077)
Proceeds from exercise of stock options	—	225	351
Dividends paid to non-related party	(3,854)	(7,770)	(7,439)
Dividends paid to related party	(1,280)	(2,559)	(3,206)
Principal payments under finance lease obligations	(36)	—	—
Net cash provided by (used in) financing activities	<u>18,713</u>	<u>(176,267)</u>	<u>(471,792)</u>
Net change in cash and cash equivalents	41,454	76,391	(86,612)
Effect of exchange rate changes on cash and cash equivalents	783	736	(1,316)
Cash and cash equivalents at beginning of period	134,641	57,514	145,442
Cash and cash equivalents at end of period	<u>\$ 176,878</u>	<u>\$ 134,641</u>	<u>\$ 57,514</u>

See accompanying Notes to the Consolidated Financial Statements

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS (Continued)

(Dollars in thousands)

	Year Ended December 31,		
	2023	2022	2021
<i>Supplemental disclosures of cash flow information:</i>			
<i>Net cash paid during the periods for:</i>			
<i>Interest⁽¹⁾</i>	\$ 34,322	\$ 39,503	\$ 56,333
<i>Income taxes</i>	43,326	67,122	63,791
<i>Non-cash investing activities:</i>			
<i>Change in capital expenditures in accounts payable</i>	(9,431)	7,748	6,755
<i>* Net change in working capital due to the following components:</i>			
Accounts and notes receivable, net	\$ 45,680	\$ 60,507	\$ (28,927)
Inventories	107,796	(153,579)	(28,165)
Prepaid expenses and other current assets	3,352	593	(31,921)
Income taxes payable	(27,198)	(15,029)	5,674
Accounts payable and accruals	(23,876)	7,748	66,591
Interest payable	1,808	185	371
Net change in working capital	\$ 107,562	\$ (99,575)	\$ (16,377)

(1) Includes cash received/paid from the monthly settlements and the 2023 termination of our interest rate swaps.

See accompanying Notes to the Consolidated Financial Statements

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)
(Dollars in thousands, except share data)

	Issued Shares of Common Stock	Common Stock	Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity (Deficit)
Balance as of December 31, 2020	267,188,547	\$ 2,672	\$ 758,354	\$ (19,641)	\$ (1,070,770)	\$ (329,385)
Net income	—	—	—	—	388,330	388,330
Other comprehensive income (loss):						
Commodity and interest rate derivatives income, net of tax of \$(6,662)	—	—	—	24,525	—	24,525
Commodity derivatives reclassification adjustments, net of tax of \$(1,970)	—	—	—	7,277	—	7,277
Foreign currency translation adjustments, net of tax of \$0	—	—	—	(19,605)	—	(19,605)
Total other comprehensive income	—	—	—	12,197	—	12,197
Repurchase of common stock	(4,658,544)	(46)	(13,091)	—	(36,863)	(50,000)
Stock-based compensation	1,009,545	11	16,620	—	—	16,631
Options exercised	33,500	—	351	—	—	351
Payments for taxes related to net share settlement of equity awards	(317,340)	(4)	(822)	—	(3,251)	(4,077)
Dividends paid to related party (\$0.04 per share)	—	—	—	—	(3,206)	(3,206)
Dividends paid to non-related party (\$0.04 per share)	—	—	—	—	(7,439)	(7,439)
Balance as of December 31, 2021	<u>263,255,708</u>	<u>\$ 2,633</u>	<u>\$ 761,412</u>	<u>\$ (7,444)</u>	<u>\$ (733,199)</u>	<u>\$ 23,402</u>
Net income	—	—	—	—	382,962	382,962
Other comprehensive income (loss):						
Commodity, interest rate and foreign currency derivatives income, net of tax of \$(5,060)	—	—	—	15,829	—	15,829
Commodity, interest rate and foreign currency derivatives reclassification adjustments, net of tax of \$2,469	—	—	—	(9,431)	—	(9,431)
Foreign currency translation adjustments, net of tax of \$0	—	—	—	(7,024)	—	(7,024)
Total other comprehensive loss	—	—	—	(626)	—	(626)
Repurchase of common stock	(6,662,421)	(67)	(18,721)	—	(41,212)	(60,000)
Stock-based compensation	1,348	—	2,311	—	—	2,311
Options exercised	25,000	—	225	—	—	225
Payments for taxes related to net share settlement of equity awards	(22,293)	—	(63)	—	(167)	(230)
Dividends paid to related party (\$0.04 per share)	—	—	—	—	(2,559)	(2,559)
Dividends paid to non-related party (\$0.04 per share)	—	—	—	—	(7,770)	(7,770)
Balance as of December 31, 2022	<u>256,597,342</u>	<u>\$ 2,566</u>	<u>\$ 745,164</u>	<u>\$ (8,070)</u>	<u>\$ (401,945)</u>	<u>\$ 337,715</u>
Net income	—	—	—	—	(255,250)	(255,250)
Other comprehensive income (loss):						
Commodity, interest rate and foreign currency derivatives income, net of tax of \$(474)	—	—	—	1,713	—	1,713
Commodity, interest rate and foreign currency derivatives reclassification adjustments, net of tax of \$4,898	—	—	—	(15,267)	—	(15,267)
Foreign currency translation adjustments, net of tax of \$(8)	—	—	—	10,166	—	10,166
Total other comprehensive loss	—	—	—	(3,388)	—	(3,388)
Stock-based compensation	258,153	2	4,431	—	—	4,433
Payments for taxes related to net share settlement of equity awards	(23,625)	—	(68)	—	(61)	(129)
Dividends paid to related party (\$0.02 per share)	—	—	—	—	(1,280)	(1,280)
Dividends paid to non-related party (\$0.02 per share)	—	—	—	—	(3,854)	(3,854)
Balance as of December 31, 2023	<u>256,831,870</u>	<u>\$ 2,568</u>	<u>\$ 749,527</u>	<u>\$ (11,458)</u>	<u>\$ (662,390)</u>	<u>\$ 78,247</u>

See accompanying Notes to the Consolidated Financial Statements

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

(Dollars in thousands, except as otherwise noted)

(1) Business and Summary of Significant Accounting Policies

Discussion of Business and Structure

GrafTech is a leading manufacturer of high-quality graphite electrode products essential to the production of EAF steel and other ferrous and non-ferrous metals. References herein to “GTI,” “we,” “our,” or “us” refer collectively to the Company and its subsidiaries. On August 15, 2015, GTI became an indirect wholly owned subsidiary of Brookfield. In April 2018, we completed our IPO of 38,097,525 shares of our common stock held by Brookfield at a price of \$15.00 per share. We did not receive any proceeds related to the IPO. Our common stock is listed on the NYSE under the symbol “EAF.” Brookfield has since distributed a portion of its GrafTech common stock to the owners in the Brookfield consortium and sold shares of GrafTech common stock in public and private transactions, resulting in a reduction of Brookfield's ownership of outstanding shares of GrafTech common stock to approximately 11.0% and 24.9% as of December 31, 2023 and 2022, respectively.

The Company's only reportable segment, Industrial Materials, is comprised of its two major product categories: graphite electrodes and petroleum needle coke products. Petroleum needle coke is our key raw material used in the production of graphite electrodes. The Company's vision is to provide highly engineered graphite electrode products, services and solutions to electric arc furnace operators.

Summary of Significant Accounting Policies

The Consolidated Financial Statements include the financial statements of the Company and its wholly owned subsidiaries. All intercompany transactions have been eliminated in consolidation.

Cash Equivalents

Cash equivalents consist of short-term, highly liquid investments with an original maturity of three months or less. Cash equivalents consist of certificates of deposit, money market funds and commercial paper.

Revenue Recognition

Revenue is recognized when a customer obtains control of promised goods. The amount of revenue recognized reflects the consideration to which the Company expects to be entitled to receive in exchange for these goods.

To achieve this core principle, the following five steps are performed: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) a performance obligation is satisfied.

The Company sells the majority of its products directly to steel manufacturers located in various jurisdictions. The Company's contracts consist of longer-term take-or-pay sales contracts of graphite electrodes with initial terms of up to five years and short-term purchase orders (deliveries within one year). Collectability is assessed based on the customer's ability and intention to pay, reviewing a variety of factors including the customer's historical payment experience and published credit and financial information. Additionally, for multi-year contracts, we may require the customer to post a bank guarantee, guarantee of a parent, a letter of credit or a significant prepayment.

The promises of delivery of graphite electrodes represent the distinct performance obligations of the Company's contracts. A small portion of the Company's sales consist of deliveries of by-products of the manufacturing processes, such as graphite powders, naphta and gasoil.

Given their nature, the Company's performance obligations are satisfied at a point in time when control of the products has been transferred to the customer. In most cases, control transfer is deemed to happen at the delivery point of the products defined under the incoterms, usually at time of loading the truck or the vessel. The Company has elected to treat the transportation activity as a fulfillment activity instead of as a distinct performance obligation, and outbound freight cost is accrued when the product delivery promises are satisfied.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring goods to the customer. Taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction and collected by the Company from a customer are excluded from the transaction price.

Variable consideration is included in the transaction price if, in the Company's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur. The estimated variable consideration is reflected through revenue reversal accruals that are based on the Company's experience, as well as anticipated performance. Historically, these reversals have been insignificant. Additionally, when termination fees are invoiced under certain provisions of the LTAs, they are accounted for as an element of variable consideration that is constrained, i.e., not recognized, until collected.

Contracts that contain multiple distinct performance obligations require an allocation of the transaction price to each performance obligation based on a relative stand-alone selling price basis. The Company regularly reviews market conditions and internally approved pricing guidelines to determine stand-alone selling prices for the different types of its customer contracts. The stand-alone prices as known at contract inception are utilized as the basis to allocate the transaction price to the distinct performance obligations. The allocation of the transaction price to the performance obligations remains unchanged if stand-alone selling prices change after contract inception.

Changes to LTAs are reviewed to assess whether there has been a change in volume, price or both and whether any additional volumes are at their stand-alone selling price to determine whether the contract modification should be accounted for as (1) part of the existing contract, (2) the termination of the existing contract and the creation of a new contract or (3) a separate contract. Under the most commonly negotiated terms, the accounting is such that it treats these modified contracts as the termination of the existing contract and the creation of a new contract.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is principally determined using the first-in, first-out ("FIFO") or average cost, which approximates FIFO, methods. Elements of cost in inventory include raw materials, energy costs, direct labor, manufacturing overhead and depreciation of manufacturing fixed assets. As of December 31, 2023, the market value of our inventories fell below their carrying amounts, and as a result, we recorded a LCM inventory valuation adjustment of \$12.4 million in order to state our inventories at market.

The Company allocates fixed production overhead to the cost of conversion based on normal capacity utilization of the production facilities. The Company recognizes abnormal amounts of idle facility expense, freight, handling costs, and wasted materials (spoilage) as current period charges. As a result of reduced production levels, we recorded fixed manufacturing costs of \$62.4 million and \$16.0 million that would have otherwise been inventoried for years ended December 31, 2023 and 2022, respectively.

Property, Plant and Equipment

Expenditures for property, plant and equipment are recorded at cost. Maintenance and repairs of property and equipment are expensed as incurred. Expenditures for replacements and betterments are capitalized and the replaced assets are retired. Gains and losses from the sale of property, plant and equipment are included in cost of goods sold or other expense (income), net on the Consolidated Statements of Operations. The Company depreciates its assets using the straight-line method over the estimated useful lives of the assets. The ranges of estimated useful lives are as follows:

	Years
Buildings	25-40
Land improvements	20
Machinery and equipment	5-20
Furniture and fixtures	5-10

The carrying value of fixed assets is assessed when events and circumstances indicating impairment are present. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Depreciation expense was \$47.7 million, \$45.4 million and \$55.0 million in 2023, 2022 and 2021, respectively. Accounts payable associated with capital expenditures totaled \$14.0 million and \$23.4 million as of December 31, 2023 and 2022, respectively.

Leases

The Company determines if an arrangement is a lease at inception. When an arrangement contains a lease, the Company then determines if it meets any of the criteria to be classified as a finance lease. Leases with a term of 12 months or less are not recorded on the balance sheet.

Right of Use ("RoU") assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. RoU assets and lease liabilities are recognized at the lease commencement date based on the present value of the lease payments over the lease term. In order to compute the lease liability, when the rate implicit in the lease is not readily determinable, the Company discounts the lease payments using its estimated incremental borrowing rate for secured fixed rate debt over the same term, derived from information available at the lease commencement date. The Company's lease terms include the option to extend the lease when it is reasonably certain that option will be exercised.

Lease and non-lease components are treated as a single lease component, except for leases of warehouse space where they will be accounted for separately. Leases may include variable lease and variable non-lease components costs, which are accounted for as variable lease expense in the Consolidated Statements of Operations.

Accounts Receivable

Trade accounts receivable primarily arise from sales of goods to customers and distributors in the normal course of business.

Allowance for Doubtful Accounts

The Company recognizes credit losses at the time the financial assets originate or are acquired using a lifetime of expected credit losses measurement. The Company's expected losses are adjusted each period for changes in expected lifetime credit losses.

Debt Issuance Costs

Deferred financing costs are amortized over the terms of the related debt using the effective interest method. If the terms of renewed or modified debt instruments are deemed to be substantially different, all unamortized financing costs associated with the modified debt are charged to earnings in the current period. If the terms are not substantially different, the costs associated with the renewal are capitalized and amortized over the remaining term of the debt instrument. For modifications affecting a line of credit, fees paid to a creditor and any third party costs will be capitalized and amortized over the remaining term of the new arrangement. Any unamortized deferred financing costs associated with the old arrangement are either deferred and amortized over the life of the new arrangement or written off, depending upon the nature of the modification and cost. The balance of any unamortized financing costs on extinguished debt is expensed upon extinguishment.

Derivative Financial Instruments

We do not use derivative financial instruments for trading purposes. They are used to manage well-defined commercial risks associated with commodity purchases, interest rates and currency exchange rate risks. On the date that a derivative contract for a hedging instrument is entered into, the Company designates the derivative as either (1) a hedge of the exposure to changes in the fair value of a recognized asset or liability or of an unrecognized firm commitment (a fair value hedge), (2) a hedge of the exposure of a forecasted transaction or of the variability in the cash flows of a recognized asset or liability (a cash flow hedge), (3) a hedge of a net investment in a foreign operation (a net investment hedge) or (4) a contract not designated as a hedging instrument.

For a fair value hedge, both the effective and ineffective portions of the change in the fair value of the derivative are recorded in earnings and reflected in the Consolidated Statement of Operations on the same line as the gain or loss on the hedged item attributable to the hedged risk. For a cash flow hedge, the effective portion of the change in the fair value of the derivative is recorded in accumulated other comprehensive loss ("AOCL") in the Consolidated Balance Sheet. When the underlying hedged transaction is realized, the gain or loss included in AOCL is recorded in earnings and reflected in the Consolidated Statement of Operations on the same line as the gain or loss on the hedged item attributable to the hedged risk.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

For a net investment hedge, the effective portion of the change in the fair value of the derivative is recorded in cumulative translation adjustment, which is a component of AOCL in the Consolidated Balance Sheet and is de-recognized upon liquidation or sale of the entity. For contracts not designated as hedging instruments, changes in fair value are adjusted through the statement of operations.

We formally document our hedge relationships, including the identification of the hedging instruments and the related hedged items, as well as our risk management objectives and strategies for undertaking the hedge transaction. Derivatives are recorded at fair value in prepaid expenses and other current assets, other long-term assets, other current liabilities and other long-term obligations in the consolidated balance sheets. We also formally assess, both at inception and at least quarterly thereafter, whether a derivative used in a hedging transaction is highly effective in offsetting changes in either the fair value or the cash flows of the hedged item. When it is determined that a derivative ceases to be highly effective or that the hedged transaction is no longer probable of occurring, we discontinue hedge accounting.

Income Taxes

We file a consolidated U.S. federal income tax return for GTI and its eligible domestic subsidiaries. Our non-U.S. subsidiaries file income tax returns in their respective local jurisdictions. We account for income taxes under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax benefit carry forwards. Deferred tax assets and liabilities at the end of each period are determined using enacted tax rates. A valuation allowance is established or maintained, when, based on currently available information and other factors, it is more likely than not that all or a portion of a deferred tax asset will not be realized.

Under the guidance on accounting for uncertainty in income taxes, we recognize the benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. The guidance on accounting for uncertainty in income taxes also provides guidance on derecognition, classification, interest and penalties on income taxes, and accounting in interim periods.

The Company treats taxes due on future U.S. inclusions in taxable income related to Global Intangible Low Tax Income ("GILTI") as a current period expense when incurred. See Note 13, "Income Taxes" for more information.

