GRAFTECH INTERNATIONAL LTD
Form 10-Q
November 02, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(Mark One)
ý QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

for the quarterly period ended September 30, 2018
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

GRAFTECH INTERNATIONAL LTD.
(Exact name of registrant as specified in its charter)

Delaware	27-2496053
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

982 Keynote Circle Brooklyn Heights, OH	44131 (Zip code)
(Address of principal executive offices)	

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

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 ý 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 ý No ¨
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer,” and “smaller reporting company” in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer o	Accelerated Filer o	Emerging Growth Company x
Non-Accelerated Filer x	Smaller Reporting Company o	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. x

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

As of October 15, 2018, 290,537,612 shares of common stock, par value $.01 per share, were outstanding.

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Presentation of Financial, Market and Legal Data

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

Unless otherwise specifically noted, market and market share data in this Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2018 (the "Report") are our own estimates or derived from sources described in our Registration Statement on Form S-1 filed on August 8, 2018. Our estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under "Forward Looking Statements" and "Risk Factors" in this report. 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 Report.

Forward Looking Statements

Some of the statements under "Management's Discussion and Analysis of Financial Condition and Results of Operations," and elsewhere in this report may contain forward looking statements that reflect our current views with respect to, among other things, future events and financial performance. You can identify these forward looking statements by the use of forward looking words such as "will," "may," "plan," "estimate," "project," "believe," "anticipate," " "intend," "should," "would," "could," "target," "goal," "continue to," "positioned to" or the negative version of those words or comparable words. Any forward looking statements contained in this report are based upon our historical performance and on our current plans, estimates and expectations in light of 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. 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 history of net losses and the possibility that we may not maintain profitability in the future;
- the possibility that we are unable to implement our business strategies, including our initiative to secure and maintain three to-five year take or pay customer contracts, in an effective manner;

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- the possibility that recent tax legislation could adversely affect us or our stockholders;
- the fact that pricing for graphite electrodes has historically been cyclical and, in the future, the price of graphite electrodes will likely decline from recent record highs;
- the sensitivity of our business and operating results to economic conditions;
- our dependence on the global steel industry generally and the electric arc furnace ("EAF") steel industry in particular;
- 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 petroleum needle coke;
- our dependence on supplies of raw materials (in addition to petroleum needle coke) and energy;
- the legal, 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 deteriorate if our manufacturing operations were substantially disrupted for an extended period, including as a result of equipment failure, climate change, natural disasters, public health crises, political crises or other catastrophic events;
- the possibility that plant capacity expansions may be delayed or may not achieve the expected benefits;
- our dependence on third parties for certain construction, maintenance, engineering, transportation, warehousing and logistics services;
- 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 possibility that we may divest or acquire businesses, which could require significant management attention or disrupt our business;
- the sensitivity of goodwill on our balance sheet to changes in the market;
- the possibility that we are subject to information technology systems failures, cybersecurity attacks, network disruptions and breaches of data security;
- our dependence on protecting our intellectual property;
- the possibility that third parties may claim that our products or processes infringe their intellectual property rights;
- the possibility that our manufacturing operations are subject to hazards;
- changes in, or more stringent enforcement of, health, safety and environmental regulations applicable to our manufacturing operations and facilities;
- the possibility that significant changes in our jurisdictional earnings mix or in the tax laws of those jurisdictions could adversely affect our business;
- 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;
- the possibility that restrictive covenants in our financing agreements could restrict or limit our operations;
- the fact that borrowings under certain of our existing financing agreements subjects us to interest rate risk;

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- the possibility of a lowering or withdrawal of the ratings assigned to our debt;
- the possibility that disruptions in 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 highly concentrated ownership of our common stock may prevent minority stockholders from influencing significant corporate decisions;
- the fact that certain of our stockholders have the right to engage or invest in the same or similar businesses as us;
- the fact that certain provisions of our Amended and Restated Certificate of Incorporation and our Amended and Restated By Laws could hinder, delay or prevent a change of control;
- the fact that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders;
- our status as a “controlled company” within the meaning of the New York Stock Exchange ("NYSE") corporate governance standards, which allows us to qualify for exemptions from certain corporate governance requirements; and
- other risks described in the “Risk Factors” section of this report.

These factors should not be construed as exhaustive and should be read in conjunction with the 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. We do not undertake any obligation to publicly update or review any forward looking statement except as required by law, 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.

All subsequent written and oral forward-looking statements by or attributable to us or persons acting on our behalf are expressly qualified in their entirety by these factors. Except as otherwise required to be disclosed in periodic reports required to be filed by public companies with the Securities and Exchange Commission ("SEC") pursuant to the SEC's rules, we have no duty to update these statements.

For a more complete discussion of these and other factors, see “Risk Factors” in Part II of this report.

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PART I. FINANCIAL INFORMATION
Item 1. Financial Statements

GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(Dollars in thousands)
Unaudited

	As of September 30, 2018	As of December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$102,507	$13,365
Accounts and notes receivable, net of allowance for doubtful accounts of $965 as of September 30, 2018 and $1,097 as of December 31, 2017	204,704	116,841
Inventories	261,984	174,151
Prepaid expenses and other current assets	60,368	44,872
Current assets of discontinued operations	1,078	5,313
Total current assets	630,641	354,542
Property, plant and equipment	685,352	642,651
Less: accumulated depreciation	165,711	129,810
Net property, plant and equipment	519,641	512,841
Deferred income taxes	46,145	30,768
Goodwill	171,117	171,117
Other assets	135,163	129,835
Total assets	$1,502,707	$1,199,103
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$80,620	$69,110
Short-term debt	106,325	16,474
Accrued income and other taxes	51,043	9,737
Other accrued liabilities	41,007	53,226
Current liabilities of discontinued operations	3,687	3,412
Total current liabilities	282,682	151,959
Long-term debt	2,077,003	322,900
Other long-term obligations	68,455	68,907
Deferred income taxes	50,614	41,746
Related party payable	61,801	—
Long-term liabilities of discontinued operations	636	376
Contingencies – Note 9		
Stockholders' equity:		
Preferred stock, par value $.01, 300,000,000 shares authorized, none issued	—	—
Common stock, par value $.01, 3,000,000,000 shares authorized, 290,537,612 and 302,225,923 shares issued and outstanding as of September 30, 2018 and December 31, 2017*, respectively	2,905	3,022
Additional paid-in capital	819,127	851,315
Accumulated other comprehensive income	34,539	20,289
Accumulated deficit	(1,895,055)	(261,411)
Total stockholders' (deficit) equity	(1,038,484)	613,215

Total liabilities and stockholders’ equity	$1,502,707	$1,199,103

* See Notes 1 and 12

See accompanying Notes to Condensed Consolidated Financial Statements

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GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(Dollars in thousands)
(Unaudited)

	For the Three Months Ended September 30, 2018	For the Three Months Ended September 30, 2017	For the Nine Months Ended September 30, 2018	For the Nine Months Ended September 30, 2017
CONSOLIDATED STATEMENTS OF OPERATIONS				
Net sales	$454,890	$ 137,245	$1,363,121	$ 358,298
Cost of sales	180,280	120,483	491,339	330,370
Gross profit	274,610	16,762	871,782	27,928
Research and development	518	1,329	1,528	3,083
Selling and administrative expenses	14,234	13,293	46,349	37,118
Operating profit (loss)	259,858	2,140	823,905	(12,273)
Other expense (income), net	1,502	(404)	2,533	4,322
Related party Tax Receivable Agreement expense	—	—	61,801	—
Interest expense	33,855	7,792	100,387	23,240
Interest income	(562)	(58)	(1,068)	(320)
Income (loss) from continuing operations before provision for income taxes	225,063	(5,190)	660,252	(39,515)
Provision for income taxes	24,871	1,963	36,250	3,249
Net income (loss) from continuing operations	200,192	(7,153)	624,002	(42,764)
(Loss) income from discontinued operations, net of tax	(726)	3,234	585	(4,882)
Net income (loss)	$199,466	$ (3,919)	$624,587	$ (47,646)
Basic income (loss) per common share:				
Net income (loss) per share	$0.67	$ (0.01)	$2.08	$ (0.16)
Net income (loss) from continuing operations per share	$0.68	$ (0.02)	$2.08	$ (0.14)
Weighted average common shares outstanding	296,136,564	302,225,923	300,173,831	302,225,923
Diluted income (loss) per common share:				
Income (loss) per share	$0.67	$ (0.01)	$2.08	$ (0.16)
Diluted income (loss) from continuing operations per share	$0.68	$ (0.02)	$2.08	$ (0.14)
Weighted average common shares outstanding	296,145,453	302,225,923	300,178,704	302,225,923
STATEMENTS OF COMPREHENSIVE INCOME (LOSS)				
Net income (loss)	$199,466	$ (3,919)	$624,587	$ (47,646)
Other comprehensive income:				
Foreign currency translation adjustments	(3,601)	7,546	(17,379)	21,141
Commodities derivatives, net of taxes of $10,005 for the three and nine months ended September 30, 2018	5,890	—	31,629	—
Other comprehensive income, net of tax:	2,289	7,546	14,250	21,141
Comprehensive income (loss)	$201,755	$ 3,627	$638,837	$ (26,505)

See accompanying Notes to Condensed Consolidated Financial Statements

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GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Dollars in thousands, unaudited)

	For the Nine Months Ended September 30, 2018	2017
Cash flow from operating activities:		
Net income (loss)	$624,587	$(47,646)
Adjustments to reconcile net income (loss) to cash provided by operations:		
Depreciation and amortization	47,746	50,982
Impairments	—	5,300
Related party Tax Receivable Agreement expense	61,801	—
Deferred income tax provision	(18,184)	(3,049)
Loss on extinguishment of debt	23,827	—
Interest expense	3,747	5,089
Other charges, net	9,652	1,849
Net change in working capital*	(143,695)	22,197
Change in long-term assets and liabilities	2,763	(1,141)
Net cash provided by operating activities	612,244	33,581
Cash flow from investing activities:		
Capital expenditures	(47,632)	(23,028)
Proceeds from the sale of assets	866	4,038
Proceeds from divestitures	—	26,818
Net cash (used in) provided by investing activities	(46,766)	7,828
Cash flow from financing activities:		
Short-term debt, net	(12,607)	5,945
Revolving Facility borrowings	—	35,000
Revolving Facility reductions	(45,692)	(77,755)
Debt issuance costs	(27,326)	—
Proceeds from the issuance of long-term debt, net of original issuance discount	2,235,000	—
Repayment of Senior Notes	(304,782)	—
Related party Promissory Note repayment**	(750,000)	—
Principal repayments on long-term debt	(28,125)	(107)
Repurchase of common stock	(225,000)	—
Dividends paid	(1,316,189)	—
Net cash (used in) provided by financing activities	(474,721)	(36,917)
Net change in cash and cash equivalents	90,757	4,492
Effect of exchange rate changes on cash and cash equivalents	(1,615)	274
Cash and cash equivalents at beginning of period	13,365	11,610
Cash and cash equivalents at end of period	$102,507	$16,376

* Net change in working capital due to changes in the following components:		
Accounts and notes receivable, net	$(96,045)	$1,961
Inventories	(93,755)	8,588
Prepaid expenses and other current assets	7,828	(187)
Income taxes payable	35,358	1,160
Accounts payable and accruals	4,336	5,975

Interest payable	(1,417)	4,700
Net change in working capital	$(143,695)	$22,197

**During the second quarter of 2018, we declared a $750 million dividend in the form of a Promissory Note that was a non-cash transaction. See Note 6 "Debt and Liquidity" for details.

See accompanying Notes to Condensed Consolidated Financial Statements

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PART I (CONT'D)
GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

(1) Organization and Summary of Significant Accounting Policies

A. Organization

GrafTech International Ltd. (the "Company") is a leading manufacturer of high quality graphite electrode products essential to the production of electric arc furnace ("EAF") steel and other ferrous and non-ferrous metals. References herein to "we," "our," or "us" refer collectively to GrafTech International Ltd. and its subsidiaries. On August 15, 2015, we became an indirect wholly owned subsidiary of Brookfield Asset Management Inc. (together with its affiliates, "Brookfield") through a tender offer to our former stockholders and subsequent merger transaction.

On April 23, 2018, the Company completed its initial public offering ("IPO"). See Note 12 "Stockholders' Equity" for more information regarding these transactions.

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

We previously operated an Engineered Solutions business segment. See Note 2 "Discontinued Operations and Related Assets Held for Sale" for further information. All results from the Engineered Solutions business have been excluded from continuing operations, unless otherwise indicated.

B. Basis of Presentation

The interim Condensed Consolidated Financial Statements are unaudited; however, in the opinion of management, they have been prepared in accordance with Rule 10-01 of Regulation S-X and in accordance with accounting principles generally accepted in the United States of America ("GAAP"). The December 31, 2017 financial position data included herein was derived from the audited consolidated financial statements included in our Registration Statement on Form S-1 filed on August 8, 2018 but does not include all disclosures required by GAAP in audited financial statements. These interim condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements, including the accompanying notes, contained in our Registration Statement on Form S-1 filed on August 8, 2018.

The unaudited condensed consolidated financial statements reflect all adjustments (all of which are of a normal, recurring nature) which management considers necessary for a fair statement of financial position, results of operations, comprehensive income and cash flows for the interim periods presented. The results for the interim periods are not necessarily indicative of results which may be expected for any other interim period or for the full year.

Earnings per share

The calculation of basic earnings per share is based on the number of common shares outstanding after giving effect to the stock split effected on April 12, 2018 and common stock repurchase on August 13, 2018 (see Note 12 "Stockholders' Equity"). Diluted earnings per share recognizes the dilution that would occur if stock options or restricted shares were exercised or converted into common shares. See Note 13 "Earnings Per Share".

C. New Accounting Standards

Recently Adopted Accounting Standards

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers (Topic 606) . The Company adopted ASU 2014-09 and its related amendments (collectively known as ASC 606) effective on January 1, 2018 using the modified retrospective method. Please see Note 3 "Revenue from Contracts with Customers" for the required disclosures related to the impact of adopting this standard and a discussion of the Company's updated policies related to revenue recognition.

In August 2016, the FASB issued ASU No. 2016-15, Statement of Cash Flows (Topic 230), Classification of Certain Cash Receipts and Payments, clarifying guidance on the classification of certain cash receipts and payments in the statement of cash flows. The adoption of ASU 2016-15 on January 1, 2018 did not have a material impact on our consolidated financial statements.

