
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

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

Commission File Number 1-13953

W. R. GRACE & CO.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

65-0773649

(I.R.S. Employer Identification No.)

7500 Grace Drive, Columbia, Maryland 21044-4098

(Address of principal executive offices) (Zip code)

(410) 531-4000

(Registrant's telephone number, including area code)

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

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

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

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes No

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Class	Outstanding at October 31, 2018
Common Stock, \$0.01 par value per share	66,989,580 shares

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GRACE®, the GRACE® logo and, except as otherwise indicated, the other trademarks, service marks or trade names used in the text of this Report are trademarks, service marks, or trade names of operating units of W. R. Grace & Co. or its subsidiaries and/or affiliates. Unless the context indicates otherwise, in this Report the terms “Grace,” “we,” “us,” or “our” mean W. R. Grace & Co. and/or its consolidated subsidiaries and affiliates, and the term the “Company” means W. R. Grace & Co. Unless otherwise indicated, the contents of websites mentioned in this report are not incorporated by reference or otherwise made a part of this Report.

The Financial Accounting Standards Board® is referred to in this Report as the “FASB.” The FASB issues, among other things, the FASB Accounting Standards Codification® (“ASC”) and Accounting Standards Updates (“ASU”). The U.S. Internal Revenue Service is referred to in this Report as the “IRS.”

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

Review by Independent Registered Public Accounting Firm

With respect to the interim consolidated financial statements included in this Quarterly Report on Form 10-Q for the quarter ended September 30, 2018, PricewaterhouseCoopers LLP, the Company's independent registered public accounting firm, has applied limited procedures in accordance with professional auditing standards for a review of such information. Their report on the interim consolidated financial statements, which follows, states that they did not audit and they do not express an opinion on the unaudited interim consolidated financial statements. Accordingly, the degree of reliance on their report on the unaudited interim consolidated financial statements should be restricted in light of the limited nature of the review procedures applied. This report is not considered a "report" within the meaning of Sections 7 and 11 of the Securities Act of 1933, and, therefore, the independent accountants' liability under Section 11 does not extend to it.

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of W. R. Grace & Co.:

Results of Review of Financial Statements

We have reviewed the accompanying consolidated balance sheet of W. R. Grace & Co. and its subsidiaries (“the Company”) as of September 30, 2018, and the related consolidated statements of operations and comprehensive income (loss) for the three-month and nine-month periods ended September 30, 2018 and 2017 and the consolidated statements of equity and of cash flows for the nine-month periods ended September 30, 2018 and 2017, including the related notes (collectively referred to as the “interim financial statements”). Based on our reviews, we are not aware of any material modifications that should be made to the accompanying interim financial statements for them to be in conformity with accounting principles generally accepted in the United States of America.

We have previously audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheet of the Company as of December 31, 2017, and the related consolidated statements of operations, of comprehensive income, of equity, and of cash flows for the year then ended (not presented herein), and in our report dated February 22, 2018, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying consolidated balance sheet information as of December 31, 2017, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

Basis for Review Results

These interim financial statements are the responsibility of the Company’s management. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB. We conducted our review in accordance with the standards of the PCAOB. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the PCAOB, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

/s/ PricewaterhouseCoopers LLP
Baltimore, Maryland
November 8, 2018

W. R. Grace & Co. and Subsidiaries
Consolidated Statements of Operations (unaudited)

(In millions, except per share amounts)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net sales	\$ 494.9	\$ 429.5	\$ 1,412.1	\$ 1,257.0
Cost of goods sold	292.7	258.2	841.7	765.3
Gross profit	202.2	171.3	570.4	491.7
Selling, general and administrative expenses	75.6	69.3	227.1	204.1
Research and development expenses	15.7	14.0	46.5	41.5
Provision for environmental remediation, net	72.7	6.4	73.3	19.6
Equity in earnings of unconsolidated affiliate	(5.9)	(4.8)	(19.5)	(17.9)
Restructuring and repositioning expenses	8.4	9.3	32.8	17.0
Interest expense and related financing costs	20.4	20.1	59.6	59.7
Other (income) expense, net	(1.3)	(1.7)	2.2	(15.0)
Total costs and expenses	185.6	112.6	422.0	309.0
Income (loss) before income taxes	16.6	58.7	148.4	182.7
(Provision for) benefit from income taxes	(0.7)	(11.6)	(50.5)	(49.2)
Net income (loss)	15.9	47.1	97.9	133.5
Less: Net (income) loss attributable to noncontrolling interests	0.2	0.3	0.6	0.7
Net income (loss) attributable to W. R. Grace & Co. shareholders	\$ 16.1	\$ 47.4	\$ 98.5	\$ 134.2
Earnings Per Share Attributable to W. R. Grace & Co. Shareholders				
Basic earnings per share:				
Net income (loss)	\$ 0.24	\$ 0.70	\$ 1.46	\$ 1.97
Weighted average number of basic shares	67.1	67.9	67.3	68.2
Diluted earnings per share:				
Net income (loss)	\$ 0.24	\$ 0.70	\$ 1.46	\$ 1.96
Weighted average number of diluted shares	67.2	68.0	67.4	68.3
Dividends per common share	\$ 0.24	\$ 0.21	\$ 0.72	\$ 0.63

The Notes to Consolidated Financial Statements are an integral part of these statements.

W. R. Grace & Co. and Subsidiaries
Consolidated Statements of Comprehensive Income (Loss) (unaudited)

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net income (loss)	\$ 15.9	\$ 47.1	\$ 97.9	\$ 133.5
Other comprehensive income (loss), net of income taxes:				
Defined benefit pension and other postretirement plans	(0.3)	(0.3)	(0.7)	(1.0)
Currency translation adjustments	(11.1)	(12.1)	8.6	(21.8)
Gain (loss) from hedging activities	2.1	(0.4)	(1.3)	0.1
Total other comprehensive income (loss)	(9.3)	(12.8)	6.6	(22.7)
Comprehensive income (loss)	6.6	34.3	104.5	110.8
Less: comprehensive (income) loss attributable to noncontrolling interests	0.2	0.3	0.6	0.7
Comprehensive income (loss) attributable to W. R. Grace & Co. shareholders	\$ 6.8	\$ 34.6	\$ 105.1	\$ 111.5

The Notes to Consolidated Financial Statements are an integral part of these statements.

W. R. Grace & Co. and Subsidiaries
Consolidated Statements of Cash Flows (unaudited)

(In millions)	Nine Months Ended September 30,	
	2018	2017
OPERATING ACTIVITIES		
Net income (loss)	\$ 97.9	\$ 133.5
Reconciliation to net cash provided by (used for) operating activities:		
Depreciation and amortization	76.1	82.6
Equity in earnings of unconsolidated affiliate	(19.5)	(17.9)
Dividends received from unconsolidated affiliate	—	19.0
Costs related to legacy product, environmental and other claims	79.2	25.5
Cash paid for legacy product, environmental and other claims	(18.1)	(50.1)
Provision for (benefit from) income taxes	50.5	49.2
Cash paid for income taxes	(29.3)	(44.1)
Income tax refunds received	0.3	30.2
Loss on early extinguishment of debt	4.8	—
Interest expense and related financing costs	59.6	59.7
Cash paid for interest	(46.3)	(40.1)
Defined benefit pension expense	11.6	11.6
Cash paid under defined benefit pension arrangements	(61.8)	(12.2)
Accounts receivable reserve—Venezuela	—	10.0
Changes in assets and liabilities, excluding effect of currency translation and acquisitions:		
Trade accounts receivable	13.1	20.7
Inventories	(61.2)	(4.5)
Accounts payable	17.6	3.0
All other items, net	59.5	(8.6)
Net cash provided by (used for) operating activities	234.0	267.5
INVESTING ACTIVITIES		
Capital expenditures	(161.7)	(85.6)
Business acquired, net of cash acquired	(418.0)	(3.5)
Other investing activities	13.8	(0.1)
Net cash provided by (used for) investing activities	(565.9)	(89.2)
FINANCING ACTIVITIES		
Borrowings under credit arrangements	998.9	106.3
Repayments under credit arrangements	(558.5)	(108.9)
Cash paid for debt financing costs	(11.8)	—
Cash paid for repurchases of common stock	(60.1)	(65.0)
Proceeds from exercise of stock options	6.7	14.8
Dividends paid to shareholders	(48.5)	(43.0)
Other financing activities	(3.5)	(3.8)
Net cash provided by (used for) financing activities	323.2	(99.6)
Effect of currency exchange rate changes on cash, cash equivalents, and restricted cash	(1.5)	7.2
Net increase (decrease) in cash and cash equivalents	(10.2)	85.9
Cash, cash equivalents, and restricted cash, beginning of period	163.5	100.6
Cash, cash equivalents, and restricted cash, end of period	<u>\$ 153.3</u>	<u>\$ 186.5</u>
Supplemental disclosure of cash flow information		
Capital expenditures in accounts payable	\$ 36.8	\$ 20.2

The Notes to Consolidated Financial Statements are an integral part of these statements.

W. R. Grace & Co. and Subsidiaries
Consolidated Balance Sheets (unaudited)

(In millions, except par value and shares)	September 30, 2018	December 31, 2017
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 150.7	\$ 152.8
Restricted cash and cash equivalents	2.6	10.7
Trade accounts receivable, less allowance of \$11.4 (2017—\$11.7)	279.2	285.2
Inventories	319.0	230.9
Other current assets	94.4	49.0
Total Current Assets	845.9	728.6
Properties and equipment, net of accumulated depreciation and amortization of \$1,496.4 (2017—\$1,463.4)	984.1	799.1
Goodwill	544.4	402.4
Technology and other intangible assets, net	359.4	255.4
Deferred income taxes	543.6	556.5
Investment in unconsolidated affiliate	144.4	125.9
Other assets	91.5	39.1
Total Assets	\$ 3,513.3	\$ 2,907.0
LIABILITIES AND EQUITY		
Current Liabilities		
Debt payable within one year	\$ 22.8	\$ 20.1
Accounts payable	245.1	210.3
Other current liabilities	265.7	217.8
Total Current Liabilities	533.6	448.2
Debt payable after one year	1,963.7	1,523.8
Unfunded defined benefit pension plans	392.3	391.9
Underfunded defined benefit pension plans	63.2	110.5
Other liabilities	280.3	169.3
Total Liabilities	3,233.1	2,643.7
Commitments and Contingencies—Note 8		
Equity		
Common stock issued, par value \$0.01; 300,000,000 shares authorized; outstanding: 67,098,411 (2017—67,780,410)	0.7	0.7
Paid-in capital	477.0	474.8
Retained earnings	625.4	573.1
Treasury stock, at cost: shares: 10,358,216 (2017—9,676,217)	(875.7)	(832.1)
Accumulated other comprehensive income (loss)	46.5	39.9
Total W. R. Grace & Co. Shareholders' Equity	273.9	256.4
Noncontrolling interests	6.3	6.9
Total Equity	280.2	263.3
Total Liabilities and Equity	\$ 3,513.3	\$ 2,907.0

The Notes to Consolidated Financial Statements are an integral part of these statements.

W. R. Grace & Co. and Subsidiaries
Consolidated Statements of Equity (unaudited)

(In millions)	Common Stock and Paid-in Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income (Loss)	Noncontrolling Interests	Total Equity
Balance, December 31, 2016	\$ 488.0	\$ 619.3	\$ (804.9)	\$ 66.4	\$ 3.6	\$ 372.4
Net income (loss)	—	134.2	—	—	(0.7)	133.5
Repurchase of common stock	—	—	(65.0)	—	—	(65.0)
Payments to taxing authorities in consideration of employee tax obligations related to stock-based compensation arrangements	(2.5)	—	—	—	—	(2.5)
Stock-based compensation	8.2	—	—	—	—	8.2
Exercise of stock options	(18.3)	—	32.7	—	—	14.4
Shares issued	0.7	—	—	—	—	0.7
Dividends Declared	—	(43.2)	—	—	—	(43.2)
Other comprehensive (loss) income	—	—	—	(22.7)	—	(22.7)
Contribution to joint venture	—	—	—	—	1.2	1.2
Balance, September 30, 2017	<u>\$ 476.1</u>	<u>\$ 710.3</u>	<u>\$ (837.2)</u>	<u>\$ 43.7</u>	<u>\$ 4.1</u>	<u>\$ 397.0</u>
Balance, December 31, 2017	<u>\$ 475.5</u>	<u>\$ 573.1</u>	<u>\$ (832.1)</u>	<u>\$ 39.9</u>	<u>\$ 6.9</u>	<u>\$ 263.3</u>
Net income (loss)	—	98.5	—	—	(0.6)	97.9
Repurchase of common stock	—	—	(60.1)	—	—	(60.1)
Payments to taxing authorities in consideration of employee tax obligations related to stock-based compensation arrangements	(2.9)	—	—	—	—	(2.9)
Stock-based compensation	14.5	—	—	—	—	14.5
Exercise of stock options	(4.2)	—	10.6	—	—	6.4
Shares issued	(5.2)	—	5.9	—	—	0.7
Dividends declared	—	(48.7)	—	—	—	(48.7)
Other comprehensive (loss) income	—	—	—	6.6	—	6.6
Adjustment to retained earnings for adoption of ASC 606	—	2.5	—	—	—	2.5
Balance, September 30, 2018	<u>\$ 477.7</u>	<u>\$ 625.4</u>	<u>\$ (875.7)</u>	<u>\$ 46.5</u>	<u>\$ 6.3</u>	<u>\$ 280.2</u>

The Notes to Consolidated Financial Statements are an integral part of these statements.

Notes to Consolidated Financial Statements

1. Basis of Presentation and Summary of Significant Accounting and Financial Reporting Policies

W. R. Grace & Co., through its subsidiaries, is engaged in specialty chemicals and specialty materials businesses on a global basis through two reportable segments: Grace Catalysts Technologies, which includes catalysts and related products and technologies used in refining, petrochemical and other chemical manufacturing applications; and Grace Materials Technologies, which includes specialty materials, including silica-based and silica-alumina-based materials, used in coatings, consumer, pharmaceutical, and industrial applications.

W. R. Grace & Co. conducts all of its business through a single wholly owned subsidiary, W. R. Grace & Co.–Conn. (“Grace–Conn.”). Grace–Conn. owns all of the assets, properties and rights of W. R. Grace & Co. on a consolidated basis, either directly or through subsidiaries.

As used in these notes, the term “Company” refers to W. R. Grace & Co. The term “Grace” refers to the Company and/or one or more of its subsidiaries and, in certain cases, their respective predecessors.

Basis of Presentation The interim Consolidated Financial Statements presented herein are unaudited and should be read in conjunction with the Consolidated Financial Statements presented in the Company’s 2017 Annual Report on Form 10-K. Such interim Consolidated Financial Statements reflect all adjustments that, in the opinion of management, are necessary for a fair statement of the results of the interim periods presented; all such adjustments are of a normal recurring nature except for the impacts of adopting new accounting standards as discussed below. All significant intercompany accounts and transactions have been eliminated.

The results of operations for the nine-month interim period ended September 30, 2018, are not necessarily indicative of the results of operations to be attained for the year ending December 31, 2018.

Use of Estimates The preparation of financial statements in conformity with U.S. generally accepted accounting principles (“U.S. GAAP”) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the Consolidated Financial Statements, and the reported amounts of revenues and expenses for the periods presented. Actual amounts could differ from those estimates, and the differences could be material. Changes in estimates are recorded in the period identified. Grace’s accounting measurements that are most affected by management’s estimates of future events are:

- Realization values of net deferred tax assets, which depend on projections of future taxable income;
- Pension and postretirement liabilities, which depend on assumptions regarding participant life spans, future inflation, discount rates and total returns on invested funds (see Note 6);
- Carrying values of goodwill and other intangible assets, which depend on assumptions of future earnings and cash flows; and
- Contingent liabilities, which depend on an assessment of the probability of loss and an estimate of ultimate obligation, such as litigation and environmental remediation (see Note 8).

Reclassifications Certain amounts in prior years’ Consolidated Financial Statements have been reclassified to conform to the current year presentation. Such reclassifications have not materially affected previously reported amounts in the Consolidated Financial Statements.

Long-Lived Assets During the 2018 first quarter, Grace, with the assistance of an outside accounting firm, completed a study to evaluate the useful lives of its operating machinery and equipment, including a review of historical asset retirement data as well as review and analysis of relevant industry practices. As a result of this study, effective January 1, 2018, Grace revised the accounting useful lives of certain machinery and equipment, which was determined to be a change in accounting estimate and is being applied prospectively. As a result of this change in accounting estimate, Grace’s depreciation expense with respect to such machinery and equipment was reduced by \$7.6 million, resulting in an increase to net income of \$5.8 million or \$0.09 per diluted share, for the three months ended September 30, 2018. For the nine months ended September 30, 2018, depreciation expense with respect to such machinery and equipment was reduced by \$16.5 million, resulting in an increase to net income of \$12.7 million or \$0.19 per diluted share. Estimated useful lives for operating machinery and equipment, which previously ranged from 3 to 10 years, now range from 5 to 25 years.

Notes to Consolidated Financial Statements (Continued)

1. Basis of Presentation and Summary of Significant Accounting and Financial Reporting Policies (Continued)

Recently Issued Accounting Standards In February 2016, the FASB issued ASU 2016-02 "Leases (Topic 842)." This update is intended to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. The core principle of Topic 842 is that a lessee should recognize the assets and liabilities that arise from leases. A lessee should recognize in the statement of financial position a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term, including optional payments where they are reasonably certain to occur. Currently, as a lessee, Grace is a party to a number of leases which, under existing guidance, are classified as operating leases and not recorded on the balance sheet but expensed as incurred. Under the new standard, many of these leases will be recorded on the Consolidated Balance Sheets. In July 2018, the FASB issued ASU 2018-11 "Leases (Topic 842): Targeted Improvements," which provides an additional transition method that allows entities to initially apply the new standard at the adoption date and recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Grace will adopt these standards in the 2019 first quarter under the modified retrospective approach permitted by ASU 2018-11. Grace has begun its implementation of the new standard and expects to recognize material lease assets and lease liabilities on its Consolidated Balance Sheet upon adoption of Topic 842, but does not expect the standard to have a material impact on the Consolidated Statement of Operations.