Related Party Tax Receivable Agreement

On April 23, 2018, the Company entered into a Tax Receivable Agreement that provides Brookfield, as the sole pre-IPO stockholder, the right to receive future payments from us for 85% of the amount of cash savings, if any, in U.S. federal income tax and Swiss tax that we and our subsidiaries realize as a result of the utilization of certain tax assets attributable to periods prior to our IPO, including certain federal net operating losses ("NOLs"), previously taxed income under Section 959 of the Internal Revenue Code of 1986, as amended from time to time (the "Code"), foreign tax credits, and certain NOLs in Swissco (collectively, the "Pre-IPO Tax Assets"). In addition, we will pay interest on the payments we will make to Brookfield with respect to the amount of these cash savings from the due date (without extensions) of our tax return where we realize these savings to the payment date at a rate equal to the one-month period secured overnight financing rate administered by the Federal Reserve Bank of New York plus 1.10%. The term of the Tax Receivable Agreement commenced on April 23, 2018 and will continue until there is no potential for any future tax benefit payments.

The Tax Receivable Agreement liability is recorded based on the best estimate of the utilization of Pre-IPO Tax Assets and is revised annually in the fourth quarter or earlier if and when significant changes in the forecast are identified.

Retirement Plans and Post-Employment Benefits

We use actuarial methods and assumptions to account for our defined benefit pension plans and our post-employment benefits. We recognize in earnings the change in the fair value of plan assets and net actuarial gains and losses annually in the fourth quarter of each year with a mark-to-market adjustment ("MTM Adjustment") and whenever a plan is remeasured (e.g., due to a significant curtailment, settlement, etc.). Pension and post-employment benefits expense includes the MTM Adjustment, actuarially computed cost of benefits earned during the current service period, the interest cost on accrued obligations, the expected return on plan assets and adjustments due to plan settlements and curtailments. Contributions to the qualified U.S. retirement plan are made in accordance with the requirements of the Employee Retirement Income Security Act of 1974.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

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Additional information with respect to benefits plans is set forth in Note 11, "Retirement Plans and Post-Employment Benefits."

Stock-based Compensation

The Company recognizes stock-based compensation expense based on the grant date fair value of the award over the period during which an employee or director is required to provide service in exchange for the award. Stock-based awards include stock options, restricted stock units ("RSUs"), performance-based restricted stock units ("PSUs") and deferred share units ("DSUs"). The fair value of RSUs and DSUs is primarily based on the closing market price of a share of the Company's common stock on the date of grant, modified as appropriate to take into account the features of such grants. The fair value of PSUs is determined using a Monte Carlo valuation on the date of grant. Stock options are granted with an exercise price equal to the closing price of the Company's common shares on the date of grant. The fair value of stock options is determined using a Black-Scholes option-pricing model, which incorporates assumptions regarding the expected volatility, the expected option life, the risk-free interest rate, and the expected dividend yield. The Company accounts for forfeitures as they occur. See Note 3, "Stock-Based Compensation" for additional information.

Environmental, Health and Safety Matters

Our operations are governed by laws addressing protection of the environment and worker safety and health. These laws provide for civil and criminal penalties and fines, as well as injunctive and remedial relief, for noncompliance and require remediation at sites where hazardous substances have been released into the environment.

We have been in the past, and may become in the future, the subject of formal or informal enforcement actions or proceedings regarding noncompliance with these laws or the remediation of company-related substances released into the environment. Historically, such matters have been resolved by negotiation with regulatory authorities resulting in commitments to compliance, abatement or remediation programs and in some cases payment of penalties. Historically, neither the commitments undertaken nor the penalties imposed on us have been material.

Environmental considerations are part of all significant capital expenditure decisions. Environmental remediation, compliance and management expenses were approximately \$12.1 million, \$22.4 million and \$16.9 million in 2023, 2022 and 2021, respectively. A charge to income is recorded when it is probable that a liability has been incurred and the cost can be reasonably estimated. When payments are fixed or determinable, the liability is discounted using a rate at which the payments could be effectively settled. The accrued liability relating to environmental remediation was \$4.4 million as of both December 31, 2023 and 2022.

Our environmental liabilities do not take into consideration possible recoveries of insurance proceeds. Because of the uncertainties associated with environmental remediation activities at sites where we may be potentially liable, future expenses to remediate sites could be considerably higher than the accrued liability.

Foreign Currency Translation and Remeasurement

We translate the financial statements of foreign subsidiaries, whose local currency is their functional currency, to U.S. dollars using period-end exchange rates for assets and liabilities and average exchange rates for each period for revenues, expenses, gains and losses. Differences arising from exchange rate changes are included in AOCL on the Consolidated Balance Sheets until such time as the operations of such non-U.S. subsidiaries are sold or substantially or completely liquidated.

For our Russian, Swiss, Luxembourg, United Kingdom and Mexican subsidiaries, whose functional currency is the U.S. dollar, we remeasure non-monetary balance sheet accounts and the related income statement accounts at historical exchange rates. Resulting gains and losses arising from the fluctuations in currency for monetary accounts are recognized in other expense (income), net, in the Consolidated Statements of Operations. Gains and losses arising from fluctuations in currency exchange rates on transactions denominated in currencies other than the functional currency are recognized in earnings as incurred.

We have non-dollar denominated intercompany loans between some of our foreign subsidiaries. These loans are subject to remeasurement gains and losses due to changes in currency exchange rates. One of these loans has been deemed to be essentially permanent prior to settlement and, as a result, remeasurement gains and losses on this loan were recorded as a component of AOCL on the Consolidated Balance Sheets. The remaining loans are deemed to be temporary and, as a result, remeasurement gains and losses on these loans are recorded as currency (gains) losses in other expense (income), net, on the Consolidated Statements of Operations.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

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Goodwill and Other Intangible Assets

Goodwill is the excess of the acquisition cost of businesses over the fair value of the identifiable net assets acquired. We do not recognize deferred income taxes for the difference between the assigned value and the tax basis related to nondeductible goodwill. Goodwill is not amortized; however, impairment testing is performed annually or more frequently if circumstances indicate that impairment may have occurred. We perform the annual goodwill impairment test at December 31.

The annual goodwill impairment testing may begin with a qualitative assessment of potential impairment indicators in order to determine whether it is necessary to perform the quantitative goodwill impairment test.

Other amortizable intangible assets, which consist primarily of trademarks and trade names, technology and know-how and customer-related intangibles, are amortized over their estimated useful lives using the straight line or sum-of-the-years digits method. The estimated useful lives for each major category of amortizable intangible assets are:

	Years
Trade names	5-20
Technology and know-how	5-14
Customer-related intangibles	5-15

The carrying value of intangible assets is assessed when events and circumstances indicating impairment are present. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. Additional information about goodwill and other intangibles is set forth in Note 6, "Goodwill and Other Intangible Assets."

Major Maintenance and Repair Costs

We perform scheduled major maintenance of the storage and processing units at our Seadrift plant (referred to as "overhaul"). Time periods between overhauls vary by unit. We also perform significant maintenance and repair shutdown of the plant (referred to as "turnaround") every other year.

Costs of overhauls and turnarounds include plant personnel, contract services, materials and rental equipment. We defer these costs when incurred and use the straight-line method to amortize them over the period of time estimated to lapse until the next scheduled overhaul of the applicable storage or processing unit. Under this policy, \$0.7 million was deferred in 2023 and \$17.2 million was deferred in 2022. Amortization of deferred maintenance costs totaled \$7.5 million, \$4.7 million and \$4.6 million in 2023, 2022 and 2021, respectively.

(Loss) Earnings per share

The calculation of basic (loss) earnings per share is based on the weighted average number of common shares outstanding. Diluted (loss) earnings per share reflects the assumed conversion of all dilutive common stock equivalents as appropriate using the treasury stock method. See Note 15, "(Loss) Earnings per Share."

Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the Consolidated Financial Statements and the reported amounts of revenue and expenses. Significant estimates and assumptions are used for, but are not limited to, inventory valuation, pension and other post-employment benefits, allowance for doubtful accounts, contingent liabilities, accruals and valuation allowances, asset impairment, and environmental-related accruals. Actual results could differ from our estimates.

Reclassifications and Adjustments

Certain items previously reported in specific financial statement captions within the Consolidated Statements of Operations have been reclassified between lines to conform to the current presentation. In addition, specific financial statement captions within the Consolidated Statements of Cash Flows have been reclassified between lines within cash flow from operating activities to conform to the current presentation.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Subsequent Events

We evaluate events that occur after the balance sheet date but before financial statements are issued to determine if a material event requires our amending the financial statements or disclosing the event.

Recently Adopted Accounting Standards

In September 2022, the FASB issued Accounting Standards Update (“ASU”) 2022-04, *Liabilities - Supplier Finance Programs (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations*, which requires disclosures intended to enhance the transparency of supplier finance programs. The amendments in this ASU require buyers in a supplier finance program to disclose sufficient information about the program to allow a user of financial statements to understand the program’s nature, activity during the period, changes from period to period, and potential magnitude. The amendments are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years, except for the disclosure of rollforward information, which is effective for fiscal years beginning after December 15, 2023. Early adoption is permitted. The amendments should be applied retrospectively to each period in which a balance sheet is presented, except for disclosure of rollforward information, which should be applied prospectively. The Company adopted this guidance on January 1, 2023.

Recently Issued Accounting Pronouncements Not Yet Adopted

In November 2023, the FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*, which is intended to improve reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses. The guidance is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted. The guidance is to be applied retrospectively to all prior periods presented in the financial statements. Upon transition, the segment expense categories and amounts disclosed in the prior periods should be based on the significant segment expense categories identified and disclosed in the period of adoption. We are currently evaluating the potential impact of adopting this new guidance on our consolidated financial statements and related disclosures.

In December 2023, the FASB issued ASU No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*, which is intended to enhance the transparency, decision usefulness and effectiveness of income tax disclosures. The amendments in this ASU require a public entity to disclose a tabular tax rate reconciliation, using both percentages and currency, with specific categories. A public entity is also required to provide a qualitative description of the states and local jurisdictions that make up the majority of the effect of the state and local income tax category and the net amount of income taxes paid, disaggregated by federal, state and foreign taxes and also disaggregated by individual jurisdictions. The amendments also remove certain disclosures that are no longer considered cost beneficial. The amendments are effective prospectively for annual periods beginning after December 15, 2024, and early adoption and retrospective application are permitted. Although the ASU only modifies the Corporation's required income tax disclosures, the Corporation is currently evaluating the impact of adopting this guidance on the consolidated financial statements.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

(2) Revenue from Contracts with Customers

Disaggregation of Revenue

The following table provides information about disaggregated revenue by type of product and contract:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Graphite Electrodes - LTAs	\$ 253,262	\$ 870,287	\$ 1,040,214
Graphite Electrodes - Non-LTAs	338,746	351,140	258,426
By-products and other	28,492	59,823	47,148
Total Revenues	\$ 620,500	\$ 1,281,250	\$ 1,345,788

Contract Balances

Substantially all the Company's receivables relate to contracts with customers. Accounts receivable are recorded when the right to consideration becomes unconditional. Payment terms on invoices range from 30 to 120 days depending on the customary business practices of the jurisdictions in which we do business.

Certain short-term and longer-term sales contracts require up-front payments prior to the Company's fulfillment of any performance obligation. These contract liabilities are recorded as current or long-term deferred revenue, depending on the lag between the prepayment and the expected delivery of the related products. Additionally, deferred revenue or contract assets originate from contracts where the allocation of the transaction price to the performance obligations based on their relative stand-alone selling prices results in the timing of revenue recognition being different from the timing of the invoicing. In this case, deferred revenue is amortized into revenue based on the transaction price allocated to the remaining performance obligations and contract assets are realized through the contract invoicing.

The Company did not have any contract asset balances as of December 31, 2023 or 2022.

Current deferred revenue is included in "Other accrued liabilities" on the Consolidated Balance Sheets. The following table provides our contract liability balances as of December 31, 2023 and 2022.

	December 31, 2023	December 31, 2022
	<i>(Dollars in thousands)</i>	
Current deferred revenue	\$ 31,583	\$ 27,878

The amount of revenue recognized in 2023 that was included in the December 31, 2022 current deferred revenue balance was \$13.0 million. The increase in the December 31, 2023 current deferred revenue balance versus the prior year was primarily driven by the net difference between up-front payments received and the related shipments. The amount of revenue recognized in 2022 that was included in the December 31, 2021 deferred revenue current balance was \$2.5 million.

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Transaction Price Allocated to the Remaining Performance Obligations

The following table presents estimated revenues expected to be recognized in the corresponding period below related to performance obligations that are unsatisfied (or partially unsatisfied) at the end of reporting period. The revenue associated with our LTAs is expected to be approximately as follows:

	2024
	<i>(Dollars in millions)</i>
Estimated LTA revenue	\$100-\$135 ⁽¹⁾

⁽¹⁾ Includes expected termination fees from a few customers that have failed to meet certain obligations under their LTAs.

The majority of the LTAs are defined as pre-determined fixed annual volume contracts while a small portion are defined with a specified volume range. For 2024, the contractual revenue amounts above are based upon the minimum volume for those contracts with specified ranges. The actual revenue realized from these contracted volumes may vary in timing and total due to contract non-performance, force majeure notices, arbitrations, credit risk associated with certain customers facing financial challenges and customer demand related to contracted volume ranges.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

(3) Stock-Based Compensation

The Company's Omnibus Equity Incentive Plan permits the granting of options and other stock-based awards (including restricted stock units ("RSUs"), deferred restricted stock units ("DRSUs") performance-based restricted stock units ("PSUs") and deferred share units ("DSUs")). As of December 31, 2023, the aggregate number of shares authorized under the plan since its initial adoption was 15.0 million. Shares issued upon vesting or exercise are new share issuances. Upon the vesting or payment of stock awards, an employee may elect receipt of the full share amount and either pay the resulting taxes or have the Company withhold shares to cover the tax obligation. At December 31, 2023, 9.5 million common stock shares were available for future issuance.

Stock-based compensation expense was \$4.4 million, \$2.3 million and \$16.6 million in 2023, 2022 and 2021, respectively. A majority of the expense, \$4.0 million in 2023, \$2.1 million in 2022 and \$14.6 million in 2021, was recorded as selling and administrative expenses in the Consolidated Statement of Operations, with the remaining expenses incurred as cost of goods sold. Stock-based compensation expense for 2021 included \$14.7 million, recorded in the second quarter of 2021, due to the Change in Control accelerated vesting provisions of certain of the Company's awards. For the purpose of these grants, a Change in Control occurred when Brookfield and any affiliates thereof ceased to own stock of the Company that constituted at least thirty percent (30%) or thirty-five percent (35%), as applicable, of the total fair market value or total voting power of the stock of the Company. Out of the \$14.7 million recorded with the Change in Control, \$0.9 million accelerated at the 35% ownership level and the remaining \$13.8 million accelerated at the 30% ownership level.

The Company derives a tax deduction measured by the excess of the market value over the grant price at the date stock-based compensation awards are exercised or vest. The Company recognized tax expense of \$0.2 million in 2023 and tax benefits of less than \$0.1 million and \$1.8 million in 2022 and 2021, respectively, relating to the issuance of common stock for the exercise/vesting of equity awards.

Stock Options. Non-qualified stock options may be granted to our employees and directors. Stock options granted in 2023 vest over a three-year period, with one-third of the award vesting on the anniversary date of the grant in each of the next three years. Stock options granted prior to 2023 vest over a five-year period, with one-fifth of the award vesting on the anniversary date of the grant in each of the five years following the grant date. All stock options expire 10 years from the date of grant. Stock option exercises are satisfied through the issuance of common shares. Compensation expense for stock options is based on the fair value of the stock option on the date of the grant. We calculate the fair value of stock options using the Black-Scholes option-pricing model. The weighted average assumptions used in our Black-Scholes option pricing model for options granted in 2023, 2022 and 2021 were as follows:

	2023	2022	2021
Dividend yield	0.71% - 0.83%	0.40% - 0.56%	0.32% - 0.35%
Expected volatility	58.16 %	58.14 %	61.62 %
Risk-free interest rate	3.60% - 4.10%	1.93% - 2.89%	1.1% - 1.21%
Expected term in years	6.0 years	6.5 years	6.5 years

Dividend Yield. Our dividend yield estimate is based on our expected dividends and the stock price on the grant date.

Expected Volatility. We estimate the volatility of our common stock at the date of grant based on the historical volatility of the Company's stock. The volatility factor we use is based on our historical closing prices since our stock has been publicly traded.

Risk-Free Interest Rate. We base the risk-free interest rate on the implied yield currently available on U.S. Treasury zero-coupon issues with an equivalent remaining term equal to the expected life of the award.

Expected Term In Years. The expected life of awards granted represents the time period that the awards are expected to be outstanding. We determined the expected term of the grants using the "simplified" method as described by the SEC, since we do not have a history of stock option awards to provide a reliable basis for estimating such term.