PART I (CONT'D)
GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

In March 2017, the FASB issued ASU No. 2017-07, Compensation-Retirement Benefits (Topic 715). This standard requires an entity to report the service cost component in the same line item as other compensation costs. The other components of net (benefit) cost, including our annual mark-to-market remeasurement, will be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. The adoption of ASU No. 2017-07 on January 1, 2018 changed the presentation of benefit expenses, but did not have a material impact on our consolidated financial statements. The components of the net (benefit) cost are shown in Note 4, "Retirement Plans and Postretirement Benefits." The following table summarizes the adjustments made to conform prior period classifications to the new guidance:

	For the Three Months Ended September 30, 2017 (dollars in thousands)			For the Nine Months Ended September 30, 2017		
	As Reported	Effect of Accounting Change	As Adjusted	As Reported	Effect of Accounting Change	As Adjusted
Cost of Sales	$120,684	$ (201)	$120,483	$330,973	$ (603)	$330,370
Research and development	1,338	(9)	1,329	3,110	(27)	3,083
Selling and administrative expenses	13,322	(29)	13,293	37,200	(82)	37,118
Other (income) expense, net	(643)	239	(404)	3,610	712	4,322

	For the Year Ended December 31, 2017 (dollars in thousands)			For the Year Ended December 31, 2016		
	As Reported	Effect of Accounting Change	As Adjusted	As Reported	Effect of Accounting Change	As Adjusted
Cost of Sales	$462,848	$ 206	$463,054	$466,990	$ 1,212	$468,202
Research and development	2,951	505	3,456	2,399	135	2,534
Selling and administrative expenses	49,479	3,027	52,506	57,784	731	58,515
Other (income) expense, net	1,634	(3,738)	(2,104)	(2,188)	(2,078)	(4,266)

Accounting Standards Not Yet Adopted

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842). Under this new guidance, a company will now recognize most leases on its balance sheet as lease liabilities with corresponding right-of-use assets. This ASU is effective for fiscal years beginning after December 15, 2018. The Company plans to adopt ASU No. 2016-02 on January 1, 2019, using the modified retrospective approach with the option of not restating comparative prior periods presented in the financial statements. Under this method, we will recognize the effects of applying ASC 842 as a cumulative-effect adjustment to the opening balance of retained earnings as of the effective date of adoption of January 1, 2019. The Company has compiled its lease inventory and is currently completing its evaluation of the contracts. We do not expect the adoption of this standard to have a material impact on the Company’s financial position, results of operations or cash flows.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles-Goodwill and Other (Topic 350). This guidance was issued to simplify the accounting for goodwill impairment. The guidance removes the second step of the goodwill impairment test, which requires that a hypothetical purchase price allocation be performed to determine the amount of impairment, if any. Under this new guidance, a goodwill impairment charge will be based on the amount by which a reporting unit’s carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The guidance will become effective on a prospective basis for the Company on January 1, 2020 with early adoption permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company is currently evaluating the impact of the adoption of this standard on its results of operations.

PART I (CONT'D)
GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

(2) Discontinued Operations and Related Assets Held for Sale

On February 26, 2016, the Company announced that it had initiated a strategic review of its Engineered Solutions business segment to better direct its resources and simplify its operations. As of June 30, 2016, the Engineered Solutions segment qualified for reporting as discontinued operations as its divestiture represented a strategic shift for the Company.

During 2016, we evaluated the fair value of the Engineered Solutions business segment utilizing the market approach (Level 3 measure). As a result, we incurred an impairment charge to our Engineered Solutions business segment of $120 million to align the carrying value with estimated fair value. We continued to update this estimate and during 2017, we further reduced the estimated fair value by $5.3 million.

On November 30, 2016, we completed the sale of our Fiber Materials Inc. business, which was a business line within our former Engineered Solutions business. The sale resulted in cash proceeds of $15.9 million and a loss of $0.2 million. We have the ability to realize up to $8.5 million of additional proceeds based on the earnings of the Fiber Materials business over the 24 months following the transaction. We have elected to record this contingent consideration as it is realized and accordingly, it has not been recognized to date.

On July 3, 2017, we completed the sale of our Advanced Energy Technologies ("AET") business. AET was a product line within our Engineered Solutions business which had been classified as held for sale since the second quarter of 2016. The sale resulted in cash proceeds of $28.5 million.

On September 30, 2017, we completed the sale of the majority of the U.S. assets of our GrafTech Advanced Graphite Materials ("GAGM") business, which was a component of our Engineered Solutions business. The sale of the Italian GAGM assets closed on October 5, 2017. In the jurisdictions where the GAGM assets were not acquired, we initiated the wind down of the business. The sale was structured as a non cash transaction with the buyer assuming certain liabilities associated with the assets acquired. In addition, GrafTech retained certain current assets of GAGM, mostly receivables, which were substantially realized in the fourth quarter of 2017.

The disposition of the Engineered Solutions business is now substantially complete and, in accordance with our Old Credit Agreement (as defined below), all cash proceeds from these sales were used to pay down our $225 million revolving facility (the "Old Revolving Facility") and the $40 million senior secured delayed draw term loan facility (the "Old Term Loan Facility").

The following tables summarize the results of the Engineered Solutions business segment, reclassified as discontinued operations for the three and nine months ended September 30, 2018 and 2017.

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2018	2017	2018	2017
	(in thousands)			
Net sales	$154	$14,528	$2,622	$78,721
Cost of sales	1,810	14,574	3,145	71,596
Gross (loss) profit	(1,656)	(46)	(523)	7,125
Research and development	—	106	—	1,387
Selling and administrative expenses	64	3,561	(665)	11,360
Gain on sale of assets	(1,048)	(3,676)	(563)	(3,676)
Impairments	—	—	—	5,300
Operating (loss) income	(672)	(37)	705	(7,246)
Other (income) expense	(42)	(56)	24	(71)

Interest expense	—	—	—	1,131
(Loss) income from discontinued operations before income taxes	(630)	19	681	(8,306)
Provision for (benefit from) income taxes on discontinued operations	96	(3,215)	96	(3,424)
(Loss) income from discontinued operations	$(726)	$3,234	$585	$(4,882)

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PART I (CONT'D)
GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

The significant components of our Statements of Cash Flows for the Engineered Solutions business segment held for sale are as follows:

	For the Nine Months Ended September 30,	
	2018	2017
	(dollars in thousands)	
Depreciation and amortization	$—	$2,418
Impairment	—	5,300
Gain on sale of assets	(563)	(3,676)
Change in inventory	263	13,804
Deferred income taxes	96	(3,068)
Capital expenditures	—	528

The following table summarizes the carrying value of the assets and liabilities of discontinued operations as of September 30, 2018 and December 31, 2017.

	As of September 30, 2018	As of December 31, 2017
	(dollars in thousands)	
Assets of discontinued operations:		
Accounts receivable	$652	$ 3,351
Inventories	239	502
Prepaid expenses and other current assets	6	1,137
Net property plant and equipment	84	226
Other assets	97	97
Total assets of discontinued operations	1,078	5,313
Liabilities of discontinued operations:		
Accounts payable	$656	$ 512
Accrued income and other taxes	182	158
Other accrued liabilities	2,849	2,742
Total current liabilities of discontinued operations	3,687	3,412
Other long-term obligations	636	376
Total liabilities of discontinued operations	$4,323	$ 3,788

(3) Revenue from Contracts with Customers

The Company adopted ASC 606 on January 1, 2018. The adoption of ASC 606 represents a change in accounting principle that will more closely align revenue recognition with the delivery of the Company's goods and will provide financial statement readers with enhanced disclosures. The reported results for 2018 reflect the application of ASC 606 guidance while the reported results for 2017 were prepared under the guidance of ASC 605, Revenue Recognition (ASC 605), which is also referred to herein as the "previous revenue guidance".

Financial Statement Impact of Adopting ASC 606

The Company adopted ASC 606 effective January 1, 2018 using the modified retrospective method. Under this method, we could elect to apply the cumulative effect method to either all contracts as of the date of initial application or only to contracts that are not complete as of that date. We elected to apply the modified retrospective method to contracts that are not complete as of the date of initial application. The cumulative effect of applying the new guidance to all contracts with customers that were not completed as of January 1, 2018 was to be recorded as an adjustment to accumulated deficit as of the adoption date. As a result of using the modified retrospective method, there were no adjustments that were made to accounts on the Company's consolidated balance sheet as of January 1, 2018.

Impact of the adoption of ASC 606 on accounting policies

In accordance with ASC 606, 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) we satisfy a performance obligation.

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 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 pertaining to the customer. 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 pre-payment.

The promises of delivery of graphite electrodes represent the distinct performance obligations of our contracts. A small portion of our 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 fulfilment activity instead of as a distinct performance obligation, and outbound freight cost is accrued when the product delivery promises are satisfied.

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 Company’s contracts and customary practices involve few rebates or discounts. The Company provides a limited warranty on its products and may issue credit notes or replace products free of charge for valid quality claims; historically, quality claims have been insignificant and the Company records appropriate accruals for the estimated credit notes based on the historical statistical experience. Certain contracts provide for limited rebates when deliveries are late versus committed dates. These rebates are accrued for based on historical statistics of late deliveries on the contracts to which those terms apply.

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.

The Company expenses sales commissions as earned as their amortization period would not extend beyond the year in which they are incurred. These costs are recorded within selling and administrative expense.

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Disaggregation of Revenue

The following table provides information about disaggregated revenue by type of product and contract for the three and nine months ended months ended September 30, 2018:

	For the Three Months Ended September 30, 2018	For the Nine Months Ended September 30, 2018
	(dollars in thousands)	
Graphite Electrodes - Three-to-five-year contracts	$359,405	$976,852
Graphite Electrodes - Short-term contracts	77,386	341,804
By-products	18,099	44,465
Total Revenues	$454,890	$1,363,121

Impact of New Revenue Guidance on Financial Statement Line Items

There would be no differences to the reported consolidated balance sheet, statement of operations and cash flows, as of and for the nine months ended September 30, 2018, had the previous revenue guidance still been in effect.

Contract Balances

Receivables, net of allowances for doubtful accounts, were $204.7 million as of September 30, 2018 and $116.8 million as of December 31, 2017. Accounts receivables 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 pre-payment and the expected delivery of the related products. Additionally, under ASC 606, deferred revenue originates 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.

Current deferred revenue is included in "Other accrued liabilities" and long-term deferred revenue is included in "Other long-term obligations" on the Condensed Consolidated Balance Sheets.

The following table provides information about deferred revenue from contracts with customers (in thousands):

	Current deferred revenue	Long-Term deferred revenue
	(dollars in thousands)	
Balance as of December 31, 2017	$20,784	$ —
Revenue recognized that was included in the deferred revenue balance at the beginning of the period	(21,905)	—
Increases due to cash received, excluding amounts recognized as revenue during the period	8,182	8,241
Foreign currency impact	$(88)	(627)
Balance as of September 30, 2018	$6,973	$ 7,614

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Transaction Price Allocated to the Remaining Performance Obligations

The following table presents estimated revenues expected to be recognized in the future related to performance obligations that are unsatisfied (or partially unsatisfied) at the end of the reporting period (in thousands). The estimated revenues do not include contracts with original duration of one year or less.

	Three-to-five-year take-or-pay contracts (dollars in thousands)
Remainder of 2018	355,304
2019	1,347,005
2020	1,270,684
2021	1,114,294
Thereafter	1,085,725
Total	$ 5,173,012

In addition to the expected remaining revenue to be recognized with the longer-term sales contracts, the Company recorded $976.9 million of revenue pursuant to these contracts in the nine months ended September 30, 2018.

(4) Retirement Plans and Postretirement Benefits

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

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2018	2017	2018	2017
	(Dollars in thousands)			
Service cost	$498	$496	$1,494	$1,487
Interest cost	1,239	1,385	3,721	4,154
Expected return on plan assets	(1,502)	(1,389)	(4,506)	(4,166)
Net cost	$235	$492	$709	$1,475

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

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2018	2017	2018	2017
	(Dollars in thousands)			
Service cost	$3	$1	$3	$1
Interest cost	229	241	731	724
Net cost	$232	$242	$734	$725

(5) Goodwill and Other Intangible Assets

We are required to review goodwill and indefinite-lived intangible assets annually for impairment. Goodwill impairment is tested at the graphite electrodes reporting unit level on an annual basis and between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value.

The following tables represent the changes in the carrying value of goodwill and intangibles for the nine months ended September 30, 2018:

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Goodwill

(Dollars in thousands)	
Balance as of December 31, 2017	$171,117
Adjustments	—
Balance as of September 30, 2018	$171,117

Intangible Assets

	As of September 30, 2018			As of December 31, 2017		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
	(Dollars in Thousands)					
Trade name	$22,500	$ (7,179)	$15,321	$22,500	$ (5,512)	$16,988
Technological know-how	55,300	(22,042)	33,258	55,300	(17,265)	38,035
Customer –related intangible	64,500	(13,966)	50,534	64,500	(10,637)	53,863
Total finite-lived intangible assets	$142,300	$ (43,187)	$99,113	$142,300	$ (33,414)	$108,886

Amortization expense of acquired intangible assets was $3.2 million and $3.4 million in the three months ended September 30, 2018 and 2017, respectively, and $9.8 million and $10.3 million in the nine months ended September 30, 2018 and 2017, respectively. Estimated amortization expense will approximate $3.1 million in the remainder of 2018, $12.2 million in 2019, $11.4 million in 2020, $10.7 million in 2021 and $10.1 million in 2022.

(6) Debt and Liquidity

The following table presents our long-term debt:

	As of September 30, 2018	As of December 31, 2017
	(Dollars in thousands)	
Old Credit Facility (Old Revolving Facility and Old Term Loan Facility)	$ —	$ 58,192
Senior Notes	—	280,586
2018 Credit Facility (2018 Term Loan and 2018 Revolving Facility)	2,182,429	—
Other Debt	899	596
Total Debt	2,183,328	339,374
Less: Short-term Debt	(106,325)	(16,474)
Long-term Debt	$ 2,077,003	$ 322,900

The fair value of debt approximated the book value of $2,183.3 million as of September 30, 2018.

Senior Notes

On November 20, 2012, the Company issued $300 million principal amount of 6.375% Senior Notes due 2020 (the "Senior Notes"). The Senior Notes were the Company's senior unsecured obligations and ranked pari passu with all of the Company's existing and future senior unsecured indebtedness. The Senior Notes were guaranteed on a senior unsecured basis by each of the Company's existing and future subsidiaries that guarantee certain other indebtedness of the Company or another guarantor. The Senior Notes bore interest at a rate of 6.375% per year, payable semi-annually in arrears on May 15 and November 15 of each year. The Senior Notes were scheduled to mature on November 15, 2020.

The Company was entitled to redeem some or all of the Senior Notes at any time on or after November 15, 2016 at the redemption prices set forth in the indenture for the Senior Notes.

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If, prior to maturity, a change in control (as defined in the indenture) of the Company occurred and thereafter certain downgrades of the ratings of the Senior Notes as specified in the indenture occurred, the Company would have been required to offer to repurchase any or all of the Senior Notes at a repurchase price equal to 101% of the aggregate principal amount of the Senior Notes, plus any accrued and unpaid interest.

The indenture for the Senior Notes also contained covenants that, among other things, limited the ability of the Company and certain of its subsidiaries to: (i) create liens or use assets as security in other transactions; (ii) engage in certain sale or leaseback transactions; and (iii) merge, consolidate or sell, transfer, lease or dispose of substantially all of their assets.