In January 2018, the FASB issued ASU 2018-01 "Leases (Topic 842): Land Easement Practical Expedient for Transition to Topic 842." This update provides an optional transition practical expedient that allows an entity to elect not to evaluate under Topic 842 existing or expired land easements not previously accounted for as leases. All land easements entered into or modified after the adoption of Topic 842 must be evaluated under Topic 842. Grace, which typically does not account for easements under current lease accounting, will use the transition practical expedient when adopting Topic 842 in the 2019 first quarter and at this time cannot reasonably estimate the effect of adoption.

In January 2017, the FASB issued ASU 2017-04 "Intangibles—Goodwill and Other (Topic 350)." This update modifies the concept of impairment from the condition that exists when the carrying amount of goodwill exceeds its implied fair value to the condition that exists when the carrying amount of a reporting unit exceeds its fair value. An entity no longer will determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities as if that reporting unit had been acquired in a business combination ("Step 2"). Because these amendments eliminate Step 2 from the goodwill impairment test, they should reduce the cost and complexity of evaluating goodwill for impairment. Grace is required to adopt the amendments in this update on January 1, 2020. Early adoption is permitted. Grace is currently evaluating the timing of adoption and does not expect the update to have a material effect on the Consolidated Financial Statements.

In February 2018, the FASB issued ASU 2018-02 "Income Statement—Reporting Comprehensive Income (Topic 220)." This update addresses the revaluation of deferred tax assets and liabilities due to the Tax Cuts and Jobs Act of 2017 impacting income from continuing operations, even if the initial income tax effects were recognized in other comprehensive income. The update allows entities to reclassify the tax effects that were originally in other comprehensive income from accumulated other comprehensive income to retained earnings. The update requires entities to disclose whether the election was made and a description of the income tax effects. The update can be: (a) applied to the period of adoption, or (b) applied retrospectively to each period in which the Tax Cuts and Jobs Act of 2017 is in effect. Grace expects to apply the update to the period of adoption, which is expected to be the 2018 fourth quarter, and is currently evaluating the effect of the update.

In August 2018, the FASB issued ASU 2018-14 "Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)." This update adds, removes, and clarifies disclosure requirements related to defined benefit pension and other postretirement plans. Grace is required to adopt the amendments in this update on January 1, 2021. Grace is currently evaluating the timing of adoption and does not expect the update to have a material effect on the Consolidated Financial Statements.

Notes to Consolidated Financial Statements (Continued)**1. Basis of Presentation and Summary of Significant Accounting and Financial Reporting Policies (Continued)**

Recently Adopted Accounting Standards In November 2016, the FASB issued ASU 2016-18 "Statement of Cash Flows (Topic 230): Restricted Cash," which requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. Grace adopted the update in the 2018 first quarter. The table below presents the effect of the adoption of ASU 2016-18 on previously reported amounts.

(In millions)	Nine Months Ended September 30, 2017		
	Previously Reported	Revised	Effect of Change
Other investing activities	\$ (0.9)	\$ (0.1)	\$ 0.8
Net cash provided by (used for) investing activities	(90.0)	(89.2)	0.8
Cash, cash equivalents, and restricted cash, beginning of period	90.6	100.6	10.0
Cash, cash equivalents, and restricted cash, end of period	175.7	186.5	10.8

In January 2017, the FASB issued ASU 2017-01 "Business Combinations (Topic 805)," which provides a screen to determine when an integrated set of assets and activities is not a business. The screen requires that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. This screen reduces the number of transactions that need to be further evaluated. If the screen is not met, the amendments in this update (1) require that to be considered a business, a set must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output, and (2) remove the evaluation of whether a market participant could replace missing elements. The amendments in this update also narrow the definition of the term "output" so that the term is consistent with how outputs are described in ASC 606. Grace adopted the update in the 2018 first quarter and applied the new definition of a business to the acquisition closed during the 2018 second quarter.

In May 2017, the FASB issued ASU 2017-09 "Compensation—Stock Compensation (Topic 718)." This update clarifies the existing definition of the term "modification," which is currently defined as "a change in any of the terms or conditions of a share-based payment award." The update requires entities to account for modifications of share-based payment awards unless the (1) fair value, (2) vesting conditions, and (3) classification as an equity instrument or a liability instrument of the modified award are the same as the original award before modification. Grace adopted the update in the 2018 first quarter, and it did not have an effect on the Consolidated Financial Statements.

Revenue Recognition

In May 2014, the FASB issued ASU 2014-09 "Revenue from Contracts with Customers (Topic 606)" ("ASC 606"). This update was intended to remove inconsistencies and weaknesses in revenue requirements; provide a more robust framework for addressing revenue issues; improve comparability of revenue recognition practices across entities, industries, jurisdictions and capital markets; provide more useful information to users of financial statements through improved disclosure requirements; and simplify the preparation of financial statements by reducing the number of requirements to which an entity must refer. Grace adopted ASC 606 with a date of initial application of January 1, 2018. Grace applied the standard to all customer contracts. As a result, Grace has changed its accounting policy for revenue recognition as detailed below.

Grace applied ASC 606 using the modified retrospective method, that is, by recognizing the cumulative effect of initially applying ASC 606 as an adjustment to "retained earnings" at the date of initial application. Results for periods beginning after December 31, 2017, are presented under ASC 606, while the comparative information has not been adjusted and continues to be reported in accordance with Grace's historical accounting under ASC 605 "Revenue Recognition" ("ASC 605").

Notes to Consolidated Financial Statements (Continued)

1. Basis of Presentation and Summary of Significant Accounting and Financial Reporting Policies (Continued)

Grace generates revenues predominantly from sales of manufactured products to customers and in part from licensing of technology. Under ASC 606, revenue from customer arrangements is recognized when control is transferred to the customer.

Product Sales Revenue Recognition

In its implementation of ASC 606, Grace assessed its customer arrangements at the operating segment level, and based on the similarity of arrangements, Grace elected to use the portfolio method practical expedient. Based on the promises made to customers in product sales arrangements, Grace determined that it has a performance obligation to manufacture and deliver products to its customers. Grace makes certain other promises in its customer arrangements that are immaterial in the context of the contracts. Revenue is recognized at amounts based on agreed-upon prices in sales contracts and/or purchase orders. Grace offers various incentives to its product sales customers that result in variable consideration, including but not limited to volume discounts, which reward bulk purchases by lowering the price for future purchases, and volume rebates, which encourage customers to purchase volume levels that would reduce their current prices. These incentives are immaterial in the context of the contracts.

For product sales, control is transferred at the point in time at which risk of loss and title have transferred to the customer, which is determined based on shipping terms. Terms of delivery and terms of payment are generally included in customer contracts of sale, order confirmation documents, and invoices. Payment is generally due within 30 to 60 days of invoicing. Grace defers revenue recognition until no other significant Grace performance obligations remain. Grace's customer arrangements do not contain significant acceptance provisions.

Taxes that Grace collects that are assessed by a governmental authority, and that are both imposed on and concurrent with any of its revenue-producing activities, are excluded from revenue. Grace considers shipping and handling activities that it performs as activities to fulfill the sales of its products. Amounts billed for shipping and handling are included in net sales, while costs incurred for shipping and handling are included in cost of sales, in accordance with the practical expedient provided by ASC 606.

Technology Licensing Revenue Recognition

For Grace's technology licensing business, Grace determined that the customer arrangements contain multiple deliverables to enable licensees to realize the full benefit of the technology. These deliverables include licensing the technology itself; developing engineering design packages; and providing training, consulting, and technical services. Under these arrangements, the license grant is not a distinct performance obligation, as the licensee only can benefit from the license in conjunction with other integral services such as development of the engineering design package, training, consulting, or technical services provided over the contract period. Therefore, Grace accounts for the license grant and integral services as a single performance obligation. Certain deliverables and services not included in the core bundled deliverables are accounted for as separate performance obligations.

The transaction price is specified in the technology licensing agreements and is substantially fixed. Some services are priced on a per-diem basis, but these are not material in the context of the contracts. Grace invoices its technology licensing customers as certain project milestones are achieved. Payment terms are similar to those of Grace's product sales.

Revenue for each performance obligation is recognized when control is transferred to the customer, which is generally over a period of time. As a result, Grace generally recognizes revenue for each performance obligation ratably over the period of the contract, which is up to seven years, depending on the scope of the licensee's project. Based on the timing of payments, Grace records deferred revenue related to these agreements. See Note 13.

Notes to Consolidated Financial Statements (Continued)

1. Basis of Presentation and Summary of Significant Accounting and Financial Reporting Policies (Continued)

Impact of Adoption

Except for the changes below, Grace has consistently applied its accounting policy for revenue recognition to all periods presented in the Consolidated Financial Statements.

Grace recorded a net increase to "retained earnings" of \$2.5 million as of January 1, 2018, which represents the cumulative impact of adopting ASC 606, with a \$3.2 million reduction to "other liabilities" and a \$0.7 million reduction to "deferred income taxes." The cumulative adjustment results from a change in accounting for contingent revenue related to technology licensing arrangements. Under ASC 605, certain revenue was not realized until a contractual contingency was resolved. Upon adoption of ASC 606, Grace estimates all forms of variable consideration, including contingent amounts, at the inception of the arrangement and recognizes it over the period of performance.

The tables below present the effect of the adoption of ASC 606 on Grace's Consolidated Statements of Operations and Consolidated Balance Sheets.

Consolidated Statements of Operations

(In millions)	Three months ended September 30, 2018		
	Under ASC 605	As Reported (ASC 606)	Effect of Change
Net sales	\$ 494.4	\$ 494.9	\$ 0.5
Gross profit	201.7	202.2	0.5
Income (loss) before income taxes	16.1	16.6	0.5
Provision for income taxes	(0.6)	(0.7)	(0.1)
Net income (loss)	15.5	15.9	0.4
Net income (loss) attributable to W. R. Grace & Co. Shareholders	15.7	16.1	0.4

(In millions)	Nine Months Ended September 30, 2018		
	Under ASC 605	As Reported (ASC 606)	Effect of Change
Net sales	\$ 1,411.2	\$ 1,412.1	\$ 0.9
Gross profit	569.5	570.4	0.9
Income (loss) before income taxes	147.5	148.4	0.9
Provision for income taxes	(50.3)	(50.5)	(0.2)
Net income (loss)	97.2	97.9	0.7
Net income (loss) attributable to W. R. Grace & Co. Shareholders	97.8	98.5	0.7

Consolidated Balance Sheets

(In millions)	September 30, 2018		
	Under ASC 605	As Reported (ASC 606)	Effect of Change
Deferred income taxes	\$ 544.5	\$ 543.6	\$ (0.9)
Other liabilities	284.4	280.3	(4.1)
Retained earnings	622.2	625.4	3.2

Notes to Consolidated Financial Statements (Continued)

1. Basis of Presentation and Summary of Significant Accounting and Financial Reporting Policies (Continued)

ASU 2017-07 “Compensation—Retirement Benefits (Topic 715)”

In March 2017, the FASB issued ASU 2017-07 “Compensation—Retirement Benefits (Topic 715).” This update requires that the service cost component of net benefit cost be presented with other compensation costs arising from services rendered. The remaining net benefit cost is either presented as a line item in the statement of operations outside of a subtotal for income from operations, if presented, or disclosed separately. In addition, only the service cost component of net benefit cost can be capitalized. Grace adopted the update in the 2018 first quarter.

The changes in classification of net benefit costs within the Consolidated Statements of Operations have been retrospectively applied to all periods presented. The change in costs capitalizable into inventory was applied prospectively in accordance with the update. The tables below present the effect of the adoption of ASU 2017-07 on previously reported amounts.

Consolidated Statements of Operations

(In millions)	Three Months Ended September 30, 2017		
	Previously Reported	Revised	Effect of Change
Cost of goods sold	\$ 256.2	\$ 258.2	\$ 2.0
Gross profit	173.3	171.3	(2.0)
Selling, general and administrative expenses	70.5	70.8	0.3
Research and development expenses	13.3	14.0	0.7
Other (income) expense	(0.2)	(3.2)	(3.0)

(In millions)	Nine Months Ended September 30, 2017		
	Previously Reported	Revised	Effect of Change
Cost of goods sold	\$ 761.2	\$ 765.3	\$ 4.1
Gross profit	495.8	491.7	(4.1)
Selling, general and administrative expenses	207.3	208.6	1.3
Research and development expenses	39.4	41.5	2.1
Other (income) expense	(12.0)	(19.5)	(7.5)

2. Inventories

Inventories are stated at the lower of cost or net realizable value, and cost is determined using FIFO. Inventories consisted of the following at September 30, 2018, and December 31, 2017:

(In millions)	September 30, 2018	December 31, 2017
Raw materials	\$ 64.3	\$ 48.8
In process	54.8	33.0
Finished products	167.9	124.7
Other	32.0	24.4
Total inventory	\$ 319.0	\$ 230.9

Notes to Consolidated Financial Statements (Continued)

3. Debt

Components of Debt

(In millions)	September 30, 2018	December 31, 2017
2018 U.S. dollar term loan, net of unamortized debt issuance costs of \$9.3	\$ 940.7	\$ —
5.125% senior notes due 2021, net of unamortized debt issuance costs of \$4.6 (2017—\$5.8)	695.4	694.2
5.625% senior notes due 2024, net of unamortized debt issuance costs of \$3.1 (2017—\$3.5)	296.9	296.5
Debt payable to unconsolidated affiliate	48.1	42.4
2014 U.S. dollar term loan, net of unamortized debt issuance costs and discounts (2017—\$4.3)	—	404.1
2014 Euro term loan, net of unamortized debt issuance costs and discounts (2017—\$1.0)	—	94.0
Other borrowings(1)	5.4	12.7
Total debt	1,986.5	1,543.9
Less debt payable within one year	22.8	20.1
Debt payable after one year	\$ 1,963.7	\$ 1,523.8
Weighted average interest rates on total debt	3.8%	4.7%

(1) Represents borrowings under various lines of credit and other borrowings, primarily by non-U.S. subsidiaries.

On April 3, 2018, Grace entered into a Credit Agreement (the "Credit Agreement"), which provides for new senior secured credit facilities, consisting of:

- (a) a \$950 million term loan due in 2025, with interest at LIBOR +175 basis points, and
- (b) a \$400 million revolving credit facility due in 2023, with interest at LIBOR +175 basis points.

The term loan will amortize in equal quarterly installments in aggregate annual amounts equal to 1.00% of the original principal amount thereof, with the first payment due on December 31, 2018.

The Credit Agreement contains customary affirmative covenants, including, but not limited to: (i) maintenance of existence, and compliance with laws; (ii) delivery of consolidated financial statements and other information; (iii) payment of taxes; (iv) delivery of notices of defaults and certain other material events; and (v) maintenance of adequate insurance. The Credit Agreement also contains customary negative covenants, including but not limited to restrictions on: (i) dividends on, and redemptions of, equity interests and other restricted payments; (ii) liens; (iii) loans and investments; (iv) the sale, transfer or disposition of assets and businesses; (v) transactions with affiliates; and (vi) a maximum first lien leverage ratio.

Events of default under the Credit Agreement include, but are not limited to: (i) failure to pay principal, interest, fees or other amounts under the Credit Agreement when due, taking into account any applicable grace period; (ii) any representation or warranty proving to have been incorrect in any material respect when made; (iii) failure to perform or observe covenants or other terms of the Credit Agreement subject to certain grace periods; (iv) a cross-default and cross-acceleration with certain other material debt; (v) bankruptcy events; (vi) certain defaults under ERISA; and (vii) the invalidity or impairment of security interests.

To secure its obligations under the Credit Agreement, Grace and certain of its U.S. subsidiaries have granted security interests in substantially all equity and debt interests in Grace-Conn. or any other Grace subsidiary owned by them and in substantially all their non-real estate assets and property.

The foregoing is a summary of the Credit Agreement. Grace has filed the full text of the Credit Agreement with the Securities and Exchange Commission (the "SEC"), which is readily available on the internet at www.sec.gov.

Notes to Consolidated Financial Statements (Continued)

3. Debt (Continued)

Grace used a portion of the proceeds to repay in full the borrowings outstanding under its 2014 credit agreement, which was terminated, as well as to make a voluntary \$50.0 million accelerated contribution to its U.S. qualified pension plans. In connection with the repayment of debt, Grace recorded a \$4.8 million loss on early extinguishment of debt. As of September 30, 2018, the available credit under the revolving credit facility was reduced to \$364.5 million by outstanding letters of credit.

See Note 4 for a discussion of the fair value of Grace's debt.

The principal maturities of debt outstanding at September 30, 2018, were as follows:

	(In millions)
2018	\$ 9.0
2019	19.6
2020	18.4
2021	712.3
2022	16.0
Thereafter	1,211.2
Total debt	\$ 1,986.5

4. Fair Value Measurements and Risk

Certain of Grace's assets and liabilities are reported at fair value on a gross basis. ASC 820 "Fair Value Measurements and Disclosures" defines fair value as the value that would be received at the measurement date in the principal or "most advantageous" market. Grace uses principal market data, whenever available, to value assets and liabilities that are required to be reported at fair value.