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The following table summarizes activity related to stock options during 2023:

	Number of Options	Weighted- Average Exercise Price Per Share	Aggregate Intrinsic Value (thousands)	Weighted Average Remaining Term (Years)
Outstanding at December 31, 2022	1,890,167	\$ 12.30		
Granted	519,482	5.51		
Exercised	—	—		
Forfeited or expired	(382,038)	8.56		
Outstanding at December 31, 2023	<u>2,027,611</u>	\$ 11.27	\$ —	6.5 years
Vested and Expected to vest as of December 31, 2023	2,027,611	\$ 11.27	\$ —	6.5 years
Exercisable at December 31, 2023	1,444,617	\$ 12.84	\$ —	5.7 years

Outstanding options have exercise prices ranging from \$4.83 per share to \$20.00 per share.

A summary of the status and changes of stock options and the related average price per share follows:

	Number of Options	Weighted- Average Grant Date Fair Value
Outstanding unvested as of December 31, 2022	429,503	\$ 5.42
Granted	519,482	3.01
Vested	(122,221)	5.73
Forfeited	(243,770)	3.42
Outstanding unvested as of December 31, 2023	<u>582,994</u>	\$ 4.04

We recognized stock-based compensation expense of \$0.8 million, \$0.6 million and \$5.9 million in 2023, 2022 and 2021, respectively, relating to stock options. As of December 31, 2023, there was \$1.8 million of total unrecognized compensation cost related to unvested stock options, which is expected to be amortized over a weighted average period of 2.7 years. The total fair value of options vested was \$0.7 million in 2023, \$0.3 million in 2022 and \$6.6 million in 2021. There were 25,000 and 39,700 options exercised during 2022 and 2021, respectively. No options were exercised during 2023. Cash received from option exercises during 2022 and 2021 was \$0.2 million and \$0.4 million, respectively.

RSUs - Employees. RSUs constitute an agreement to deliver shares of common stock to the participant at the end of a vesting period. Compensation expense for RSUs is based on the closing price of our common stock on the date of grant, less forfeitures or cancellations of awards throughout the vesting period. RSUs granted in 2023 vest over a three-year period, with one-third of the award vesting on the anniversary date of the grant in each of the next three years. RSUs granted prior to 2023 vest over a five-year period, with one-fifth of the award vesting on the anniversary date of the grant in each of the five years following the grant date. A summary of the status and changes of shares subject to RSU awards for employees and the related average price per share follows:

	Number of Shares	Weighted- Average Grant Date Fair Value
Outstanding unvested as of December 31, 2022	477,317	\$ 9.72
Granted	669,593	5.58
Cancelled	(164,956)	6.54
Vested	(96,589)	9.76
Outstanding unvested as of December 31, 2023	<u>885,365</u>	\$ 7.18

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

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During 2023, 2022 and 2021, we recognized stock-based compensation expense of \$1.7 million, \$0.7 million and \$10.0 million, respectively, relating to RSU awards for employees. The total fair value of RSU awards vested during 2023, 2022 and 2021 was \$0.9 million, less than \$0.1 million and \$10.8 million, respectively. As of December 31, 2023, \$4.8 million of expense with respect to non-vested RSUs has yet to be recognized and will be amortized into expense over a weighted-average period of approximately 2.7 years.

PSUs. Beginning in 2023, executive officers and selected other employees receive PSU awards. Payouts, in the form of unrestricted common stock, vary between 0% and 200% based on the degree to which the Company's total shareholder return relative to a peer group's performance exceeds predetermined threshold, target and maximum performance goals over three-year performance periods with measurement periods after 12-, 24-, and 36-months. No payout will occur unless threshold performance is achieved. The following table summarizes the activity related to PSUs during 2023:

	Number of Shares	Weighted- Average Grant Date Fair Value
Outstanding as of December 31, 2022	—	\$ —
Granted	544,801	7.30
Vested	—	—
Forfeited	(196,786)	7.43
Outstanding as of December 31, 2023	<u>348,015</u>	<u>\$ 7.23</u>

The fair value of grants of PSUs is determined using a Monte Carlo valuation. Total compensation expense for PSUs in 2023 was \$0.7 million. As of December 31, 2023, there was \$1.8 million of unrecognized compensation cost related to PSUs.

RSUs and DRSUs - Non-Employee Directors. Beginning in 2023, non-employee directors receive annual grants of service-based RSUs that are expected to vest six months after the date of grant, subject generally to a non-employee director's continued service on the Company's Board of Directors. Compensation expense for RSUs and DRSUs is based on the closing price of our common stock on the date of grant, less forfeitures or cancellations of awards throughout the vesting period. Non-employee directors have the option to elect to defer receipt of their vested RSUs and instead be granted service-based DRSUs that are equivalent in value to the RSUs. DRSUs will be paid out either as soon as practicable following the date of termination of the director's service as a director (but in any event no later than the last day of the calendar year in which such termination occurs) in a single lump sum or in substantially equal 20% installments on the first five annual anniversaries of the date of termination of service as a director. The following table summarizes RSU and DRSU activity during 2023 for our non-employee directors:

	Number of Shares	Weighted- Average Grant Date Fair Value
Outstanding as of December 31, 2022	—	\$ —
Granted	154,894	4.24
Vested and delivered	(23,971)	4.18
Outstanding vested and deferred as of December 31, 2023	<u>130,923</u>	<u>\$ 4.25</u>

The Company recognized \$0.6 million of expense related to these awards in 2023.

DSUs. DSUs are primarily granted to our non-employee directors in lieu of cash retainers and vest immediately upon grant. All whole DSUs will be settled in shares of our common stock after the Director's termination of service on the Board and any fractional shares will be settled in cash. The following table summarizes DSU activity during 2023:

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

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	Number of Shares	Weighted- Average Grant Date Fair Value
Outstanding as of December 31, 2022	362,640	\$ 8.80
Granted	152,509	3.59
Distributed	(137,609)	9.34
Outstanding vested and deferred as of December 31, 2023	377,540	\$ 6.52

During 2023, 2022 and 2021, we recognized stock-based compensation expense of \$0.6 million, \$1.0 million and \$0.7 million, respectively, relating to DSU awards. The total fair value of DSU awards vested was \$0.5 million in 2023 and \$1.0 million in both 2022 and 2021.

(4) Segment Reporting

Our Industrial Materials segment, our only reportable segment, manufactures high-quality graphite electrodes essential to the production of EAF steel and other ferrous and non-ferrous metals. Petroleum needle coke, a crystalline form of carbon derived from decant oil, is a key raw material used in the production of graphite electrodes. We utilize the majority of the needle coke that we produce internally to manufacture our graphite electrodes and as a result approximately 95% of our revenues from external customers are derived from the sale of graphite electrodes. No single customer accounted for 10% or more of the Company's net sales in 2023, 2022 or 2021.

The following tables summarize information as to the Company's operations in different geographic areas:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Net sales:			
United States	\$ 206,263	\$ 340,793	\$ 285,710
Americas (excluding the United States)	100,364	256,253	241,442
Asia Pacific	66,214	116,849	154,084
Europe, Middle East, Africa	247,659	567,355	664,552
Total	\$ 620,500	\$ 1,281,250	\$ 1,345,788

	December 31,	
	2023	2022
	<i>(Dollars in thousands)</i>	
Long-lived assets (a):		
United States	\$ 196,847	\$ 192,038
Mexico	117,414	124,024
Brazil	4,424	4,327
France	93,660	93,880
Spain	109,127	104,392
Other countries	642	485
Total	\$ 522,114	\$ 519,146

(a) Long-lived assets represent fixed assets, net of accumulated depreciation.

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(5) Debt and Liquidity

The following table presents our long-term debt:

	December 31, 2023	December 31, 2022
	<i>(Dollars in thousands)</i>	
2018 Term Loan Facility	\$ —	\$ 433,708
2020 Senior Secured Notes	500,000	500,000
2023 Senior Secured Notes	450,000	—
Other debt	139	268
Unamortized debt discount and issuance costs	(24,494)	(12,049)
Total debt	925,645	921,927
Less: Long-term debt, current portion	(134)	(124)
Long-term debt	\$ 925,511	\$ 921,803

2018 Term Loan and 2018 Revolving Credit Facility

In February 2018, the Company entered into a credit agreement (as amended, the “2018 Credit Agreement”), which provided for (i) a \$2,250 million senior secured term facility (the “2018 Term Loan Facility”) after giving effect to the June 2018 amendment (the “First Amendment”) that increased the aggregate principal amount of the 2018 Term Loan Facility from \$1,500 million to \$2,250 million and (ii) a \$330 million senior secured revolving credit facility after giving effect to the May 2022 amendment that increased the revolving commitments under the 2018 Credit Agreement by \$80 million from \$250 million (the “2018 Revolving Credit Facility”). GrafTech Finance Inc. (“GrafTech Finance”) was the sole borrower under the 2018 Term Loan Facility while GrafTech Finance, GrafTech Switzerland SA (“Swissco”) and GrafTech Luxembourg II S.à.r.l. (“Luxembourg Holdco”) and, together with GrafTech Finance and Swissco, the “Co-Borrowers”) are co-borrowers under the 2018 Revolving Credit Facility. The 2018 Revolving Credit Facility matures on May 31, 2027. The net proceeds from the 2023 Senior Secured Notes were used to repay outstanding borrowings under our 2018 Term Loan Facility. As of December 31, 2023 and 2022, the availability under our 2018 Revolving Credit Facility was \$112.4 million and \$327.0 million, respectively. As any borrowings under the 2018 Revolving Credit Facility remain subject to compliance with the financial covenant thereunder, our operating performance as of December 31, 2023 resulted in a reduction under the facility. As of December 31, 2023 and 2022, there were no borrowings outstanding on the 2018 Revolving Credit Facility and there was \$3.1 million and \$3.0 million of letters of credit drawn against the 2018 Revolving Credit Facility as of each date, respectively.

The 2018 Revolving Credit Facility bears interest, at our option, at a rate equal to either (i) the Adjusted Term SOFR Rate and Adjusted EURIBOR Rate (each, as defined in the 2018 Credit Agreement), plus an applicable margin initially equal to 3.00% per annum or (ii) the ABR Rate, plus an applicable margin initially equal to 2.00% per annum, in each case with two 25 basis point step downs based on achievement of certain senior secured first lien net leverage ratios. In addition, we are required to pay a quarterly commitment fee on the unused commitments under the 2018 Revolving Credit Facility in an amount equal to 0.25% per annum.

The 2018 Revolving Credit Facility is guaranteed by each of our domestic subsidiaries, subject to certain customary exceptions, and by GrafTech Luxembourg I S.à.r.l., a Luxembourg *société à responsabilité limitée* and an indirect wholly owned subsidiary of GrafTech, Luxembourg HoldCo, and Swissco (collectively, the “Guarantors”) with respect to all obligations under the 2018 Revolving Credit Facility of each of our foreign subsidiaries that is a Controlled Foreign Corporation (within the meaning of Section 956 of the Internal Revenue Code of 1986, as amended from time to time (the “Code”)).

Any obligations under the 2018 Revolving Credit Facility are secured, subject to certain exceptions, by: (i) a pledge of all of the equity securities of each domestic Guarantor and of each other direct, wholly owned domestic subsidiary of GrafTech and any Guarantor, (ii) a pledge on no more than 65% of the equity interests of each subsidiary that is a Controlled Foreign Corporation (within the meaning of Section 956 of the Code), and (iii) security interests in, and mortgages on, personal property and material real property of each domestic Guarantor, subject to permitted liens and certain exceptions specified in the 2018 Revolving Credit Facility. The obligations of each foreign subsidiary of GrafTech that is a Controlled Foreign Corporation under the 2018 Revolving Credit Facility are secured by (i) a pledge of all of the equity securities of each Guarantor that is a Controlled Foreign Corporation and of each direct, wholly owned subsidiary of any Guarantor that is a Controlled Foreign

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Corporation, and (ii) security interests in certain receivables and personal property of each Guarantor that is a Controlled Foreign Corporation, subject to permitted liens and certain exceptions specified in the 2018 Revolving Credit Facility.

The 2018 Revolving Credit Facility contains customary representations and warranties and customary affirmative and negative covenants applicable to GrafTech and restricted subsidiaries, including, among other things, restrictions on indebtedness, liens, investments, fundamental changes, dispositions, and dividends and other distributions. The 2018 Revolving Credit Facility contains a financial covenant that requires GrafTech to maintain a senior secured first lien net leverage ratio not greater than 4.00 to 1.00 when the aggregate principal amount of borrowings under the 2018 Revolving Credit Facility and outstanding letters of credit issued under the 2018 Revolving Credit Facility (except for undrawn letters of credit in an aggregate amount equal to or less than \$35.0 million), taken together, exceed 35% of the total amount of commitments under the 2018 Revolving Credit Facility. The 2018 Revolving Credit Facility also contains customary events of default. We were in compliance with all of our debt covenants as of December 31, 2023 and 2022.

2020 Senior Secured Notes

In December 2020, GrafTech Finance issued \$500.0 million aggregate principal amount of 4.625% senior secured notes due 2028 (the “2020 Senior Secured Notes”) in a private offering. The 2020 Senior Secured Notes and related guarantees are secured on a pari passu basis by the collateral securing the 2018 Revolving Credit Facility and the 2023 Senior Secured Notes. All of the net proceeds from the 2020 Senior Secured Notes were used to partially repay borrowings under our 2018 Term Loan Facility.

The 2020 Senior Secured Notes pay interest in arrears on June 15 and December 15 of each year, with the principal due in full on December 15, 2028. Prior to December 15, 2023, up to 40% of the 2020 Senior Secured Notes may be redeemed with the net cash proceeds of certain equity offerings at a price equal to 104.625% of the principal amount thereof, together with accrued and unpaid interest, if any. The 2020 Senior Secured Notes could have been redeemed, in whole or in part, at any time prior to December 15, 2023 at a price equal to 100% of the principal amount of the notes redeemed plus a premium together with accrued and unpaid interest, if any, to, but not including, the redemption date. Thereafter, the 2020 Senior Secured Notes may be redeemed, in whole or in part, at various prices depending on the date redeemed.

The indenture governing the 2020 Senior Secured Notes (the “2020 Indenture”) contains certain covenants that, among other things, limit the Company’s ability, and the ability of certain of its subsidiaries, to incur or guarantee additional indebtedness or issue preferred stock, pay distributions on, redeem or repurchase capital stock or redeem or repurchase subordinated debt, incur or suffer to exist liens securing indebtedness, make certain investments, engage in certain transactions with affiliates, consummate certain asset sales and effect a consolidation or merger, or sell, transfer, lease or otherwise dispose of all or substantially all assets. Pursuant to the Indenture, if our pro forma consolidated first lien net leverage ratio is no greater than 2.00 to 1.00, we can make restricted payments so long as no default or event of default has occurred and is continuing. If our pro forma consolidated first lien net leverage ratio is greater than 2.00 to 1.00, we can make restricted payments pursuant to certain baskets.

The 2020 Indenture contains events of default customary for agreements of its type (with customary grace periods, as applicable) and provides that, upon the occurrence of an event of default arising from certain events of bankruptcy or insolvency with respect to the Company or GrafTech Finance, all outstanding 2020 Senior Secured Notes will become due and payable immediately without further action or notice. If any other type of event of default occurs and is continuing, then the trustee or the holders of at least 30% in principal amount of the then outstanding 2020 Senior Secured Notes may declare all of the 2020 Senior Secured Notes to be due and payable immediately. We were in compliance with all of our debt covenants as of December 31, 2023 and 2022.

2023 Senior Secured Notes

In June 2023, GrafTech Global Enterprises Inc. issued \$450 million aggregate principal amount of 9.875% senior secured notes due 2028 (the “2023 Senior Secured Notes”), including \$11.4 million of original issue discount. The 2023 Senior Secured Notes were issued at an issue price of 97.456% of the principal amount thereof in a private offering. The 2023 Senior Secured Notes and related guarantees are secured on a pari passu basis by the collateral securing the 2018 Revolving Credit Facility and the 2020 Senior Secured Notes. The net proceeds from the 2023 Senior Secured Notes were used to repay borrowings under our 2018 Term Loan Facility.

The 2023 Senior Secured Notes pay interest in arrears on June 15 and December 15 of each year, with the principal due in full on December 15, 2028. Prior to December 15, 2025, up to 40% of the 2023 Senior Secured Notes may be redeemed with the net cash proceeds of certain equity offerings at a price equal to 109.875% of the principal amount thereof, together with accrued and unpaid interest, if any. The 2023 Senior Secured Notes may be redeemed, in whole or in part, at any time

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prior to December 15, 2025 at a price equal to 100% of the principal amount of the notes redeemed plus a premium together with accrued and unpaid interest, if any, to, but not including, the redemption date. Thereafter, the 2023 Senior Secured Notes may be redeemed, in whole or in part, at various prices depending on the date redeemed.