The indenture for the Senior Notes also contained customary events of default, including (i) failure to pay principal or interest on the Senior Notes when due and payable, (ii) failure to comply with covenants or agreements in the indenture or the Senior Notes which failures are not cured or waived as provided in the indenture, (iii) failure to pay indebtedness of the Company, any Subsidiary Guarantor or Significant Subsidiary (each, as defined in the indenture) in excess of $50.0 million within any applicable grace period after maturity or acceleration, (iv) certain events of bankruptcy, insolvency, or reorganization, (v) failure to pay any judgment or decree for an amount in excess of $50.0 million against the Company, any Subsidiary Guarantor or any Significant Subsidiary that was not discharged, waived or stayed as provided in the indenture, and (vi) cessation of any Subsidiary Guarantee (as defined in the indenture) to be in full force and effect or denial or disaffirmance by any subsidiary guarantor of its obligations under its subsidiary guarantee no longer outstanding. In the case of an event of default, the principal amount of the Senior Notes plus accrued and unpaid interest could have been accelerated.

As described below, the Senior Notes were redeemed on February 12, 2018.

Old Credit Facility

On April 23, 2014, the Company and certain of its subsidiaries entered into an Amended and Restated Credit Agreement ("Old Credit Agreement") with a borrowing capacity of $400 million and a maturity date of April 2019.

On February 27, 2015, GrafTech and certain of its subsidiaries entered into a further Amended and Restated Credit Agreement that provided for, among other things, greater financial flexibility and the Old Term Loan Facility. The Old Revolving Facility and Old Term Loan Facility both had maturity dates of April 2019.

On July 28, 2015, the Company and certain of its subsidiaries entered into an amendment to the Amended and Restated Credit Agreement to change the terms regarding the occurrence of a default upon a change in control (which was defined thereunder to include the acquisition by any person of more than 25 percent of the Company's outstanding shares) to exclude the acquisition of shares by Brookfield. In addition, effective upon such acquisition, the financial covenants were eased, resulting in increased availability under the Old Revolving Facility. The size of the Old Revolving Facility was also reduced from $400 million to $375 million. The size of the Old Term Loan Facility remained at $40 million.

On April 27, 2016, the Company and certain of its subsidiaries entered into an amendment to the Old Revolving Facility. The size of the Old Revolving Facility was permanently reduced from $375 million to $225 million. New covenants were also added to the Old Revolving Facility, including a requirement to make mandatory repayments of outstanding amounts under the Old Revolving Facility and the Old Term Loan Facility with the proceeds of any sale of all or any substantial part of the assets included in the Engineered Solutions segment and a requirement to maintain minimum liquidity (consisting of domestic cash, cash equivalents and availability under the Old Revolving Facility) in excess of $25 million. The covenants were also modified to provide for: the elimination of certain exceptions to the Company's negative covenants limiting the Company's ability to make certain investments, sell assets, make restricted payments, incur liens, incur debt and prepay or redeem other indebtedness; a restriction on the amount of cash and cash equivalents permitted to be held on the balance sheet at any one time without paying down the Old Revolving Facility and the Old Term Loan Facility; and changes to the Company's financial covenants so that until the earlier of March 31, 2019 or the Company had $75 million in trailing twelve month EBITDA (as defined in the Old Revolving

Facility), the Company was required to maintain trailing twelve month EBITDA above certain minimums ranging from ($40 million) to $35 million, after which the Company's existing financial covenants under the Old Revolving Facility would apply.

With this amendment, the Company had full access to the $225 million Old Revolving Facility, subject to the $25 million minimum liquidity requirement. As of December 31, 2017, the Company had $39.5 million of borrowings on the Old Revolving Facility and $8.7 million of letters of credit drawn against the Old Credit Facility.

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The $40 million Old Term Loan Facility was fully drawn on August 11, 2015. The balance of the Old Term Loan Facility was $18.7 million as of December 31, 2017.

The interest rate applicable to the Old Revolving Facility and Old Term Loan Facility was LIBOR plus a margin ranging from 2.25% to 4.75% (depending on the Company's total senior secured leverage ratio). The borrowers paid a per annum fee ranging from 0.35% to 0.70% (depending on the Company's senior secured leverage ratio) on the undrawn portion of the commitments under the Old Revolving Facility.

As described below, the outstanding indebtedness under the Old Revolving Credit Facility and the Old Term Loan was repaid as of February 12, 2018 and all commitments thereunder have been terminated.

Refinancing

On February 12, 2018, the Company entered into a credit agreement (the “2018 Credit Agreement”) among the Company, GrafTech Finance Inc., a Delaware corporation and a wholly owned subsidiary of GrafTech (“Finance”), GrafTech Switzerland SA, a Swiss corporation and a wholly owned subsidiary of GrafTech (“Swissco”), GrafTech Luxembourg II S.à.r.l., a Luxembourg société à responsabilité limitée and a wholly owned subsidiary of GrafTech (“Luxembourg Holdco” and, together with Finance and Swissco, the “Co Borrowers”), the lenders and issuing banks party thereto and JPMorgan Chase Bank, N.A. as administrative agent and as collateral agent, which provides for (i) a $1,500 million senior secured term facility (the “2018 Term Loan Facility”) and (ii) a $250 million senior secured revolving credit facility (the “2018 Revolving Credit Facility” and, together with the 2018 Term Loan Facility, the “Senior Secured Credit Facilities”), which may be used from time to time for revolving credit borrowings denominated in dollars or Euro, the issuance of one or more letters of credit denominated in dollars, Euro, Pounds Sterling or Swiss Francs and one or more swing line loans denominated in dollars. Finance is the sole borrower under the 2018 Term Loan Facility while Finance, Swissco and Lux Holdco are Co Borrowers under the 2018 Revolving Credit Facility. On February 12, 2018, Finance borrowed $1,500 million under the 2018 Term Loan Facility (the "2018 Term Loans"). The 2018 Term Loans mature on February 12, 2025. The maturity date for the 2018 Revolving Credit Facility is February 12, 2023.

The proceeds of the 2018 Term Loans were used to (i) repay in full all outstanding indebtedness of the Co Borrowers under the Old Credit Agreement and terminate all commitments thereunder, (ii) redeem in full the Senior Notes at a redemption price of 101.594% of the principal amount thereof plus accrued and unpaid interest to the date of redemption, (iii) pay fees and expenses incurred in connection with (i) and (ii) above and the Senior Secured Credit Facilities and related expenses, and (iv) declare and pay a dividend to the sole pre-IPO stockholder, with any remainder to be used for general corporate purposes. See Note 8 "Interest Expense" for a breakdown of expenses associated with these repayments. In connection with the repayment of the Old Credit Agreement and redemption of the Senior Notes, all guarantees of obligations under the Old Credit Agreement, the Senior Notes and related indenture were terminated, all mortgages and other security interests securing obligations under the Old Credit Agreement were released and the Old Credit Agreement and the indenture were terminated.

Borrowings under the 2018 Term Loan Facility bear interest, at Finance’s option, at a rate equal to either (i) the Adjusted LIBO Rate (as defined in the 2018 Credit Agreement), plus an applicable margin initially equal to 3.50% per annum or (ii) the ABR Rate (as defined in the 2018 Credit Agreement), plus an applicable margin initially equal to 2.50% per annum, in each case with one step down of 25 basis points based on achievement of certain public ratings of the 2018 Term Loans.

Borrowings under the 2018 Revolving Credit Facility bear interest, at the applicable Co Borrower’s option, at a rate equal to either (i) the Adjusted LIBO Rate, plus an applicable margin initially equal to 3.75% per annum or (ii) the ABR Rate, plus an applicable margin initially equal to 2.75% 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, the Co Borrowers will be 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.

All obligations under the 2018 Credit Agreement are guaranteed by GrafTech, Finance and each domestic subsidiary of GrafTech, subject to certain customary exceptions, and all obligations under the 2018 Credit Agreement of each foreign subsidiary of GrafTech 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")) are guaranteed by GrafTech Luxembourg I S.à.r.l., a Luxembourg société à responsabilité limitée and an indirect wholly owned subsidiary of GrafTech ("Luxembourg Parent"), Luxembourg Holdco and Swissco (collectively, the "Guarantors").
All obligations under the 2018 Credit Agreement are secured, subject to certain exceptions and Excluded Assets (as defined in the 2018 Credit Agreement), by: (i) a pledge of all of the equity securities of Finance and each domestic Guarantor (other than GrafTech) 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

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Section 956 of the Code), and (iii) security interests in, and mortgages on, personal property and material real property of Finance and each domestic Guarantor, subject to permitted liens and certain exceptions specified in the 2018 Credit Agreement. The obligations of each foreign subsidiary of GrafTech that is a Controlled Foreign Corporation under the 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 Credit Agreement.

The 2018 Term Loans amortize at a rate equal to 5% per annum of the original principal amount of the 2018 Term Loans payable in equal quarterly installments, with the remainder due at maturity. The Co Borrowers are permitted to make voluntary prepayments at any time without premium or penalty, except in the case of prepayments made in connection with certain repricing transactions with respect to the 2018 Term Loans effected within twelve months of the closing date of the 2018 Credit Agreement, to which a 1.00% prepayment premium applies. Finance is required to make prepayments under the 2018 Term Loans (without payment of a premium) with (i) net cash proceeds from non ordinary course asset sales (subject to customary reinvestment rights and other customary exceptions and exclusions), and (ii) commencing with the Company’s fiscal year ending December 31, 2019, 75% of Excess Cash Flow (as defined in the 2018 Credit Agreement), subject to step downs to 50% and 0% of Excess Cash Flow based on achievement of a senior secured first lien net leverage ratio greater than 1.25 to 1.00 but less than or equal to 1.75 to 1.00 and less than or equal to 1.25 to 1.00, respectively. Scheduled quarterly amortization payments of the 2018 Term Loans during any calendar year reduce, on a dollar for dollar basis, the amount of the required Excess Cash Flow prepayment for such calendar year, and the aggregate amount of Excess Cash Flow prepayments for any calendar year reduce subsequent quarterly amortization payments of the 2018 Term Loans as directed by Finance.

The 2018 Credit Agreement 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 Credit Agreement 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 Credit Agreement also contains customary events of default.

Brookfield Promissory Note

On April 19, 2018, we declared a dividend in the form of a $750 million promissory note (the “Brookfield Promissory Note”) to the sole pre-IPO stockholder. The $750 million Brookfield Promissory Note was conditioned upon (i) the Senior Secured First Lien Net Leverage Ratio (as defined in the 2018 Credit Agreement), as calculated based on our final financial results for the first quarter of 2018, being equal to or less than 1.75 to 1.00, (ii) no Default or Event of Default (each as defined in the 2018 Credit Agreement) having occurred and continuing or that would result from the $750 million Brookfield Promissory Note and (iii) the satisfaction of the conditions occurring within 60 days from the dividend record date. Upon publication of our first quarter report on Form 10-Q, these conditions were met and, as a result, the Brookfield Promissory Note became payable.

The Brookfield Promissory Note had a maturity of eight years from the date of issuance and bore interest at a rate equal to the Adjusted LIBO Rate (as defined in the Brookfield Promissory Note) plus an applicable margin equal to 4.50% per annum, with an additional 2.00% per annum starting from the third anniversary from the date of issuance. We were permitted to make voluntary prepayments at any time without premium or penalty. All obligations under the Brookfield Promissory Note were unsecured and guaranteed by all of our existing and future domestic wholly owned subsidiaries that guarantee, or are borrowers under, the Senior Secured Credit Facilities. No funds were lent or otherwise contributed to us by the pre-IPO stockholder in connection with the Brookfield Promissory Note. As a result, we received no consideration in connection with its issuance. As described below, the Promissory Note was repaid in full on June 15, 2018.

First Amendment to 2018 Credit Agreement

On June 15, 2018, the Company entered into a first amendment (the “First Amendment”) to its 2018 Credit Agreement. The First Amendment amended the 2018 Credit Agreement to provide for an additional $750 million in aggregate principal amount of incremental term loans (the “Incremental Term Loans”) to Finance. The Incremental Term Loans increased the aggregate principal amount of term loans incurred by Finance under the 2018 Credit Agreement from $1,500 million to $2,250 million. The Incremental Term Loans have the same terms as those applicable to the 2018 Term Loans, including interest rate, payment and prepayment terms, representations and warranties and covenants. The Incremental Term Loans mature on February 12, 2025, the

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same date as the 2018 Term Loans. GrafTech paid an upfront fee of 1.00% of the aggregate principal amount of the Incremental Term Loans on the effective date of the First Amendment.

The proceeds of the Incremental Term Loans were used to repay, in full, the $750 million of principal outstanding on the Brookfield Promissory Note.

(7) Inventories

Inventories are comprised of the following:

	As of September 30, 2018	As of December 31, 2017
	(Dollars in thousands)	
Inventories:		
Raw materials	$78,082	$39,434
Work in process	108,123	85,852
Finished goods	75,779	48,865
Total	$261,984	$174,151

(8) Interest Expense

The following tables present the components of interest expense:

	For the Three Months Ended September 30, 2018	2017	For the Nine Months Ended September 30, 2018	2017
	(Dollars in thousands)			
Interest incurred on debt	$32,278	$6,097	$67,751	$18,183
Related party Promissory Note interest expense	—	—	5,090	—
Senior Note redemption premium	—	—	4,782	—
Accretion of fair value adjustment on Senior Notes	—	1,618	19,414	4,826
Accretion of original issue discount on 2018 Term Loans	549	—	906	—
Amortization of debt issuance costs	1,028	77	2,444	231
Total interest expense	$33,855	$7,792	$100,387	$23,240

Interest Rates

The 2018 Credit Agreement had an effective interest rate of 5.74% as of September 30, 2018. The Old Revolving Facility and Old Term Loan Facility had an effective interest rate of 4.57% as of December 31, 2017 and the Senior Notes had a fixed interest rate of 6.375%, both of which were repaid on February 12, 2018 as part of our refinancing (see Note 6 "Debt and Liquidity").

As a result of our February 12, 2018 refinancing, we paid a prepayment premium for the redemption of our Senior Notes totaling $4.8 million. The accretion of the August 15, 2015 fair value adjustment to our Senior Notes totaling $19.4 million included accelerated accretion of $18.7 million for the nine months ended September 30, 2018 resulting from the prepayment. Amortization of debt issuance costs included $0.3 million of accelerated amortization related to the refinancing.

(9) Contingencies

Legal Proceedings

We are involved in various investigations, lawsuits, claims, demands, environmental compliance programs and other legal proceedings 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, we do not believe that their ultimate disposition will have a material adverse effect on our financial position, results of operations or cash flows.

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Litigation has been pending in Brazil 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). Prior to October 1, 2015, we were not party to such litigation. Companies in Brazil have settled claims arising out of these provisions and, in May 2015, the litigation was remanded in favor of the employees, by the Brazilian Supreme Court to the lower courts for further proceedings which included procedural aspects of the case, such as admissibility of instruments filed by the parties. On October 1, 2015, an 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. In the first quarter of 2017, the state court ruled in favor of the employees. We have appealed this ruling and intend to vigorously defend it. As of September 30, 2018, 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.

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 accrual for the nine months ended September 30, 2018, are presented below:

	(Dollars in thousands)
Balance as of December 31, 2017	$ 349
Product warranty accruals and adjustments	808
Settlements	(159)
Balance as of September 30, 2018	$ 998

Tax Receivable Agreement

On April 23, 2018, the Company entered into a tax receivable agreement (the "TRA") 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 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 LIBOR plus 1.00% per annum. The term of the TRA commenced on April 23, 2018 and will continue until there is no potential for any future tax benefit payments.