Grace has identified the following financial assets and liabilities that are subject to the fair value analysis required by ASC 820:

Fair Value of Debt and Other Financial Instruments Debt payable is recorded at carrying value. Fair value is determined based on Level 2 inputs, including expected future cash flows (discounted at market interest rates), estimated current market prices and quotes from financial institutions.

At September 30, 2018, the carrying amounts and fair values of Grace's debt were as follows:

(In millions)	September 30, 2018		December 31, 2017	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
2018 U.S. dollar term loan(1)	\$ 940.7	\$ 939.5	\$ —	\$ —
5.125% senior notes due 2021(2)	695.4	715.9	694.2	728.7
5.625% senior notes due 2024(2)	296.9	311.7	296.5	321.3
U.S. dollar term loan(3)	—	—	404.1	409.7
Euro term loan(3)	—	—	94.0	93.7
Other borrowings	53.5	53.5	55.1	55.1
Total debt	\$ 1,986.5	\$ 2,020.6	\$ 1,543.9	\$ 1,608.5

- (1) Carrying amounts are net of unamortized debt issuance costs and discounts of \$9.3 million as of September 30, 2018.
- (2) Carrying amounts are net of unamortized debt issuance costs of \$4.6 million and \$3.1 million as of September 30, 2018, and \$5.8 million and \$3.5 million as of December 31, 2017, related to the 5.125% senior notes due 2021 and 5.625% senior notes due 2024, respectively.
- (3) Carrying amounts are net of unamortized debt issuance costs and discounts of \$4.3 million and \$1.0 million as of December 31, 2017, related to the U.S. dollar term loan and euro term loan, respectively.

Notes to Consolidated Financial Statements (Continued)

4. Fair Value Measurements and Risk (Continued)

At September 30, 2018, the recorded values of other financial instruments such as cash equivalents and trade receivables and payables approximated their fair values, based on the short-term maturities and floating rate characteristics of these instruments.

Currency Derivatives Because Grace operates and/or sells to customers in over 60 countries and in over 30 currencies, its results are exposed to fluctuations in currency exchange rates. Grace seeks to minimize exposure to these fluctuations by matching sales in volatile currencies with expenditures in the same currencies, but it is not always possible to do so. From time to time, Grace uses financial instruments such as currency forward contracts, options, swaps, or combinations thereof to reduce the risk of certain specific transactions. However, Grace does not have a policy of hedging all exposures, because management does not believe that such a level of hedging would be cost-effective. Forward contracts with maturities of not more than 36 months are used and designated as cash flow hedges of forecasted repayments of intercompany loans. The effective portion of gains and losses on these currency hedges is recorded in “accumulated other comprehensive income (loss)” and reclassified into “other (income) expense, net” to offset the remeasurement of the underlying hedged loans. Excluded components (forward points) on these hedges are amortized to income on a systematic basis.

Grace also enters into foreign currency forward contracts to hedge a portion of its net outstanding monetary assets and liabilities. These forward contracts are not designated as hedging instruments under applicable accounting guidance, and therefore all changes in the fair value of the forward contracts are recorded in “other (income) expense, net,” in the Consolidated Statements of Operations. These forward contracts are intended to offset the foreign currency gains or losses associated with the underlying monetary assets and liabilities.

The valuation of Grace’s currency exchange rate forward contracts and swaps is determined using an income approach. Inputs used to value currency exchange rate forward contracts consist of: (1) spot rates, which are quoted by various financial institutions; (2) forward points, which are primarily affected by changes in interest rates; and (3) discount rates used to present value future cash flows, which are based on the London Interbank Offered Rate (LIBOR) curve or overnight indexed swap rates. Total notional amounts for forward contracts outstanding as of September 30, 2018, were \$115.3 million.

Cross-Currency Swap Agreements Grace uses cross-currency swaps designated as cash flow hedges to manage fluctuations in currency exchange rates and interest rates on variable rate debt. The effective portion of gains and losses on these cash flow hedges is recorded in “accumulated other comprehensive income (loss)” and reclassified into “other (income) expense, net” and “interest expense and related financing costs” during the hedged interest period.

In April 2018, in connection with the Credit Agreement (see Note 3), Grace entered into new cross-currency swaps beginning on April 3, 2018, and maturing on March 31, 2023, to synthetically convert \$600.0 million of U.S. dollar-denominated floating rate debt into €490.1 million of euro-denominated debt fixed at 2.0231%. The valuation of these cross-currency swaps is determined using an income approach, using LIBOR and EURIBOR swap curves, currency basis spreads, and euro/U.S. dollar exchange rates.

Debt and Interest Rate Swap Agreements Grace uses interest rate swaps designated as cash flow hedges to manage fluctuations in interest rates on variable rate debt. The effective portion of gains and losses on these interest rate cash flow hedges is recorded in “accumulated other comprehensive income (loss)” and reclassified into “interest expense and related financing costs” during the hedged interest period.

In connection with its emergence financing, Grace entered into interest rate swaps beginning on February 3, 2015, and maturing on February 3, 2020, fixing the LIBOR component of the interest on \$250.0 million of Grace’s term debt at a rate of 2.393%. These interest rate swaps were designated and terminated in April 2018 in connection with Grace’s entry into a new credit agreement.

In connection with the Credit Agreement (see Note 3), Grace entered into new interest rate swaps beginning on April 3, 2018, and maturing on March 31, 2023, fixing \$100.0 million of term debt at 2.775%. The valuation of these interest rate swaps is determined using an income approach, using prevailing market interest rates and discount rates to present value future cash flows based on the forward LIBOR yield curves. Credit risk is also incorporated into derivative valuations.

Notes to Consolidated Financial Statements (Continued)

4. Fair Value Measurements and Risk (Continued)

The following tables present the fair value hierarchy for financial assets and liabilities measured at fair value on a recurring basis as of September 30, 2018, and December 31, 2017:

Fair Value Measurements at September 30, 2018, Using				
(In millions)	Total	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Currency derivatives	\$ 3.3	\$ —	\$ 3.3	\$ —
Interest rate derivatives	1.0	—	1.0	—
Variable-to-fixed cross-currency derivatives	17.4	—	17.4	—
Total Assets	\$ 21.7	\$ —	\$ 21.7	\$ —
Liabilities				
Currency derivatives	\$ 22.8	\$ —	\$ 22.8	\$ —
Total Liabilities	\$ 22.8	\$ —	\$ 22.8	\$ —

Fair Value Measurements at December 31, 2017, Using				
(In millions)	Total	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Currency derivatives	\$ 3.1	\$ —	\$ 3.1	\$ —
Total Assets	\$ 3.1	\$ —	\$ 3.1	\$ —
Liabilities				
Interest rate derivatives	\$ 1.8	\$ —	\$ 1.8	\$ —
Currency derivatives	23.8	—	23.8	—
Total Liabilities	\$ 25.6	\$ —	\$ 25.6	\$ —

The following tables present the location and fair values of derivative instruments included in the Consolidated Balance Sheets as of September 30, 2018, and December 31, 2017:

September 30, 2018 (In millions)	Asset Derivatives		Liability Derivatives	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments under ASC 815:				
Currency contracts	Other current assets	\$ 3.1	Other current liabilities	\$ —
Variable-to-fixed cross-currency swaps	Other current assets	15.1	Other current liabilities	—
Currency contracts	Other assets	—	Other liabilities	21.5
Interest rate contracts	Other assets	1.0	Other liabilities	—
Variable-to-fixed cross-currency swaps	Other assets	2.3	Other liabilities	—
Derivatives not designated as hedging instruments under ASC 815:				
Currency contracts	Other current assets	0.2	Other current liabilities	1.3
Total derivatives		\$ 21.7		\$ 22.8

Notes to Consolidated Financial Statements (Continued)

4. Fair Value Measurements and Risk (Continued)

December 31, 2017 (In millions)	Asset Derivatives		Liability Derivatives	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments under ASC 815:				
Currency contracts	Other current assets	\$ 2.7	Other current liabilities	\$ 1.4
Interest rate contracts	Other current assets	—	Other current liabilities	1.3
Currency contracts	Other assets	—	Other liabilities	22.2
Interest rate contracts	Other assets	—	Other liabilities	0.5
Derivatives not designated as hedging instruments under ASC 815:				
Currency contracts	Other current assets	0.4	Other current liabilities	0.2
Total derivatives		\$ 3.1		\$ 25.6

The following tables present the location and amount of gains and losses on derivative instruments included in the Consolidated Statements of Operations or, when applicable, gains and losses initially recognized in other comprehensive income (loss) ("OCI") for the three and nine months ended September 30, 2018 and 2017:

Three Months Ended September 30, 2018 (In millions)	Amount of Gain (Loss) Recognized in OCI on Derivatives	Location of Gain (Loss) Reclassified from Accumulated OCI into Income	
			Amount of Gain (Loss) Reclassified from OCI into Income
Derivatives in ASC 815 cash flow hedging relationships:			
Interest rate contracts	\$ 0.8	Interest expense	\$ 0.1
Currency contracts(1)	(0.6)	Other expense	(0.6)
Variable-to-fixed cross-currency swaps	3.3	Interest expense	3.3
Variable-to-fixed cross-currency swaps	(4.1)	Other expense	(6.1)
Total derivatives	\$ (0.6)		\$ (3.3)

(1) Amount of gain (loss) recognized in OCI includes \$0.7 million excluded from the assessment of effectiveness for which the difference between changes in fair value and periodic amortization is recorded in OCI.

Nine Months Ended September 30, 2018 (In millions)	Amount of Gain (Loss) Recognized in OCI on Derivatives	Location of Gain (Loss) Reclassified from Accumulated OCI into Income	
			Amount of Gain (Loss) Reclassified from OCI into Income
Derivatives in ASC 815 cash flow hedging relationships:			
Interest rate contracts	\$ 2.8	Interest expense	\$ —
Currency contracts(1)	2.5	Other expense	2.9
Variable-to-fixed cross-currency swaps	6.4	Interest expense	6.4
Variable-to-fixed cross-currency swaps	17.3	Other expense	23.2
Total derivatives	\$ 29.0		\$ 32.5

(1) Amount of gain (loss) recognized in OCI includes \$1.1 million excluded from the assessment of effectiveness for which the difference between changes in fair value and periodic amortization is recorded in OCI.

Notes to Consolidated Financial Statements (Continued)
4. Fair Value Measurements and Risk (Continued)

Three Months Ended September 30, 2017 (In millions)	Amount of Gain (Loss) Recognized in OCI on Derivatives	Location of Gain (Loss) Reclassified from Accumulated OCI into Income	Amount of Gain (Loss) Reclassified from OCI into Income
Derivatives in ASC 815 cash flow hedging relationships:			
Interest rate contracts	\$ 0.2	Interest expense	\$ (0.7)
Currency contracts	(0.1)	Other expense	0.1
Total derivatives	\$ 0.1		\$ (0.6)
Nine Months Ended September 30, 2017 (In millions)	Amount of Gain (Loss) Recognized in OCI on Derivatives	Location of Gain (Loss) Reclassified from Accumulated OCI into Income	Amount of Gain (Loss) Reclassified from OCI into Income
Derivatives in ASC 815 cash flow hedging relationships:			
Interest rate contracts	\$ (0.8)	Interest expense	\$ (2.4)
Currency contracts	(0.2)	Other expense	—
Total derivatives	\$ (1.0)		\$ (2.4)

The following tables present the total amounts of income and expense line items presented in the Consolidated Statements of Operations in which the effects of cash flow hedges are reported.

(In millions)	Three Months Ended September 30,			
	2018		2017	
	Interest expense	Other income (expense)	Interest expense	Other income (expense)
Total amounts of income and expense line items in the Consolidated Statements of Operations in which the effects of cash flow hedges are recorded	\$ (20.4)	\$ 1.3	\$ (20.1)	\$ 1.7
Gain (loss) on cash flow hedging relationships in ASC 815				
Interest rate contracts				
Amount of gain (loss) reclassified from accumulated OCI into income	\$ 0.1	\$ —	\$ (0.7)	\$ —
Variable-to-fixed cross-currency swaps				
Amount of gain (loss) reclassified from accumulated OCI into income	3.3	(6.1)	—	—
Currency contracts				
Amount of gain (loss) reclassified from accumulated OCI into income	—	(0.6)	—	0.1
Amount excluded from effectiveness testing recognized in earnings based on amortization approach (included in above)	—	0.6	—	—

Notes to Consolidated Financial Statements (Continued)
4. Fair Value Measurements and Risk (Continued)

(In millions)	Nine Months Ended September 30,			
	2018		2017	
	Interest expense	Other income (expense)	Interest expense	Other income (expense)
Total amounts of income and expense line items in the Consolidated Statements of Operations in which the effects of cash flow hedges are recorded	\$ (59.6)	\$ (2.2)	\$ (59.7)	\$ 15.0
Gain (loss) on cash flow hedging relationships in ASC 815				
Interest rate contracts				
Amount of gain (loss) reclassified from accumulated OCI into income	\$ —	\$ —	\$ (2.4)	\$ —
Variable-to-fixed cross-currency swaps				
Amount of gain (loss) reclassified from accumulated OCI into income	6.4	23.2	—	—
Currency contracts				
Amount of gain (loss) reclassified from accumulated OCI into income	—	2.9	—	—
Amount excluded from effectiveness testing recognized in earnings based on amortization approach (included in above)	—	2.3	—	—

Net Investment Hedges Grace uses cross-currency swaps as derivative hedging instruments in certain net investment hedges of its non-U.S. subsidiaries. The gains and losses attributable to these net investment hedges, adjusted for the impact of excluded components, are recorded net of tax to “currency translation adjustments” within “accumulated other comprehensive income (loss)” to offset the change in the carrying value of the net investment being hedged. Recognition in earnings of amounts previously recorded to “currency translation adjustments” is limited to circumstances such as complete or substantially complete liquidation of the net investment in the hedged foreign operation. Changes in the fair value of the hedging instrument related to time value, which are excluded from the assessment of hedge effectiveness, are recorded directly to interest expense on a systematic basis. These gains were \$0.7 million and \$1.4 million for the three and nine months ended September 30, 2018, respectively. At September 30, 2018, the notional amount of €170.0 million of Grace’s cross-currency swaps was designated as a hedging instrument of its net investment in its European subsidiaries.

Grace also uses foreign currency-denominated debt and deferred intercompany royalties as non-derivative hedging instruments in certain net investment hedges. At September 30, 2018, €16.9 million of Grace’s deferred intercompany royalties was designated as a hedging instrument of its net investment in its European subsidiaries. In April 2018, in connection with the Credit Agreement, Grace de-designated and repaid its euro-denominated term loan principal that had been designated as a hedge of its net investment in its European subsidiaries.

The following table presents the amount of gains and losses on derivative and non-derivative instruments designated as net investment hedges, recorded to “currency translation adjustments” within “accumulated other comprehensive income (loss)” for the three and nine months ended September 30, 2018 and 2017. There were no reclassifications of net investment hedges out of OCI and into earnings for the periods presented in the tables below.

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Derivatives in ASC 815 net investment hedging relationships:				
Cross-currency swap	\$ (2.9)	\$ (7.3)	\$ (0.9)	\$ (20.5)
Non-derivatives in ASC 815 net investment hedging relationships:				
Foreign currency denominated debt	\$ —	\$ (3.1)	\$ (4.4)	\$ (10.3)
Foreign currency denominated deferred intercompany royalties	(0.2)	(1.7)	—	(6.1)
	\$ (0.2)	\$ (4.8)	\$ (4.4)	\$ (16.4)

Notes to Consolidated Financial Statements (Continued)

4. Fair Value Measurements and Risk (Continued)

Credit Risk Grace is exposed to credit risk in its trade accounts receivable. Customers in the petroleum refining industry represent the greatest exposure. Grace's credit evaluation policies mitigate credit risk exposures, and it has a history of minimal credit losses. Grace does not generally require collateral for its trade accounts receivable but may require a bank letter of credit in certain instances, particularly when selling to customers in cash-restricted countries.

Grace may also be exposed to credit risk in its derivatives contracts. Grace monitors counterparty credit risk and currently does not anticipate nonperformance by counterparties to its derivatives. Grace's derivative contracts are with internationally recognized commercial financial institutions.

5. Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Act") was signed into law, making significant changes to the Internal Revenue Code. Changes include a federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, the transition of U.S. international taxation from a worldwide tax system to a territorial system, and a one-time transition tax on the mandatory deemed repatriation of foreign earnings.

The provision for income taxes for the nine months ended September 30, 2018 and 2017, was \$50.5 million and \$49.2 million, respectively. The 2018 provision includes a \$15.4 million tax charge for Global Intangible Low Taxed Income ("GILTI"), as well as other permanent items, offset by a \$17.9 million benefit from the change in the federal tax rate under the Act, the effect of lower pretax income in 2018, and discrete tax benefits recorded in the 2018 third quarter that primarily related to a research and development tax credit study for prior years.

The provision for income taxes for the three months ended September 30, 2018 and 2017, was \$0.7 million and \$11.6 million, respectively. The decrease was primarily due to a \$12.0 million benefit from the change in the federal tax rate, the effect of lower pretax income, and the discrete tax benefits noted above, partially offset by a \$3.4 million GILTI tax charge and other permanent items.

On December 22, 2017, the SEC issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, Grace recorded the provisional income tax effects of the Act. Additional detailed analyses are needed in order to complete the accounting for certain income tax aspects of the Act. Any subsequent adjustment to these amounts will be recorded to current tax expense in the quarter during which the analysis is completed, which is expected to be during the 2018 fourth quarter. In January 2018, the FASB released guidance on the accounting for tax on the GILTI provisions of the Act. Grace has not completed its analysis in order to make a policy decision on accounting for GILTI.