The indenture governing the 2023 Senior Secured Notes (the “2023 Indenture”) contains certain covenants that, among other things, limit the Company’s ability, and the ability of certain of its subsidiaries, to incur or guarantee additional indebtedness or issue preferred stock, pay distributions on, redeem or repurchase capital stock or redeem or repurchase subordinated debt, incur or suffer to exist liens securing indebtedness, make certain investments, engage in certain transactions with affiliates, consummate certain asset sales and effect a consolidation or merger, or sell, transfer, lease or otherwise dispose of all or substantially all assets. Pursuant to the 2023 Indenture, if our pro forma consolidated first lien net leverage ratio is no greater than 2.00 to 1.00, we can make restricted payments so long as no default or event of default has occurred and is continuing. If our pro forma consolidated first lien net leverage ratio is greater than 2.00 to 1.00, we can make restricted payments pursuant to certain baskets.

The 2023 Indenture contains events of default customary for agreements of its type (with customary grace periods, as applicable) and provides that, upon the occurrence of an event of default arising from certain events of bankruptcy or insolvency with respect to the Company or GrafTech Global Enterprises Inc., all outstanding 2023 Senior Secured Notes will become due and payable immediately without further action or notice. If any other type of event of default occurs and is continuing, then the trustee or the holders of at least 30% in principal amount of the then outstanding 2023 Senior Secured Notes may declare all of the 2023 Senior Secured Notes to be due and payable immediately. We were in compliance with all of our debt covenants as of December 31, 2023.

Maturities on long-term debt instruments as of December 31, 2023 are as follows:

	<i>(Dollars in thousands)</i>
2024	\$ 139
2025	—
2026	—
2027	—
2028	950,000
2029 and thereafter	—
Total	<u>\$ 950,139</u>

(6) Goodwill and Other Intangible Assets

Goodwill

Goodwill arises from the purchase price for acquired businesses exceeding the fair value of tangible and intangible assets acquired less assumed liabilities. The Company has two reporting units, Graphite Electrodes and Needle Coke. The acquisition of the Company by Brookfield in 2015 generated a goodwill amount of \$171.1 million, which was allocated entirely to the Graphite Electrode reporting unit.

Goodwill is tested for impairment annually as of December 31 and between annual tests whenever events or circumstances indicate that the carrying value of a reporting unit may exceed its fair value.

For the 2023 annual impairment testing, the Company performed a quantitative assessment of the fair value of the reporting unit, using a combination of the income approach and the market approach (Level 3 in the fair value hierarchy) from a market participant’s perspective. The valuation of the Graphite Electrode reporting unit is performed with cash flows that are adjusted to present this reporting unit as purchasing petroleum needle coke entirely from third parties at anticipated market prices.

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The income approach was based on discounted projected debt-free cash flows for the graphite electrode reporting unit. The forecast of cash flows included several assumptions regarding future sales growth, revenues, earnings before interest, taxes, depreciation and amortization (“EBITDA”), capital expenditures and working capital changes. In addition to the estimates of future cash flows, the income approach involves the determination of the discount rate based upon market participant’s assumptions.

The market approach fair value was based on valuation multiples that were applied to the graphite electrode reporting unit’s actual and projected EBITDA. The multiples were derived under the guideline public company method from analyzing market multiples of EBITDA for a group of comparable public companies. The techniques used in the Company’s assessment incorporate a number of assumptions that the Company believes to be reasonable and to reflect known market conditions at the measurement date.

Key assumptions relate to customer demand and sales growth, graphite electrode and needle coke pricing trends, operating costs and capital expenditures. Assumptions in estimating future cash flows are subject to a degree of judgment.

The testing determined that the fair value of the Graphite Electrode reporting unit was less than its carrying amount by more than the amount of goodwill. As a result, we recorded a full impairment charge of \$171.1 million, which was recorded in Goodwill impairment charges in the Consolidated Statements of Income. The goodwill impairment was caused primarily by reduced sales of graphite electrodes due to softening demand and the deterioration of the electrode spot pricing.

For the 2022 and 2021 annual goodwill impairment testing, the Company performed a qualitative assessment first to determine whether it was more likely than not that the fair value of the Graphite Electrode reporting unit was less than its carrying amount. We assessed relevant events and circumstances, including industry, market and macroeconomic conditions, as well as Company and reporting unit-specific factors. Based on this review, we determined that it was not more likely than not that the fair value of the Graphite Electrode reporting unit was less than its carrying amount and concluded that the quantitative goodwill impairment test was not required. No impairment of goodwill resulted from our annual impairment tests in 2022 and 2021.

Intangible Assets

The following table summarizes acquired intangible assets with determinable useful lives by major category which are included in "Other assets" on our Consolidated Balance Sheets:

	December 31, 2023			December 31, 2022		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
	<i>(Dollars in thousands)</i>					
Trade names	\$ 22,500	\$ (17,379)	\$ 5,121	\$ 22,500	\$ (15,869)	\$ 6,631
Technology and know-how	55,300	(45,746)	9,554	55,300	(42,371)	12,929
Customer-related intangibles	64,500	(36,802)	27,698	64,500	(32,513)	31,987
Total finite-lived intangible assets	<u>\$ 142,300</u>	<u>\$ (99,927)</u>	<u>\$ 42,373</u>	<u>\$ 142,300</u>	<u>\$ (90,753)</u>	<u>\$ 51,547</u>

Amortization expense of intangible assets was \$9.2 million, \$10.1 million and \$10.7 million in 2023, 2022 and 2021, respectively. Estimated annual amortization expense for the next five years will approximate \$8.0 million in 2024, \$7.3 million in 2025, \$6.7 million in 2026, \$6.1 million in 2027 and \$5.5 million in 2028.

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(7) Interest Expense

The following table presents an analysis of interest expense:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Interest incurred on debt	\$ 56,219	\$ 43,609	\$ 56,731
Accretion of original issue discount	2,524	1,200	3,387
Amortization of debt issuance and modification costs	4,631	3,475	8,642
Amortization of interest rate swap deferred gains	(5,480)	—	—
Unrealized (gain) loss on termination of de-designated interest rate	7,111	(7,111)	—
Realized gain on termination of de-designated interest rate swap	(6,918)	(4,605)	—
Total interest expense	\$ 58,087	\$ 36,568	\$ 68,760

In June 2023, the net proceeds from the issuance of the 2023 Senior Secured Notes were used to repay the \$433.7 million of principal outstanding on the 2018 Term Loan Facility. The repayment of the 2018 Term Loan Facility was accounted for as a debt extinguishment and triggered \$1.2 million of accelerated accretion of the original issue discount and \$1.9 million of accelerated amortization of debt issuance costs. The 2023 Senior Secured Notes were accounted for as new debt and the related discount and debt issuance costs were deferred.

In connection with the repayment of the 2018 Term Loan Facility in June 2023, we terminated the outstanding interest rate swap contracts that were in place to fix the cash flows associated with the risk in variability in the one-month USD London Interbank Offered Rate (“USD LIBOR”) for the 2018 Term Loan Facility. As a result of the swaps termination, we recorded in interest expense realized gains of \$6.9 million relative to our de-designated swap and we deferred realized gains of \$13.5 million in accumulated other comprehensive income (“AOCI”) in connection with our designated swap. The gains deferred into AOCI for the designated swap will amortize into interest expense until August 2024, consistent with the term of the discontinued cash-flow hedging relationship.

The 2023 Senior Secured Notes and the 2020 Senior Secured Notes carry fixed interest rates of 9.875% and 4.625%, respectively. The 2018 Term Loan Facility, which was paid off in its entirety in June 2023, had an effective interest rate of 7.38% as of December 31, 2022.

In 2022, the Company made voluntary prepayments of \$110.0 million under its 2018 Term Loan Facility. In connection with this, the Company recorded \$0.5 million of accelerated accretion of the original issue discount and \$0.8 million of accelerated amortization of the debt issuance cost.

In 2021, the Company made voluntary prepayments of \$400.0 million under its 2018 Term Loan Facility. In connection with this, the Company recorded \$2.3 million of accelerated accretion of the original issue discount and \$3.7 million of accelerated amortization of the debt issuance costs. The Company also recorded \$1.6 million of modification costs related to the 2018 Term Loan Facility repricing in the first quarter of 2021.

See Note 5, “Debt and Liquidity” for details of our debt and Note 8, “Fair Value Measurements and Derivative Instruments” for additional details on our interest rate swaps and embedded derivative.

(8) Fair Value Measurements and Derivative Instruments

Fair Value Measurements

Depending on the inputs, we classify each fair value measurement as follows:

- Level 1 – Quoted market prices in active markets for identical assets or liabilities.
- Level 2 – Inputs other than Level 1 inputs that are either directly or indirectly observable.
- Level 3 – Unobservable inputs developed using estimates and assumptions developed by the Company, which reflect those that a market participant would use.

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The following tables present the classification of our assets and liabilities measured at fair value on a recurring basis:

December 31, 2023	Total	Level 1	Level 2	Level 3
<i>(Dollars in thousands)</i>				
Assets:				
Foreign currency derivatives	\$ 630	\$ —	\$ 630	\$ —
Total assets at fair value	<u>\$ 630</u>	<u>\$ —</u>	<u>\$ 630</u>	<u>\$ —</u>
Liabilities:				
Foreign currency derivatives	\$ 519	\$ —	\$ 519	\$ —
Total liabilities at fair value	<u>\$ 519</u>	<u>\$ —</u>	<u>\$ 519</u>	<u>\$ —</u>
December 31, 2022	Total	Level 1	Level 2	Level 3
<i>(Dollars in thousands)</i>				
Assets:				
Foreign currency derivatives	\$ 92	\$ —	\$ 92	\$ —
Interest rate swap contracts	27,384	—	27,384	—
Total assets at fair value	<u>\$ 27,476</u>	<u>\$ —</u>	<u>\$ 27,476</u>	<u>\$ —</u>
Liabilities:				
Foreign currency derivatives	\$ 282	\$ —	\$ 282	\$ —
Total liabilities at fair value	<u>\$ 282</u>	<u>\$ —</u>	<u>\$ 282</u>	<u>\$ —</u>

The carrying amounts and fair values of financial instruments, other than cash and cash equivalents, short-term notes and accounts receivable, accounts payable and other current payables, are shown in the table above. The carrying value of cash and cash equivalents, receivables and accounts payable approximate fair value due to the short-term nature of these instruments.

The fair value of our debt as of December 31, 2023 and 2022 was \$676.6 million and \$843.2 million, respectively. The fair values were determined using Level 2 quoted market prices for the same or similar debt instruments.

Additional fair value information related to our pension funds' assets can be found in Note 11, "Retirement Plans and Post-Employment Benefits."

Derivative Instruments

In the normal course of business, we are exposed to certain risks related to fluctuations in currency exchange rates. We use derivative financial instruments, primarily foreign currency derivatives, and have in the past used commodity derivative contracts and interest rate swaps as part of our overall strategy to manage risks from these market fluctuations.

Certain of our derivative contracts contain provisions that require us to provide collateral. Since the counterparties to these financial instruments are large commercial banks and similar financial institutions, we do not believe that we are exposed to material counterparty credit risk. We do not anticipate nonperformance by any of the counterparties to our instruments.

Foreign currency derivatives

We enter into foreign currency derivatives from time to time to attempt to manage exposure to changes in currency exchange rates. These foreign currency instruments, which include, but are not limited to, forward exchange contracts and purchased currency options, are used to hedge global currency exposures such as foreign currency denominated debt, receivables, payables, sales and purchases.

Foreign currency forward and swap contracts are used to mitigate the foreign exchange risk of balance sheet items. These derivatives are fair value hedges. Gains and losses from these derivatives are recorded in cost of goods sold and they are largely offset by the financial impact of translating foreign currency-denominated payables and receivables.

In the first quarter of 2022 and in the second, third and fourth quarters of 2023, we entered into foreign currency derivatives with maturities of one month to 12 months in order to protect against the risk that cash flows associated with certain sales and purchases denominated in a currency other than the U.S. dollar will be adversely affected by future changes in foreign exchange rates. These derivatives are designated as cash flow hedges. The resulting unrealized gains or losses from these derivatives are recorded in AOCL and subsequently, when realized, are reclassified to net sales or cost of goods sold in the Consolidated Statements of Operations when the hedged exposures affect earnings.

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Commodity derivative contracts

We have entered into commodity derivative contracts for refined oil products. These contracts were entered into to protect against the risk that eventual cash flows related to these products will be adversely affected by future changes in prices. The unrealized gains or losses related to commodity derivative contracts designated as cash flow hedges are recorded in AOCL and subsequently, when realized, are reclassified to the Consolidated Statement of Operations when the hedged item impacts earnings, which is when the finished product is sold. The last of our commodity derivative contracts matured as of June 30, 2022 and we have not entered into any new contracts as of December 31, 2023.

Interest rate swap contracts

We have utilized interest rate swaps in the past to limit exposure to market fluctuations on our variable-rate debt. For each derivative agreement that is designated as a cash flow hedge, the unrealized gain or loss is recorded in AOCL and, when realized, is recorded in interest expense. Upon discontinuance of a designated cash flow hedging relationship, when interest payments are still probable of occurring, the fair value at the date of discontinuance is deferred into AOCL and amortized into interest expense based upon the term of the cash flow hedging relationship.

We entered into interest rate swap contracts that were "pay fixed, receive variable." Our risk management objective was to fix our cash flows associated with the risk of variability in the one-month USD LIBOR for a portion of our outstanding debt. It was expected that the swaps would fix the cash flows associated with the forecasted interest payments on our debt to an effective fixed interest rate of 4.2%, which could be lowered to 3.95% depending on credit ratings. Since their modification concurrent with the 2018 Term Loan Facility modification in the first quarter of 2021, the swaps contained an other-than-insignificant financing element. As such, they were considered hybrid instruments composed of a debt host and an embedded derivative and the associated cash flows are classified as financing (uses)/sources of cash. The embedded derivative was treated as a cash flow hedge.

In the first quarter of 2022, in connection with the partial repayment of principal on our 2018 Term Loan Facility and our probability assessment of the variable-rate debt remaining outstanding through the term of the swaps, we de-designated one interest rate swap contract with a \$250.0 million notional amount, originally scheduled to mature in the third quarter of 2024. The fair value of the embedded derivative at the de-designation date was a gain of \$6.6 million and was recorded in AOCL and is being amortized into interest expense over the remaining life of the swap.

In the third quarter of 2022, we redeemed \$67.0 million of our \$250.0 million notional amount de-designated interest rate swap. The change in fair value of the de-designated embedded derivative for the year ended December 31, 2023 resulted in a loss of \$7.1 million, compared to a gain of \$7.1 million for the year ended December 31, 2022, recorded in interest expense in the Consolidated Statements of Operations.

In the second quarter of 2023, in connection with the repayment of the \$433.7 million outstanding balance on our 2018 Term Loan Facility, we terminated our \$183.0 million notional de-designated interest rate swap and our \$250.0 million notional designated interest rate swap and received net cash of \$20.4 million. The net cash received included a \$23.1 million gain on the embedded derivatives, partially offset by a \$2.8 million loss on the settlement of our debt host liability as of the termination date. As of December 31, 2022, the debt host liability was \$3.8 million, with \$2.3 million included in "Other accrued liabilities" and \$1.5 million included in "Other long-term obligations" on the Consolidated Balance Sheets. As of December 31, 2023, a cumulative loss of \$1.8 million related to the debt host liability was recorded in AOCL and will be amortized into interest expense using the effective interest method through August 2024.

Out of the \$23.1 million gain on the embedded derivatives, \$6.9 million for the de-designated swap was recorded in interest expense and \$16.2 million for the designated swap was recorded in AOCL and will be amortized into interest expense using the effective interest method through August 2024.

All derivatives are recorded on the balance sheet at fair value. If the derivative is designated and effective as a cash flow hedge, changes in the fair value of the derivative are recognized in AOCL until the hedged item is recognized in earnings. The ineffective portion of a derivative's fair value, if any, is recognized in earnings immediately. If a derivative is not a hedge, changes in its fair value are adjusted through earnings. The fair values of the outstanding derivatives are recorded on the balance sheet as assets (if the derivatives are in a gain position) or liabilities (if the derivatives are in a loss position). The fair values will also be classified as short-term or long-term depending upon their maturity dates.