There was no liability recognized on the date we entered into the TRA as the there was a full valuation allowance recorded against our deferred tax assets. During the second quarter of 2018, it was determined that the conditions were appropriate for the Company to release a valuation allowance of certain tax assets as we exited our three year cumulative loss position. This release resulted in the recording of a $61.8 million liability related to the TRA on the Condensed Consolidated Statements of Operations as "Related party Tax Receivable Agreement Expense."

Long-term Incentive Plan

The long-term incentive plan ("LTIP") was adopted by the Company effective as of August 17, 2015, as amended and restated as of March 15, 2018. The purpose of the plan is to retain senior management personnel 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 is allocated a number of profit units, with a maximum of 30,000 profit units (or Profit Units) available under the plan. Awards of Profit Units generally vest in equal increments over a five-year period beginning on the first anniversary of the grant date and subject to continued employment with the Company through each vesting date. Any unvested Profit Units that have not been previously forfeited will accelerate and become fully vested upon a ‘‘Change in Control’’ (as defined below).

Profit Units will generally be settled in a lump sum payment within 30 days following a Change in Control based on the ‘‘Sales Proceeds’’ (as defined below) received by Brookfield Capital Partners IV, L.P. (or, together with its affiliates, Brookfield Capital IV) in connection with the Change in Control. The LTIP defines ‘‘Change in Control’’ as any 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 (a) a Person not affiliated with Brookfield

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Capital IV acquires securities representing more than seventy percent (70%) of the combined voting power of the outstanding voting securities of the Company or the entity surviving or resulting from such transaction, (b) following a public offering of the Company’s stock, Brookfield Capital IV has ceased to have a beneficial ownership interest in at least 30% of the Company’s outstanding voting securities (effective on the first of such date), or (c) the Company sells all or substantially all of the assets of the Company and its subsidiaries on a consolidated basis. It is intended that the occurrence of a Change in Control in which Sales Proceeds exceed the Threshold Value would constitute a ‘‘substantial risk of forfeiture’’ within the meaning of Section 409A of the Code. The LTIP defines ‘‘Threshold Value’’ as, as of any date of determination, an amount equal to $855,000,000, (which represents the amount of the total invested capital of Brookfield Capital IV as of August 17, 2015), plus the dollar value of any cash or other consideration contributed to or invested in the Company by Brookfield Capital IV after August 17, 2015. The Threshold Value shall be determined by the Board of Directors in its sole discretion. The LTIP defines ‘‘Sales Proceeds’’ as, as of any date of determination, the sum of all proceeds actually received by the Brookfield Capital IV, net of all Sales Costs (as defined below), (i) as consideration (whether cash or equity) upon the Change in Control and (ii) as distributions, dividends, repurchases, redemptions or otherwise as a holder of such equity interests in the Company. Proceeds that are not paid upon or prior to or in connection with the Change in Control, including earn-outs, escrows and other contingent or deferred consideration shall become ‘‘Sale Proceeds’’ only as and when such proceeds are received by Brookfield Capital IV. ‘‘Sales Costs’’ means any costs or expenses (including legal or other advisor costs), fees (including investment banking fees), commissions or discounts payable directly by Brookfield Capital IV in connection with, arising out of or relating to a Change in Control, as determined by the Board of Directors in its sole discretion.

Given the successful completion of the IPO in the second quarter, it is reasonably possible that a Change in Control, as defined above, may ultimately happen and that the awarded Profit Units will be subsequently paid out to the participants. Assuming 100% vesting of the awarded Profit Units and depending on Brookfield’s sales proceeds, the potential liability triggered by a Change in Control is estimated to be in the range of $65 million to $90 million. As of September 30, 2018, the awards are 60% vested.

(10) Income Taxes

We compute and apply to ordinary income an estimated annual effective tax rate on a quarterly basis based on current and forecasted business levels and activities, including the mix of domestic and foreign results and enacted tax laws. The estimated annual effective tax rate is updated quarterly based on actual results and updated operating forecasts. Ordinary income refers to income (loss) before income tax expense excluding significant, unusual, or infrequently occurring items. The tax effect of an unusual or infrequently occurring item is recorded in the interim period in which it occurs as a discrete item of tax.

The following tables summarize the provision for income taxes for the three and nine months ended September 30, 2018 and September 30, 2017:

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2018	2017	2018	2017
	(Dollars in thousands)			
Tax expense	$24,871	$1,963	$36,250	$3,249
Pretax income (loss)	225,063	(5,190)	660,252	(39,515)
Effective tax rates	11.1 %	(37.8)%	5.5 %	(8.2)%

The effective tax rate for the three months ended September 30, 2017 was (37.8)%. This rate differs from the 2017 U.S. statutory rate of 35% primarily due to recent losses in the U.S. and Switzerland where we received no tax benefit due to a full valuation allowance and worldwide earnings from various countries taxed at different rates. The

recognition of the valuation allowance does not result in, or limit the Company's ability to utilize these tax assets in the future.
The effective tax rate for the three months ended September 30, 2018 was 11.1%. This rate differs from the 2018 U.S. statutory rate of 21% primarily due to the tax impact of worldwide earnings from various countries taxed at different rates. This was partially offset by a favorable impact from the partial release of a valuation allowance recorded against the deferred tax asset related to U.S. tax attributes.
The tax expense changed from a charge of $2.0 million for the quarter ended September 30, 2017 to a tax expense of $24.9 million for the quarter ended September 30, 2018. This change is primarily due to jurisdictional mix shifting from pre-tax

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losses in the third quarter of 2017 to pre-tax earnings in the third quarter of 2018. This was partially offset by a release of a portion of our valuation allowance recorded against the deferred tax asset related to U.S. tax attributes.
For the nine months ended September 30, 2017, the effective tax rate of (8.2)% differs from the 2017 U.S. statutory rate of 35% primarily due to recent losses in the U.S. and Switzerland where we receive no tax benefit due to a full valuation allowance and worldwide earnings from various countries tax at different rates. The recognition of the valuation allowance does not result in, or limit the Company's ability to utilize these tax assets in the future.
For the nine months ended September 30, 2018, the effective tax rate of 5.5% differs from the 2018 U.S. statutory rate of 21% primarily due to the partial release of a valuation allowance recorded against the deferred tax asset related to U.S. tax attributes and worldwide earnings from various countries taxed at different rates. The recognition of the valuation allowance does not result in or limit the Company's ability to utilize these tax assets in the future.
The tax expense increased from $3.2 million for the nine months ended September 30, 2017 to $36.3 million for the nine months ended September 30, 2018. This change is primarily due to jurisdictional mix shifting from pre-tax losses in the nine months ended September 30, 2017 to pre-tax earnings in the same period of 2018. This was partially offset by a release of a portion of our valuation allowance recorded against the deferred tax asset related to U.S. tax attributes.
As of September 30, 2018, we had unrecognized tax benefits of $2.2 million which, if recognized, would have a favorable impact on our effective tax rate.
We file income tax returns in the U.S. federal jurisdiction, and various state and foreign jurisdictions. All U.S. federal tax years prior to 2014 are generally closed by statute or have been audited and settled with the applicable domestic tax authorities. All other jurisdictions are still open to examination beginning after 2011.

As of September 30, 2018, we determined that sufficient positive evidence existed that allowed us to conclude that a full valuation allowance was no longer required to be recorded against the deferred tax assets related the U.S. tax attributes. This positive evidence was primarily supplied by the Company exiting a cumulative loss period, as well as sufficient U.S. forecasted taxable income that would utilize the U.S. tax attributes and thus generate the tax benefit recorded as of September 30, 2018. We continue to assess the realization of our deferred tax assets based on determinations of whether it is more likely than not that deferred tax benefits will be realized through the generation of future taxable income. Appropriate consideration is given to all available evidence, both positive and negative, in assessing the need for a valuation allowance. Examples of positive evidence would include a strong earnings history, an event or events that would increase our taxable income through a continued reduction of expenses, and tax planning strategies that would indicate an ability to realize deferred tax assets. In circumstances where the significant positive evidence does not outweigh the negative evidence in regards to whether or not a valuation allowance is required, we have established and maintained valuation allowances on those net deferred tax assets.

Tax Cuts and Jobs Act
On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act ("Tax Act"), which significantly revised the U.S. corporate income tax system. These changes include a federal statutory rate reduction from 35% to 21%, the elimination or reduction of certain domestic deductions and credits and limitations on the deductibility of interest expense and executive compensation. The Tax Act also transitioned international taxation from a worldwide system to a modified territorial system and includes base erosion prevention measures which have the effect of subjecting certain earnings of our foreign subsidiaries to U.S. taxation as global intangible low taxed income (or "GILTI"). In general, these changes were effective beginning in 2018. The Tax Act also includes a one time mandatory deemed repatriation or transition tax on the accumulated previously untaxed foreign earnings of our foreign subsidiaries.

For the fourth quarter of 2017, we were able to reasonably estimate certain Tax Act effects and, therefore, recorded provisional adjustments associated with the deemed repatriation transition tax and remeasurement of certain deferred tax assets and liabilities.

Due to the complexities involved in accounting for the enactment of the Tax Act, the SEC issued Staff Accounting Bulletin No. 118 ("SAB No. 118"), which allowed the Company to record provisional amounts in earnings for the year ended December 31, 2017. SAB No. 118 provides that where reasonable estimates can be made, the provisional accounting should be based on such estimates and when no reasonable estimate can be made, the provisional accounting may be based on the tax law in effect before the Tax Act. During the three and nine month periods ended September 30, 2018 , there were no changes made to the provisional amounts recognized in 2017. On August 1, 2018, the U.S. Department of Treasury and the U.S. Internal Revenue Service ("IRS")

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issued proposed regulations under code section 965. The Company continues to analyze the effects of the Tax Act and newly issued proposed regulations on its financial statements. Additional impacts from the enactment of the Tax Act will be recorded as they are identified during the measurement period as provided for in SAB No. 118, which extends up to one year from the enactment date. The final impact of the Tax Act may differ from the provisional amounts that have been recognized, possibly materially, due to, among other things, changes in the Company's interpretation of the Tax Act, legislative or administrative actions to clarify the intent of the statutory language provided that differ from the Company's current interpretation, any changes in accounting standards for income taxes or related interpretations in response to the Tax Act, or any updates or changes to estimates utilized to calculate the impacts, including changes to current year earnings estimates and applicable foreign exchange rates. Additionally, the Company's U.S. tax returns for 2017 will be filed during the fourth quarter of 2018 and any changes to the tax positions reflected in those returns compared to the estimates recorded in the Company's earnings for the year ended December 31, 2017 will result in an adjustment of the estimated tax provision recorded as of December 31, 2017.

The Company also continues to evaluate the impact of the GILTI provisions under the Tax Act which are complex and subject to continuing regulatory interpretation by the IRS. The Company is required to make an accounting policy election of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current period expense when incurred (the "period cost method") or (2) factoring such amounts into the Company's measurement of its deferred taxes (the "deferred method"). The Company's accounting policy election with respect to the new GILTI Tax rules will depend, in part, on analyzing its global income to determine whether it can reasonably estimate the tax impact. While the Company has included an estimate of GILTI in its estimated effective tax rate for 2018, it has not completed its analysis and has not determined which method to elect. Adjustments related to the amount of GILTI Tax recorded in its consolidated financial statements may be required based on the outcome of this election.

(11) Derivative Instruments

We use derivative instruments as part of our overall foreign currency and commodity risk management strategies to manage the risk of exchange rate movements that would reduce the value of our foreign cash flows and to minimize commodity price volatility. Foreign currency exchange rate movements create a degree of risk by affecting the value of sales made and costs incurred in currencies other than the U.S. dollar.

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. Our derivative assets and liabilities are included within "Other long-term assets", "Prepaid expenses and other current assets", "Long-term liabilities" and "Other current liabilities" on the Condensed Consolidated Balance Sheets and effects of these derivatives are recorded in "Other comprehensive income", "Cost of sales" and "Other income (expense)" on the Condensed Consolidated Statements of Operations.

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, attempt to hedge global currency exposures such as foreign currency denominated debt, sales, receivables, payables, and purchases. Forward exchange contracts are agreements to exchange different currencies at a specified future date and at a specified rate.

During 2017 and 2018, we entered into foreign currency derivatives denominated in the Mexican peso, South African rand, Brazilian real, euro, Swiss franc, British pound sterling, and Japanese yen. These derivatives were entered into to protect the risk that the eventual cash flows resulting from commercial and business transactions may be adversely affected by changes in exchange rates between the U.S. dollar and currencies in which the derivatives are denominated. We had no foreign currency cashflow hedges outstanding as of September 30, 2018 and December 31, 2017 and therefore, no unrealized gains or losses. As of September 30, 2018, we had fair value hedge contracts outstanding for the Mexican peso, euro, Swiss franc, South African rand, British pound sterling, and Japanese yen currency with an aggregate notional amount of $15.6 million. These fair value hedge foreign currency derivatives outstanding as of September 30, 2018 have maturities through October 31, 2018.

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Commodity derivative contracts

We have entered into commodity derivative contracts for refined oil products. These contracts are entered into to protect against the risk that eventual cash flows related to these products will be adversely affected by future changes in prices. We had outstanding commodity derivative contracts as of September 30, 2018 with notional amount of $155.2 million with maturities from October 2018 to June 2022. The outstanding commodity derivative contracts represented a net unrealized gain within "Other Comprehensive Income" of $40.9 million as of September 30, 2018. We had outstanding commodity derivative contracts as of December 31, 2017 with notional amount of $143.9 million representing a net unrealized gain of $4.7 million.

Net Investment Hedges

We use certain intercompany debt to hedge a portion of our net investment in our foreign operations against currency exposure (net investment hedge). Intercompany debt denominated in foreign currency and designated as a non-derivative net investment hedging instrument was $12.9 million and $14.8 million as of September 30, 2018 and December 31, 2017, respectively. Within the currency translation adjustment portion of "Other Comprehensive Income", we recorded a gain of $0.4 million and $1.9 million in the three and nine months ended September 30, 2018, respectively, and a gain of $0.5 million and a loss $0.2 million in the three and nine months ended September 30, 2017, respectively, resulting from these net investment hedges.

The fair value of all derivatives is recorded as assets or liabilities on a gross basis in our Condensed Consolidated Balance Sheets. As of September 30, 2018 and December 31, 2017, respectively, the fair value of our derivatives and their respective balance sheet locations are presented in the following table:

	Asset Derivatives		Liability Derivatives	
	Location	Fair Value	Location	Fair Value
As of September 30, 2018	(Dollars in thousands)			
Derivatives designated as cash flow hedges:				
Commodity derivative contracts	Prepaid and other current assets	$18,024	Other accrued liabilities	$ —
	Other long-term assets	23,950	Other long-term obligations	—
Total fair value		$41,974		$ —
As of December 31, 2017				
Derivatives designated as cash flow hedges:				
Commodity derivative contracts	Prepaid and other current assets	$2,518	Other accrued liabilities	$ —
	Other long-term assets	2,808	Other long-term obligations	581
Total fair value		$5,326		$ 581

The realized (gains) losses on commodity derivatives remain in Other Comprehensive Income until they are recognized in the Statements of Operations when the hedged item impacts earnings, which is when the finished product is sold. With respect to the inputs used to determine the fair value, we use observable, quoted market rates that are determined by active markets and, therefore, classify the contracts as "Level 2".