No material adjustments have been recorded to Grace's provisional SAB 118 tax expense as of September 30, 2018. Further detailed analyses are needed in order to complete the accounting for certain income tax aspects of the Act. Any subsequent adjustment to these amounts will be recorded to current tax expense in the 2018 fourth quarter.

Notes to Consolidated Financial Statements (Continued)

6. Pension Plans and Other Postretirement Benefit Plans

Pension Plans The following table presents the funded status of Grace's pension plans:

(In millions)	September 30, 2018	December 31, 2017
Overfunded defined benefit pension plans	\$ 4.7	\$ —
Underfunded defined benefit pension plans	(63.2)	(110.5)
Unfunded defined benefit pension plans	(392.3)	(391.9)
Total underfunded and unfunded defined benefit pension plans	(455.5)	(502.4)
Pension liabilities included in other current liabilities	(14.9)	(15.0)
Net funded status	\$ (465.7)	\$ (517.4)

Underfunded plans include a group of advance-funded plans that are underfunded on a projected benefit obligation ("PBO") basis. Unfunded plans include several plans that are funded on a pay-as-you-go basis, and therefore, the entire PBO is unfunded.

The following tables present the components of net periodic benefit cost (income).

(In millions)	Three Months Ended September 30,			
	2018		2017	
	U.S.	Non-U.S.	U.S.	Non-U.S.
Service cost	\$ 4.9	\$ 2.3	\$ 4.3	\$ 2.2
Interest cost	10.3	1.3	10.5	1.1
Expected return on plan assets	(14.5)	(0.3)	(14.4)	(0.2)
Amortization of prior service credit	(0.2)	—	(0.1)	—
Net periodic benefit cost (income)	\$ 0.5	\$ 3.3	\$ 0.3	\$ 3.1

(In millions)	Nine Months Ended September 30,			
	2018		2017	
	U.S.	Non-U.S.	U.S.	Non-U.S.
Service cost	\$ 14.6	\$ 7.2	\$ 12.9	\$ 6.2
Interest cost	30.9	3.8	31.5	3.2
Expected return on plan assets	(43.6)	(0.8)	(43.2)	(0.6)
Amortization of prior service credit	(0.5)	—	(0.3)	—
Net periodic benefit cost (income)	\$ 1.4	\$ 10.2	\$ 0.9	\$ 8.8

Plan Contributions and Funding Grace intends to satisfy its funding obligations under the U.S. qualified pension plans and to comply with all of the requirements of the Employee Retirement Income Security Act of 1974 ("ERISA"). For ERISA purposes, funded status is calculated on a different basis than under U.S. GAAP. On April 6, 2018, Grace contributed \$50.0 million to its U.S. qualified pension plans.

Grace intends to fund non-U.S. pension plans based on applicable legal requirements and actuarial recommendations.

Defined Contribution Retirement Plan Grace sponsors a defined contribution retirement plan for its employees in the United States. This plan is qualified under section 401(k) of the U.S. tax code. Currently, Grace contributes an amount equal to 100% of employee contributions, up to 6% of an individual employee's salary or wages. Grace's cost related to this benefit plan for the three and nine months ended September 30, 2018, was \$3.3 million and \$9.4 million compared with \$2.8 million and \$8.5 million for the corresponding prior-year periods.

Notes to Consolidated Financial Statements (Continued)

6. Pension Plans and Other Postretirement Benefit Plans (Continued)

The U.S. salaried pension plan is closed to new entrants after January 1, 2017. U.S. salaried employees and certain U.S. hourly employees hired on or after January 1, 2017, and employees in Germany hired on or after January 1, 2016, will participate in enhanced defined contribution plans instead of defined benefit pension plans.

7. Other Balance Sheet Accounts

(In millions)	September 30, 2018	December 31, 2017
Other Current Liabilities		
Accrued compensation	\$ 59.4	\$ 60.7
Deferred revenue	43.9	19.5
Accrued interest	26.5	16.5
Income taxes payable	24.2	12.2
Environmental contingencies	20.1	23.5
Pension liabilities	14.9	15.0
Other accrued liabilities	76.7	70.4
	<u>\$ 265.7</u>	<u>\$ 217.8</u>

Accrued compensation includes salaries and wages as well as estimated current amounts due under the annual and long-term incentive programs.

(In millions)	September 30, 2018	December 31, 2017
Other Liabilities		
Environmental contingencies	\$ 108.4	\$ 46.8
Liability to unconsolidated affiliate	74.7	32.7
Fair value of currency and interest rate contracts	21.5	22.7
Deferred revenue	18.7	14.9
Deferred income taxes	12.4	8.2
Asset retirement obligation	9.1	10.4
Postemployment liability	4.7	5.2
Other noncurrent liabilities	30.8	28.4
	<u>\$ 280.3</u>	<u>\$ 169.3</u>

8. Commitments and Contingent Liabilities

Legacy Liabilities

Over the years, Grace operated numerous types of businesses that are no longer part of its ongoing operations. As Grace divested or otherwise ceased operating these businesses, it retained certain liabilities and obligations, which Grace refers to as legacy liabilities. The legacy liabilities include product, environmental and other liabilities. Although the outcome of each of the matters discussed below cannot be predicted with certainty, Grace has assessed its risk and has made accounting estimates as required under U.S. GAAP.

Legacy Product Liabilities Grace emerged from an asbestos-related Chapter 11 bankruptcy on February 3, 2014 (the "Effective Date"). Under its plan of reorganization, all pending and future asbestos-related claims are channeled for resolution to either a personal injury trust (the "PI Trust") or a property damage trust (the "PD Trust"). The trusts are the sole recourse for holders of asbestos-related claims. The channeling injunctions issued by the bankruptcy court prohibit holders of asbestos-related claims from asserting such claims directly against Grace.

Notes to Consolidated Financial Statements (Continued)

8. Commitments and Contingent Liabilities (Continued)

Grace has satisfied all of its financial obligations to the PI Trust. Grace has contingent financial obligations remaining to the PD Trust. With respect to property damage claims related to Grace's former Zonolite attic insulation product installed in the U.S. ("ZAI PD Claims"), the PD Trust was funded with \$34.4 million on the Effective Date and \$30.0 million on February 3, 2017. Grace is also obligated to make up to 10 contingent deferred payments of \$8 million per year to the PD Trust in respect of ZAI PD Claims during the 20-year period beginning on the fifth anniversary of the Effective Date, with each such payment due only if the assets of the PD Trust in respect of ZAI PD Claims fall below \$10 million during the preceding year. Grace has not accrued for the 10 additional payments as Grace does not have sufficient information to conclude that they are probable. Grace is not obligated to make additional payments to the PD Trust in respect of ZAI PD Claims beyond the payments described above. Grace has satisfied all of its financial obligations with respect to Canadian ZAI PD Claims.

With respect to other asbestos property damage claims ("Other PD Claims"), claims unresolved as of the Effective Date are to be litigated in the bankruptcy court and any future claims are to be litigated in a federal district court, in each case pursuant to procedures approved by the bankruptcy court. To the extent any such Other PD Claims are determined to be allowed claims, they are to be paid in cash by the PD Trust. Grace is obligated to make a payment to the PD Trust every six months in the amount of any Other PD Claims allowed during the preceding six months plus interest (if applicable) and the amount of PD Trust expenses for the preceding six months (the "PD Obligation"). Grace has not paid any Other PD Claims since emergence. Annual expenses have been approximately \$0.2 million per year. The aggregate amount to be paid under the PD Obligation is not capped and Grace may be obligated to make additional payments to the PD Trust in respect of the PD Obligation. Grace has accrued for those unresolved Other PD Claims that it believes are probable and estimable. Grace has not accrued for other unresolved or unasserted Other PD Claims as it does not believe that payment is probable.

All payments to the PD Trust required after the Effective Date are secured by the Company's obligation to issue 77,372,257 shares of Company common stock to the PD Trust in the event of default, subject to customary anti-dilution provisions.

This summary of the commitments and contingencies related to the Chapter 11 proceeding does not purport to be complete and is qualified in its entirety by reference to the plan of reorganization and the exhibits and documents related thereto, which have been filed with the SEC and are readily available on the internet at www.sec.gov.

Legacy Environmental Liabilities Grace is subject to loss contingencies resulting from extensive and evolving federal, state, local and foreign environmental laws and regulations relating to its manufacturing operations. Grace has procedures in place to minimize such contingencies; nevertheless, it has liabilities associated with past operations and additional claims may arise in the future. To address its legacy liabilities, Grace accrues for anticipated costs of response efforts where an assessment has indicated that a probable liability has been incurred and the cost can be reasonably estimated. These accruals do not take into account any discounting for the time value of money.

Grace's environmental liabilities are reassessed regularly and adjusted when circumstances become better defined or response efforts and their costs can be better estimated, typically as a matter moves through the life-cycle of environmental investigation and remediation. These liabilities are evaluated based on currently available information relating to the nature and extent of contamination, risk assessments, feasibility of response actions, and apportionment amongst other potentially responsible parties, all evaluated in light of prior experience.

At September 30, 2018, Grace's estimated liability for legacy environmental response costs totaled \$128.5 million, compared with \$70.3 million at December 31, 2017, and was included in "other current liabilities" and "other liabilities" in the Consolidated Balance Sheets. These amounts are based on agreements in place or on Grace's estimate of costs where no formal remediation plan exists, yet there is sufficient information to estimate response costs.

Notes to Consolidated Financial Statements (Continued)

8. Commitments and Contingent Liabilities (Continued)

Vermiculite-Related Matters

Grace purchased a vermiculite mine in Libby, Montana, in 1963 and operated it until 1990. Vermiculite concentrate from the Libby mine was used in the manufacture of attic insulation and other products. Some of the vermiculite ore contained naturally occurring asbestos.

Grace is engaged with the U.S. Environmental Protection Agency (the "EPA") and other federal, state and local governmental agencies in a remedial investigation and feasibility study ("RI/FS") of the Libby mine and the surrounding area, known as Operable Unit 3 ("OU3"). The RI/FS will determine the specific areas within OU3 requiring remediation and will identify possible remedial action alternatives. Possible remedial actions within OU3 are wide-ranging, from institutional controls such as land use restrictions, to more active measures involving soil removal, containment projects, or other protective measures.

As part of the RI/FS process, Grace contracted an engineering and consulting firm to develop a range of possible remedial alternatives and associated cost estimates for OU3. Based on this work, Grace recorded a pretax charge of \$70.0 million in the 2018 third quarter for the estimated costs of remediation of OU3. Grace believes that this amount should provide for a protective remedy meeting the statutory requirements of the Comprehensive Environmental Response, Compensation, and Liability Act.

The estimated costs of remediation are preliminary and consist of several components, each of which may vary significantly as the remedial alternatives are further developed. It is reasonably possible that the ultimate costs of remediation could range between \$30 million and \$170 million. Grace is working closely with the EPA, and the ultimate remedy will be determined by the EPA after the RI/FS is finalized. Such remedy will be set forth in a Record of Decision ("ROD") that is expected to be issued by the EPA during or after 2020. Costs associated with the more active remedial alternatives would be expected to be incurred over a decade or more. Grace will reevaluate its estimated liability as remedial alternatives evolve based on further work by the engineering and consulting firm and discussions with the EPA as the RI/FS process moves toward a ROD. Depending on the remedial alternatives that the EPA selects in the ROD, the total cost of remediating OU3 may exceed Grace's current estimate by material amounts.

The EPA is also investigating or remediating formerly owned or operated sites that processed Libby vermiculite into finished products. Grace is cooperating with the EPA on these investigation and remediation activities, and has recorded a liability to the extent that its review has indicated that a probable liability has been incurred and the cost is estimable. These liabilities cover the estimated cost of investigations and, to the extent an assessment has indicated that remediation is necessary, the estimated cost of response actions. Response actions typically involve soil excavation and removal, and replacement with clean fill. The EPA may commence additional investigations in the future at other sites that processed Libby vermiculite, but Grace does not believe, based on its knowledge of prior and current operations and site conditions, that liability for remediation at such other sites is probable.

Grace's total estimated liability for response costs that are currently estimable for OU3, and at vermiculite processing sites outside of Libby, at September 30, 2018, and December 31, 2017, was \$83.4 million and \$25.8 million, respectively. It is possible that Grace's ultimate liability for these vermiculite-related matters will exceed current estimates by material amounts.

Non-Vermiculite-Related Environmental Matters

At September 30, 2018, and December 31, 2017, Grace's estimated legacy environmental liability for response costs at sites not related to its former vermiculite mining and processing activities was \$45.1 million and \$44.5 million, respectively. This liability relates to Grace's former businesses or operations, including its share of liability at off-site disposal facilities. Grace's estimated liability is based upon regulatory requirements and environmental conditions at each site. As Grace receives new information, its estimated liability may change materially.

Other Legacy Liabilities As part of the process for renewing Grace's permit for a dam on the Libby mine site, which expires in March 2019, the Montana Department of Natural Resources and Conservation is expected

Notes to Consolidated Financial Statements (Continued)

8. Commitments and Contingent Liabilities (Continued)

to require Grace to replace the dam spillway, which is deteriorating, with a new spillway. Grace constructed the dam in 1971 to prevent vermiculite ore tailings from moving into nearby creeks and rivers. Based on information provided by third-party consultants, the cost of the new spillway is estimated to be between \$40 million and \$45 million. Grace expects to record a liability for this project at the time the permit renewal is approved. Grace anticipates that approval of the renewal of such permit will occur in the first quarter of 2019. Construction of the new spillway is expected to take three to four years.

Commercial and Financial Commitments and Contingencies

Purchase Commitments Grace uses purchase commitments to ensure supply and to minimize the volatility of major components of direct manufacturing costs including natural gas, certain metals, rare earths, and other materials. Such commitments are for quantities that Grace fully expects to use in its normal operations.

Guarantees and Indemnification Obligations Grace is a party to many contracts containing guarantees and indemnification obligations. These contracts primarily consist of:

- Product warranties with respect to certain products sold to customers in the ordinary course of business. These warranties typically provide that products will conform to specifications. Grace accrues a warranty liability on a transaction-specific basis depending on the individual facts and circumstances related to each sale.
- Performance guarantees offered to customers under certain licensing arrangements. Grace has not established a liability for these arrangements based on past performance.
- Licenses of intellectual property by Grace to third parties in which Grace has agreed to indemnify the licensee against third party infringement claims.
- Contracts providing for the sale or spin-off of a former business unit or product line in which Grace has agreed to indemnify the buyer or resulting entity against certain liabilities related to activities prior to the closing of the transaction, including environmental, tax, and employee liabilities.
- Guarantees of real property lease obligations of third parties, typically arising out of (a) leases entered into by former subsidiaries of Grace, or (b) the assignment or sublease of a lease by Grace to a third party.

Financial Assurances Financial assurances have been established for a variety of purposes, including insurance and environmental matters, trade-related commitments and other matters. As of September 30, 2018, Grace had gross financial assurances issued and outstanding of \$147.8 million, composed of \$67.8 million of surety bonds issued by various insurance companies and \$80.0 million of standby letters of credit and other financial assurances issued by various banks.

9. Restructuring Expenses and Repositioning Expenses

Restructuring Expenses Restructuring costs in 2018 primarily related to plant exit costs and sales force reorganization. Restructuring costs in 2017 primarily related to workforce reduction programs in manufacturing, supply chain, finance and IT. These costs are included in "restructuring and repositioning expenses" in the Consolidated Statements of Operations.

The following table presents restructuring expenses by reportable segment for the three and nine months ended September 30, 2018.

Notes to Consolidated Financial Statements (Continued)

9. Restructuring Expenses and Repositioning Expenses (Continued)

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Catalysts Technologies	\$ 2.2	\$ 2.4	\$ 3.7	\$ 2.8
Materials Technologies	0.1	0.2	0.5	0.5
Corporate	0.1	2.7	0.2	6.8
Total restructuring expenses	\$ 2.4	\$ 5.3	\$ 4.4	\$ 10.1

These costs are not included in segment operating income. Substantially all costs related to the restructuring programs are expected to be paid by September 30, 2019.

The following table presents components of the change in the restructuring liability from December 31, 2017, to September 30, 2018.

	(In millions)
Balance, December 31, 2017	\$ 6.7
Accruals for severance and other costs	4.4
Payments	(8.0)
Balance, September 30, 2018	\$ 3.1

Repositioning Expenses Repositioning expenses primarily include third-party costs related to transformative productivity programs. Pretax repositioning expenses for the three and nine months ended September 30, 2018, were \$6.0 million and \$28.4 million, respectively, compared with \$4.0 million and \$6.9 million, respectively, for the corresponding prior-year periods.

Expenses incurred in 2018 primarily related to the 2018 second quarter write-off of \$8.5 million of prior plant engineering costs as a result of terminating an expansion project no longer necessary due to the polyolefin catalysts acquisition (see Note 16), and \$11.7 million for a multi-year program to transform manufacturing and business processes to extend Grace's competitive advantages and improve its cost position, of which \$3.6 million was recorded in the 2018 third quarter. Excluding asset write-offs, substantially all of these expenses have been or are expected to be settled in cash.