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The notional amounts of our outstanding derivative instruments as of December 31, 2023 and 2022 were as follows:

	<u>December 31, 2023</u>		<u>December 31, 2022</u>	
	<u>Notional Amount</u>		<u>Notional Amount</u>	
<i>(Dollars in thousands)</i>				
Derivative instruments designated as hedges:				
Foreign currency derivatives	\$	10,684	\$	—
Interest rate swap contracts		—		250,000
Derivative instruments not designated as hedges:				
Foreign currency derivatives	\$	41,863	\$	70,420
Interest rate swap contracts		—		183,000

The following table summarizes the fair value of our outstanding derivatives designated as hedges (on a gross basis) and balance sheet classification as of December 31, 2023 and 2022:

	<u>December 31, 2023</u>		<u>December 31, 2022</u>	
	<u>Fair Value</u>		<u>Fair Value</u>	
<i>(Dollars in thousands)</i>				
Prepaid and other current assets				
Foreign currency derivatives	\$	386	\$	—
Interest rate swap contracts		—		10,246
Total	\$	386	\$	10,246
Other assets				
Interest rate swap contracts	\$	—	\$	5,575
Total	\$	—	\$	5,575
Total asset	\$	386	\$	15,821

As a result of the settlement of commodity derivative contracts and interest rate swaps, as of December 31, 2023, net realized pre-tax gains of \$2.5 million and \$9.2 million, respectively, were reported in AOCL and will be released to earnings within the next 12 months. As of December 31, 2023, net realized pre-tax losses of \$0.4 million related to our foreign currency derivatives were reported in AOCL and will be released to earnings within the next 12 months. In addition, we recorded \$0.8 million of ineffectiveness income to cost of goods sold in the Consolidated Statements of Operations in 2022 related to the settlement of commodity derivative contracts. No ineffectiveness expense was recorded in 2023 or 2021. See the table below for amounts recognized on the effective portion of our commodity derivative contracts in the Statement of Operations.

The realized (gains) losses on cash flow hedges are recognized in the Statements of Operations when the hedged item impacts earnings and are as follows for the years ended December 31, 2023, 2022 and 2021:

	Location of Realized (Gain)/Loss Recognized in the Consolidated Statement of Operations	<u>Amount of (Gain)/Loss Recognized</u>		
		<u>2023</u>	<u>2022</u>	<u>2021</u>
<i>(Dollars in thousands)</i>				
Derivatives designated as cash flow hedges:				
Foreign currency derivatives	Cost of goods sold	\$ 5,541	\$ 1,975	\$ —
Commodity derivative contracts	Cost of goods sold	(15,089)	(11,452)	6,440
Interest rate swaps	Interest expense	(10,617)	(2,423)	1,846

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Pre-tax gains and losses on non-designated derivatives recognized in earnings are as follows:

	Location of Realized (Gain)/Loss Recognized in the Consolidated Statement of Operations	Amount of (Gain)/Loss Recognized		
		2023	2022	2021
Derivatives not designated as hedges:		<i>(Dollars in thousands)</i>		
Foreign currency derivatives	Cost of goods sold, other expense (income), net	\$ (314)	\$ (938)	\$ 3,895
Commodity derivative contracts	Cost of goods sold	—	—	(1,399)
Interest rate swaps	Interest expense	(2,957)	(11,716)	866

The following table summarizes the fair value of our outstanding derivatives not designated as hedges (on a gross basis) and balance sheet classification as of December 31, 2023 and 2022:

	December 31, 2023	December 31, 2022
	Fair Value	Fair Value
<i>(Dollars in thousands)</i>		
Prepaid and other current assets		
Interest rate swap contracts	\$ —	\$ 7,492
Foreign currency derivatives	244	92
Other assets		
Interest rate swap contracts	—	4,071
Other accrued liabilities		
Foreign currency derivatives	(519)	(282)
Net (liability) asset	<u>\$ (275)</u>	<u>\$ 11,373</u>

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(9) Supplementary Balance Sheet Detail

The following tables present supplementary balance sheet details:

	December 31, 2023	December 31, 2022
<i>(Dollars in thousands)</i>		
Inventories:		
Raw materials and supplies	\$ 109,084	\$ 216,761
Work in process	186,473	192,821
Finished goods	34,589	38,159
	\$ 330,146	\$ 447,741
Prepaid expenses and other current assets:		
Prepaid expenses	\$ 11,176	\$ 15,261
Value-added tax and other indirect taxes receivable	28,629	39,417
Spare parts inventory	15,242	12,990
Other current assets	11,335	19,604
	\$ 66,382	\$ 87,272
Property, plant and equipment:		
Land and improvements	\$ 49,962	\$ 48,478
Buildings	87,820	82,054
Machinery and equipment and other	717,002	655,823
Construction in progress	65,660	82,813
	\$ 920,444	\$ 869,168
Other accrued liabilities:		
Payrolls (including incentive programs)	\$ 22,369	\$ 10,799
Employee benefits	7,018	6,921
Deferred revenue	31,583	27,878
Other	30,732	43,751
	\$ 91,702	\$ 89,349
Other long-term obligations:		
Post-employment benefits	\$ 12,613	\$ 11,996
Pension and related benefits	26,068	22,768
Other	16,964	16,058
	\$ 55,645	\$ 50,822

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The following table presents an analysis of the allowance for doubtful accounts for the years ended December 31:

	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Balance at beginning of year	\$ 8,019	\$ 6,835	\$ 8,243
(Credit) charge to income	(439)	1,585	(1,266)
Deductions	128	(401)	(142)
Balance at end of year	\$ 7,708	\$ 8,019	\$ 6,835

Supplier Finance Program (“SFP”) Obligations

GrafTech Mexico S.A. De C.V. (“GrafTech Mexico”) participates in an electronic vendor voucher payment program supported by the Mexican Government through one of its national banks, whereby suppliers can factor their invoices through a financial intermediary. This program gives GrafTech Mexico’s suppliers the option to settle trade receivables by obtaining payment for a discounted amount from the financial intermediary prior to the invoice due date. GrafTech Mexico’s responsibility is limited to making payment on the terms originally negotiated with its supplier, regardless of whether the supplier elects to receive early payment. The range of payment terms GrafTech Mexico negotiates with its suppliers is consistent, irrespective of whether a supplier participates in the program.

SFP obligations are included in accounts payable on the Consolidated Balance Sheets and upon settlement, are reflected as cash flow from operating activities in the Consolidated Statements of Cash Flows. See below for a rollforward of our SFP obligations.

	<i>(Dollars in thousands)</i>	
Confirmed obligations outstanding as of December 31, 2022	\$	—
Invoices confirmed during the year		24,368
Confirmed invoices paid during the year		(19,732)
Confirmed obligations outstanding as of December 31, 2023	\$	4,636

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(10) Leases

The Company leases certain transportation and mobile manufacturing equipment such as railcars and forklifts, as well as real estate.

The components of lease expense are as follows:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Operating lease cost	\$ 4,896	\$ 5,441	\$ 5,399
Finance lease cost:			
Amortization of lease assets	39	—	—
Interest on lease liabilities	13	—	—
Short-term lease cost	123	163	408
Variable lease cost	743	756	453
Total lease cost	<u>\$ 5,814</u>	<u>\$ 6,360</u>	<u>\$ 6,260</u>

Supplemental cash-flow and other information related to leases is as follows:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Cash paid for amounts included in the measurement of lease liabilities			
Operating cash outflows - payments on operating leases	\$ (3,919)	\$ (4,015)	\$ (5,466)
Operating cash outflows - interest payments on finance leases	(13)	—	—
Financing cash outflows - payments on finance lease obligations	(36)	—	—
Right-of-use assets obtained in exchange for operating lease obligations	2,621	2,303	5,584
Right-of-use assets obtained in exchange for finance lease obligations	291	—	—

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Supplemental balance sheet information related to leases is as follows:

		December 31,	
		2023	2022
		<i>(Dollars in thousands)</i>	
Location			
Operating Leases			
Operating lease right-of-use assets	Other assets	\$ 5,003	\$ 5,741
Current operating lease liabilities	Other accrued liabilities	2,568	3,575
Non-current operating lease liabilities	Other long-term obligations	2,542	2,304
Total operating lease liabilities		\$ 5,110	\$ 5,879
Finance Leases			
Property, plant and equipment	Property, plant and equipment	\$ 330	\$ —
Accumulated depreciation	Accumulated depreciation	39	—
Finance lease assets, net		\$ 291	\$ —
Other liabilities and accrued items	Other liabilities and accrued items	\$ 83	\$ —
Finance lease liabilities	Other long-term obligations	210	—
Total principal payable on finance leases		\$ 293	\$ —
Weighted-Average Remaining Lease Term			
Operating leases		2.4 years	2.1 years
Finance leases		4.1 years	0 years
Weighted-Average Discount Rate			
Operating leases		6.63 %	4.65 %
Finance leases		7.93 %	— %

As of December 31, 2023, future minimum lease payments under noncancellable operating leases were as follows:

	Finance Leases	Operating Leases
	<i>(Dollars in thousands)</i>	
2024	\$ 87	\$ 2,640
2025	87	1,700
2026	87	891
2027	53	264
2028	31	30
2029 and thereafter	—	—
Total lease payments	\$ 345	\$ 5,525
Less: Imputed interest	(52)	(415)
Present value of lease payments	\$ 293	\$ 5,110

As of December 31, 2023, the Company has not entered into any material lease commitments that have yet to commence.

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(11) Retirement Plans and Post-Employment Benefits

Retirement Plans

On February 26, 1991, we formed our own retirement plan covering substantially all our U.S. employees. Under our plan, covered employees earned benefit payments based primarily on their service credits and wages subsequent to February 26, 1991.

Prior to that date, substantially all our U.S. employees were participants in the U.S. retirement plan of Union Carbide Corporation (“Union Carbide”). While service credit was frozen, covered employees continued to earn benefits under the Union Carbide plan based on their final average wages through February 26, 1991, adjusted for salary increases (not to exceed six percent per annum) through January 26, 1995, the date Union Carbide ceased to own a minimum 50% of the equity of GTI. The Union Carbide plan is responsible for paying retirement and death benefits earned as of February 26, 1991.

Effective January 1, 2002, we established a defined contribution plan for U.S. employees. Certain employees had the option to remain in our defined benefit plan for an additional period of up to five years. Employees not covered by this option had their benefits under our defined benefit plan frozen as of December 31, 2001, and began participating in the defined contribution plan.

Effective March 31, 2003, we curtailed our qualified benefit plan and the benefits were frozen as of that date for the U.S. employees who had the option to remain in our defined benefit plan. We also closed our non-qualified U.S. defined benefit plan for the participating salaried workforce. The employees began participating in the defined contribution plan as of April 1, 2003.

Pension coverage for employees of foreign subsidiaries is provided, to the extent deemed appropriate, through separate plans. Obligations under such plans are systematically provided for by depositing funds with trustees, under insurance policies or by book reserves.

The components of our consolidated net pension costs are set forth in the following table:

	Year Ended December 31,					
	2023		2022		2021	
	U.S.	Foreign	U.S.	Foreign	U.S.	Foreign
	<i>(Dollars in thousands)</i>					
Service cost	\$ 1,483	\$ 1,053	\$ 1,390	\$ 1,220	\$ 1,328	\$ 1,349
Interest cost	4,722	870	3,242	227	2,962	111
Expected return on assets	(4,353)	(1,145)	(3,960)	(640)	(4,213)	(545)
Mark-to-market (gain) loss	(2,513)	4,395	(181)	(7,801)	(2,428)	(1,327)
Net periodic benefit (credit) cost	\$ (661)	\$ 5,173	\$ 491	\$ (6,994)	\$ (2,351)	\$ (412)

The mark-to-market loss in 2023 was the result of an unfavorable change in the discount rate on our foreign plans. The mark-to-market gain in 2022 was primarily the result of a favorable change in the discount rate, partially offset by a worse than expected return on plan assets. The mark-to-market gain in 2021 was the result of a favorable change in the discount rate and favorable foreign currency translation, as well as a better than expected return on plan assets, particularly for the U.S. plans.

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The reconciliation of the beginning and ending balances of our pension plans' benefit obligations, fair value of assets, and funded status at December 31, 2023 and 2022 are shown below.

	December 31, 2023		December 31, 2022	
	U.S.	Foreign	U.S.	Foreign
	<i>(Dollars in thousands)</i>			
Changes in Benefit Obligation:				
Net benefit obligation at beginning of period	\$ 99,993	\$ 31,065	\$ 129,906	\$ 38,571
Service cost	1,483	1,053	1,390	1,220
Interest cost	4,722	870	3,242	227
Participant contributions	—	501	—	557
Plan settlements	—	(1,609)	—	—
Foreign currency exchange changes	—	2,983	—	(660)
Actuarial loss (gain)	1,516	3,694	(24,202)	(7,293)
Benefits paid	(10,392)	(1,076)	(10,343)	(1,557)
Net benefit obligation at end of period	\$ 97,322	\$ 37,481	\$ 99,993	\$ 31,065
Changes in Plan Assets:				
Fair value of plan assets at beginning of period	\$ 80,006	\$ 27,708	\$ 109,961	\$ 26,913
Actual return on plan assets	8,382	645	(20,061)	1,148
Foreign currency exchange rate changes	—	2,609	—	(325)
Plan settlements	—	(1,609)	—	—
Employer contributions	400	1,203	449	972
Participant contributions	—	501	—	557
Benefits paid	(10,392)	(1,076)	(10,343)	(1,557)
Fair value of plan assets at end of period	\$ 78,396	\$ 29,981	\$ 80,006	\$ 27,708
Funded status (underfunded):	\$ (18,926)	\$ (7,500)	\$ (19,987)	\$ (3,357)
Amounts recognized in the statement of financial position:				
Other accrued liabilities	\$ (324)	\$ (34)	\$ (409)	\$ (167)
Other long-term obligations	(18,602)	(7,466)	(19,578)	(3,190)
Net amount recognized	\$ (18,926)	\$ (7,500)	\$ (19,987)	\$ (3,357)

The accumulated benefit obligation for all defined benefit pension plans was \$133.1 million and \$129.5 million as of December 31, 2023 and 2022, respectively.

Plan Assets

The accounting guidance on fair value measurements specifies a hierarchy based on the observability of inputs used in valuation techniques (Level 1, 2 and 3). See Note 8, "Fair Value Measurements and Derivative Instruments" for a discussion of the fair value hierarchy.

The following describes the methods and significant assumptions used to estimate the fair value of the investments:

Cash and cash equivalents – Valued at cost. Cash equivalents are valued at net asset value as provided by the administrator of the fund.

Foreign government bonds – Valued by the trustees using various pricing services of financial institutions.

Fixed insurance contracts – Valued at the present value of the guaranteed payment streams.

Collective trusts – Valued at the net asset value provided by the administrator of the fund (the practical expedient). The net asset value is primarily based on quoted market prices of the underlying securities for which quoted market prices of the underlying securities of the funds. Some of the underlying investments include securities for which quoted market prices are not

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available and are valued using data obtained by the trustee from the best available source or market value. This method may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although we believe its valuation method is appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The fair value of other plan assets by category is summarized below (dollars in thousands):

	December 31, 2023			
	Level 1	Level 2	Level 3	Total
U.S. Plan Assets				
Cash and cash equivalents	\$ 710	\$ —	\$ —	\$ 710
International Plan Assets				
Foreign government bonds	—	961	—	961
Fixed insurance contracts	—	—	29,020	29,020
Total international plan assets	\$ —	\$ 961	\$ 29,020	\$ 29,981
U.S. Plan - Investments measured at net asset value				\$ 77,686
Total	<u>\$ 710</u>	<u>\$ 961</u>	<u>\$ 29,020</u>	<u>\$ 108,377</u>

	December 31, 2022			
	Level 1	Level 2	Level 3	Total
U.S. Plan Assets				
Cash and cash equivalents	\$ 706	\$ —	\$ —	\$ 706
International Plan Assets				
Foreign government bonds	\$ —	\$ 1,023	\$ —	\$ 1,023
Fixed insurance contracts	—	—	26,685	26,685
Total international plan assets	\$ —	\$ 1,023	\$ 26,685	\$ 27,708
U.S. Plan - Investments measured at net asset value				\$ 79,300
Total	<u>\$ 706</u>	<u>\$ 1,023</u>	<u>\$ 26,685</u>	<u>\$ 107,714</u>

The following table presents the changes for those financial instruments classified within Level 3 of the valuation hierarchy for international plan pension assets for the years ended December 31, 2023 and 2022 (dollars in thousands):

	Fixed Insurance Contracts
Balance at December 31, 2021	\$ 26,003
Gain / contributions / currency impact	864
Distributions	(182)
Balance at December 31, 2022	26,685
Gain / contributions / currency impact	2,489
Distributions	(154)
Balance at December 31, 2023	<u>\$ 29,020</u>

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We annually re-evaluate assumptions and estimates used in projecting pension assets, liabilities and expenses. These assumptions and estimates may affect the carrying value of pension assets, liabilities and expenses in our Consolidated Financial Statements. Assumptions used to determine net pension costs and projected benefit obligations are:

Pension Benefit Obligations Key Assumptions

	December 31,	
	2023	2022
Weighted average assumptions to determine benefit obligations:		
Discount rate	3.93 %	4.43 %
Rate of compensation increase	1.70 %	1.71 %

Pension Cost Key Assumptions

Weighted average assumptions to determine net cost:

Discount rate	4.43 %	2.14 %
Expected return on plan assets	5.30 %	3.50 %
Rate of compensation increase	1.71 %	1.46 %

We adjust our discount rate annually in relation to the rate at which the benefits could be effectively settled. Discount rates are set for each plan in reference to the yields available on AA-rated corporate bonds of appropriate currency and duration. The appropriate discount rate is derived by developing an AA-rated corporate bond yield curve in each currency. The discount rate for a given plan is the rate implied by the yield curve for the duration of that plan's liabilities. In certain countries, where little public information is available on which to base discount rate assumptions, the discount rate is based on government bond yields or other indices and approximate adjustments to allow for the differences in weighted durations for the specific plans and/or allowance for assumed credit spreads between government and AA-rated corporate bonds.