	Asset Derivatives		Liability Derivatives	
	Location	Fair Value	Location	Fair Value
As of September 30, 2018	(Dollars in Thousands)			
Derivatives not designated as hedges:				
Foreign currency derivatives	Prepaid and other current assets	$ 30	Other current liabilities	$ 9

As of December 31, 2017				
Derivatives not designated as hedges:				
Foreign currency derivatives	Prepaid and other current assets	$ 9	Other current liabilities	$ 90

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	Location of (Gain)/Loss Recognized in the Consolidated Statement of Operations	Amount of (Gain)/Loss Recognized For the Three Months Ended September 30,	
		2018	2017
Derivatives designated as cash flow hedges:		(Dollars in thousands)	
Commodity contract hedges	Cost of sales	421	—
Derivatives not designated as hedges:			
Foreign currency derivatives	Cost of sales, Other expense/(income)	(159)	(266)

	Location of (Gain)/Loss Recognized in the Consolidated Statement of Operations	Amount of (Gain)/Loss Recognized For the Nine Months Ended September 30,	
		2018	2017
Derivatives designated as cash flow hedges:		(Dollars in thousands)	
Commodity contract hedges	Cost of sales	$ 421	—
Derivatives not designated as hedges:			
Foreign currency derivatives	Cost of sales, Other expense/(income)	$ 137	$ (1,108)

(12) Stockholders' Equity

Stock Split

On April 12, 2018, the Company effected a 3,022,259.23 to one stock split of the Company's then outstanding common stock. We have retroactively applied this split to all share presentations, as well as "Net income (loss) per share" and "Income (loss) from continuing operations per share" calculations for the periods presented.

Conditional Dividend to Pre-IPO Stockholder

On April 19, 2018, we declared a $160 million cash dividend payable to Brookfield, the sole pre-IPO stockholder. Payment of this dividend was conditional upon (i) the Senior Secured First Lien Net Leverage Ratio (as defined in the 2018 Credit Agreement), as calculated based on our final financial results for the first quarter of 2018, being equal to or less than 1.75 to 1.00, (ii) no Default or Event of Default (as defined in the 2018 Credit Agreement) having occurred and continuing or that would result from the payment of the dividend and (iii) the payment occurring within 60 days from the dividend record date. The conditions of this dividend were met upon filing of our first quarter report on Form 10-Q and the dividend was paid on May 8, 2018.

Brookfield Promissory Note

On April 19, 2018, we declared a dividend in the form of the Brookfield Promissory Note to the sole pre-IPO stockholder. This note was repaid on June 15, 2018 with proceeds from our Incremental Term Loans. See Note 6 "Debt and Liquidity".

Initial Public Offering

On April 23, 2018, we completed our IPO of 35,000,000 shares of our common stock at a price of $15 per share. This offering represented a sale of 11.6% of our sole pre-IPO stockholder's ownership in the Company.

On April 26, 2018, we closed the sale of an additional 3,097,525 shares of common stock at a price to the public of $15 per share from the pre-IPO stockholder, as a result of the partial exercise by the underwriters in our IPO of their overallotment option. After giving effect to the partial exercise of the overallotment option, the total number of shares of common stock sold by the pre-IPO stockholder was 38,097,525.

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The Company did not receive any proceeds related to the offering. We have incurred $5.1 million of legal, accounting, printing and other fees associated with this offering through September 30, 2018, which was recorded in "Selling and administrative" expenses in the Condensed Consolidated Statements of Operations.

Dividends

The Board of Directors declared and paid a dividend of $0.0645 per share for the first quarter of 2018 totaling $19.5 million, which was paid on June 29, 2018 and represented a prorated quarterly dividend of $0.085 (or $0.34 per annum) per share of our common stock prorated from the date of our IPO, April 23, 2018 to June 30, 2018. On July 31, 2018, the Board of Directors declared a dividend of $0.085 per share for the second quarter of 2018, which was paid on September 28, 2018 and totaled $24.7 million.

Follow-on Offering and Common Stock Repurchase

On August 13, 2018, Brookfield completed an underwritten public secondary offering (the "Offering") of 23,000,000 shares of our common stock at a price to the public of $20.00 per share. The Company did not receive any proceeds related to the Offering. Pursuant to a share repurchase agreement with Brookfield, we concurrently repurchased 11,688,311 shares directly from Brookfield. The price per share paid by us in the repurchase was equal to the price at which the underwriters purchased the shares from Brookfield in the public offering net of underwriting commissions and discounts. We funded the share repurchase from cash on hand. The terms and conditions of the share repurchase were reviewed and approved by the audit committee of our board of directors, which is comprised solely of independent directors. All repurchased shares were retired.

The following table provides the movements within our stockholders' equity (deficity) for the period ended September 30, 2018:

	(dollars in thousands)
Stockholders' equity as of December 31, 2017	$613,215
Total comprehensive income	638,837
Dividends paid	(1,316,189)
Related party dividend of Promissory Note	(750,000)
Common stock repurchase	(225,000)
Stock based compensation	653
Stockholders' deficit as of September 30, 2018	$(1,038,484)

(13) Earnings per Share

The following table shows the information used in the calculation of our basic and diluted earnings per share calculation as of September 30, 2018 and December 31, 2017. See Note 12 "Stockholders' Equity" for details on our April 12, 2018 stock split and our common stock repurchase on August 13, 2018.

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2018	2017	2018	2017
Weighted average common shares outstanding for basic calculation	296,136,564	302,225,923	300,173,831	302,225,923
Add: Effect of stock options and restricted stock	8,889	—	4,873	—
Weighted average common shares outstanding for diluted calculation	296,145,453	302,225,923	300,178,704	302,225,923

Basic earnings per common share are calculated by dividing net income (loss) by the weighted average number of common shares outstanding. Diluted earnings per share are calculated by dividing net income (loss) 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.

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The weighted average common shares outstanding for the diluted earnings per share calculation excludes consideration of stock options covering 946,610 and 544,292 shares in the three and nine months ended September 30, 2018, respectively, as these shares are anti-dilutive.

(14) Stock-Based Compensation

Our Board of Directors granted 979,790 stock options, 28,621 deferred stock units and 6,740 restricted stock units during the nine months ended September 30, 2018 under our Omnibus Equity Incentive Plan.

Stock-based compensation expense recognized was $0.5 million and $0.7 million in the three and nine months ended September, 30, 2018, respectively. A majority of the expense, $0.4 million and $0.6 million, respectively, was recorded as "Selling and Administrative Expenses" in the Condensed Consolidated Statement of Operations, with the remaining expenses incurred as cost of sales and research and development. There was no stock-based compensation expense recognized in the three and nine months ended September 30, 2017.

As of September 30, 2018, unrecognized compensation cost related to non-vested stock options, deferred stock units and restricted stock units represents $5.8 million, which will be recognized over the remaining weighted average life of 2.58 years.

Stock Option, Deferred Stock Unit and Restricted Stock Unit awards activity under the Omnibus Equity Incentive Plan for the nine months ended September 30, 2018 was as follows:

Stock Options

	Number of Shares	Weighted-Average Exercise Price
Outstanding unvested as of January 1, 2018	—	—
Granted	979,790	15.67
Forfeited	(11,070)	15.00
Outstanding unvested as of September 30, 2018	968,720	15.68

Deferred Stock Units

	Number of Shares	Weighted-Average Grant Date Fair Value
Outstanding unvested as of January 1, 2018	—	—
Granted	28,621	14.84
Vested	(9,129)	17.94
Outstanding unvested as of September 30, 2018	19,492	13.39

Restricted Stock Units

	Number of Shares	Weighted-Average Grant Date Fair Value

Outstanding unvested as of January 1, 2018	—	—
Granted	6,740	13.96
Outstanding unvested as of September 30, 2018	6,740	13.96

(15) Subsequent Events

On November 2, 2018, the Board of Directors declared a dividend of $.085 per share to stockholders of record as of the close of business on November 30, 2018, to be paid on December 31, 2018.

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

Overview
We are a leading manufacturer of high quality graphite electrode products essential to the production of electric arc furnace ("EAF") steel and other ferrous and non ferrous metals. We believe that we have the most competitive portfolio of low cost graphite electrode manufacturing facilities in the industry, including three of the five highest capacity facilities in the world (excluding China). We are the only large scale graphite electrode producer that is substantially vertically integrated into petroleum needle coke, the primary raw material for graphite electrode manufacturing, which is currently in limited supply. Between 1984 and 2011, EAF steelmaking was the fastest growing segment of the steel sector, with production increasing at an average rate of 3.5% per year, based on World Steel Association ("WSA") data. Historically, EAF steel production has grown faster than the overall steel market due to the greater resilience, more variable cost structure, lower capital intensity and more environmentally friendly nature of EAF steelmaking. This trend was partially reversed between 2011 and 2015 due to global steel production overcapacity driven largely by Chinese blast furnace ("BOF") steel production. Beginning in 2016, efforts by the Chinese government to restructure China's domestic steel industry have led to limits on BOF steel production and lower export levels, and developed economies, which typically have much larger EAF steel industries, have instituted a number of trade policies in support of domestic steel producers. As a result, since 2016, the EAF steel market has rebounded strongly and resumed its long term growth trajectory. This revival in EAF steel production has resulted in increased demand for our graphite electrodes.
At the same time, two supply side structural changes have contributed to recent record high prices of graphite electrodes. First, ongoing consolidation and rationalization of graphite electrode production capacity have limited the ability of graphite electrode producers to meet demand. We estimate that approximately 20% of graphite electrode industry production capacity (excluding China) has been closed or repurposed since the beginning of 2014, and we believe the majority of these closures represent permanent reductions. Second, demand for petroleum needle coke has outpaced supply due to increasing demand for petroleum needle coke for lithium ion batteries used in electric vehicles. As a result, graphite electrode prices have recently reached record high prices. We have implemented a commercial strategy to sell 60% to 65% of our production capacity through three to five year take or pay contracts. These contracts define volumes and prices, along with price escalation mechanisms for inflation, and include significant termination payments (typically, 50% to 70% of remaining contracted revenue) and, in certain cases, parent guarantees and collateral arrangements to manage our customer credit risk. We expect a high degree of stability in our future operating results due to these contracts. We have entered into three to five year take or pay contracts to sell approximately 132,406, 138,446, 134,831, 117,600 and 112,883 metric tons ("MT") in 2018, 2019, 2020, 2021 and 2022, respectively. We may enter into additional take-or-pay contracts in the future.
GrafTech's Transformation
Since 2012, we have executed a three part transformation plan to improve our competitive position and allow us to better serve our customers. Since 2012, we have achieved annual fixed manufacturing cost improvements of $80 million, annual capital expenditure requirement reductions of $45 million and annual overhead expense reductions of approximately $65 million, all while also improving the productivity of our plant network. We have strategically shifted production from our lowest to our highest production capacity facilities to increase fixed cost absorption. This, coupled with a recovery in customer demand, resulted in a steady increase in our capacity utilization, reaching 100% in the third quarter of 2018 (excluding our temporarily idled St. Marys, Pennsylvania facility). We have also reduced our annual overhead expenses by approximately $65 million since 2012 by simplifying our corporate structure from a conglomerate model to a centralized business focused exclusively on the production of graphite electrodes and petroleum needle coke, and we have streamlined and combined our workforce and various administrative functions for efficiency, and eliminated research and development ("R&D") functions unrelated to graphite electrodes. In 2018, we expect to have maintenance capital expenditures of approximately $35 million. In

addition to our fixed cost reductions, we have been able to achieve significant productivity improvements and variable cost reductions across our plants since 2014. We are currently implementing an operational improvement and debottlenecking initiative, which we expect will increase our current operating production capacity by the end of 2018, allowing us to achieve further improvements in our cost structure. As a result of our prior operational improvement activities, we are able to achieve this large capacity increase with specific, highly targeted capital investments. This debottlenecking initiative is expected to result in approximately $42 million of capital expenditures, slightly higher than previous estimates due mainly to currency impacts. The majority of costs associated with this initiative will be expended in 2018. We expect our debottlenecking initiative along with our maintenance capital expenditures to result in approximately $70 million of total capital expenditures in 2018.

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In light of improved market conditions, the long lead time required to produce our products, our position as one of the market's largest producers and our ability, through our substantial vertical integration with Seadrift Coke L.P. ("Seadrift"), to provide customers with a reliable long term supply of graphite electrodes despite the market shortage of petroleum needle coke, we have implemented a commercial strategy to sell graphite electrodes through three-to-five-year take-or-pay contracts. Additionally, the divestiture of our non-core legacy Engineered Solutions businesses in 2016 and 2017 has allowed our management team to focus on our core competency of graphite electrode production and generated approximately $60 million in cash proceeds and release of working capital. By focusing our management's attention and R&D spending exclusively on the graphite electrode business, we have been able to meaningfully improve the quality of our graphite electrodes, repositioning ourselves as an industry quality leader and improving our relationships with strategic customers.

Global economic conditions and outlook

The graphite electrode industry has historically followed the growth of the EAF steel industry and, to a lesser extent, the steel industry as a whole, which has been highly cyclical and affected significantly by general economic conditions. Historically, EAF steel production has grown faster than the overall steel market due to the greater resilience, more variable cost structure, lower capital intensity and more environmentally friendly nature of EAF steelmaking.

This growth trend has resumed after a decline in EAF steelmaking between 2011 and 2015, as Chinese steel production, which is predominantly BOF based, grew significantly, taking market share from EAF steel producers. Throughout 2015 and 2016, our business faced significant headwinds in the major industries that we served, including slow economic growth and stagnation in steel production year over year. These factors exerted continued downward pressure on prices for our products, which negatively impacted our recent historical profitability. Additionally, in 2015, steel producers utilized BOFs over EAFs at rates higher than we had historically seen, pressuring the prices of and demand for graphite electrodes, as steel consumers in the United States and Europe, our largest markets, increased imports of low cost steel products, primarily from China. Additionally, prices for iron ore, the key raw material for BOFs, declined faster than scrap steel, the key raw material in EAF production. While a decline in the price of oil benefited our cost structure overall, it contributed to lower prices for petroleum needle coke and, indirectly, graphite electrodes.

Graphite electrodes saw further pricing pressure in the first half of 2016, but EAF production started to recover during the second half of 2016, which indicated a potential bottoming out in prices. Costs of the key raw materials used to run BOFs increased, and the price of scrap steel decreased, re balancing the economics of EAF mills relative to BOFs. These developments resulted in an increase in our sales volume over the prior year; however, the decline in prices more than offset the volume increase. Because customers historically negotiated annual agreements in the third and fourth quarters of each calendar year for graphite electrodes to be delivered the following year, increases in price often lagged behind increases in volume. Nonetheless, a decline in the price of oil and our rationalization initiatives significantly improved our cost structure and positioned us to benefit from a potential recovery.