10. Other (Income) Expense, net

Components of other (income) expense, net are as follows:

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Defined benefit pension (income) expense other than service cost	\$ (3.5)	\$ (3.1)	(10.3)	(7.5)
Third-party acquisition-related costs	0.5	0.4	7.2	0.4
Loss on early extinguishment of debt	—	—	4.8	—
Currency transaction effects	0.3	1.8	(2.8)	3.8
Chapter 11 expenses, net	1.2	0.4	2.2	1.9
Net (gain) loss on sales of investments and disposals of assets	0.8	0.7	2.1	1.5
Business interruption insurance recovery	—	(11.9)	—	(25.0)
Accounts receivable reserve—Venezuela	—	10.0	—	10.0
Other miscellaneous (income) expense	(0.6)	—	(1.0)	(0.1)
Total other (income) expense, net	\$ (1.3)	\$ (1.7)	\$ 2.2	\$ (15.0)

Notes to Consolidated Financial Statements (Continued)
10. Other (Income) Expense, net (Continued)

In January 2017, a Catalysts Technologies customer experienced an explosion and fire resulting in an extended outage. Grace received \$25.0 million in payments from its third-party insurer during the first three quarters of 2017, under its business interruption insurance policy for lost profits as a result of the outage. The policy has a \$25 million limit per event.

During the 2017 third quarter, Grace recorded a \$10.0 million charge to fully reserve for a trade receivable from a Venezuela-based customer related to increased economic uncertainty and the recent political unrest and sanctions.

11. Other Comprehensive Income (Loss)

The following tables present the pre-tax, tax, and after-tax components of Grace's other comprehensive income (loss) for the three and nine months ended September 30, 2018 and 2017:

Three Months Ended September 30, 2018 (In millions)	Pre-Tax Amount	Tax Benefit/ (Expense)	After-Tax Amount
Defined benefit pension and other postretirement plans:			
Amortization of net prior service credit included in net periodic benefit cost	\$ (0.4)	\$ 0.1	\$ (0.3)
Amortization of net deferred actuarial loss included in net periodic benefit cost	0.1	(0.1)	—
Benefit plans, net	(0.3)	—	(0.3)
Currency translation adjustments	(11.7)	0.6	(11.1)
Gain (loss) from hedging activities	2.7	(0.6)	2.1
Other comprehensive income (loss) attributable to W. R. Grace & Co. shareholders	\$ (9.3)	\$ —	\$ (9.3)

Nine Months Ended September 30, 2018 (In millions)	Pre-Tax Amount	Tax Benefit/ (Expense)	After-Tax Amount
Defined benefit pension and other postretirement plans:			
Amortization of net prior service credit included in net periodic benefit cost	\$ (1.2)	\$ 0.3	\$ (0.9)
Amortization of net deferred actuarial loss included in net periodic benefit cost	0.3	(0.1)	0.2
Benefit plans, net	(0.9)	0.2	(0.7)
Currency translation adjustments	8.5	0.1	8.6
Gain (loss) from hedging activities	(3.5)	2.2	(1.3)
Other comprehensive income (loss) attributable to W. R. Grace & Co. shareholders	\$ 4.1	\$ 2.5	\$ 6.6

Three Months Ended September 30, 2017 (In millions)	Pre-Tax Amount	Tax Benefit/ (Expense)	After-Tax Amount
Defined benefit pension and other postretirement plans:			
Amortization of net prior service credit included in net periodic benefit cost	\$ (0.6)	\$ 0.2	\$ (0.4)
Amortization of net deferred actuarial loss included in net periodic benefit cost	0.1	—	0.1
Benefit plans, net	(0.5)	0.2	(0.3)
Currency translation adjustments	(3.6)	(8.5)	(12.1)
Gain (loss) from hedging activities	0.7	(1.1)	(0.4)
Other comprehensive income (loss) attributable to W. R. Grace & Co. shareholders	\$ (3.4)	\$ (9.4)	\$ (12.8)

Notes to Consolidated Financial Statements (Continued)

11. Other Comprehensive Income (Loss) (Continued)

Nine Months Ended September 30, 2017 (In millions)	Pre-Tax Amount	Tax Benefit/ (Expense)	After-Tax Amount
Defined benefit pension and other postretirement plans:			
Amortization of net prior service credit included in net periodic benefit cost	\$ (1.8)	\$ 0.6	\$ (1.2)
Amortization of net deferred actuarial loss included in net periodic benefit cost	0.3	(0.1)	0.2
Benefit plans, net	(1.5)	0.5	(1.0)
Currency translation adjustments	(17.9)	(3.9)	(21.8)
Gain (loss) from hedging activities	1.5	(1.4)	0.1
Other comprehensive income (loss) attributable to W. R. Grace & Co. shareholders	\$ (17.9)	\$ (4.8)	\$ (22.7)

The following tables present the changes in accumulated other comprehensive income (loss), net of tax, for the nine months ended September 30, 2018 and 2017:

Nine Months Ended September 30, 2018 (In millions)	Defined Benefit Pension and Other Postretirement Plans	Currency Translation Adjustments	Gain (Loss) from Hedging Activities	Total
Beginning balance	\$ 0.9	\$ 41.6	\$ (2.6)	\$ 39.9
Other comprehensive income (loss) before reclassifications	—	8.6	21.0	29.6
Amounts reclassified from accumulated other comprehensive income (loss)	(0.7)	—	(22.3)	(23.0)
Net current-period other comprehensive income (loss)	(0.7)	8.6	(1.3)	6.6
Ending balance	\$ 0.2	\$ 50.2	\$ (3.9)	\$ 46.5

Nine Months Ended September 30, 2017 (In millions)	Defined Benefit Pension and Other Postretirement Plans	Currency Translation Adjustments	Gain (Loss) from Hedging Activities	Total
Beginning balance	\$ 2.2	\$ 67.6	\$ (3.4)	\$ 66.4
Other comprehensive income (loss) before reclassifications	—	(21.8)	(1.6)	(23.4)
Amounts reclassified from accumulated other comprehensive income (loss)	(1.0)	—	1.7	0.7
Net current-period other comprehensive income (loss)	(1.0)	(21.8)	0.1	(22.7)
Ending balance	\$ 1.2	\$ 45.8	\$ (3.3)	\$ 43.7

Grace is a global enterprise operating in many countries with local currency generally deemed to be the functional currency for accounting purposes. The currency translation amount represents the adjustments necessary to translate the balance sheets valued in local currencies to the U.S. dollar as of the end of each period presented, and to translate revenues and expenses at average exchange rates for each period presented.

See Note 4 for a discussion of hedging activities. See Note 6 for a discussion of pension plans and other postretirement benefit plans.

Notes to Consolidated Financial Statements (Continued)**12. Earnings Per Share**

The following table shows a reconciliation of the numerators and denominators used in calculating basic and diluted earnings per share.

(In millions, except per share amounts)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Numerators				
Net income (loss) attributable to W. R. Grace & Co. shareholders	\$ 16.1	\$ 47.4	\$ 98.5	\$ 134.2
Denominators				
Weighted average common shares—basic calculation	67.1	67.9	67.3	68.2
Dilutive effect of employee stock options	0.1	0.1	0.1	0.1
Weighted average common shares—diluted calculation	67.2	68.0	67.4	68.3
Basic earnings per share	\$ 0.24	\$ 0.70	\$ 1.46	\$ 1.97
Diluted earnings per share	\$ 0.24	\$ 0.70	1.46	1.96

There were 1.4 million anti-dilutive options outstanding for the three and nine months ended September 30, 2018, compared with 1.6 million and 1.5 million for the corresponding prior-year periods.

On February 5, 2015, the Company announced that its Board of Directors had authorized a share repurchase program of up to \$500 million, which it completed on July 10, 2017. On February 8, 2017, the Company announced that its Board of Directors authorized an additional share repurchase program of up to \$250 million, expected to be completed over the next 12 to 24 months at the discretion of management. The timing of the repurchases and the actual amount repurchased will depend on a variety of factors, including the market price of the Company's shares, the strategic deployment of capital, and general market and economic conditions. During the nine months ended September 30, 2018 and 2017, the Company repurchased 865,698 shares and 935,435 shares of Company common stock for \$60.1 million and \$65.0 million, respectively, pursuant to the terms of the share repurchase programs. As of September 30, 2018, \$158.7 million remained under the current authorization.

Notes to Consolidated Financial Statements (Continued)
13. Revenues

Grace generates revenues from customer arrangements primarily by manufacturing and delivering specialty chemicals and specialty materials through its two reportable segments. See Note 14 for additional information about Grace's reportable segments.

Disaggregation of Revenue The following tables present Grace's revenues by geography and product group, within its respective reportable segments, for the three and nine months ended September 30, 2018 and 2017.

Three Months Ended September 30, 2018 (In millions)	North America	Europe Middle East Africa (EMEA)	Asia Pacific	Latin America	Total
Catalysts Technologies:					
Refining Catalysts	\$ 71.7	\$ 67.4	\$ 49.6	\$ 16.2	\$ 204.9
Polyolefin and Chemical Catalysts	53.6	61.4	52.2	6.1	173.3
Total	\$ 125.3	\$ 128.8	\$ 101.8	\$ 22.3	\$ 378.2
Materials Technologies:					
Coatings	\$ 7.5	\$ 19.0	\$ 9.4	\$ 1.8	\$ 37.7
Consumer/Pharma	9.5	16.2	4.3	4.8	34.8
Chemical process	9.1	19.9	8.0	1.7	38.7
Other	1.5	4.0	—	—	5.5
Total	\$ 27.6	\$ 59.1	\$ 21.7	\$ 8.3	\$ 116.7

Nine Months Ended September 30, 2018 (In millions)	North America	EMEA	Asia Pacific	Latin America	Total
Catalysts Technologies:					
Refining Catalysts	\$ 208.8	\$ 189.7	\$ 141.8	\$ 44.1	\$ 584.4
Polyolefin and Chemical Catalysts	137.4	186.4	135.4	14.8	474.0
Total	\$ 346.2	\$ 376.1	\$ 277.2	\$ 58.9	\$ 1,058.4
Materials Technologies:					
Coatings	\$ 22.3	\$ 59.2	\$ 32.6	\$ 6.5	\$ 120.6
Consumer/Pharma	26.1	42.9	14.5	14.2	97.7
Chemical process	26.6	61.6	23.2	6.3	117.7
Other	5.1	12.2	0.3	0.1	17.7
Total	\$ 80.1	\$ 175.9	\$ 70.6	\$ 27.1	\$ 353.7

Notes to Consolidated Financial Statements (Continued)
13. Revenues (Continued)
Three Months Ended September 30, 2017
(In millions)

	North America	EMEA	Asia Pacific	Latin America	Total
Catalysts Technologies:					
Refining Catalysts	\$ 71.0	\$ 65.5	\$ 54.3	\$ 5.7	\$ 196.5
Polyolefin and Chemical Catalysts	25.7	52.6	39.0	3.7	121.0
Total	\$ 96.7	\$ 118.1	\$ 93.3	\$ 9.4	\$ 317.5
Materials Technologies:					
Coatings	\$ 7.0	\$ 16.6	\$ 11.5	\$ 2.1	\$ 37.2
Consumer/Pharma	6.3	12.3	5.2	4.4	28.2
Chemical process	7.3	22.1	9.6	2.0	41.0
Other	1.5	4.1	—	—	5.6
Total(1)	\$ 22.1	\$ 55.1	\$ 26.3	\$ 8.5	\$ 112.0

(1) Under the modified retrospective method, prior-period information has not been adjusted and continues to be reported in accordance with Grace's historical accounting under ASC 605.

Nine Months Ended September 30, 2017
(In millions)

	North America	EMEA	Asia Pacific	Latin America	Total
Catalysts Technologies:					
Refining Catalysts	\$ 197.6	\$ 173.5	\$ 146.2	\$ 44.3	\$ 561.6
Polyolefin and Chemical Catalysts	83.7	152.1	122.2	12.2	370.2
Total	\$ 281.3	\$ 325.6	\$ 268.4	\$ 56.5	\$ 931.8
Materials Technologies:					
Coatings	\$ 20.1	\$ 51.1	\$ 30.1	\$ 6.1	\$ 107.4
Consumer/Pharma	27.7	34.9	12.6	13.6	88.8
Chemical process	21.7	63.8	23.8	4.6	113.9
Other	4.5	10.4	0.1	0.1	15.1
Total(1)	\$ 74.0	\$ 160.2	\$ 66.6	\$ 24.4	\$ 325.2

(1) Under the modified retrospective method, prior-period information has not been adjusted and continues to be reported in accordance with Grace's historical accounting under ASC 605.

Contract Balances Grace invoices customers for product sales once performance obligations have been satisfied, generally at the point of delivery, at which point payment becomes unconditional. Accordingly, Grace's product sales contracts generally do not give rise to material contract assets or liabilities under ASC 606; however, from time to time certain customers may pay in advance. In the technology licensing business, Grace invoices licensees based on milestones achieved but has obligations to provide services in future periods, which results in contract liabilities.

The following table presents Grace's deferred revenue balances as of September 30, 2018, and December 31, 2017:

(In millions)	September 30, 2018	December 31, 2017
Current	\$ 43.9	\$ 19.5
Noncurrent	18.7	14.9
Total	\$ 62.6	\$ 34.4

Notes to Consolidated Financial Statements (Continued)**13. Revenues (Continued)**

These amounts are included as deferred revenue in “other current liabilities” and “other liabilities” in Grace’s Consolidated Balance Sheets. Grace records deferred revenues when cash payments are received or due in advance of performance. The increase in deferred revenue reflects cash payments from customers received or due in advance of satisfying performance obligations, offset by \$14.1 million of revenue recognized that was included in the deferred revenue balance as of December 31, 2017, and the \$3.2 million cumulative adjustment recorded to “retained earnings” as part of the adoption of ASC 606.

The noncurrent portion of the technology licensing revenue will be recognized as performance obligations under the technology licensing agreements are satisfied; the noncurrent balance is expected to be recognized over the next four years.

Remaining performance obligations represent the estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied (or partially unsatisfied). The aggregate amount of the transaction price allocated to remaining performance obligations for such contracts with a duration of more than one year was approximately \$113 million as of September 30, 2018, and includes certain amounts reported as deferred revenue above. In accordance with the practical expedient in ASC 606-10-50-14, Grace does not disclose information about remaining performance obligations that have original expected durations of one year or less. Grace expects to recognize revenue related to remaining performance obligations over several years, as follows:

Year	Approximate percentage of revenue related to remaining performance obligations recognized
2018	8%
2019	30%
2020	21%
Thereafter through 2025	41%
	100%

For the three and nine months ended September 30, 2018, revenue recognized from performance obligations related to prior periods was not material. Grace has not capitalized any costs to obtain or fulfill contracts with customers under ASC 606. No material impairment losses have been recognized on any receivables or contract assets arising from contracts with customers.

14. Segment Information

Grace is a global producer of specialty chemicals and specialty materials. Grace’s two reportable business segments are Grace Catalysts Technologies and Grace Materials Technologies. Grace Catalysts Technologies includes catalysts and related products and technologies used in refining, petrochemical and other chemical manufacturing applications. Advanced Refining Technologies (“ART”), Grace’s joint venture with Chevron Products Company, a division of Chevron U.S.A. Inc. (“Chevron”), is managed in this segment. (See Note 15.) Grace Catalysts Technologies comprises two operating segments, Grace Refining Technologies and Grace Specialty Catalysts, which are aggregated into one reportable segment based upon similar economic characteristics, the nature of the products and production processes, type and class of customer, and channels of distribution. Grace Materials Technologies includes specialty materials, including silica-based and silica-alumina-based materials, used in coatings, consumer, pharmaceutical, and industrial applications. The table below presents information related to Grace’s reportable segments. Only those corporate expenses directly related to the reportable segments are allocated for reporting purposes. All remaining corporate items are reported separately and labeled as such.

Grace excludes defined benefit pension expense from the calculation of segment operating income. Grace believes that the exclusion of defined benefit pension expense provides a better indicator of its reportable segment performance as defined benefit pension expense is not managed at a reportable segment level.

Notes to Consolidated Financial Statements (Continued)

14. Segment Information (Continued)

Grace defines Adjusted EBIT to be net income attributable to W. R. Grace & Co. shareholders adjusted for interest income and expense; income taxes; costs related to legacy product, environmental and other claims; restructuring and repositioning expenses and asset impairments; pension costs other than service and interest costs, expected returns on plan assets, and amortization of prior service costs/credits; income and expense items related to divested businesses, product lines, and certain other investments; gains and losses on sales of businesses, product lines, and certain other investments; third-party acquisition-related costs and the amortization of acquired inventory fair value adjustment; and certain other items that are not representative of underlying trends.

Reportable Segment Data

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net Sales				
Catalysts Technologies	\$ 378.2	\$ 317.5	\$ 1,058.4	\$ 931.8
Materials Technologies	116.7	112.0	353.7	325.2
Total	\$ 494.9	\$ 429.5	\$ 1,412.1	\$ 1,257.0
Adjusted EBIT				
Catalysts Technologies segment operating income	\$ 119.5	\$ 103.6	\$ 325.3	\$ 286.1
Materials Technologies segment operating income	26.6	26.4	80.3	75.4
Corporate costs	(19.7)	(18.5)	(56.1)	(52.9)
Certain pension costs	(3.8)	(3.4)	(11.6)	(9.7)
Total	\$ 122.6	\$ 108.1	\$ 337.9	\$ 298.9

Corporate costs include corporate support function costs and other corporate costs such as professional fees and insurance premiums. Certain pension costs include only ongoing costs recognized quarterly, which include service and interest costs, expected returns on plan assets, and amortization of prior service costs/credits.

Notes to Consolidated Financial Statements (Continued)

14. Segment Information (Continued)

Reconciliation of Reportable Segment Data to Financial Statements Grace Adjusted EBIT for the three and nine months ended September 30, 2018 and 2017, is reconciled below to “income (loss) before income taxes” presented in the accompanying Consolidated Statements of Operations.