The expected return on assets assumption represents our best estimate of the long-term return on plan assets and generally was estimated by computing a weighted average return of the underlying long-term expected returns on the different asset classes, based on the target asset allocations. The expected return on assets assumption is a long-term assumption that is expected to remain the same from one year to the next unless there is a significant change in the target asset allocation, the fees and expenses paid by the plan or market conditions.

The rate of compensation increase is based on the long-term inflation rate projection of the jurisdictions where we have active plans and on any incremental change due to merit or productivity.

Plan Assets. The following table presents our retirement plan weighted average asset allocations at December 31, 2023, by asset category:

	Percentage of Plan Assets December 31, 2023	
	U.S.	Foreign
Equity securities and return seeking assets	20 %	— %
Fixed income, debt securities, or cash	80 %	100 %
Total	100 %	100 %

Investment Policy and Strategy. The investment policy and strategy of the U.S. plan is to invest approximately 20% in equities and return seeking assets and approximately 80% in fixed income securities. Rebalancing is undertaken monthly. To the extent we maintain plans in other countries, target asset allocation is 100% fixed income investments. For each plan, the investment policy is set within both asset return and local statutory requirements.

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Information for our pension plans with an accumulated benefit obligation in excess of plan assets at December 31, 2023 and 2022 follows:

	2023		2022	
	U.S.	Foreign	U.S.	Foreign
	<i>(Dollars in thousands)</i>			
Accumulated benefit obligation	\$ 97,322	\$ 35,772	\$ 99,993	\$ 1,884
Fair value of plan assets	78,396	29,981	80,006	—

Information for our pension plans with a projected benefit obligation in excess of plan assets at December 31, 2023 and 2022 follows:

	2023		2022	
	U.S.	Foreign	U.S.	Foreign
	<i>(Dollars in thousands)</i>			
Projected benefit obligation	\$ 97,322	\$ 37,481	\$ 99,993	\$ 31,065
Fair value of plan assets	78,396	29,981	80,006	27,708

Following is our projected future pension plan cash flow by year:

	U.S.	Foreign
	<i>(Dollars in thousands)</i>	
Expected contributions in 2024:		
Expected employer contributions	\$ 4,709	\$ 677
Expected employee contributions	—	—
Estimated future benefit payments reflecting expected future service for the years ending December 31:		
2024	\$ 9,021	\$ 3,152
2025	8,912	1,411
2026	8,826	2,673
2027	8,596	2,177
2028	8,379	1,723
Next five years	37,440	11,850

Post-Employment Benefit Plans

We have legacy post-employment medical coverage and life insurance benefits for eligible retired employees in the U.S. and in certain foreign jurisdictions. Effective December 31, 2005, all U.S. post-employment medical coverage plans were frozen.

The post-employment benefit plans are un-funded and our periodic contributions correspond to the amount of benefits paid in the period. Our funding contributions were \$1.3 million and \$1.2 million in 2023 and 2022, respectively.

The estimated liability for post-employment benefit plans was \$14.3 million and \$13.5 million as of December 31, 2023 and 2022, respectively. The Company recognized expense of \$2.0 million in 2023, income of \$0.9 million in 2022 and expense of \$0.5 million in 2021 in the Consolidated Statement of Operations for post-employment benefits. Included in post-employment benefit expense are mark-to-market losses of \$1.1 million in 2023 and mark-to-market gains of \$1.6 million and \$0.1 million in 2022 and 2021, respectively.

Savings Plan

Our employee savings plan provides eligible employees the opportunity for long-term savings and investment. The plan allows employees to contribute up to 5% of pay as a basic contribution and an additional 45% of pay as supplemental contribution. The Company's contributions to our savings plan were \$3.0 million in both 2023 and 2022 and \$2.5 million in 2021.

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(12) Commitments and Contingencies

Legal Proceedings

We are involved in various investigations, lawsuits, claims, demands, labor disputes and other legal proceedings, including with respect to environmental and human exposure or other personal injury matters, arising out of or incidental to the conduct of our business. While it is not possible to determine the ultimate disposition of each of these matters and proceedings, we do not believe that their ultimate disposition will have a material adverse effect on our financial position, results of operations or cash flows. Additionally, we are involved in the following legal proceedings.

Arbitrations

We are involved in certain arbitrations as respondents/counterclaimants, pending before the International Chamber of Commerce with a few customers who, among other things, have failed to perform under their LTAs and in certain instances are seeking to modify or frustrate their contractual commitments to us. In particular, Aperam South America LTDA, Aperam Sourcing S.C.A., ArcelorMittal Sourcing S.C.A., and ArcelorMittal Brasil S.A. (collectively, the “Claimants”) initiated a single arbitration proceeding against two of the Company’s subsidiaries in the International Chamber of Commerce in June 2020. The Claimants argue, among other things, that they should no longer be required to comply with the terms of the LTAs that they signed due to an alleged drop in market prices for graphite electrodes in January 2020. Alternatively, the Claimants argue that they should not be required to comply with the LTAs that they signed due to alleged market circumstances at the time of execution. In June 2021, the Claimants filed their statement of claim, seeking approximately \$61.0 million plus interest in monetary relief and/or reimbursement in respect of several fixed price LTAs that were executed between such subsidiaries and the Claimants in 2017 and 2018. On December 16, 2022, the Claimants revised their calculation of alleged damages to approximately \$178.9 million including interest, with damages covering the period from the first quarter of 2020 through the end of the third quarter of 2022 and interest covering the period from June 2020 through December 16, 2022. In March 2023, an International Chamber of Commerce hearing was held before the party-appointed sole arbitrator with the Claimants, the Company, and witnesses in attendance. On March 31, 2023, the Claimants further revised their calculation of alleged damages to approximately \$171.7 million, including interest, for the period covering the first quarter of 2020 through 2022. In June of 2023, the Claimants again revised their calculation of alleged damages to approximately \$188.2 million, including interest, for the period covering the first quarter of 2020 through the first quarter of 2023. We believe we have valid defenses to these claims. We intend to vigorously defend them and enforce our rights under the LTAs.

Pending litigation in Brazil has been brought by employees seeking to recover additional amounts and interest thereon under certain wage increase provisions applicable in 1989 and 1990 under collective bargaining agreements to which employers in the Bahia region of Brazil were a party (including our subsidiary in Brazil). Companies in Brazil have settled claims arising out of these provisions and, in May 2015, the litigation was remanded by the Brazilian Supreme Court in favor of the employees union. After denying an interim appeal by the Bahia region employers on June 26, 2019, the Brazilian Supreme Court finally ruled in favor of the employees union on September 26, 2019. The employers union has determined not to seek annulment of such decision. Separately, on October 1, 2015, a related action was filed by current and former employees against our subsidiary in Brazil to recover amounts under such provisions, plus interest thereon, which amounts together with interest could be material to us. If the Brazilian Supreme Court proceeding above had been determined in favor of the employers union, it would also have resolved this proceeding in our favor. In the first quarter of 2017, the state court initially ruled in favor of the employees. We appealed this state court ruling, and the appellate court issued a decision in our favor on May 19, 2020. The employees have further appealed and, on December 16, 2020, the court upheld the decision in favor of GrafTech Brazil. On February 22, 2021, the employees filed a further appeal and, on April 28, 2021, the court rejected the employees’ appeal in favor of GrafTech Brazil. The employees filed a further appeal and on September 12, 2022, we filed our response in opposition. We intend to vigorously defend our position. As of December 31, 2023, we are unable to assess the potential loss associated with these proceedings as the claims do not currently specify the number of employees seeking damages or the amount of damages being sought.

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Product Warranties

We generally sell products with a limited warranty. We accrue for known warranty claims if a loss is probable and can be reasonably estimated. We also accrue for estimated warranty claims incurred based on a historical claims charge analysis. Claims accrued but not yet paid and the related activity within the reserve for 2022 and 2023 are as follows:

	<i>(Dollars in thousands)</i>	
Balance as of December 31, 2021	\$	1,088
Product warranty charges/adjustments		456
Payments and settlements		(724)
Balance as of December 31, 2022	\$	820
Product warranty charges/adjustments		25
Payments and settlements		(768)
Balance as of December 31, 2023	\$	<u>77</u>

Related Party Tax Receivable Agreement

On April 23, 2018, the Company entered into the Tax Receivable Agreement that provides Brookfield, as the sole Pre-IPO stockholder, the right to receive future payments from us for 85% of the amount of cash savings, if any, in U.S. federal income tax and Swiss tax that we and our subsidiaries realize as a result of the utilization of the pre-IPO Tax Assets. In addition, we will pay interest on the payments we will make to Brookfield with respect to the amount of these cash savings from the due date (without extensions) of our tax return where we realize these savings to the payment date. On April 10, 2023, the Tax Receivable Agreement was amended and restated to change the applicable interest rate from LIBOR plus 1.00% per year to the one-month period secured overnight financing rate administered by the Federal Reserve Bank of New York plus 1.10%. The term of the Tax Receivable Agreement commenced on April 23, 2018 and will continue until there is no potential for any future tax benefit payments.

As of December 31, 2023, total Tax Receivable Agreement liability was \$11.1 million, of which \$5.4 million was classified as a current liability in "Related party payable - Tax Receivable Agreement" on the Consolidated Balance Sheets and \$5.7 million was classified as a long-term liability in "Related party payable - Tax Receivable Agreement long-term" on the Consolidated Balance Sheets.

As of December 31, 2022, the total Tax Receivable Agreement liability was \$15.5 million, of which \$4.6 million was classified as a current liability and \$10.9 million was classified as a long-term liability.

Long-term Incentive Plan

The long-term incentive plan ("LTIP") was adopted by the Company in August 2015 and amended and restated in March 2018. The purpose of the plan was to retain senior management of the Company, to incentivize them to make decisions with a long-term view and to influence behavior in a way that is consistent with maximizing value for the pre-IPO stockholder of the Company in a prudent manner. Each participant was allocated a number of profit units, with a maximum of 30,000 profit units ("Profit Units") available under the plan. Awards of Profit Units generally vested in equal increments over a five-year period beginning on the first anniversary of the grant date of the Profit Units, subject to continued employment with the Company through each vesting date. If a participant ceased to provide services prior to any applicable vesting date for any reason, other than a termination for cause, then the participant forfeited all unvested Profit Units and any vested Profit Units remained outstanding. If a participant had been terminated for cause, both vested and unvested Profit Units would have been forfeited. Upon a Change in Control (as defined in the LTIP), the Profit Units entitled the participant to a payment based on a percentage of the sum of (i) all net "Sale Proceeds" (as defined in the LTIP) received by Brookfield Capital IV L.P. and its affiliates ("Brookfield Capital IV") less (ii) the "Threshold Value" (as defined in the LTIP), with such payment amount being determined by the Company's Board of Directors in its sole discretion. In the event that, in connection with a Change in Control, Brookfield Capital IV disposes of less than 100% of its ownership interest in the Company, the amount of the Sale Proceeds in excess of the Threshold Value shall be determined on a pro-rata basis by reference to the percentage of ownership interest disposed, as determined by the Board of Directors of the Company.

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The May 2021 secondary offering of our common stock by Brookfield Capital IV constituted a Change in Control under the LTIP. A Change in Control under the LTIP is defined as, among other things, a transaction or series of transactions (including, without limitation, the consummation of a combination, share purchases, recapitalization, redemption, issuance of capital stock, consolidation, reorganization or otherwise) pursuant to which following a public offering of the Company's stock, Brookfield Capital IV ceases to have a beneficial ownership interest in at least 30% of the Company's outstanding voting securities (effective on the first of such date). Upon completion of the May 2021 secondary offering, Brookfield beneficially owned approximately 24% of the Company's outstanding voting securities. Accordingly, the Company settled the vested Profit Units in lump sum payments within 30 days following the Change in Control. In the second quarter 2021, the settlement of the Profit Units resulted in the recording of a pre-tax charge of \$73.4 million, of which \$30.7 million was recorded in cost of goods sold and \$42.7 million was recorded in selling and administrative expense. To date, \$71.8 million of the charges have been settled in cash by the Company while the remainder of the liability, related to payroll taxes, is expected to be paid in subsequent quarters, which will satisfy all obligations under the LTIP.

Mexico Value-Added Tax ("VAT")

In July 2019, the Mexican Tax Authority ("MTA") opened an audit of the VAT filings of GrafTech Comercial de Mexico S. de R.L. de C.V. ("GrafTech Commercial Mexico") for the period of January 1 to April 30, 2019. In September 2021, the MTA issued a tax assessment, claiming improper use of a certain VAT exemption rule for purchases from a foreign affiliate. As of December 31, 2023, the tax assessment for the four month period under audit amounted to approximately \$28.8 million, including penalties, inflation and interest. Interest will continue to accrue up to five years from the date the corresponding VAT returns were filed and inflation will continue to accrue with the passage of time. GrafTech Commercial Mexico filed an administrative appeal against the tax assessment with the MTA's appeals office. In November 2022, the MTA's appeals office concluded its review and confirmed the tax assessment. GrafTech Commercial Mexico believes that the purchases from a foreign affiliate are exempt from VAT back-up withholding, and in December 2022, GrafTech Commercial Mexico filed a Claim for Nullity with the Chamber Specialized in exclusive resolution of substance of the Federal Court of Administrative Justice. On February 17, 2023, the MTA filed the response to the nullity petition. On May 31, 2023, the court held a hearing to determine the scope of the issues to be decided in the proceedings. At the court's request, GrafTech Commercial Mexico submitted formal pleadings on August 1, 2023. On January 8, 2024, the court ruled in GrafTech Commercial Mexico's favor and annulled the tax assessment. On January 31, 2024, the MTA filed an appeal for review.

In March 2022, the MTA opened another audit of the VAT filings of GrafTech Commercial Mexico for the period January 1 to December 31, 2018. In the proposed assessment received in January 2023, the MTA is alleging the same improper use of certain VAT exemption rules on purchases from a foreign affiliate and has provided notice of its intent to assess approximately \$51.0 million, including penalties, inflation and interest. In Mexico, each tax assessment requires a separate claim. In the first quarter of 2023, GrafTech Commercial Mexico requested a conclusive agreement with the Mexican ombudsman ("PRODECON") to reach a settlement with the MTA. The MTA responded to GrafTech Commercial Mexico's request on May 30, 2023. On August 2, 2023, GrafTech Commercial Mexico filed a motion exhibiting additional information and reaffirming its position. On September 22, 2023, the MTA responded to GrafTech Commercial Mexico's motion. On October 2, 2023, GrafTech Commercial Mexico filed a motion requesting a formal meeting with the MTA and PRODECON, which occurred on November 14, 2023. During the meeting, the parties agreed that GrafTech Commercial Mexico will provide additional documentation and information to be evaluated by the MTA, and, on November 29, 2023, GrafTech Commercial Mexico filed the information requested. On January 24, 2024, the MTA filed its response. On that same day, GrafTech Commercial Mexico submitted before PRODECON the favorable ruling it obtained on January 8, 2024 in connection with the 2019 proceeding for the MTA's consideration. On February 1, 2024, the MTA confirmed its position, holding that GrafTech Commercial Mexico was required to withhold the VAT. GrafTech Commercial Mexico plans to challenge the assessment. The \$51.0 million includes interest and inflation. Interest will continue to accrue up to five years from the date the corresponding VAT returns were filed and inflation will continue to accrue with the passage of time.

As evidenced by the favorable court decision issued on January 8, 2024, GrafTech Commercial Mexico's application of the VAT exemption rules is appropriate and, accordingly, GrafTech Commercial Mexico does not believe that it is probable that it will incur a loss related to this matter for either of the two periods under the MTA's audit. The Company intends to vigorously defend its position in these proceedings.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

(13) Income Taxes

(Loss) income before the (benefit) provision for income taxes was derived from the following sources:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
U.S.	\$ (111,821)	\$ 55,107	\$ (69,087)
Foreign	(161,943)	397,211	525,493
(Loss) income before (benefit) provision for income taxes	\$ (273,764)	\$ 452,318	\$ 456,406

The (benefit) provision for income taxes consisted of the following:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
U.S. income taxes:			
Current	\$ (129)	\$ 3,590	\$ 645
Deferred	(12,643)	13,302	2,132
	(12,772)	16,892	2,777
Foreign income taxes:			
Current	9,738	48,744	71,088
Deferred	(15,480)	3,720	(5,789)
	(5,742)	52,464	65,299
(Benefit) provision for income taxes	\$ (18,514)	\$ 69,356	\$ 68,076

The provision for income taxes represented a benefit for the year ended December 31, 2023 compared to an expense for the year ended December 31, 2022. Total pre-tax earnings shifted from a profit position to a loss position and the Company recorded a goodwill impairment charge that is not tax deductible.