The outlook for general economic and industry specific growth brightened in 2017. In its January 2018 report, the International Monetary Fund ("IMF") increased its estimated global growth rate for 2018 and 2019 to 3.9%, which was 0.2% higher than 2017. However, in its October 2018 World Economic Outlook publication, the IMF revised its 2018 and 2019 growth estimates back to 2.7% as a result of the risk surrounding recently announced trade measures and slower than expected growth in the euro area. The WSA's October 2018 Short Range Outlook estimated global steel production outside of China would increase by 2.1% in 2018 and 2.7% in 2019.

Other macroeconomic and industry trends have created significant increases in demand for graphite electrodes. Beginning in 2016, efforts by the Chinese government to eliminate excess steelmaking production capacity and improve environmental and health conditions have led to limits on Chinese BOF steel production, including the closure of over 200 million MT of its steel production capacity, based on data from S&P Global Platts and the Ministry of Commerce of the People's Republic of China. In 2017, Chinese steel exports fell by more than 30% from

2016. Chinese steel exports continued to decline in 2018 and are down approximately 6.5% through September 2018 according to the National Bureau of Statistics of China. Reflecting the reduction in steel production capacity, as a result, the historical growth trend of EAF steelmaking relative to the overall steel market resumed and has led to increased demand for our graphite electrodes. At the same time, ongoing consolidation and rationalization of graphite electrode production capacity has limited the ability of graphite electrode producers to meet this demand. Prior to this improvement in demand, the electrode industry experienced an extended, five year downturn, resulting in a reduction of production capacity outside of China of approximately 200,000 MT (or approximately 20%) since the beginning of 2014.

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Petroleum needle coke, which is the primary raw material for graphite electrode manufacturing, and coal tar pitch, which is a raw material used in our manufacturing processes, are currently in limited supply. Demand for petroleum needle coke has outpaced supply due to increasing demand for petroleum needle coke in the production of lithium ion batteries used in electric vehicles. Increased demand has led to pricing increases for petroleum needle coke in the current market. While we believe that our substantial vertical integration into petroleum needle coke through our ownership of Seadrift provides a significant cost advantage relative to our competitors in periods of tight petroleum needle coke supply, such as the current market environment, we currently purchase approximately 25% of our petroleum needle coke requirements from external sources. Going forward, we expect to purchase approximately one third of our needle coke requirements from external sources, given the expected increase in our graphite electrode capacity from our debottlenecking initiative. As a result, we expect to incur increased raw material costs. Additionally, supply of coal tar pitch, a byproduct of coking metallurgical coal used in BOF steelmaking, has fallen as a result of the reduced demand for metallurgical coke for BOF steel furnaces. Consequently, prices for coal tar pitch increased starting in the second half of 2017.

These factors have led to supply constraints for our products. There are indications that this demand and supply imbalance could persist for some time. As a result, graphite electrode prices have recently reached record high prices. We expect the results of our operational improvement and debottlenecking initiative to be completed by the end of the fourth quarter of 2018. This incremental volume from our capacity expansion will be available for sale to customers going forward. As a result of our recent three-to-five-year contracting initiative and other sales commitments, substantially all of our 2018 production capacity is now contracted or committed by purchase orders. We are on target to increase annual production capacity by 21% to 202,000 MT by year end. St. Marys is graphitizing and machining some semi-finished electrodes sourced from Monterrey in order to leverage existing infrastructure.

We continue to experience higher input costs which will affect our cost of goods sold in future quarters. Additionally, during the fourth quarter, our planned maintenance outage at our Seadrift needle coke facility will decrease production levels at that facility. We expect to produce approximately 110,000 MT of needle coke in 2018. We expect to produce approximately 125,000 MT of needle coke in 2019, as we do not have a planned maintenance outage in 2019 and we expect a modest productivity enhancement related to our efficiency improvement project.

Key metrics used by management to measure performance

In addition to measures of financial performance presented in our Condensed Consolidated Financial Statements in accordance with 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 from continuing operations and adjusted EBITDA from continuing operations, 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, weighted average realized price, production volume, production capacity and capacity utilization.

Key financial measures

	For the three months ended September 30,		For the nine months ended September 30,	
(in thousands)	2018	2017	2018	2017
Net sales	$454,890	$137,245	$1,363,121	$358,298
Net income (loss)	199,466	(3,919)	624,587	(47,646)
EBITDA from continuing operations[1]	274,406	20,125	807,317	31,969
Adjusted EBITDA from continuing operations[1]	276,812	22,202	879,108	38,655

Key operating metrics

(in thousands, except price data)	For the three months ended September 30, 2018	2017	For the nine months ended September 30, 2018	2017
Sales volume (MT)[2]	45	44	133	129
Weighted average realized price[3]	$9,744	$2,903	$9,932	$2,547
Production volume (MT)[4]	39	38	127	122
Production capacity excluding St. Marys during idle period (MT)[5][6]	39	38	128	123
Capacity utilization excluding St. Marys during idle period[5][7]	100 %	100 %	99 %	99 %
Total production capacity (MT)[6]	46	45	149	144
Total capacity utilization[7]	85 %	84 %	85 %	85 %

(1) See below for more information and a reconciliation of EBITDA and adjusted EBITDA to net income (loss), the most directly comparable financial measure calculated and presented in accordance with GAAP.

(2) Sales volume reflects the total volume of graphite electrodes sold for which revenue has been recognized during the period. See below for more information on our key operating metrics.

(3) Weighted average realized price reflects the total revenues from sales of graphite electrodes for the period divided by the graphite electrode sales volume for that period. See below for more information on our key operating metrics.

(4) Production volume reflects graphite electrodes produced during the period. See below for more information on our key operating metrics.

(5) The St. Marys, Pennsylvania facility was temporarily idled effective the second quarter of 2016 except for the machining of semi finished products sourced from other plants. In the first quarter of 2018, our St. Marys facility began graphitizing a limited amount of electrodes sourced from our Monterrey, Mexico facility.

(6) Production capacity reflects expected maximum production volume during the period under normal operating conditions, standard product mix and expected maintenance downtime. Actual production may vary. See below for more information on our key operating metrics.

(7) Capacity utilization reflects production volume as a percentage of production capacity. See below for more information on our key operating metrics.

Non GAAP financial measures

EBITDA from continuing operations and adjusted EBITDA from continuing operations are non GAAP financial measures. We define EBITDA from continuing operations, a non GAAP financial measure, as net income or loss plus interest expense, minus interest income, plus income taxes, discontinued operations and depreciation and amortization from continuing operations. We define adjusted EBITDA from continuing operations as EBITDA from continuing operations plus any pension and Other post-employment benefit ("OPEB") plan expenses, impairments, rationalization related charges, costs related to our initial public offering, non cash gains or losses from foreign currency remeasurement of non operating liabilities in our foreign subsidiaries where the functional currency is the U.S. dollar, related party Tax Receivable Agreement expense, stock-based compensation and non cash fixed asset write offs. Adjusted EBITDA from continuing operations 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 from continuing operations 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 from continuing operations 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 from continuing operations 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 from continuing operations does not reflect changes in, or cash requirements for, our working capital needs;

- adjusted EBITDA from continuing operations 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 from continuing operations does not reflect the interest expense or the cash requirements necessary to service interest or principal payments on our indebtedness;
- adjusted EBITDA from continuing operations does not reflect tax payments that may represent a reduction in cash available to us;
- adjusted EBITDA from continuing operations does not reflect expenses relating to our pension and OPEB plans;
- adjusted EBITDA from continuing operations does not reflect impairment of long lived assets and goodwill;
- adjusted EBITDA from continuing operations does not reflect the non cash gains or losses from foreign currency remeasurement of non operating liabilities in our foreign subsidiaries where the functional currency is the U.S. dollar;
- adjusted EBITDA from continuing operations does not reflect IPO expenses;
- adjusted EBITDA from continuing operations does not reflect related party Tax Receivable Agreement expense;
- adjusted EBITDA from continuing operations does not reflect rationalization related charges, stock-based compensation or the non cash write off of fixed assets; and
- other companies, including companies in our industry, may calculate EBITDA from continuing operations and adjusted EBITDA from continuing operations differently, which reduces its usefulness as a comparative measure.

In evaluating EBITDA from continuing operations and adjusted EBITDA from continuing operations, you should be aware that in the future, we will incur expenses similar to the adjustments in this presentation. Our presentations of EBITDA from continuing operations and adjusted EBITDA from continuing operations 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 from continuing operations and adjusted EBITDA from continuing operations alongside other financial performance measures, including our net income (loss) and other GAAP measures.

The following table reconciles our non GAAP key financial measures to the most directly comparable GAAP measures:

	For the three months ended September 30,		For the nine months ended September 30,	
	2018	2017	2018	2017
	(in thousands)			
Net income (loss)	199,466	(3,919)	624,587	(47,646)
Add:				
Discontinued operations	726	(3,234)	(585)	4,882
Depreciation and amortization	16,050	17,581	47,746	48,564
Interest expense	33,855	7,792	100,387	23,240
Interest income	(562)	(58)	(1,068)	(320)
Income taxes	24,871	1,963	36,250	3,249
EBITDA from continuing operations	274,406	20,125	807,317	31,969
Adjustments:				
Pension and OPEB plan (gain) expenses(1)	483	768	1,478	2,293
Rationalization related (gains)/charges(2)	—	1,772	—	994
Initial public offering ("IPO") expenses (3)	43	—	5,164	—
Non cash loss (gain) on foreign currency remeasurement(4)	1,404	(463)	1,629	3,399
Stock-based compensation	476	—	657	—
Non cash fixed asset write-off	—	—	1,062	—

Related party Tax Receivable Agreement expense [5]	—	—	61,801	—
Adjusted EBITDA from continuing operations	276,812	22,202	879,108	38,655

(1) Service and interest cost of our pension and OPEB plans. Also includes a mark to market loss (gain) for plan assets as of December of each year.
(2) Costs associated with rationalizations in our graphite electrode manufacturing operations and in the corporate structure. They include severance charges, contract termination charges, write off of equipment and (gain)/loss on sale of manufacturing sites.
(3) Legal, accounting, printing and registration fees associated with the initial public offering
(4) Non cash (gain) loss from foreign currency remeasurement of non operating liabilities of our non U.S. subsidiaries where the functional currency is the U.S. dollar.
(5) Tax-related expense for future payment to our sole pre-IPO stockholder for tax assets that are expected to be utilized.

Key Operating Metrics

Key operating metrics consist of sales volume, weighted average realized price, production volume, production capacity and capacity utilization.

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 Note 3 to the Financial Statements "Revenue from Contracts with Customers". Under our policy, volume discounts and rebates are recorded as a reduction of revenue in conjunction with the sale of the graphite electrodes. Weighted average realized price reflects the total revenues from sales of graphite electrodes for the period divided by the graphite electrode sales volume for that period. Sales volume and price help 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 under normal operating conditions, standard product mix and expected maintenance downtime. 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, evaluate cost of sales and consider how to approach our contract initiative.

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Results of Operations and Segment Review
The Three Months Ended September 30, 2018 Compared to the Three Months Ended September 30, 2017
The tables presented in our period-over-period comparisons summarize our Condensed Consolidated Statements of Operations and illustrate key financial indicators used to assess the consolidated financial results. Throughout our Management Discussion and Anlaysis ("MD&A"), insignificant changes may be deemed not meaningful and are generally excluded from the discussion.

	For the Three Months Ended September 30, 2018	2017	Increase/ Decrease	% Change
	(Dollars in thousands)			
Net sales	$454,890	$137,245	$317,645	231 %
Cost of sales	180,280	120,483	59,797	50 %
Gross profit	274,610	16,762	257,848	1,538 %
Research and development	518	1,329	(811)	(61)%
Selling and administrative expenses	14,234	13,293	941	7 %
Operating income	259,858	2,140	257,718	12,043 %
Other expense (income), net	1,502	(404)	1,906	(472)%
Interest expense	33,855	7,792	26,063	334 %
Interest income	(562)	(58)	(504)	869 %
Income (loss) from continuing operations before provision for income taxes	225,063	(5,190)	230,253	4,436 %
Provision for income taxes	24,871	1,963	22,908	1,167 %
Net income (loss) from continuing operations	200,192	(7,153)	207,345	(2,899)%
(Loss) income from discontinued operations, net of tax	(726)	3,234	(3,960)	(122)%
Net income (loss)	$199,466	$(3,919)	$203,385	5,190 %

Net sales. Net sales increased from $137.2 million in the three months ended September 30, 2017 to $454.9 million in the three months ended September 30, 2018. The increase was primarily driven by a 236% increase in the weighted average sales price of graphite electrodes. The weighted average realized price increased to $9,744 per MT in the three months ended September 30, 2018 compared to $2,903 per MT in the same period of the prior year. This increase in weighted average realized price was driven by increased demand for graphite electrodes due to growth in EAF steel manufacturing, combined with a constrained graphite electrode supply due to reductions in graphite electrode manufacturing capacity over the past several years and a limited supply of our key raw material, petroleum needle coke.
We have successfully implemented our strategy to enter into take-or-pay sales agreements with our customers that range from three to five years in duration. For the three months ended September 30, 2018, approximately 79% of our revenues were generated from these contracts, with the remainder generated from other graphite electrode sales and by-product sales.
Cost of sales. We experienced increases in cost of sales from $120.5 million in the three months ended September 30, 2017 to $180.3 million in the three months ended September 30, 2018. This increase was primarily the result of sales of inventory that was manufactured using higher priced needle coke and pitch.
Other expense (income). Other expense increased from $0.4 million of income in the three months ended September 30, 2017 to $1.5 million of expense in the three months ended September 30, 2018 primarily due to disadvantageous non cash foreign currency impacts on non operating assets and liabilities.

Interest Expense. Interest expense increased from $7.8 million in the three months ended September 30, 2017, to $33.9 million in the three months ended September 30, 2018 primarily due to additional borrowings resulting from the February 2018 Credit Agreement and June 2018 First Amendment to the 2018 Credit Agreement.

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Provision for income taxes. The following table summarizes the expense for income taxes:

	For the Three Months Ended September 30,	
	2018	2017
	(Dollars in thousands)	
Tax expense	$24,871	$1,963
Pretax income (loss)	225,063	(5,190)
Effective tax rates	11.1 %	(37.8)%

The effective tax rate for the three months ended September 30, 2017 was (37.8)%. This rate differs from the 2017 U.S. statutory rate of 35% primarily due to losses in the U.S. and Switzerland where we received no tax benefit due to a full valuation allowance and worldwide earnings from various countries taxed at different rates. The recognition of the valuation allowance does not result in or limit the Company's ability to utilize these tax assets in the future.

The effective tax rate for the three months ended September 30, 2018 was 11.1%. This rate differs from the 2018 U.S. statutory rate of 21% primarily due to the partial release of a valuation allowance recorded against the deferred tax asset related to U.S. tax attributes and the tax impact of worldwide earnings from various countries taxed at different rates. The recognition of the valuation allowance does not result in or limit the Company's ability to utilize these tax assets in the future.