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Grace Adjusted EBIT	\$ 122.6	\$ 108.1	\$ 337.9	\$ 298.9
Costs related to legacy product, environmental and other claims	(74.9)	(8.5)	(79.2)	(25.5)
Restructuring and repositioning expenses	(8.4)	(9.3)	(32.8)	(17.0)
Third-party acquisition-related costs	(0.5)	(0.4)	(7.2)	(0.4)
Amortization of acquired inventory fair value adjustment	(2.3)	—	(6.9)	—
Loss on early extinguishment of debt	—	—	(4.8)	—
Income and expense items related to divested businesses	0.3	(0.3)	0.4	(1.3)
Accounts receivable reserve—Venezuela	—	(10.0)	—	(10.0)
Pension MTM adjustment and other related costs, net	—	—	—	(1.9)
Gain (loss) on sale of product line	—	(0.4)	—	(0.4)
Interest expense, net	(20.0)	(20.2)	(58.4)	(59.0)
Net income (loss) attributable to noncontrolling interests	(0.2)	(0.3)	(0.6)	(0.7)
Income (loss) before income taxes	\$ 16.6	\$ 58.7	\$ 148.4	\$ 182.7

Geographic Area Data The table below presents information related to the geographic areas in which Grace operates. Sales are attributed to geographic areas based on customer location.

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net Sales				
United States	\$ 140.1	\$ 106.7	\$ 390.6	\$ 319.3
Canada	12.8	12.1	35.7	36.0
Total North America	152.9	118.8	426.3	355.3
Europe Middle East Africa	187.9	173.2	552.0	485.8
Asia Pacific	123.5	119.6	347.8	335.0
Latin America	30.6	17.9	86.0	80.9
Total	\$ 494.9	\$ 429.5	\$ 1,412.1	\$ 1,257.0

15. Unconsolidated Affiliate

Grace accounts for its 50% ownership interest in ART, its joint venture with Chevron, using the equity method of accounting. Grace’s investment in ART amounted to \$144.4 million and \$125.9 million as of September 30, 2018, and December 31, 2017, respectively, and the amount included in “equity in earnings of unconsolidated affiliate” in the accompanying Consolidated Statements of Operations totaled \$5.9 million and \$19.5 million for the three and nine months ended September 30, 2018, compared with \$4.8 million and \$17.9 million for the corresponding prior-year periods. ART is a private, limited liability company, taxed as a partnership, and accordingly does not have a quoted market price available.

Notes to Consolidated Financial Statements (Continued)

15. Unconsolidated Affiliate (Continued)

The following summary presents ART's assets, liabilities and results of operations.

(In millions)	September 30, 2018	December 31, 2017
Summary Balance Sheet information:		
Current assets	\$ 308.0	\$ 239.8
Noncurrent assets	137.9	91.5
Total assets	\$ 445.9	\$ 331.3
Current liabilities	\$ 160.1	\$ 82.4
Noncurrent liabilities	0.3	0.3
Total liabilities	\$ 160.4	\$ 82.7

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Summary Statement of Operations information:				
Net sales	\$ 120.2	\$ 113.5	\$ 308.4	\$ 321.4
Costs and expenses applicable to net sales	105.0	100.1	259.7	273.7
Income before income taxes	12.5	10.4	40.7	37.2
Net income	11.8	9.6	39.5	35.8

Grace and ART transact business on a regular basis and maintain several agreements in order to operate the joint venture. These agreements are treated as related party activities with an unconsolidated affiliate. Product manufactured by Grace for ART is accounted for on a net basis, with a mark-up, in "cost of goods sold" in the Consolidated Statements of Operations. Grace also receives reimbursement from ART for fixed costs, research and development, selling, general and administrative services, and depreciation. Grace records reimbursements against the respective line items on Grace's Consolidated Statement of Operations. The table below presents summary financial data related to transactions between Grace and ART.

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Product manufactured for ART	\$ 58.7	\$ 54.5	\$ 169.1	\$ 159.0
Mark-up on product manufactured for ART included as a reduction of Grace's cost of goods sold	1.1	1.1	3.3	3.1
Charges for fixed costs; research and development; selling, general and administrative services; and depreciation to ART	10.5	10.4	31.6	31.2

Notes to Consolidated Financial Statements (Continued)**15. Unconsolidated Affiliate (Continued)**

The table below presents balances in Grace's Consolidated Financial Statements related to ART.

(in millions)	September 30, 2018	December 31, 2017
Accounts receivable	\$ 15.1	\$ 20.1
Noncurrent asset	74.7	32.7
Accounts payable	31.2	22.3
Debt payable within one year	8.6	8.6
Debt payable after one year	39.5	33.8
Noncurrent liability	74.7	32.7

The noncurrent asset and noncurrent liability in the table above represent spending to date related to a residue hydroprocessing catalyst production plant that is under construction in Lake Charles, Louisiana. Grace manages the design and construction of the plant, and the asset will continue to be included in "other assets" in Grace's Consolidated Balance Sheets until construction is completed. Grace has likewise recorded a liability for the transfer of the asset to ART upon completion, included in "other liabilities" in the Consolidated Balance Sheets.

Grace and Chevron provide lines of credit in the amount of \$15.0 million each at a commitment fee of 0.1% of the credit amount. These agreements have been approved by the ART Executive Committee for renewal until February 2019. No amounts were outstanding at September 30, 2018, and December 31, 2017.

16. Acquisitions

On April 3, 2018, using cash on hand and borrowings under the Credit Agreement, Grace acquired the assets of the polyolefin catalysts business of Albemarle Corporation. Grace acquired the business for \$418.0 million, net of cash acquired and including customary post-closing adjustments. The business is included in the Specialty Catalysts operating segment of the Catalysts Technologies reportable segment. The acquisition is complementary to Grace's existing specialty catalysts business and strengthens Grace's commercial relationships, catalysts technology portfolio, and manufacturing network.

The acquisition purchase price has been preliminarily allocated to the tangible and identifiable intangible assets and liabilities acquired based on their estimated fair values at the acquisition date in accordance with ASC 805 "Business Combinations." The excess of the purchase price over the fair value of the tangible and intangible assets acquired was recorded as goodwill. The goodwill recognized is attributable to the expected growth and operating synergies that Grace expects to realize from this acquisition. The full \$143.5 million of goodwill generated from the acquisition will be deductible for U.S. income tax purposes. Grace is continuing to analyze the acquisition. Adjustments to the allocation, if applicable, will be recorded in the period in which they are identified. During the three months ended September 30, 2018, Grace recorded adjustments related to deferred taxes and working capital.

The Consolidated Statements of Operations for the three and nine months ended September 30, 2018, includes approximately \$30 million and \$58 million, respectively, of sales attributable to this acquisition. Disclosure of earnings attributable to this acquisition is not practicable due to the integration of operations into Grace's existing business.

Notes to Consolidated Financial Statements (Continued)

16. Acquisitions (Continued)

The table below presents the preliminary allocation of the acquisition purchase price.

	(In millions)
Accounts receivable	\$ 13.9
Inventories	28.9
Other current assets	0.6
Properties and equipment	119.8
Goodwill	143.5
Intangible assets	118.5
Other assets	0.5
Liabilities assumed	(7.7)
Net assets acquired, net of cash acquired	\$ 418.0

The table below presents the intangible assets acquired as part of the acquisition of the assets of Albemarle's polyolefin catalysts business and the periods over which they will be amortized.

	Amount (In millions)	Weighted Average Amortization Period (in years)
Customer Lists	\$ 102.7	20.0
Technology	11.5	15.0
Trademarks	4.3	15.0
Total	\$ 118.5	19.1

The carrying amount of goodwill attributable to each reportable segment and the changes in those balances during the nine months ended September 30, 2018, are as follows:

(In millions)	Catalysts Technologies	Materials Technologies	Total Grace
Balance, December 31, 2017	\$ 357.7	\$ 44.7	\$ 402.4
Goodwill acquired during the year	143.5	—	143.5
Foreign currency translation	(1.5)	—	(1.5)
Balance, September 30, 2018	\$ 499.7	\$ 44.7	\$ 544.4

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

We generally refer to the quarter ended September 30, 2018, as the "third quarter" and the quarter ended September 30, 2017, as the "prior-year quarter," the quarter ended March 31, 2018, as the "2018 first quarter," the quarter ended June 30, 2018, as the "2018 second quarter," the nine months ended September 30, 2018, as the "nine months," and the nine months ended September 30, 2017, as the "prior-year period." See Analysis of Operations for a discussion of our non-GAAP performance measures. Our references to "emerging regions" refer to emerging and developing regions as defined by the International Monetary Fund.

Results of Operations

Third Quarter Performance Summary

Following is a summary of our financial performance for the third quarter compared with the prior-year quarter.

- Net sales increased 15.2% to \$494.9 million.
- Net income attributable to Grace decreased 66.0% to \$16.1 million, including a pretax charge of \$70.0 million for the estimated costs to remediate our former vermiculite mine site
- Adjusted EBIT increased 13.4% to \$122.6 million.
- Diluted earnings per share decreased 65.7% to \$0.24 per diluted share.
- Adjusted EPS increased 23.3% to \$1.11 per diluted share.

Summary Description of Business

We are engaged in specialty chemicals and specialty materials businesses on a worldwide basis through our two reportable segments.

Grace Catalysts Technologies produces and sells catalysts and related products and technologies used in refining, petrochemical and other chemical manufacturing applications, as follows:

- *Fluid catalytic cracking catalysts*, also called FCC catalysts, that help to "crack" the hydrocarbon chain in distilled crude oil to produce transportation fuels, such as gasoline and diesel fuels, and other petroleum-based products; *FCC additives* used to reduce sulfur in gasoline, maximize propylene production from refinery FCC units, and reduce emissions of sulfur oxides, nitrogen oxides and carbon monoxide from refinery FCC units; and *Methanol-to-Olefins (MTO) catalysts*, used to convert methanol, often derived from coal, into petrochemical feeds such as ethylene and propylene.
- *Hydroprocessing catalysts (HPC)*, most of which are marketed through our Advanced Refining Technologies LLC, or ART, joint venture with Chevron Products Company ("Chevron"), that are used in process reactors to upgrade heavy oils into lighter, more useful products that comply with rising environmental standards by removing impurities such as nitrogen, sulfur and heavy metals, allowing less expensive feedstocks to be used in the petroleum refining process. (We hold a 50% economic interest in ART, which is not consolidated in our financial statements so ART's sales are excluded from our sales.)
- *Polyolefin catalysts and catalyst supports*, also called specialty catalysts (SC), for the production of polypropylene and polyethylene thermoplastic resins, which can be customized to enhance the performance of a wide range of industrial and consumer end-use applications including high pressure pipe, geomembranes, food packaging, automotive parts, medical devices, and textiles; and *chemical catalysts* used in a variety of industrial, environmental and consumer applications.
- *Gas-phase polypropylene process technology*, which provides our licensees with a cost-effective, flexible, and reliable capability to manufacture polypropylene products across a wide spectrum of performance attributes enabling customers to manufacture products for a broad array of end-use applications.

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Grace Materials Technologies produces and sells specialty materials, including silica-based and silica-alumina-based materials, used in coatings, consumer, pharmaceutical, and industrial applications, as follows:

- *Coatings*, functional additives for wood and architectural coatings that provide surface effects and corrosion protection for metal substrates.
- *Consumer/Pharma*, specialized materials used as additives and intermediates for pharmaceuticals, nutraceuticals, beer, toothpaste, food and cosmetic segments.
- *Chemical process*, functional materials for use in plastics, rubber, tire, metal casting and adsorbent products for petrochemical and natural gas applications.

Global Scope

We operate our business on a global scale with approximately 75% of our annual 2017 sales and 72% of our nine months sales to customers located outside the United States. We operate and/or sell to customers in over 60 countries and do business in over 30 currencies. We manage our operating segments on a global basis, to serve global markets. Currency fluctuations affect our reported results of operations, cash flows, and financial position.

Analysis of Operations

We have set forth in the table below our key operating statistics with percentage changes for the third quarter and nine months compared with the corresponding prior-year periods. Please refer to this Analysis of Operations when reviewing this Management's Discussion and Analysis of Financial Condition and Results of Operations. In the table we present financial information in accordance with U.S. GAAP, as well as the non-GAAP financial information described below. We believe that the non-GAAP financial information provides useful supplemental information about the performance of our businesses, improves period-to-period comparability and provides clarity on the information our management uses to evaluate the performance of our businesses. In the table, we have provided reconciliations of these non-GAAP financial measures to the most directly comparable financial measure calculated and presented in accordance with U.S. GAAP. The non-GAAP financial measures should not be considered as a substitute for financial measures calculated in accordance with U.S. GAAP, and the financial results calculated in accordance with U.S. GAAP and reconciliations from those results should be evaluated carefully.

We define Adjusted EBIT (a non-GAAP financial measure) to be net income attributable to W. R. Grace & Co. shareholders adjusted for interest income and expense; income taxes; costs related to legacy product, environmental and other claims; restructuring and repositioning expenses and asset impairments; pension costs other than service and interest costs, expected returns on plan assets, and amortization of prior service costs/credits; income and expense items related to divested businesses, product lines, and certain other investments; gains and losses on sales of businesses, product lines, and certain other investments; third-party acquisition-related costs and the amortization of acquired inventory fair value adjustment; and certain other items that are not representative of underlying trends.

We define Adjusted EBITDA (a non-GAAP financial measure) to be Adjusted EBIT adjusted for depreciation and amortization.

We define Adjusted EBIT Return On Invested Capital (a non-GAAP financial measure) to be Adjusted EBIT (on a trailing four quarters basis) divided by the sum of net working capital, properties and equipment and certain other assets and liabilities.

We define Adjusted Gross Margin (a non-GAAP financial measure) to be gross margin adjusted for pension-related costs included in cost of goods sold and the amortization of acquired inventory fair value adjustment.

We define Adjusted Earnings Per Share (EPS) (a non-GAAP financial measure) to be diluted EPS adjusted for costs related to legacy product, environmental and other claims; restructuring and repositioning expenses and asset impairments; pension costs other than service and interest costs, expected returns on plan assets, and amortization of prior service costs/credits; income and expense items related to divested businesses, product lines, and certain other investments; gains and losses on sales of businesses, product lines and certain other investments; third-party acquisition-related costs and the amortization of acquired inventory fair value adjustment;

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certain other items that are not representative of underlying trends; certain discrete tax items; and income tax expense related to historical tax attributes.

We define Net Sales, constant currency (a non-GAAP financial measure) to be the period-over-period change in net sales calculated using the foreign currency exchange rates that were in effect during the previous comparable period.

We use Adjusted EBIT as a performance measure in significant business decisions and in determining certain incentive compensation. We use Adjusted EBIT as a performance measure because it provides improved period-to-period comparability for decision making and compensation purposes, and because it better measures the ongoing earnings results of our strategic and operating decisions by excluding the earnings effects of our legacy product, environmental and other claims; restructuring and repositioning activities; divested businesses; the effects of acquisitions; and certain other items that are not representative of underlying trends.

We use Adjusted EBITDA, Adjusted EBIT Return On Invested Capital, Adjusted Gross Margin, and Adjusted EPS as performance measures and may use these measures in determining certain incentive compensation. We use Adjusted EBIT Return On Invested Capital in making operating and investment decisions and in balancing the growth and profitability of our operations.

We use Net Sales, constant currency as a performance measure to compare current period financial performance to historical financial performance by excluding the impact of foreign currency exchange rate fluctuations that are not representative of underlying business trends and are largely outside of our control.

Adjusted EBIT, Adjusted EBITDA, Adjusted EBIT Return On Invested Capital, Adjusted Gross Margin, Adjusted EPS, and Net Sales, constant currency do not purport to represent income measures as defined under U.S. GAAP and should not be used as alternatives to such measures as an indicator of our performance. These measures are provided to investors and others to improve the period-to-period comparability and peer-to-peer comparability of our financial results, and to ensure that investors understand the information we use to evaluate the performance of our businesses. They distinguish the operating results of Grace's current business base from the costs of Grace's legacy product, environmental and other claims; restructuring and repositioning activities; divested businesses; and certain other items. These measures may have material limitations due to the exclusion or inclusion of amounts that are included or excluded, respectively, in the most directly comparable measures calculated and presented in accordance with U.S. GAAP and thus investors and others should review carefully the financial results calculated in accordance with U.S. GAAP.

Adjusted EBIT has material limitations as an operating performance measure because it excludes costs related to legacy product, environmental and other claims, and may exclude income and expenses from restructuring and repositioning activities and divested businesses, which historically have been material components of our net income. Adjusted EBITDA also has material limitations as an operating performance measure because it excludes the impact of depreciation and amortization expense. Our business is substantially dependent on the successful deployment of capital, and depreciation and amortization expense is a necessary element of our costs. We compensate for the limitations of these measurements by using these indicators together with net income as measured under U.S. GAAP to present a complete analysis of our results of operations. Adjusted EBIT and Adjusted EBITDA should be evaluated together with net income and net income attributable to Grace shareholders, measured under U.S. GAAP, for a complete understanding of our results of operations.