A reconciliation of income taxes at the U.S. statutory rate to the (benefit) provision for income taxes follows:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Tax at statutory U.S. federal rate	\$ (57,490)	\$ 94,987	\$ 95,845
Impact of U.S. Tax Cuts and Jobs Act of 2017 - GILTI	1,041	38,153	51,016
Impact of Tax Receivable Agreement	91	(39)	49
Valuation allowance	(282)	(1,259)	(2,208)
State taxes, net of federal tax benefit	818	2,182	1,414
U.S. tax impact of foreign earnings (net of foreign tax credits)	311	348	537
Establishment/resolution of uncertain tax positions	(36)	(40)	(48)
Adjustment for foreign income taxed at different rates	16,666	(25,656)	(38,530)
Foreign tax credits	(2,534)	(34,264)	(43,821)
Change-in-Control-related compensation	—	(1,432)	10,626
Impact of non-deductible goodwill impairment	24,570	—	—
Other	(1,669)	(3,624)	(6,804)
(Benefit) provision for income taxes	\$ (18,514)	\$ 69,356	\$ 68,076

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The tax effects of temporary differences that give rise to significant components of the deferred tax assets and deferred tax liabilities at December 31, 2023 and 2022 are set forth in the following table:

	December 31,	
	2023	2022
	<i>(Dollars in thousands)</i>	
Deferred tax assets:		
Post-employment and other employee benefits	\$ 18,088	\$ 15,088
Foreign tax credit and other carryforwards	40,172	25,856
Capitalized research and experimental costs	212	736
Environmental reserves	1,058	1,040
Inventory adjustments	7,710	5,767
Long-term contract option amortization	881	934
Previously taxed income	—	8,304
Other	1,198	2,695
Total gross deferred tax assets	69,319	60,420
Less: valuation allowance	(8,956)	(9,269)
Total deferred tax assets	60,363	51,151
Deferred tax liabilities:		
Fixed assets	\$ 51,474	\$ 51,410
Inventory	—	14,649
Goodwill and acquired intangibles	6,418	10,089
Mark-to-market hedges	1,403	3,903
Other	2,732	4,205
Total deferred tax liabilities	62,027	84,256
Net deferred tax liability	\$ (1,664)	\$ (33,105)

At each reporting period, the Company assesses the need for valuation allowances against deferred tax assets and whether it is more likely than not that deferred tax benefits will be realized in each jurisdiction. Consideration is given to all available evidence, both positive and negative, in assessing the need for a valuation allowance. Examples of positive evidence include a strong earnings history, an event or events that would increase the Company's taxable income or reduce expenses, or tax planning strategies that would create the ability to realize deferred tax assets. Examples of negative evidence include cumulative losses in recent years or a history of tax attributes expiring unused. In circumstances where the negative evidence outweighs the positive evidence, the Company has established or maintained valuation allowances on the jurisdiction's net deferred tax assets. However, the recognition of the valuation allowance does not limit the Company's ability to utilize these tax assets on a tax return in the future should taxable income be realized in sufficient amount to realize the assets.

Valuation allowance activity for the years ended December 31, 2023, 2022 and 2021 is as follows:

	<i>(Dollars in thousands)</i>	
Balance as of December 31, 2020	\$	12,773
Credited to income		(2,208)
Translation adjustment		(15)
Balance as of December 31, 2021	\$	10,550
Credited to income		(1,259)
Translation adjustment		(22)
Balance as of December 31, 2022	\$	9,269
Credited to income		(268)
Translation adjustment		(45)
Balance as of December 31, 2023	\$	8,956

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

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The decrease in the valuation allowance in 2023 was primarily attributable to changes in expected future utilization, state law changes and expiration of U.S. state NOL carryforwards during the year. The reduction in the valuation allowance in 2022 resulted primarily from changes in expected future utilization, state law changes and expiration of U.S. state NOL carryforwards during the year.

As of December 31, 2023, the Company had a total foreign tax credit carryforward of \$4.5 million. These tax credit carryforwards begin to expire in 2027. In addition, the Company had state NOL carryforwards of \$148.2 million (net of federal benefit), which can be carried forward from five to 20 years. These state NOL carryforwards resulted in a deferred tax asset of \$10.6 million as of December 31, 2023. The Company also has U.S. state tax credits of \$0.2 million as of December 31, 2023. The Company's U.S. interest limitations and foreign loss carryforwards on a gross basis were \$40.0 million and \$7.5 million, respectively, as of December 31, 2023. These carryforwards do not expire.

As of December 31, 2023, the Company had no unrecognized tax benefits. No material amounts of accrued interest or penalties have been recorded as of December 31, 2023 or 2022. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	<i>(Dollars in thousands)</i>	
Balance as of December 31, 2021	\$	73
Lapse of statute of limitations		(40)
Foreign currency impact		3
Balance as of December 31, 2022	\$	36
Lapse of statute of limitations		(36)
Foreign currency impact		—
Balance as of December 31, 2023	<u>\$</u>	<u>—</u>

We do not expect there will be new unrecognized tax benefits within 12 months.

The Company files income tax returns in the U.S. federal jurisdiction, and various state and foreign jurisdictions. All U.S. federal tax years prior to 2019 are generally closed by statute or have been audited and settled with the applicable domestic tax authorities. Other jurisdictions are generally closed for years prior to 2018.

As of December 31, 2023, the Company has accumulated undistributed earnings generated by its foreign subsidiaries of approximately \$1.0 billion. Because \$1.0 billion of such earnings have previously been subject to taxation by way of the transition tax on foreign earnings required by the Tax Cuts and Jobs Act of 2017, as well as the current and previous years' GILTI inclusion, any additional taxes due with respect to such earnings or the excess of the amount for financial reporting over the tax basis of GrafTech's foreign investments would generally be limited to foreign withholding and state taxes. The Company intends, however, to indefinitely reinvest these earnings and expect future U.S. cash generation to be sufficient to meet future U.S. cash needs.

(14) Stockholders' Equity

The following information should be read in conjunction with the Consolidated Statement of Stockholders' Equity (Deficit).

Common Stock Repurchases

On July 31, 2019, the Company announced that its Board of Directors approved the repurchase of up to \$100.0 million of its common stock in open market purchases, including under Rule 10b5-1 and/or Rule 10b-18 plans. On November 4, 2021, the Company announced that its Board of Directors approved the repurchase of an additional \$150.0 million of its common stock under this program. The stock repurchase program does not have an expiration date.

The Company did not repurchase any of its common stock in 2023. The Company repurchased 6,662,421 shares of its common stock for \$60.0 million in 2022 and 4,658,544 shares of its common stock for \$50.0 million in 2021, under the stock repurchase program. The amount and timing of repurchases are subject to a variety of factors including liquidity, stock price, applicable legal requirements, other business objectives and market conditions.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

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As of December 31, 2023, approximately \$99.0 million remained available for stock repurchases under this authorization.

Dividends

The Company paid quarterly dividends of \$0.01 per share through the second quarter of 2023. On August 2, 2023, the Company's Board of Directors elected to suspend the quarterly cash dividend of \$0.01 per common share.

Accumulated other comprehensive loss

The balance in our AOCL is set forth in the following table:

	<u>December 31, 2023</u>	<u>December 31, 2022</u>
	<i>(Dollars in thousands)</i>	
Foreign currency translation adjustments, net of tax	\$ (19,188)	\$ (29,354)
Commodities, interest rate and foreign currency derivatives, net of tax	7,730	21,284
Total AOCL	<u>\$ (11,458)</u>	<u>\$ (8,070)</u>

(15) (Loss) Earnings per Share

The following table presents a reconciliation of the numerator and denominator of basic and diluted (loss) earnings per share:

	<u>Year Ended December 31,</u>		
	<u>2023</u>	<u>2022</u>	<u>2021</u>
	<i>(Dollars in thousands, except per share amounts)</i>		
Numerator for basic and diluted (loss) earnings per share:			
Net (loss) income	\$ (255,250)	\$ 382,962	\$ 388,330
Denominator:			
Weighted average common shares outstanding for basic calculation	257,042,843	258,781,843	266,251,097
Add: Effect of equity awards	—	9,385	66,097
Weighted average common shares outstanding for diluted calculation	257,042,843	258,791,228	266,317,194
Basic (loss) earnings per share	\$ (0.99)	\$ 1.48	\$ 1.46
Diluted (loss) earnings per share	\$ (0.99)	\$ 1.48	\$ 1.46

Basic (loss) earnings per share is calculated by dividing net (loss) income by the weighted average number of common shares outstanding, which included 290,449, 243,006 and 130,624 shares of participating securities in 2023, 2022 and 2021, respectively. Diluted (loss) earnings per share is calculated by dividing net (loss) income by the sum of the weighted average number of common shares outstanding plus the additional common shares that would have been outstanding if potentially dilutive securities had been issued.

The weighted average common shares outstanding for the diluted (loss) earnings per share calculation for the year ended December 31, 2023 excludes the dilutive effect of approximately 41,198 shares, primarily related to restricted stock units, as their inclusion would have been anti-dilutive due to the Company's net loss.

Additionally, the weighted average common shares outstanding for the diluted (loss) earnings per share calculation excludes consideration of 3,033,561, 2,240,655 and 1,499,128 equivalent shares in 2023, 2022 and 2021, respectively, as their effect would have been anti-dilutive. See Note 14, "Stockholders' Equity" for details of the Company's common stock repurchases in 2023, 2022 and 2021.

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

(16) Other Expense (Income), net

The following table presents the details of other expense (income), net:

	Year Ended December 31,		
	2023	2022	2021
	<i>(Dollars in thousands)</i>		
Brazil value-added tax credit	\$ —	\$ —	\$ (11,511)
Non-service pension and other post-employment expense (income)	3,771	(9,950)	(5,298)
Bank charges	757	938	1,098
Other	151	(1,135)	(509)
Total other expense (income), net	\$ 4,679	\$ (10,147)	\$ (16,220)

In May 2021, the Brazilian Supreme Court ruled definitely to exclude the ICMS (state value-added tax) from the basis of calculation of certain federal value-added taxes, specifically the tax relative to the program of social integration ("PIS") and to the contribution for the financing of social security ("COFINS"), and confirmed the methodology for calculating the PIS-COFINS tax credit to which taxpayers are entitled. The Company's Brazilian subsidiary had previously filed a legal claim on this matter and is entitled to receive tax credits and interest dating back to five years preceding the date of the claim. The overpayments, plus interest, of PIS-COFINS related to the period from June 2005 to August 2021 represented \$11.5 million, net of legal fees. In the fourth quarter of 2021, the Company's subsidiary obtained approval by the Brazilian Tax Authorities to start offsetting the PIS-COFINS credit against the current federal value-added tax payable and recorded the one-time credit as a realizable gain. As of December 31, 2023, the Company has offset the entire amount of this credit.

Non-service pension and other post-employment expense (income) includes the components of pension and post-employment costs other than service cost. Non-service pension and other post-employment expense (income) included mark-to-market losses of \$3.0 million in 2023, compared to mark-to-market gains of \$9.6 million and \$3.8 million, respectively, in 2022 and 2021. See Note 11, "Retirement Plans and Post-Employment Benefits" for further discussion.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Management is responsible for establishing and maintaining adequate disclosure controls and procedures. Disclosure controls and procedures are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to management, including our Interim Chief Executive Officer and Interim Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Management, with the participation of our Interim Chief Executive Officer and Interim Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2023. Based on that evaluation, our Interim Chief Executive Officer and Interim Chief Financial Officer concluded that these controls and procedures were effective as of December 31, 2023.

Management's Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act as a process, designed by, or under the supervision of, the chief executive officer and chief financial officer and effected by the Board of Directors, management and other personnel of a company, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of assets of the company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and the Board of Directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of assets of the company that could have a material effect on its financial statements.

Internal control over financial reporting has inherent limitations which may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or because the level of compliance with related policies or procedures may deteriorate.

Management, with the participation of our Interim Chief Executive Officer and Interim Chief Financial Officer, has conducted an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2023 using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework (2013)*. Based on that assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2023. The effectiveness of the Company's internal control over financial reporting as of December 31, 2023 has been audited by Deloitte & Touche LLP, our independent registered public accounting firm, as stated in their report, which is presented elsewhere in this Annual Report.

Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal control over financial reporting during the Company's most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

Adjustments to the Compensatory Arrangements of Certain of Our Executive Officers

On February 12, 2024, the Human Resources and Compensation Committee of the Board of Directors of the Company made the following adjustments to the compensatory arrangements of certain of our executive officers:

- the annualized base salary for Catherine Hedoux-Delgado, the Company’s Interim Chief Financial Officer and Treasurer, has been increased from \$305,500 to \$353,500, effective April 1, 2024;
- Timothy K. Flanagan, the Company’s Interim Chief Executive Officer and President, Ms. Hedoux-Delgado, and Jeremy S. Halford, the Company’s Executive Vice President, Chief Operating Officer, will continue to receive monthly stipends for calendar year 2024 in the amount of \$21,000, \$4,000, and \$8,000, respectively, in connection with their continued interim service and increased role and responsibilities, as applicable; and
- the Short-Term Incentive Plan (“STIP”) target award opportunities for calendar year 2024 for each of Mr. Flanagan and Ms. Hedoux-Delgado have been increased from 80% to 100% and 45% to 65%, respectively, of base salary and monthly stipend for each such month that such stipend is paid for serving such interim role, and Mr. Halford’s STIP target award opportunity for calendar year 2024 of 80%, although unchanged from calendar year 2023, will be based off of his base salary and monthly stipend for each such month that such stipend is paid.

Rule 10b5-1 Trading Arrangements

None of the Company’s directors or officers (as defined in Rule 16a-1(f) under the Securities Exchange Act of 1934) adopted, modified, or terminated a Rule 10b5-1 trading arrangement or a non-Rule 10b5-1 trading arrangement (as each term is defined in Item 408 of Regulation S-K) during the Company’s fiscal quarter ended December 31, 2023.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information regarding our executive officers is set forth in the Supplemental Item to Part I of this Report under the caption "Supplemental Item. Information about our Executive Officers" and is incorporated herein by reference.

We adopted a Code of Conduct and Ethics that applies to our employees, directors and officers, including our Interim Chief Executive Officer and President and our Interim Chief Financial Officer and Treasurer. A copy of the Code of Conduct and Ethics is publicly available on our website at <https://www.graftech.com/investors/default.aspx#governance>. Any waiver (including an implicit waiver) from a provision of our Code of Conduct and Ethics granted to, or any amendment (other than technical, administrative or other non-substantive amendments) of the Code of Conduct and Ethics that applies to, our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions will be promptly disclosed as required by applicable U.S. federal securities laws and the listing standards of the NYSE on our website at <https://www.graftech.com/investors/default.aspx#governance> or in a report on Form 8-K filed electronically with the SEC at www.sec.gov.

The remaining information required by this Item is incorporated herein by reference from the sections entitled “Proposal 1 Elect Two Directors for a Three-Year Term or Until Their Successors are Elected and Qualified” and “Committees of the Board of Directors” in our Proxy Statement for the Annual Meeting of Stockholders expected to be held on or about May 9, 2024.

We will provide disclosure of delinquent Section 16(a) reports, if any, in our Proxy Statement in a section entitled "Delinquent Section 16(a) Reports," and such disclosure, if any, is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item is incorporated by reference from the sections entitled “Compensation Discussion and Analysis,” “Compensation Tables and Related Information,” “CEO Pay Ratio,” “Pay Versus Performance,” “Director Compensation Program,” “2023 Director Compensation Table,” “Risk Oversight,” “Compensation Committee Report” and “Compensation Committee Interlocks and Insider Participation” in the Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information regarding security ownership of certain beneficial owners and management required by this item is incorporated by reference from the section entitled “Security Ownership of Certain Beneficial Owners and Management” in the Proxy Statement.

Equity Compensation Plan Information

The following table provides information about our common stock that may be issued under our Omnibus Equity Incentive Plan as of December 31, 2023:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	4,117,469 ⁽¹⁾	\$11.27 ⁽²⁾	9,512,574
Equity compensation plans not approved by security holders	—	—	—
Total	4,117,469⁽¹⁾	\$11.27⁽²⁾	9,512,574

(1) This amount represents 2,027,611 shares of common stock subject to outstanding stock options, 885,365 shares of common stock subject to outstanding restricted stock units, 377,540 shares of stock subject to outstanding deferred share units, 696,030 shares of stock subject to outstanding performance shares units (assuming maximum level of performance), and 130,923 shares of stock subject to outstanding deferred restricted stock units.