The tax expense increased from $2.0 million for the three months ended September 30, 2017 to $24.9 million for the three months ended September 30, 2018. This change is primarily due to a shift in the jurisdictional mix of earnings and losses from year to year, partially offset by the release of a portion of our valuation allowance recorded against the deferred tax assets related to U.S. tax attributes. Certain jurisdictions shifted from pre-tax losses in the three months ended September 30, 2017 to pretax earnings in the same period of 2018.

Income from Discontinued Operations. Our income from discontinued operations decreased from a profit of $3.2 million for the three months ended September 30, 2017 to a loss of $0.7 million in the three months ended September 30, 2018. The decrease was primarily due to the non-recurrence of a gain upon divestiture of the Advanced Graphite Materials business that was recorded in the third quarter of 2017.

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The Nine Months Ended September 30, 2018 Compared to the Nine Months Ended September 30, 2017
The tables presented in our period-over-period comparisons summarize our Condensed Consolidated Statements of Operations and illustrate key financial indicators used to assess the consolidated financial results. Throughout our MD&A, insignificant changes may be deemed not meaningful and are generally excluded from the discussion.

	For the Nine Months Ended September 30,		Increase/ Decrease	% Change
	2018	2017		
	(Dollars in thousands)			
Net sales	$1,363,121	$358,298	$1,004,823	280 %
Cost of sales	491,339	330,370	160,969	49 %
Gross profit	871,782	27,928	843,854	3,022 %
Research and development	1,528	3,083	(1,555)	(50)%
Selling and administrative expenses	46,349	37,118	9,231	25 %
Operating income (loss)	823,905	(12,273)	836,178	6,813 %
Other expense (income), net	2,533	4,322	(1,789)	(41)%
Related party Tax Receivable Agreement expense	61,801	—	61,801	N/A
Interest expense	100,387	23,240	77,147	332 %
Interest income	(1,068)	(320)	(748)	234 %
Income (loss) from continuing operations before provision for income taxes	660,252	(39,515)	699,767	1,771 %
Provision for income taxes	36,250	3,249	33,001	1,016 %
Net income (loss) from continuing operations	624,002	(42,764)	666,766	1,559 %
Income (loss) from discontinued operations, net of tax	585	(4,882)	5,467	112 %
Net income (loss)	$624,587	$(47,646)	$672,233	1,411 %

Net sales. Net sales increased by $1,004.8 million, or 280%, from $358.3 million in the nine months ended September 30, 2017 to $1,363.1 million in the nine months ended September 30, 2018. This increase was driven by a 290% increase in the weighted average realized price for graphite electrodes and a 3% increase in sales volume in the nine months ended September 30, 2018 compared to the same period in 2017. The weighted average realized price increased to $9,932 per MT in the nine months ended September 30, 2018 compared to $2,547 per MT in the same period of the prior year. These increases in weighted average realized price and sales volume were driven by increased demand for graphite electrodes due to growth in EAF steel manufacturing, combined with a constrained graphite electrode supply due to reductions in graphite electrode manufacturing capacity over the past several years and a limited supply of our key raw material, petroleum needle coke.
We have successfully implemented our strategy to enter into take-or-pay sales agreements with our customers that range from three to five years in duration. For the nine months ended September 30, 2018, approximately 72% of our revenues were generated from these contracts, with the remainder generated from other graphite electrode sales and by-product sales .
Cost of sales. Cost of sales increased by $161.0 million, or 49%, from $330.4 million in the nine months ended September 30, 2017 to $491.3 million in the nine months ended September 30, 2018. This increase was primarily the result of the higher input costs of needle coke and pitch.
Selling and administrative expenses. Selling and administrative expenses increased by $9.2 million, or 25%, from $37.1 million in the nine months ended September 30, 2017 to $46.3 million in the nine months ended September 30, 2018. This increase was driven primarily by $5.2 million of additional costs related to our IPO, a $1.7 million increase in incentive compensation expense and $0.5 million of stock based compensation expense.

Other expense (income). Other expense decreased by $1.8 million, or 41%, from $4.3 million in the nine months ended September 30, 2017 to $2.5 million in the nine months ended September 30, 2018. This decrease was primarily due to advantageous non cash foreign currency impacts on non operating assets and liabilities.

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Related party Tax Receivable Agreement expense. This $61.8 million of expense is the result of our tax receivable agreement liability recorded after it was estimated in the second quarter of 2018 that we would realize certain deferred tax assets.
Interest expense. Interest expense increased by $77.1 million, or 332%, from $23.2 million in the nine months ended September 30, 2017 to $100.4 million in the nine months ended September 30, 2018, due to increased interest expense primarily from additional borrowings and the early extinguishment of our Senior Notes in the first quarter of 2018. These early extinguishment charges included accelerated accretion of the fair value adjustment on the Senior Notes of $18.7 million and a premium redemption of $4.8 million.
Provision for income taxes. The following table summarizes the expense for income taxes:

	For the Nine Months Ended September 30,	
	2018	2017
	(Dollars in thousands)	
Tax expense	$36,250	$3,249
Pretax income (loss)	660,252	(39,515)
Effective tax rates	5.5 %	(8.2)%

For the nine months ended September 30, 2017, the effective tax rate of (8.2)% differs from the 2017 U.S. statutory rate of 35% primarily due to recent losses in the U.S. and Switzerland where we receive no tax benefit due to a full valuation allowance and worldwide earnings from various countries tax a different rates. The recognition of the valuation allowance does not result in or limit the Company's ability to utilize these tax assets in the future.

For the nine months ended September 30, 2018, the effective tax rate of 5.5% differs from the 2018 U.S. statutory rate of 21% primarily due the partial release of a valuation allowance recorded against the deferred tax asset related to U.S. tax attributes and worldwide earnings from various countries taxed at different rates. The recognition of the valuation allowance does not result in or limit the Company's ability to utilize these tax assets in the future.

The tax expense increased from $3.2 million for the nine months ended September 30, 2017 to $36.3 million for the nine months ended September 30, 2018. This change is primarily due to a shift in the jurisdictional mix of earnings and losses from year to year, partially offset by the release of a portion of our valuation allowance recorded against the deferred tax asset related to U.S. tax attributes. Certain jurisdictions shifted from pre-tax losses in the nine months ended September 30, 2017 to pre-tax earnings in the nine months ended September 30, 2018.
Income (loss) from discontinued operations. Income (loss) from our discontinued operations increased by $5.5 million, or 112%, from a loss of $4.9 million in the nine months ended September 30, 2017 to income of $0.6 million in the nine months ended September 30, 2018. This improvement was the result of the elimination of operations in 2017 and the wind-down of remaining assets into 2018.
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 sales 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 profit and net 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 sales or net income.
The impact of these changes in the average exchange rates of other currencies against the U.S. dollar on our net sales was a decrease of $1.1 million and an increase of $11.6 million for the three and nine months ended September 30, 2018, respectively, compared to the same periods of 2017. The impact of these changes on our cost of sales was a decrease of $2.9 million and increase of $7.6 million for the three and nine months ended September 30, 2018, respectively, compared to the same periods of 2017.

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 "Part I, Item 3–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, debt reduction payments, share repurchases and other obligations. 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. As of September 30, 2018, we had liquidity of $346.0 million consisting of $243.5 million of availability on our 2018 Revolving Facility (subject to continued compliance with the financial covenants and representations) and cash and cash equivalents of $102.5 million. We had long term debt of $2,077.0 million and short term debt of $106.3 million as of September 30, 2018. As of December 31, 2017, we had liquidity of $165.2 million consisting of $151.8 million available on our Old Revolving Facility (subject to continued compliance with the financial covenants and representations and adjusting for the $25 million minimum liquidity requirement) and cash and cash equivalents of $13.4 million. We had long term debt of $322.9 million and short term debt of $16.5 million as of December 31, 2017.

As of September 30, 2018 and December 31, 2017, $94.9 million and $12.6 million, respectively, of our cash and cash equivalents were located outside of the United States. 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. In addition, for our subsidiary in South Africa, the South Africa Central Bank imposes that certain solvency and liquidity ratios remain above defined levels after the dividend distribution, which historically has not materially affected our ability to repatriate cash from this jurisdiction. The cash and cash equivalents balances in South Africa were $1.9 million and $1.8 million as of September 30, 2018 and December 31, 2017, respectively. Upon repatriation to the United States, the foreign source portion of dividends we receive from our foreign subsidiaries is no longer subject to U.S. federal income tax as a result of the Tax Act.

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 capital expenditures, acquisitions, divestitures and other factors. We had positive cash flow from operating activities during 2018, 2017 and 2016. Although the global economic environment experienced significant swings in these periods, our working capital management and cost control initiatives allowed us to remain operating cash flow positive in both times of declining and improving operating results. Cash from operations is expected to remain at positive sustained levels due to the predictable earnings generated by our three-to-five-year sales contracts with our customers.

As of September 30, 2018, we had access to the $250 million 2018 Revolving Facility. We had $6.5 million of letters of credit, for a total availability on the 2018 Revolving Facility of $243.5 million. As of December 31, 2017, we had $39.5 million of borrowings and $8.7 million of letters of credit, for a total of $48.2 million drawn against the Old Revolving Credit Facility. We also had $0.5 million of surety bonds outstanding as of both September 30, 2018 and December 31, 2017.

On February 12, 2018, we entered into the 2018 Credit Agreement, which provides for the 2018 Revolving Facility and the 2018 Term Loan Facility. On February 12, 2018, our wholly owned subsidiary, Finance, borrowed $1,500 million under the 2018 Term Loan Facility. The funds received were used to pay off our outstanding debt, including borrowings under our Old Credit Agreement and the Senior Notes and accrued interest relating to those borrowings and the Senior Notes, declare and pay a dividend of $1,112.0 million to our sole pre-IPO stockholder, pay fees and expenses incurred in connection therewith and for other general corporate purposes.

On April 19, 2018, we declared a dividend in the form of the Brookfield Promissory Note to the sole pre-IPO stockholder. The $750 million Brookfield Promissory Note was conditioned upon (i) the Senior Secured First Lien Net Leverage Ratio (as defined in the 2018 Credit Agreement), as calculated based on our final financial results for the first quarter of 2018, being equal to or less than 1.75 to 1.00, (ii) no Default or Event of Default (each as defined in the 2018 Credit Agreement) having occurred and continuing or that would result from the $750 million Brookfield Promissory Note and (iii) the satisfaction of the conditions described in (i) and (ii) above occurring within 60 days from the dividend record date. Upon publication of our first quarter report on Form 10-Q, these conditions were met and, as a result, the Brookfield Promissory Note became payable.

The Brookfield Promissory Note had a maturity of eight years from the date of issuance and bore interest at a rate equal to the Adjusted LIBO Rate (as defined in the Brookfield Promissory Note) plus an applicable margin equal to 4.50% per annum, with an additional 2.00% per annum starting from the third anniversary from the date of issuance. We were permitted to make voluntary prepayments at any time without premium or penalty. All obligations under the Brookfield Promissory Note were unsecured and guaranteed by all of our existing and future domestic wholly owned subsidiaries that guarantee, or are borrowers under, the Senior Secured Credit Facilities. No funds were lent or otherwise contributed to us by Brookfield in connection with the Brookfield Promissory Note. As a result, we received no consideration in connection with its issuance. As described below, the Brookfield Promissory Note was repaid, in full, on June 15, 2018.

On April 19, 2018, we declared a $160 million cash dividend payable to Brookfield, the sole pre-IPO stockholder. Payment of this dividend was conditional upon (i) the Senior Secured First Lien Net Leverage Ratio (as defined in the

2018 Credit Agreement), as calculated based on our final financial results for the first quarter of 2018, being equal to or less than 1.75 to 1.00, (ii) no Default or Event of Default (as defined in the 2018 Credit Agreement) having occurred and continuing or that would result from the payment of the dividend and (iii) the payment occurring within 60 days from the dividend record date. The conditions of this dividend were met upon filing of our first quarter report on Form 10-Q and the dividend was paid on May 8, 2018.

On June 15, 2018, GrafTech entered into the First Amendment to its 2018 Credit Agreement. The First Amendment amends the 2018 Credit Agreement to provide for the additional $750 million in aggregate principal amount of the Incremental Term Loans to Finance. The Incremental Term Loans increase the aggregate principal amount of term loans incurred by Finance under the 2018 Credit Agreement from $1,500 million to $2,250 million. The Incremental Term Loans have the same terms as those applicable to the existing term loans under the 2018 Credit Agreement, including interest rate, payment and prepayment terms, representations and warranties and covenants. The Incremental Term Loans mature on February 12, 2025, the same date as the existing term loans. GrafTech paid an upfront fee of 1.00% of the aggregate principal amount of the Incremental Term Loans on the effective date of the First Amendment. The proceeds of the Incremental Term Loans were used to repay, in full, the $750 million in principal outstanding on the Brookfield Promissory Note.

On August 13, 2018, the Company repurchased 11,688,311 shares directly from Brookfield. These shares were retired upon repurchase. The price per share paid by the Company was equal to the price at which the underwriters purchased the shares from Brookfield in Brookfield's August 2018 public secondary offering of 23,000,000 shares of our common stock, net of underwriting commissions and discounts. GrafTech funded the share repurchase from cash on hand.

We currently pay a quarterly cash dividend of $0.085 per share, or an aggregate of $0.34 per share on an annualized basis. For the quarterly period ending June 30, 2018, we paid a prorated cash dividend for the period beginning on the closing date of the IPO and ending on the last day of that period. On September 28, 2018, we paid our regular quarterly dividend of $.085 per share. On November 1, 2018, the Board of Directors declared a dividend of $0.085 per share to stockholders of record as of the close of business on November 30, 2018, to be paid on December 31, 2018. We cannot assure you, however, that we will pay 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 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 include dividends, share repurchases, capital expenditures, acquisitions, debt repayments and other general purposes. Continued volatility in the global economy may require additional borrowings under the 2018 Revolving Facility. 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 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 of such financing, if available.

In the event that operating cash flows fail to provide sufficient liquidity to meet our business needs, including capital expenditures, any such shortfall would need to be made up by increased borrowings under our 2018 Revolving Facility, to the extent available.

In order to seek to minimize our credit risks, we may reduce our sales of, or refuse to sell (except for 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 and other factors. We expect to have maintenance capital expenditures of approximately $35 million in 2018. Our debottlenecking initiative is expected to result in approximately $42 million of capital expenditures, slightly higher than previous estimates due mainly to currency impacts. The majority of costs associated with this initiative will be expended in 2018. We expect our debottlenecking initiative along with our maintenance capital expenditures to result in approximately $70 million of total capital expenditures in 2018.

Related Party Transactions. We have engaged in transactions with affiliates or related parties during the nine months ended September 30, 2018. These transactions include payment of dividends to Brookfield and entrance into and repayment of the Brookfield Promissory Note, and entrance into the Tax Receivable Agreement, Stockholders Rights Agreement, Registration Rights Agreement and Share Repurchase Agreement, each with Brookfield. On August 13, 2018, in conjunction with a follow-on offering, we purchased 11,688,311 shares directly from Brookield at a price of $19.25 per share for a total of $225 million. Additionally, during 2016, Brookfield purchased on the open market in aggregate approximately $53 million of the Senior Notes. We redeemed our Senior Notes on February 12, 2018.