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Analysis of Operations (In millions, except per share amounts)	Three Months Ended September 30,			Nine Months Ended September 30,		
	2018	2017	% Change	2018	2017	% Change
Net sales:						
Catalysts Technologies	\$ 378.2	\$ 317.5	19.1 %	\$ 1,058.4	\$ 931.8	13.6 %
Materials Technologies	116.7	112.0	4.2 %	353.7	325.2	8.8 %
Total Grace net sales	\$ 494.9	\$ 429.5	15.2 %	\$ 1,412.1	\$ 1,257.0	12.3 %
Net sales by region:						
North America	\$ 152.9	\$ 118.8	28.7 %	\$ 426.3	\$ 355.3	20.0 %
Europe Middle East Africa	187.9	173.2	8.5 %	552.0	485.8	13.6 %
Asia Pacific	123.5	119.6	3.3 %	347.8	335.0	3.8 %
Latin America	30.6	17.9	70.9 %	86.0	80.9	6.3 %
Total net sales by region	\$ 494.9	\$ 429.5	15.2 %	\$ 1,412.1	\$ 1,257.0	12.3 %
Performance measures:						
Adjusted EBIT(A):						
Catalysts Technologies segment operating income	\$ 119.5	\$ 103.6	15.3 %	\$ 325.3	\$ 286.1	13.7 %
Materials Technologies segment operating income	26.6	26.4	0.8 %	80.3	75.4	6.5 %
Corporate costs	(19.7)	(18.5)	(6.5)%	(56.1)	(52.9)	(6.0)%
Certain pension costs(B)	(3.8)	(3.4)	(11.8)%	(11.6)	(9.7)	(19.6)%
Adjusted EBIT	122.6	108.1	13.4 %	337.9	298.9	13.0 %
Costs related to legacy product, environmental and other claims	(74.9)	(8.5)		(79.2)	(25.5)	
Restructuring and repositioning expenses	(8.4)	(9.3)		(32.8)	(17.0)	
Third-party acquisition-related costs	(0.5)	(0.4)		(7.2)	(0.4)	
Amortization of acquired inventory fair value adjustment	(2.3)	—		(6.9)	—	
Loss on early extinguishment of debt	—	—		(4.8)	—	
Income and expense items related to divested businesses	0.3	(0.3)		0.4	(1.3)	
Accounts receivable reserve—Venezuela	—	(10.0)		—	(10.0)	
Pension MTM adjustment and other related costs, net	—	—		—	(1.9)	
Gain (loss) on sale of product line	—	(0.4)		—	(0.4)	
Interest expense, net	(20.0)	(20.2)	1.0 %	(58.4)	(59.0)	1.0 %
(Provision for) benefit from income taxes	(0.7)	(11.6)	94.0 %	(50.5)	(49.2)	(2.6)%
Income (loss) attributable to W. R. Grace & Co. shareholders	\$ 16.1	\$ 47.4	(66.0)%	\$ 98.5	\$ 134.2	(26.6)%
Diluted EPS	\$ 0.24	\$ 0.70	(65.7)%	\$ 1.46	\$ 1.96	(25.5)%
Adjusted EPS	\$ 1.11	\$ 0.90	23.3 %	\$ 3.00	\$ 2.42	24.0 %

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Analysis of Operations (In millions)	Three Months Ended September 30,			Nine Months Ended September 30,		
	2018	2017	% Change	2018	2017	% Change
Adjusted performance measures:						
Gross Margin:						
Catalysts Technologies	43.4 %	41.4 %	2.0 pts	42.8 %	40.4 %	2.4 pts
Materials Technologies	37.6 %	38.4 %	(0.8) pts	38.0 %	38.3 %	(0.3) pts
Adjusted Gross Margin	42.0 %	40.6 %	1.4 pts	41.6 %	39.8 %	1.8 pts
Amortization of acquired inventory fair value adjustment	(0.5)%	— %	(0.5) pts	(0.5)%	— %	(0.5) pts
Pension costs in cost of goods sold	(0.6)%	(0.2)%	(0.4) pts	(0.7)%	(0.3)%	(0.4) pts
Total Grace	40.9 %	40.4 %	0.5 pts	40.4 %	39.5 %	0.9 pts
Adjusted EBIT:						
Catalysts Technologies	\$ 119.5	\$ 103.6	15.3 %	\$ 325.3	\$ 286.1	13.7 %
Materials Technologies	26.6	26.4	0.8 %	80.3	75.4	6.5 %
Corporate, pension, and other	(23.5)	(21.9)	(7.3)%	(67.7)	(62.6)	(8.1)%
Total Grace	122.6	108.1	13.4 %	337.9	298.9	13.0 %
Depreciation and amortization:						
Catalysts Technologies	\$ 20.7	\$ 22.2	(6.8)%	\$ 61.4	\$ 64.6	(5.0)%
Materials Technologies	3.6	5.0	(28.0)%	12.0	14.5	(17.2)%
Corporate	0.9	1.2	(25.0)%	2.7	3.5	(22.9)%
Total Grace	25.2	28.4	(11.3)%	76.1	82.6	(7.9)%
Adjusted EBITDA:						
Catalysts Technologies	\$ 140.2	\$ 125.8	11.4 %	\$ 386.7	\$ 350.7	10.3 %
Materials Technologies	30.2	31.4	(3.8)%	92.3	89.9	2.7 %
Corporate, pension, and other	(22.6)	(20.7)	(9.2)%	(65.0)	(59.1)	(10.0)%
Total Grace	147.8	136.5	8.3 %	414.0	381.5	8.5 %
Adjusted EBIT margin:						
Catalysts Technologies	31.6 %	32.6 %	(1.0) pts	30.7 %	30.7 %	0.0 pts
Materials Technologies	22.8 %	23.6 %	(0.8) pts	22.7 %	23.2 %	(0.5) pts
Total Grace	24.8 %	25.2 %	(0.4) pts	23.9 %	23.8 %	0.1 pts
Adjusted EBITDA margin:						
Catalysts Technologies	37.1 %	39.6 %	(2.5) pts	36.5 %	37.6 %	(1.1) pts
Materials Technologies	25.9 %	28.0 %	(2.1) pts	26.1 %	27.6 %	(1.5) pts
Total Grace	29.9 %	31.8 %	(1.9) pts	29.3 %	30.4 %	(1.1) pts

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Analysis of Operations (In millions)	Four Quarters Ended September 30,	
	2018	2017
Calculation of Adjusted EBIT Return On Invested Capital (trailing four quarters):		
Adjusted EBIT	\$ 453.0	\$ 417.8
Invested Capital:		
Trade accounts receivable	279.2	253.1
Inventories	319.0	239.5
Accounts payable	(245.1)	(195.2)
	<u>353.1</u>	<u>297.4</u>
Other current assets (excluding income taxes)	78.7	31.1
Properties and equipment, net	984.1	762.8
Goodwill	544.4	401.7
Technology and other intangible assets, net	359.4	259.2
Investment in unconsolidated affiliate	144.4	118.0
Other assets (excluding capitalized financing fees)	88.5	32.9
Other current liabilities (excluding income taxes, legacy environmental matters, accrued interest, and restructuring)	(191.4)	(129.8)
Other liabilities (excluding income taxes and legacy environmental matters)	(158.8)	(118.7)
Total invested capital	<u>\$ 2,202.4</u>	<u>\$ 1,654.6</u>
Adjusted EBIT Return On Invested Capital	<u>20.6%</u>	<u>25.3%</u>

Amounts may not add due to rounding.

- (A) Grace's segment operating income includes only Grace's share of income of consolidated and unconsolidated joint ventures.
- (B) Certain pension costs include only ongoing costs recognized quarterly, which include service and interest costs, expected returns on plan assets, and amortization of prior service costs/credits. Catalysts Technologies and Materials Technologies segment operating income and corporate costs do not include any amounts for pension expense. Other pension-related costs including annual mark-to-market (MTM) adjustments and actuarial gains and losses are excluded from Adjusted EBIT. These amounts are not used by management to evaluate the performance of Grace's businesses and significantly affect the peer-to-peer and period-to-period comparability of our financial results. Mark-to-market adjustments and actuarial gains and losses relate primarily to changes in financial market values and actuarial assumptions and are not directly related to the operation of Grace's businesses.

Grace Overview

Following is an overview of our financial performance for the third quarter and nine months compared with the corresponding prior-year periods.

Net Sales and Gross Margin

Sales were \$494.9 million and \$1,412.1 million for the third quarter and nine months, respectively, compared with \$429.5 million and \$1,257.0 million for the corresponding prior-year periods. Gross margin was 40.9% and 40.4% for the third quarter and nine months, respectively, compared with 40.4% and 39.5% for the corresponding prior-year periods. Adjusted Gross Margin was 42.0% and 41.6% for the third quarter and nine months, respectively, compared with 40.6% and 39.8% for the corresponding prior-year periods.



The following tables identify the year-over-year increase or decrease in sales attributable to changes in sales volume and/or mix, product price, and the impact of currency translation.

Net Sales Variance Analysis	Three Months Ended September 30, 2018 as a Percentage Increase (Decrease) from Three Months Ended September 30, 2017			
	Volume	Price	Currency Translation	Total
Catalysts Technologies	18.4%	1.2 %	(0.5)%	19.1%
Materials Technologies	3.7%	1.9 %	(1.4)%	4.2%
Net sales	14.5%	1.4 %	(0.7)%	15.2%
By Region:				
North America	28.0%	0.7 %	— %	28.7%
Europe Middle East Africa	6.5%	3.1 %	(1.1)%	8.5%
Asia Pacific	4.0%	(0.7)%	— %	3.3%
Latin America	74.9%	3.3 %	(7.3)%	70.9%

Sales for the third quarter increased 15.2%, up 15.9% on constant currency, compared with the prior-year quarter. Higher sales volumes in Catalysts Technologies were driven by the polyolefin catalysts acquisition and growth in the existing businesses, primarily in Latin America and North America. Sales volumes in Materials Technologies were up driven by growth in North America and Europe, partially offset by a decline in Asia. Improved pricing impacted both segments, partially offset by unfavorable currency translation.

Gross margin increased 50 basis points to 40.9% for the third quarter. Adjusted Gross Margin increased 140 basis points to 42.0% for the third quarter. The increases were primarily due to lower depreciation expense, higher

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sales volumes, product and regional mix, the polyolefin catalysts acquisition, and improved pricing, partially offset by higher manufacturing costs driven by raw materials and energy costs. Gross margin also was unfavorably impacted by higher pension service costs included in cost of goods sold and by the amortization of the step-up to fair value of acquired inventory.

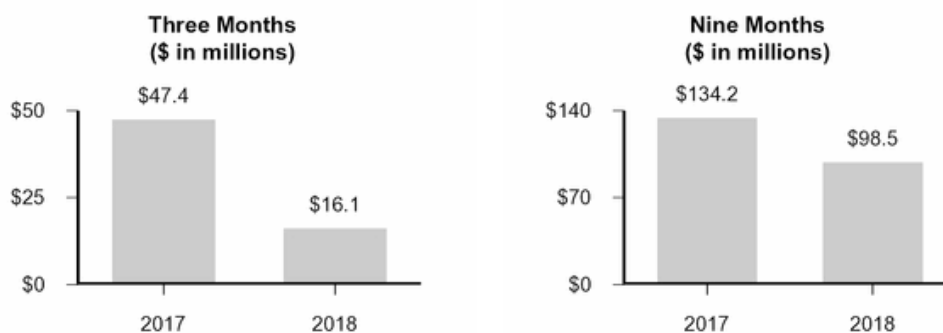
Net Sales Variance Analysis	Nine Months Ended September 30, 2018 as a Percentage Increase (Decrease) from Nine Months Ended September 30, 2017			
	Volume	Price	Currency Translation	Total
Catalysts Technologies	10.6%	1.5 %	1.5 %	13.6%
Materials Technologies	4.0%	1.4 %	3.4 %	8.8%
Net sales	8.8%	1.5 %	2.0 %	12.3%
By Region:				
North America	18.8%	1.2 %	— %	20.0%
Europe Middle East Africa	5.4%	3.0 %	5.2 %	13.6%
Asia Pacific	2.9%	0.5 %	0.4 %	3.8%
Latin America	10.6%	(2.0)%	(2.3)%	6.3%

Sales for the nine months increased 12.3%, up 10.3% on constant currency, compared with the prior-year period. Higher sales volumes in Catalysts Technologies were driven by the polyolefin catalysts acquisition and growth in the existing businesses. Higher sales volumes in Materials Technologies were driven by growth across all regions. Favorable currency translation and improved pricing impacted both segments.

Gross margin increased 90 basis points to 40.4% for the nine months from 39.5% for the prior-year period. Adjusted Gross Margin increased 180 basis points to 41.6% for the nine months from 39.8% for the prior-year period. The increases were primarily due to regional and product mix, lower depreciation expense, improved pricing, and higher sales volumes, partially offset by higher manufacturing costs driven by raw materials and energy costs. Gross margin also was unfavorably impacted by higher pension service costs included in cost of goods sold and by the amortization of the step-up to fair value of acquired inventory.

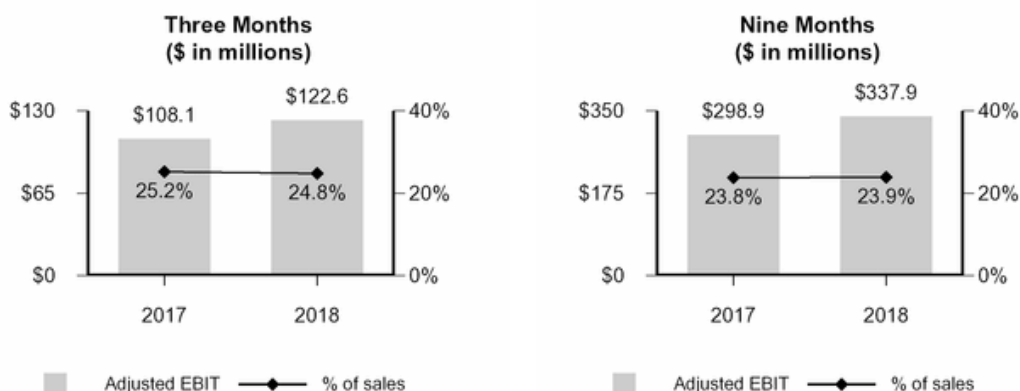
During the 2018 first quarter, we completed a study to evaluate the useful lives of our operating machinery and equipment, including a review of historical asset retirement data as well as review and analysis of relevant industry practices. As a result of this study, effective January 1, 2018, we revised the useful lives of certain machinery and equipment. The change was determined to be a change in accounting estimate and is being applied prospectively. As a result of this change in accounting estimate, our depreciation expense with respect to such machinery and equipment was reduced by \$7.6 million, resulting in an increase to net income of \$5.8 million or \$0.09 per diluted share, for the three months ended September 30, 2018. For the nine months ended September 30, 2018, depreciation expense with respect to such machinery and equipment was reduced by \$16.5 million, resulting in an increase to net income of \$12.7 million or \$0.19 per diluted share. Depreciation expense with respect to such machinery and equipment is expected to decrease by approximately \$23 million for the year ended December 31, 2018. Estimated useful lives for operating machinery and equipment, which previously ranged from 3 to 10 years, now range from 5 to 25 years.

Grace Net Income



Net income attributable to Grace was \$16.1 million for the third quarter, a decrease of 66.0% compared with \$47.4 million for the prior-year quarter. Net income attributable to Grace was \$98.5 million for the nine months, a decrease of 26.6% compared with \$134.2 million for the prior-year period. The decreases were primarily due to the \$70.0 million charge for the estimated costs of future remediation activities at the Libby, Montana, mine site (see Note 8 to the Consolidated Financial Statements), higher repositioning expenses, and the second-quarter loss on early extinguishment of debt, partially offset by higher segment operating income.

Adjusted EBIT



Adjusted EBIT was \$122.6 million for the third quarter, an increase of 13.4% compared with the prior-year quarter. The increase was primarily due to higher sales volumes including the polyolefin catalysts acquisition, higher gross margin, and higher income from our ART joint venture, partially offset by business interruption insurance recoveries in the prior-year quarter that did not repeat in 2018 and higher operating expenses, including costs related to operating the acquired business, in the 2018 third quarter.

Adjusted EBIT was \$337.9 million for the nine months, an increase of 13.0% compared with the prior-year period. The increase was primarily due to higher sales volumes including the polyolefin catalysts acquisition, higher gross margin, favorable currency translation, and higher income from our ART joint venture, partially offset by business interruption insurance recoveries in the prior-year period that did not repeat in 2018 and higher operating expenses, including costs related to operating the acquired business, in the 2018 nine months.

Adjusted EPS

The following table reconciles our Diluted EPS to our Adjusted EPS:

(In millions, except per share amounts)	Three Months Ended September 30,							
	2018				2017			
	Pre-Tax	Tax Effect	After-Tax	Per Share	Pre-Tax	Tax Effect	After-Tax	Per Share
Diluted earnings per share				\$ 0.24				\$ 0.70
Costs related to legacy product, environmental and other claims	\$ 74.9	\$ 17.5	\$ 57.4	0.85	\$ 8.5	\$ 3.0	\$ 5.5	0.08
Restructuring and repositioning expenses	8.4	2.7	5.7	0.08	9.3	2.7	6.6	0.10
Amortization of acquired inventory fair value adjustment	2.3	0.5	1.8	0.03	—	—	—	—
Third-party acquisition-related costs	0.5	0.1	0.4	0.01	0.4	0.1	0.3	—
Income and expense items related to divested businesses	(0.3)	(0.1)	(0.2)	—	0.3	0.1	0.2	—
Accounts receivable reserve—Venezuela	—	—	—	—	10.0	3.5	6.5	0.10
Gain (loss) on sale of product line	—	—	—	—	0.4	0.1	0.3	—
Income tax expense related to historical tax attributes(1)		(1.9)	1.9	0.03		—	—	—
Discrete tax items		8.9	(8.9)	(0.13)		5.3	(5.3)	(0.08)
Adjusted EPS				\$ 1.11				\$ 0.90

(In millions, except per share amounts)	Nine Months Ended September 30,							
	2018				2017			
	Pre-Tax	Tax Effect	After-Tax	Per Share	Pre-Tax	Tax Effect	After-Tax	Per Share
Diluted earnings per share				\$ 1.46				\$ 1.96
Costs related to legacy product, environmental and other claims	\$ 79.2	\$ 18.5	\$ 60.7	0.90	\$ 25.5	\$ 9.4	\$ 16.1	0.24
Restructuring and repositioning expenses	32.8	7.5	25.3	0.38	17.0	6.0	11.0	0.16
Third-party acquisition-related costs	7.2	1.7	5.5	0.08	0.4	0.1	0.3	—
Amortization of acquired inventory fair value adjustment	6.9	1.6	5.3	0.08	—	—	—	—
Loss on early extinguishment of debt	4.8	1.1	3.7	0.05	—	—	—	—
Income and expense items related to divested businesses	(0.4)	(0.1)	(0.3)	—	1.3	0.5	0.8	0.01
Accounts receivable reserve—Venezuela	—	—	—	—	10.0	3.5	6.5	0.10
Pension MTM adjustment and other related costs, net	—	—	—	—	1.9	0.7	1.2	0.02
Gain (loss) on sale of product line	—	—	—	—	0.4	0.1	0.3	—
Income tax expense related to historical tax attributes(1)		(11.3)	11.3	0.17		—	—	—
Discrete tax items		7.8	(7.8)	(0.12)		4.9	(4.9)	(0.07)
Adjusted EPS				\$ 3.00				\$ 2.42

(1) Our historical tax attribute carryforwards (net operating losses and tax credits) unfavorably affect our tax expense with respect to certain provisions of the Act. To normalize the effective tax rate, an adjustment is made to eliminate the tax expense impact associated with the historical tax attributes.