(2) The weighted-average exercise price does not take into account shares of common stock subject to outstanding restricted stock units, outstanding deferred share units, outstanding performance stock units, or outstanding deferred restricted stock units.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is incorporated by reference from the sections entitled “Certain Relationships and Related Party Transactions,” “Director Independence” and “Committees of the Board of Directors” in the Proxy Statement.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference from the section entitled “Independent Auditor Fees and Other Matters” in the Proxy Statement.

PART IV

Item 15. Exhibit and Financial Statement Schedules

(a) The following documents are filed as part of this Report:

- (1) Financial Statements

The following financial statements are set forth under Part II, Item 8 of this Annual Report:

- Report of Independent Registered Public Accounting Firm;
- Consolidated Balance Sheets as of December 31, 2023 and December 31, 2022;
- Consolidated Statements of Operations and Comprehensive (Loss) Income for the fiscal years ended December 31, 2023, December 31, 2022 and December 31, 2021;

- Consolidated Statements of Cash Flows for the fiscal years ended December 31, 2023, December 31, 2022 and December 31, 2021;
- Consolidated Statements of Stockholders' Equity (Deficit) for the fiscal years ended December 31, 2023, December 31, 2022 and December 31, 2021; and
- Notes to the Consolidated Financial Statements.

(2) Financial Statement Schedules

All schedules have been omitted because the required information is included in the consolidated financial statements or the notes thereto, or because it is not required.

(3) Exhibits

The exhibits listed in the following table have been filed or furnished, as applicable, with this Annual Report, or have been incorporated herein by reference.

Exhibit Number	Description of Exhibit
2	Agreement and Plan of Merger dated as of May 17, 2015 among GrafTech International Ltd., BCP IV GrafTech Holdings LP and Athena Acquisition Subsidiary, Inc. (incorporated herein by reference to Exhibit 2.1 to GrafTech International Ltd.'s Current Report on Form 8-K filed May 18, 2015).
3.1	Amended and Restated Certificate of Incorporation of GrafTech International Ltd. (incorporated herein by reference to Exhibit 3.1 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed May 1, 2019).
3.2	Amended and Restated By-Laws of GrafTech International Ltd. (incorporated herein by reference to Exhibit 3.1 to GrafTech International Ltd.'s Current Report on Form 8-K filed November 14, 2023).
4.1	Registration Rights Agreement, dated as of April 23, 2018, by and between GrafTech International Ltd. and BCP GrafTech Holdings LP (incorporated herein by reference to Exhibit 4.1 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed on August 3, 2018).
4.2	Stockholder Rights Agreement, dated as of April 23, 2018, by and between GrafTech International Ltd. and BCP IV GrafTech Holdings LP (incorporated herein by reference to Exhibit 4.2 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed on August 3, 2018).
4.3	Amendment No. 1 to Stockholder Rights Agreement, dated November 6, 2019 by and between GrafTech International Ltd. and BCP IV GrafTech Holdings LP (incorporated herein by reference to Exhibit 4.3 to GrafTech International Ltd.'s Annual Report on Form 10-K filed February 21, 2020).
4.4	Description of Securities (incorporated herein by reference to Exhibit 4.4 to GrafTech International Ltd.'s Annual Report on Form 10-K filed February 21, 2020).
4.5	Indenture, dated as of December 22, 2020, among GrafTech Finance Inc., as issuer, GrafTech International Ltd., as a guarantor, the subsidiary guarantors party thereto, and U.S. Bank National Association, as trustee and collateral agent, relating to GrafTech Finance Inc.'s 4.625% Senior Secured Notes due 2028 (incorporated herein by reference to Exhibit 4.1 to GrafTech International Ltd.'s Current Report on Form 8-K filed December 23, 2020).
4.6	Form of 4.625% Senior Secured Notes due 2028 of GrafTech Finance Inc. (included in Exhibit 4.5).
4.7	Indenture, dated as of June 26, 2023, among GrafTech Global Enterprises Inc., as issuer, GrafTech International Ltd., as a guarantor, each subsidiary guarantor from time to time party thereto, and U.S. Bank Trust Company, National Association, as trustee and collateral agent, relating to GrafTech Global Enterprises Inc.'s 9.875% Senior Secured Notes due 2028 (incorporated herein by reference to Exhibit 4.1 to GrafTech International Ltd.'s Current Report on Form 8-K filed June 26, 2023).
4.8	Form of 9.875% Senior Secured Notes due 2028 of GrafTech Global Enterprises Inc. (included in Exhibit 4.7).
10.1	Credit Agreement, dated February 12, 2018, among GrafTech International Ltd., as Holdings, GrafTech Finance Inc., GrafTech Switzerland SA and GrafTech Luxembourg II S.A.R.L., as co-borrowers, the lenders and issuing banks party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent and Collateral Agent (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
10.2	First Amendment to the Credit Agreement, dated June 15, 2018, among GrafTech International Ltd., GrafTech Finance Inc., GrafTech Switzerland SA, GrafTech Luxembourg II S.A.R.L. each of the entities listed as an "Incremental Term Lender" on the signature pages thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and for purposes of Sections 5 and 6 thereof only, each of the entities listed as "Guarantor" on the signature pages thereto (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed on August 3, 2018).

- 10.3 Guarantee Agreement, dated February 12, 2018, among GrafTech International Ltd., GrafTech Finance Inc., the other subsidiaries of GrafTech International Ltd. from time to time party thereto, in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.2 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.4 Collateral Agreement, dated as of February 12, 2018, among GrafTech International Ltd., GrafTech Finance Inc., the other grantors party thereto and JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.3 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.5 European Guarantee and Luxembourg Security Agreement, dated as of February 12, 2018, by GrafTech Luxembourg I S.À.R.L., GrafTech Luxembourg II S.À.R.L., GrafTech Switzerland SA in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.4 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.6 Pledge Agreement, dated as of February 12, 2018, by GrafTech Switzerland SA in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.5 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.7 Pledge Agreement, dated as of February 12, 2018, by GrafTech Luxembourg I S.À.R.L. in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.6 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.8 Pledge Agreement, dated as of February 12, 2018, by GrafTech Luxembourg II S.À.R.L. in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.7 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.9 Patent Security Agreement, dated as of February 12, 2018, among GrafTech International Holdings Inc., as Grantor, and JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.8 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.10 Trademark Security Agreement, dated as of February 12, 2018, among GrafTech International Holdings Inc., as Grantor, and JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.9 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.11 Copyright Security Agreement, dated as of February 12, 2018, among GrafTech International Holdings, Inc., as Grantor, and JPMorgan Chase Bank, N.A., as Collateral Agent (incorporated herein by reference to Exhibit 10.10 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.12 Share Pledge Agreement, dated February 12, 2018, between GrafTech Luxembourg I S.À.R.L., as Pledgor, and JPMorgan Chase Bank, N.A., as Collateral Agent, in the presence of GrafTech Luxembourg II S.À.R.L. (incorporated herein by reference to Exhibit 10.11 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.13 Share Pledge Agreement, dated as of February 12, 2018, between GrafTech International Holdings Inc., as Pledgor, and JPMorgan Chase Bank, N.A., as Collateral Agent, in the presence of GrafTech Luxembourg I S.À.R.L. (incorporated herein by reference to Exhibit 10.12 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.14 Swiss Security Agreement, dated as of February 12, 2018, by GrafTech Switzerland SA and JPMorgan Chase Bank, N.A., as the Assignee and Collateral Agent (incorporated herein by reference to Exhibit 10.13 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-223791) filed March 20, 2018).
- 10.15* Tax Receivable Agreement, dated as of April 23, 2018, as amended and restated as of April 10, 2023, between GrafTech International Ltd. and Brookfield Capital Partners IV GP, Ltd.
- 10.16+ Form of Indemnification Agreement with Directors and Executive Officers (incorporated herein by reference to Exhibit 10.15 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-223791) filed March 26, 2018).
- 10.17+ GrafTech International Ltd. Omnibus Equity Incentive Plan (incorporated herein by reference to Exhibit 10.24 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-223791) filed April 4, 2018).
- 10.18+ Form of Stock Option Agreement for the GrafTech International Ltd. Omnibus Equity Incentive Plan (incorporated herein by reference to Exhibit 10.25 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-223791) filed April 4, 2018).
- 10.19+ Form of Deferred Share Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan for Non-Employee Directors (incorporated herein by reference to Exhibit 10.27 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-223791) filed April 4, 2018).
- 10.20+ Form of Deferred Share Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan for Non-Employee Directors (adopted November 1, 2018) (incorporated herein by reference to Exhibit 10.34 to GrafTech International Ltd.'s Annual Report on Form 10-K filed February 22, 2019).

- 10.21+ Form of Stock Option Grant Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (incorporated herein by reference to Exhibit 10.2 to GrafTech International Ltd.’s Quarterly Report on Form 10-Q filed May 1, 2019).
- 10.22 Collateral Agreement, dated as of December 22, 2020, among GrafTech Finance Inc., GrafTech International Ltd., the other subsidiary grantors party thereto, and U.S. Bank National Association, as collateral agent (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Current Report on Form 8-K filed December 23, 2020).
- 10.23 Second Amendment to the Credit Agreement, dated February 17, 2021, among GrafTech International Ltd., GrafTech Finance Inc., GrafTech Luxembourg II S.À.R.L., GrafTech Switzerland SA, JPMorgan Chase Bank, N.A., as Administrative Agent, and the lenders and issuing banks party thereto (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Current Report on Form 8-K filed on February 19, 2021).
- 10.24 Third Amendment to the Credit Agreement, dated as of May 31, 2022, by and among GrafTech International Ltd., GrafTech Finance Inc., GrafTech Luxembourg II S.à r.l., GrafTech Switzerland SA, JPMorgan Chase Bank, N.A., as administrative agent, the New Revolving Lenders (as defined therein), the Consenting Revolving Lenders (as defined therein), each of the entities listed as an “Incremental Revolving Lender” on the signature pages thereto and for purposes of Sections 5, 7 and 8 thereof only, each of the entities listed as a “Guarantor” on the signature pages thereto (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Current Report on Form 8-K filed June 2, 2022).
- 10.25+ Form of Restricted Stock Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2022 Version) (incorporated herein by reference to Exhibit 10.36 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 22, 2022).
- 10.26+ Form of Stock Option Grant Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2022 Version) (incorporated herein by reference to Exhibit 10.37 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 22, 2022).
- 10.27+ Form of Restricted Stock Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2022 Non-US Version) (incorporated herein by reference to Exhibit 10.4 to GrafTech International Ltd.’s Quarterly Report on Form 10-Q filed August 5, 2022).
- 10.28+ Form of Stock Option Grant Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2022 Non-US Version) (incorporated herein by reference to Exhibit 10.5 to GrafTech International Ltd.’s Quarterly Report on Form 10-Q filed August 5, 2022).
- 10.29+ Form of Retention Bonus Agreement (incorporated herein by reference to Exhibit 10.38 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 14, 2023).
- 10.30+ Form of Director Restricted Stock Units Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Version) (incorporated herein by reference to Exhibit 10.39 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 14, 2023).
- 10.31+ Form of Director Deferred Restricted Stock Units Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Version) (incorporated herein by reference to Exhibit 10.40 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 14, 2023).
- 10.32+ Amended and Restated GrafTech International Ltd. Director Deferred Fee Plan, amended and restated effective as of April 1, 2023 (incorporated herein by reference to Exhibit 10.41 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 14, 2023).
- 10.33+ Form of Director Deferred Share Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Version) (incorporated herein by reference to Exhibit 10.42 to GrafTech International Ltd.’s Annual Report on Form 10-K filed February 14, 2023).
- 10.34+ Benefits Addendum, dated July 27, 2023, by and between GrafTech Switzerland S.A. and Iñigo Perez Ortiz. (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Current Report on Form 8-K filed July 27, 2023).
- 10.35 Collateral Agreement, dated as of June 26, 2023, among GrafTech Global Enterprises Inc., GrafTech International Ltd., the other subsidiary grantors party thereto, and U.S. Bank Trust Company, National Association, as collateral agent (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Current Report on Form 8-K filed June 26, 2023).
- 10.36+ Amended and Restated Employment Agreement, dated June 13, 2023, by and between GrafTech International Holdings Inc. and Marcel Kessler (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Current Report on Form 8-K filed June 13, 2023).
- 10.37+ Form of Restricted Stock Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Version) (incorporated herein by reference to Exhibit 10.1 to GrafTech International Ltd.’s Quarterly Report on Form 10-Q filed April 28, 2023).
- 10.38+ Form of Restricted Stock Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Non-US Version) (incorporated herein by reference to Exhibit 10.2 to GrafTech International Ltd.’s Quarterly Report on Form 10-Q filed April 28, 2023).

10.39+	Form of Stock Option Grant Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Version) (incorporated herein by reference to Exhibit 10.3 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed April 28, 2023).
10.40+	Form of Stock Option Grant Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Non-US Version) (incorporated herein by reference to Exhibit 10.4 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed April 28, 2023).
10.41+	Form of Performance Stock Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Version) (incorporated herein by reference to Exhibit 10.5 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed April 28, 2023).
10.42+	Form of Performance Stock Unit Agreement under the GrafTech International Ltd. Omnibus Equity Incentive Plan (2023 Non-US Version) (incorporated herein by reference to Exhibit 10.6 to GrafTech International Ltd.'s Quarterly Report on Form 10-Q filed April 28, 2023).
10.43+*	GrafTech International Ltd. Short-Term Incentive Plan (Amended and Restated effective November 6, 2023).
21*	List of Subsidiaries of GrafTech International Ltd.
23*	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm.
31.1*	Certification pursuant to Rule 13a-14(a) under the Exchange Act by Timothy K. Flanagan, Interim Chief Executive Officer and President (Principal Executive Officer).
31.2*	Certification pursuant to Rule 13a-14(a) under the Exchange Act by Catherine Hedoux-Delgado, Interim Chief Financial Officer and Treasurer (Principal Financial Officer).
32.1**	Certification pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 by Timothy K. Flanagan, Interim Chief Executive Officer and President (Principal Executive Officer).
32.2**	Certification pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 by Catherine Hedoux-Delgado, Interim Chief Financial Officer and Treasurer (Principal Financial Officer).
97*	GrafTech International Ltd. Compensation Clawback Policy, effective October 2, 2023.
101	The following financial information from GrafTech International Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2023 formatted in Inline XBRL (Extensible Business Reporting Language) includes: (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations and Comprehensive (Loss) Income, (iii) the Consolidated Statements of Cash Flows, (iv) the Consolidated Statements of Stockholders' Equity (Deficit), and (v) Notes to the Consolidated Financial Statements.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Filed herewith

** Furnished herewith

+ Indicates management contract or compensatory plan or arrangement

Item 16. Form 10-K Summary

None.

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CORPORATE & INVESTOR RELATIONS

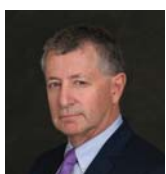
Board of Directors



Henry R. Keizer
*Chairman, GrafTech International Ltd. and
Former Deputy Chairman and Chief Operating
Officer, KPMG*



Diego Donoso
*Former President of Packaging and Specialty
Plastics, Dow Inc.*



Michel J. Dumas
*Former Executive Vice President, Finance, and Chief
Financial Officer, Tembec Inc.*



Debra Fine
Chair and Founder, Fine Capital Partners



Timothy K. Flanagan
*Chief Executive Officer and President, GrafTech
International Ltd.*



Jean-Marc Germain
Chief Executive Officer, Constellium SE



Marcel Kessler
*Former Chief Executive Officer and President,
GrafTech International Ltd.*



Anthony R. Taccone
Founding Partner and Co-Owner, First River LLC

Investor Relations

Michael Dillon
Vice President, Investor Relations and Corporate Communications
216.676.2000 | investor.relations@graftech.com

Stock Exchange Listing

Our common stock is listed on the NYSE under the symbol EAF.

Transfer Agent

Computershare
P.O. Box 43078
Providence, RI 02940-3078
800.736.3001 | 781.575.3100
computershare.com/investor

Annual Meeting

May 9, 2024
8:00 AM Eastern Time
Meeting URL: www.virtualshareholdermeeting.com/EAF2024

Stockholder Contact and Form 10-K

Stockholders, prospective investors and other interested parties are welcome to call or write us with questions. A copy of the annual report filed with the SEC on Form 10-K for the year ended December 31, 2023 (excluding exhibits) is available, without charge, upon written request to Michael Dillon, Vice President, Investor Relations and Corporate Communications, at the Company's Corporate Headquarters.

Independent Registered Public Accounting Firm

Deloitte & Touche LLP

Forward-Looking Statements

Statements regarding the Company that are not historical facts are "forward-looking statements" that involve risks and uncertainties. Certain of the risks and uncertainties to which the Company is subject are described in the "Cautionary Note Regarding Forward-Looking Statements" and "Risk Factors" sections of the enclosed Form 10-K and the Company's other applicable filings with the Securities and Exchange Commission. See pages 1-2 and 10-20 of the enclosed Form 10-K.



GrafTech International Ltd.
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