We have also reimbursed certain costs incurred by Brookfield as required under the Investment Agreement dated May 4, 2015 between Brookfield and GrafTech, including in connection with, transactions with our current or former subsidiaries, compensatory transactions with directors and officers including employee benefits (including reimbursement to Brookfield for compensation costs incurred by it for certain personnel who devote substantially all of their working time to us), stock option and restricted stock grants, compensation deferral, stock purchases, and customary indemnification and expense advancement arrangements.

One of our independent directors purchased an aggregate of 5,000 shares of common stock in April 2018 in our IPO.

Cash Flows.

The following table summarizes our cash flow activities:

	For the Nine Months Ended September 30, 2018	For the Nine Months Ended September 30, 2017
	in millions	
Cash flow provided by (used in):		
Operating activities	$612.2	$ 33.6
Investing activities	$(46.8)	$ 7.8
Financing activities	$(474.7)	$ (36.9)

Operating Activities

Cash flow from operating activities represents cash receipts and cash disbursements related to all of our activities other than investing and financing activities. Operating cash flow is derived by adjusting net income (loss) for:

- Non-cash items such as depreciation and amortization, impairment, post retirement obligations, and severance and pension plan changes;
- Gains and losses attributed to investing and financing activities such as gains and losses on the sale of assets and unrealized currency transaction gains and losses; and
- Changes in operating assets and liabilities which reflect timing differences between the receipt and payment of cash associated with transactions and when they are recognized in results of operations.

The net impact of the changes in working capital (operating assets and liabilities), which are discussed in more detail below, include the impact of changes in: receivables, inventories, prepaid expenses, accounts payable, accrued liabilities, accrued taxes, interest payable, and payments of other current liabilities.

During the nine months ended September 30, 2018, changes in working capital resulted in a net use of funds of $143.7 million which was impacted by:

- net cash outflows in accounts receivable of $96.0 million from the increase in accounts receivable due to increased sales driven by higher weighted average realized prices, partially offset by improved collections;
- net cash outflows from increases in inventory of $93.8 million, due primarily to higher priced raw materials;
- net cash inflows from increases in accounts payable of $4.3 million, due primarily to higher priced raw materials;
- net cash inflows from decreased prepaid expense of $7.8 million due to the reduction of advanced payments; and
- net cash inflows from increased income taxes payable of $35.4 million resulting from increased profitability.

Other uses of cash in the nine months ended September 30, 2018 included contributions to pension and other benefit plans of $6.6 million, cash paid for interest of $74.5 million and taxes paid of $19.4 million.

During the nine months ended September 30, 2017, changes in working capital resulted in a net source of funds of $22.2 million which was impacted by:

- net cash inflows in accounts receivable of $2.0 million from the decrease in accounts receivable due to the collection of customer sales;
- net cash inflows from decreases in inventory of $8.6 million, due primarily to inventory management initiatives;

- net cash outflows from increased prepaid expense of $0.2 million due to advanced payments;
- net cash inflows due to increase in accounts payable and accruals of $7.1 million primarily resulting from timing of payments.

Other uses of cash in the nine months ended September 30, 2017 included contributions to pension and other benefit plans of $6.7 million, cash paid for interest of $14.6 million and taxes paid of $2.9 million.

Investing Activities

Net cash used investing activities was $46.8 million during the nine months ended September 30, 2018, resulting from capital expenditures of $47.6 million partially offset by proceeds from the sale of fixed assets of $0.9 million.

Net cash provided by investing activities was $7.8 million during the nine months ended September 30, 2017 resulting from proceeds from divestitures and fixed asset sales totaling $30.8 million, partially offset by capital expenditures of $23.0 million.

Financing Activities

Net cash outflow from financing activities was $474.7 million during the nine months ended September 30, 2018, which was the net impact of our February 12, 2018 refinancing and subsequent amendment, proceeds of which were used to repay outstanding debt, pay dividends of $1,316.2 million, and repay the $750 million Brookfield Promissory Note to Brookfield. We also repurchased $225 million of our common stock from Brookfield on August 13, 2018.

Net cash outflow from financing activities was $36.9 million during the nine months ended September 30, 2017, resulting from net payments on our Revolving Facility.

Long-Term Contractual, Commercial and Other Obligations and Commitments. The following table updates our long-term contractual obligations and other commercial commitments as of December 31, 2017 to reflect, on a pro forma basis: (A)(i) our entrance into the 2018 Credit Agreement and the borrowing of $1,500 million of 2018 Term Loans thereunder in February 2018; and (ii) the use of proceeds therefrom to, among other things, repay in full all outstanding indebtedness under the Old Credit Agreement and redeem in full the Senior Notes at a redemption price of 101.594% of the principal amount thereof plus accrued and unpaid interest to the date of redemption; (B) the issuance of the Brookfield Promissory Note in May 2018; (C)(i) our entrance into the First Amendment to the 2018 Credit Agreement and the borrowing of the $750 million of Incremental Term Loans thereunder in June 2018; and (ii) the repayment in full of the $750 million in principal amount outstanding on the Brookfield Promissory Note; and (D) additional purchase obligations for 2018, primarily for raw materials, that were entered into since the filing of our year-end financial statements.

	Pro Forma Contractual Obligations				
	Total	2018	2019-2020	2021-2022	2023+
	(in thousands)				
Contractual and Other Obligations					
2018 Term Loan Facility (a)	$2,250,000	$56,250	$225,000	$225,000	$1,743,750
Pro Forma Interest on Long-term Debt (a)	$819,130	$105,140	$258,226	$235,281	$220,483
Leases	6,188	2,180	2,646	713	649
Total contractual obligations	3,075,318	163,570	485,872	460,994	1,964,882
Postretirement, pension and related benefits (b)	115,557	11,717	22,986	22,853	58,001
Committed purchase obligations (c)	140,785	140,785	—	—	—
Other long-term obligations	8,463	6,721	723	392	627
Uncertain income tax provisions	2,492	379	1,990	123	—
Total contractual and other obligations (d)	$3,342,615	$323,172	$511,571	$484,362	$2,023,510
Other Commercial Commitments					
Guarantees (e)	525	525	—	—	—
Total other commercial commitments	$525	$525	$—	$—	$—

(a)

On February 12, 2018, the Company entered into the 2018 Credit Agreement, which provided for the 2018 Term Loan Facility and 2018 Revolving Credit Facility. On February 12, 2018, Finance borrowed $1,500 million of 2018 Term Loans under the 2018 Term Loan Facility. The proceeds of the 2018 Term Loans were used, among other things, to pay off our outstanding debt, including borrowings under the Old Credit Agreement and the Senior Notes and related interest. On April 19, 2018, the Company declared a dividend in the form of the $750 million Brookfield Promissory Note to the sole pre-IPO stockholder. On June 15, 2018, the Company entered into the First Amendment to the 2018 Credit Agreement, which provided for an additional $750 million in aggregate principal amount of Incremental Term Loans. The Company borrowed $750 million in Incremental Term Loans on June 15, 2018. The proceeds of the Incremental Term Loans were used to repay the Brookfield Promissory Note in full. The 2018 Term Loans and the Incremental Term Loans mature on February 12, 2025 and bear interest at a rate equal to either the Adjusted LIBO Rate, plus an applicable margin initially equal to 3.50% per annum, or the ABR Rate, plus an applicable margin initially equal to 2.50% per annum, in each case with one step down of 25 basis points based on achievement of certain public ratings of the 2018 Term Loans, as applicable (see "Liquidity and Capital Resources" for details). The pro forma interest on indebtedness under the 2018 Credit Agreement was estimated using a monthly LIBOR yield curve through February 2025.

(b) Represents estimated postretirement, pension and related benefits obligations based on actuarial calculations.

(c) Represents commitments made for purchases related to our ongoing plant expansion projects and committed purchases of raw materials. Includes committed purchases of raw materials for the second half of 2018 for which pricing was established in June and July 2018.

(d) In addition, letters of credit of $8.7 million were issued under the Old Revolving Facility as of December 31, 2017. These letters of credit were rolled over to the 2018 Revolving Facility in February 2018.

(e) Represents surety bonds which are renewed annually. If rates were unfavorable, we would use letters of credit under our revolving facility.

Recent Accounting Pronouncements

We discuss recently adopted accounting standards in Note 1, "Organization and Summary of Significant Accounting Policies" of the Notes to Condensed Consolidated Financial Statements.

Description of Our Financing Structure

We discuss our financing structure in more detail in Note 6, "Debt and Liquidity" of the Notes to Condensed Consolidated Financial Statements.

Item 3. 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. We, from time to time, routinely enter into various transactions that have been authorized according to documented policies and procedures to manage these well-defined risks. These transactions relate primarily to 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.

Our exposure to changes in interest rates results primarily from floating rate long-term debt tied to LIBOR or Euro LIBOR. 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 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.

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 foreign 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 market value.

The outstanding foreign currency derivatives represented no net unrealized gain or loss as of September 30, 2018 and a net unrealized loss as of $0.1 million as of December 31, 2017.

Energy Commodity Management. We have entered into commodity derivative contracts to effectively fix some or all of our exposure to refined oil products. The outstanding commodity derivative contracts represented a net unrealized gain of $40.9 million as of September 30, 2018 and a net unrealized gain of $4.7 million as of December 31, 2017.

Interest Rate Risk Management. We periodically implement interest rate management initiatives to seek to minimize our interest expense and the risk in our portfolio of fixed and variable interest rate obligations.

We periodically enter into agreements with financial institutions that are intended to limit, or cap, our exposure to incurrence of additional interest expense due to increases in variable interest rates. These instruments effectively cap our interest rate exposure. We currently do not have any such instruments outstanding.

Sensitivity Analysis. We use sensitivity analysis to quantify potential impacts that market rate changes may have on the fair values of our foreign currency derivatives and our commodity derivatives. The sensitivity analysis 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 September 30, 2018, 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 $1.0 million or a corresponding increase of $1.0 million, respectively, in the fair value of the foreign currency hedge portfolio. A 10% increase or decrease in the value of the underlying commodity prices that we hedge would result in a corresponding increase or decrease of $15.5 million in the fair value of the commodity hedge portfolio as of September 30, 2018.

Because of the high correlation between the hedging instrument and the underlying exposure, fluctuations in the value of the instruments are generally offset by reciprocal changes in the value of the underlying exposure.

We had no interest rate derivative instruments outstanding as of September 30, 2018. A hypothetical increase in interest rates of 100 basis points (1%) would have increased our interest expense by $12.6 million for the nine months ended September 30, 2018.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures. Management is responsible for establishing and maintaining adequate disclosure controls and procedures at the reasonable assurance level. Disclosure controls and procedures are designed to ensure that information required to be disclosed by a reporting company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by it in the reports that it files under the Exchange Act is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we have evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of September 30, 2018. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that these controls and procedures are effective at the reasonable assurance level as of September 30, 2018.

Changes in Internal Control over Financial Reporting. There have been no changes in our internal control over financial reporting that occurred during the three months ended September 30, 2018 that materially affected or are reasonably likely to materially affect our internal control over financial reporting.

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PART II. OTHER INFORMATION
GRAFTECH INTERNATIONAL LTD. AND SUBSIDIARIES

Item 1. Legal Proceedings

Additional information required by this Item is set forth in Note 9, “Contingencies” of the Notes to Condensed Consolidated Financial Statements and is incorporated herein by reference.

Item 1A. Risk Factors

There have been no material changes to the Risk Factors disclosed in Part II - Item 1A of our first quarter report on Form10-Q filed on May 7, 2018, which are incorporated herein by reference.

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

The table below sets forth the information on a monthly basis regarding GrafTech's purchases of its common stock, par value $.01 per share, during the third quarter of 2018.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of a Publicly Announced Plans or Programs (3)	Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs (3)
July 1 through July 31, 2018	—	$ —	—	—
August 1 through August 31, 2018	11,688,311 (1)	$ 19.25 (2)	—	—
September 1 through September 30, 2018	—	$ —	—	—

(1) Repurchase was conditioned upon the closing of the underwritten public secondary offering (the "Offering") of 23,000,000 shares of common stock of the Company, par value $.01 per share, by the majority stockholder, an affiliate of Brookfield Business Partners LP., a publicly listed business services and industrials company of Brookfield Asset Management, Inc., which occurred on August 13, 2018. The repurchase also occurred on August 13, 2018.

(2) The price paid per share was $19.25, which was equal to the price paid by the underwriters in the Offering, net of underwriting discounts and commissions.

(3) The Company does not currently have any publicly announced plans or programs for stock repurchases.

Item 6. Exhibits

Pursuant to the rules and regulations of the SEC, the Company has filed certain agreements as exhibits to this report. These agreements may contain representations and warranties by the parties. These representations and warranties have been made solely for the benefit of the other party or parties to such agreements and (i) may have been qualified by disclosures made to such other party or parties, (ii) were made only as of the date of such agreements or such other date(s) as may be specified in such agreements and are subject to more recent developments, which may not be fully reflected in the Company’s public disclosure, (iii) may reflect the allocation of risk among the parties to such agreements and (iv) may apply materiality standards different from what may be viewed as material to investors. Accordingly, these representations and warranties may not describe the Company’s actual state of affairs at the date hereof and should not be relied upon.

The exhibits listed in the following table have been filed as part of this Report.

Exhibit Number	Description of Exhibit
3.1	

Amended and Restated Certificate of Incorporation of GrafTech International Ltd. (incorporated by reference to Exhibit 3.1 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-223791) filed April 13, 2018).

3.2	Amended and Restated By-Laws of GrafTech International Ltd. (incorporated by reference to Exhibit 3.2 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-223791) filed April 13, 2018).
10.1	GrafTech Share Repurchase Agreement dated as of August 7, 2018, by and between GrafTech International Ltd. and BCP IV GrafTech Holdings L.P. (incorporated by reference to Exhibit 10.31 to GrafTech International Ltd.'s Registration Statement on Form S-1/A (Registration No. 333-226609) filed August 8, 2018).
10.2	GrafTech International Ltd. Director Deferred Fee Plan (incorporated by reference to Exhibit 10.30 to GrafTech International Ltd.'s Registration Statement on Form S-1 (Registration No. 333-226609) filed August 6, 2018).
31.1	Certification pursuant to Rule 13a-14(a) under the Exchange Act by David J. Rintoul, President and Chief Executive Officer (Principal Executive Officer).
31.2	Certification pursuant to Rule 13a-14(a) under the Exchange Act by Quinn J Coburn, Vice President and Chief Financial Officer (Principal Financial Officer).
32.1	Certification pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 by David J. Rintoul, President and Chief Executive Officer (Principal Executive Officer).
32.2	Certification pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 by Quinn J Coburn, Vice President and Chief Financial Officer (Principal Financial Officer).
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

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SIGNATURE

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

			GRAFTECH INTERNATIONAL LTD.
Date:	November 2, 2018	By:	/s/ Quinn J. Coburn
			Quinn J. Coburn
			Vice President and Chief Financial Officer (Principal Financial Officer)