Adjusted EBIT Return On Invested Capital



Adjusted EBIT Return On Invested Capital for the third quarter decreased to 20.6% on a trailing four quarters basis compared with 25.3% on the same basis as of September 30, 2017, due to the polyolefin catalysts acquisition. The acquisition, which was completed on April 3, 2018, increased invested capital at that date, while Adjusted EBIT includes only two quarters of income from the acquired business.

We manage our operations with the objective of maximizing sales, earnings and cash flow over time. Doing so requires that we successfully balance our growth, profitability and working capital and other investments to support sustainable, long-term financial performance. We use Adjusted EBIT Return On Invested Capital as a performance measure in evaluating operating results, in making operating and investment decisions, and in balancing the growth and profitability of our operations.

Grace Value Model

In March 2018, we introduced investors to the Grace Value Model ("GVM"), our framework for creating and delivering value to customers, investors, and employees. At the company level, we create value through our focused portfolio, strong strategic position, and disciplined capital allocation. At the business level, we create value through customer-driven innovation, commercial excellence, and operating excellence. Great talent, our high-performance culture, and integrated business management processes support all of our activities and are a source of competitive advantage.

The GVM framework also encompasses our multi-year initiatives to transform our manufacturing and business processes to extend our competitive advantages and improve our cost position. We expect to significantly improve our manufacturing performance, reduce our manufacturing costs, and improve our integrated business management capabilities. We also expect to invest significant capital in our manufacturing plants to accelerate growth and improve manufacturing performance. Our investments in commercial excellence are yielding positive results in account management, pipeline management and conversion, and pricing.

Segment Overview—Grace Catalysts Technologies

Following is an overview of the financial performance of Catalysts Technologies for the third quarter and nine months compared with the corresponding prior-year periods.

Net Sales—Grace Catalysts Technologies



Sales were \$378.2 million for the third quarter, an increase of 19.1%, or 19.6% on constant currency, compared with the prior-year quarter. The increase on a constant currency basis was due to higher sales volumes (+18.4%) and improved pricing (+1.2%). Higher sales were driven by the polyolefin catalysts acquisition, growth in the existing businesses primarily in Latin America and North America due to higher demand, and improved pricing, partially offset by unfavorable currency translation as the U.S. dollar strengthened against multiple currencies, especially the euro.

Sales were \$1,058.4 million for the nine months, an increase of 13.6%, 12.1% on constant currency, compared with the prior-year period. The increase on a constant currency basis was due to higher sales volumes (+10.6%) and improved pricing (+1.5%). Higher sales volumes were driven by the polyolefin catalysts acquisition, higher licensing revenues, and growth in the existing businesses in North America due to higher demand, partially offset by lower sales volumes in China. The remainder of the increase in sales in Catalysts Technologies was driven by improved pricing, primarily in EMEA and North America, and favorable currency translation as the U.S. dollar weakened against multiple currencies, especially the euro, compared with the prior-year period.

Segment Operating Income (SOI) and Margin—Grace Catalysts Technologies



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Gross profit was \$164.1 million for the third quarter, an increase of 25.0% compared with the prior-year quarter. Gross margin of 43.4% increased 200 basis points from 41.4% for the prior-year quarter. The increase in gross margin was primarily due to higher sales volumes including the polyolefin catalysts acquisition, lower depreciation expense, product and regional mix, and improved pricing, partially offset by higher manufacturing costs including a 210 basis point impact related to higher raw materials and energy costs.

Operating income was \$119.5 million for the third quarter, an increase of 15.3% compared with the prior-year quarter, primarily due to higher gross margin and higher income from our ART joint venture. The increase was partially offset by the absence of business interruption insurance recoveries that were included in the prior-year quarter and higher operating expenses. The ART joint venture contributed \$5.9 million to operating income, an increase of \$1.1 million compared with the prior-year quarter. Operating margin for the third quarter was 31.6%, a decrease of 100 basis points compared with the prior-year quarter.

Gross profit was \$453.4 million for the nine months, an increase of 20.5% compared with the prior-year period. Gross margin of 42.8% increased 240 basis points compared with 40.4% for the prior-year period. The increase in gross margin was primarily due to higher sales volumes including the polyolefin catalysts acquisition, product and regional mix, lower depreciation expense, and improved pricing, partially offset by a 180 basis point impact related to higher raw materials and energy costs.

Operating income was \$325.3 million for the nine months, an increase of 13.7% compared with the prior-year period, primarily due to higher gross margin, favorable currency translation, and higher income from the ART joint venture. The increase was partially offset by the absence of business interruption insurance recoveries that were included in the prior-year quarter and higher operating expenses. The ART joint venture contributed \$19.5 million to operating income, an increase of \$1.6 million compared with the prior-year period. Operating margin for the nine months was 30.7%, flat compared with the prior-year period.

Segment Overview—Grace Materials Technologies

Following is an overview of the financial performance of Materials Technologies for the third quarter and nine months compared with the corresponding prior-year periods.

Net Sales—Grace Materials Technologies

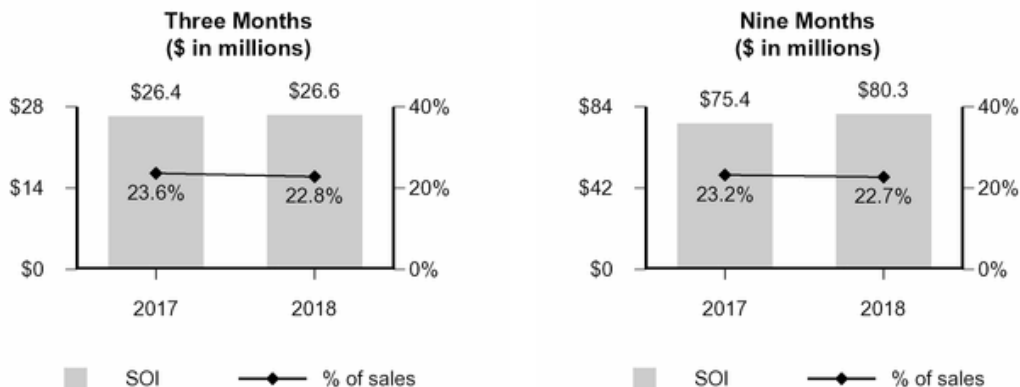


Sales were \$116.7 million for the third quarter, an increase of 4.2%, or 5.6% on constant currency, compared with the prior-year quarter. The increase on a constant currency basis was due to higher sales volumes (+3.7%) and improved pricing (+1.9%). The increase in sales volumes was primarily driven by higher consumer/pharma and coatings sales in Europe and higher consumer/pharma and chemical process sales in North America, partially offset by lower sales in Asia and Europe. Pricing improved across all regions. The increase in sales volumes was partially offset by unfavorable currency translation as the U.S. dollar strengthened against multiple currencies, especially the euro.

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Sales were \$353.7 million for the nine months, an increase of 8.8%, or 5.4% on constant currency, compared with the prior-year period. The increase on a constant currency basis was due to higher sales volumes (+4.0%) and improved pricing (+1.4%). The increase in sales volumes was primarily driven by higher chemical process and coatings sales in North America and higher sales across all products in Latin America. The remainder of the increase was driven by pricing improvements across all regions and favorable currency translation as the U.S. dollar weakened against multiple currencies, especially the euro, compared with the prior-year period.

Segment Operating Income (SOI) and Margin—Grace Materials Technologies



Gross profit was \$43.9 million for the third quarter, an increase of 2.1% compared with the prior-year quarter. Gross margin of 37.6% decreased 80 basis points compared with 38.4% for the prior-year quarter. The decrease in gross margin was primarily due to higher manufacturing costs including approximately 160 basis points related to previously announced plant turnarounds and 130 basis points related to higher raw materials and energy costs, partially offset by lower depreciation expense, improved pricing, and favorable product and regional mix.

Operating income was \$26.6 million for the third quarter, an increase of 0.8% compared with the prior-year quarter, primarily due to profitability from improved pricing, higher sales volumes, and lower depreciation expense, which more than offset the impact of lower gross margin. Operating margin for the third quarter was 22.8%, a decrease of 80 basis points compared with the prior-year quarter.

Gross profit was \$134.3 million for the nine months, an increase of 8.0% compared with the prior-year period. Gross margin of 38.0% decreased 30 basis points compared with the prior-year period. The decrease in gross margin was primarily due to higher manufacturing costs including a 110 basis point impact related to higher raw materials and energy costs, partially offset by favorable product and regional mix, improved pricing, and lower depreciation expense.

Operating income was \$80.3 million for the nine months, an increase of 6.5% compared with the prior-year period as profitability from favorable product and regional mix, improved pricing, higher sales volumes, and favorable currency translation more than offset the impact of lower gross margin. Operating margin for the nine months was 22.7%, a decrease of 50 basis points compared with the prior-year period.

Corporate Costs



Corporate costs include corporate functional costs and other corporate costs such as professional fees and insurance premiums. Corporate costs for the third quarter were \$19.7 million, an increase of \$1.2 million from the prior-year quarter. Corporate costs for the nine months were \$56.1 million, an increase of \$3.2 million compared with the prior-year period. The increases were primarily due to higher incentive compensation expense.

Restructuring and Repositioning Expenses

During the third quarter and nine months, we incurred \$2.4 million and \$4.4 million, respectively, of restructuring expenses primarily related to plant exit costs and sales force reorganization, compared with \$5.3 million and \$10.1 million, respectively, in the corresponding prior-year periods, which was related to workforce reduction programs in manufacturing, supply chain, finance and IT. Excluding non-cash 2018 plant exit costs of \$2.1 million, substantially all costs related to the restructuring programs are expected to be paid by September 30, 2019.

Pretax repositioning expenses for the third quarter and nine months were \$6.0 million and \$28.4 million, respectively, compared with \$4.0 million and \$6.9 million, respectively, in the corresponding prior-year periods. Expenses incurred in 2018 primarily related to the second quarter write-off of \$8.5 million of prior engineering costs as a result of terminating an expansion project no longer necessary due to the polyolefin catalysts acquisition, and \$11.7 million for a multi-year program to transform manufacturing and business processes to extend our competitive advantages and improve our cost position, of which \$3.6 million was recorded in the third quarter. Excluding asset write-offs, substantially all of these expenses have been or are expected to be settled in cash.

The following table presents the major components of restructuring and repositioning expenses recorded in 2018.

(in millions)	Three Months Ended September 30, 2018	Nine Months Ended September 30, 2018
Write-off of plant equipment and engineering costs	\$ 1.9	\$ 11.0
Third-party costs of manufacturing and business transformation programs	3.6	11.7
Employee severance	1.1	4.8
Other	1.8	5.3
Total restructuring and repositioning expenses	\$ 8.4	\$ 32.8

Defined Benefit Pension Expense

Certain pension costs for the third quarter and nine months were \$3.8 million and \$11.6 million, respectively, compared with \$3.4 million and \$9.7 million, respectively, for the corresponding prior-year periods. The increases were primarily due to a decrease in discount rates.

Interest and Financing Expenses

Net interest and financing expenses were \$20.0 million for the third quarter, a decrease of 1.0% compared with the prior-year quarter, and \$58.4 million for the nine months, a decrease of 1.0% compared with the prior-year period. During the 2018 second quarter, we incurred a loss on early extinguishment of debt of \$4.8 million related to the repayment of our U.S. dollar and euro term loans. See Note 3 to the Consolidated Financial Statements.

Income Taxes

The provision for income taxes for the nine months ended September 30, 2018 and 2017, was \$50.5 million and \$49.2 million, respectively. The 2018 provision includes a \$15.4 million GILTI tax charge recorded under the Act as well as other permanent items, offset by a \$17.9 million benefit from the federal tax rate change under the Act, the effect of lower pretax income in 2018, and discrete tax benefits recorded in the 2018 third quarter that primarily related to a research and development tax credit study for prior years.

See Note 5 to the Consolidated Financial Statements for additional information regarding income taxes.

Financial Condition, Liquidity, and Capital Resources

Following is an analysis of our financial condition, liquidity and capital resources at September 30, 2018.

Our principal uses of cash are generally capital investments and acquisitions; working capital investments; compensation paid to employees, including contributions to our defined benefit pension plans and defined contribution plans; the repayment of debt and interest payments thereon; and the return of cash to shareholders through repurchase of shares and dividends.

On February 8, 2017, we announced that the Board of Directors had authorized a new share repurchase program of up to \$250 million. Under this program, during the nine months we repurchased 865,698 shares of Company common stock for \$60.1 million. As of September 30, 2018, \$158.7 million remained under the current authorization.

We paid cash dividends of \$48.5 million during the nine months. On February 8, 2018, we announced that the Board of Directors had approved an increase in the annual dividend rate, to \$0.96 per share of Company common stock, effective with the dividend paid March 22, 2018.

We believe that the cash we expect to generate during 2018 and thereafter, together with other available liquidity and capital resources, are sufficient to finance our operations, growth strategy, share repurchase program and expected dividend payments, and to meet our debt and pension obligations.

On April 3, 2018, we entered into the Credit Agreement, which provides for new secured credit facilities, consisting of:

- (a) a \$950 million term loan due in 2025, with interest at LIBOR +175 basis points, and
- (b) a \$400 million revolving credit facility due in 2023, with interest at LIBOR +175 basis points.

We used the proceeds from the term loan to repay in full the outstanding borrowings of \$507.0 million under our 2014 credit agreement, to fund the polyolefin catalysts acquisition for \$420.9 million, and to make a voluntary \$50.0 million accelerated contribution to our U.S. qualified pension plans. See Note 3 to the Consolidated Financial Statements for additional information related to the Credit Agreement.

Cash Resources and Available Credit Facilities

At September 30, 2018, we had available liquidity of \$551.6 million, consisting of \$150.7 million in cash and cash equivalents (\$54.6 million in the U.S.), \$364.5 million available under our revolving credit facility, and \$36.4 million of available liquidity under various non-U.S. credit facilities. The \$400 million revolving credit facility includes a \$100 million sublimit for letters of credit.

Our non-U.S. credit facilities are extended to various subsidiaries that use them primarily to issue bank guarantees supporting trade activity and to provide working capital during occasional cash shortfalls. We generally renew these credit facilities as they expire.

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The following table summarizes our non-U.S. credit facilities as of September 30, 2018:

(In millions)	Maximum Borrowing Amount	Available Liquidity	Expiration Date
China	\$ 22.9	\$ 18.8	Various through 2023
Other countries	28.4	17.6	Various through 2023, as well as open-ended
Total	\$ 51.3	\$ 36.4	

Analysis of Cash Flows

The following table summarizes our cash flows for the nine months and prior-year period:

(In millions)	Nine Months Ended September 30,	
	2018	2017
Net cash provided by (used for) operating activities	\$ 234.0	\$ 267.5
Net cash provided by (used for) investing activities	(565.9)	(89.2)
Net cash provided by (used for) financing activities	323.2	(99.6)
Effect of currency exchange rate changes on cash, cash equivalents, and restricted cash	(1.5)	7.2
Net increase (decrease) in cash and cash equivalents	(10.2)	85.9
Cash, cash equivalents, and restricted cash, beginning of period	163.5	100.6
Cash, cash equivalents, and restricted cash, end of period	\$ 153.3	\$ 186.5

Net cash provided by operating activities for the nine months was \$234.0 million compared with \$267.5 million for the prior-year period. The year-over-year change in cash flow was primarily due to a \$50.0 million accelerated contribution to the U.S. defined benefit pension plans and cash used to build inventory, as well as lower net cash paid for income taxes and the dividend received from ART, both in the prior-year period. These were partially offset by the \$30.0 million payment to fund the PD Trust in the prior year, and the timing of advance payments from customers in 2018.

Net cash used for investing activities for the nine months was \$565.9 million compared with \$89.2 million for the prior-year period. The year-over-year change in cash flow was primarily due to the purchase of the polyolefin catalysts business of Albemarle Corporation for \$418.0 million, as well as capital spending of \$161.7 million during the nine months compared with \$85.6 million in the prior-year period.

Net cash provided by financing activities for the nine months was \$323.2 million compared with a use of cash of \$99.6 million in the prior-year period. The year-over-year change in cash flow was primarily due to the borrowings under the 2018 credit agreement, offset by the repayment of the outstanding 2014 U.S. dollar and euro term loans.

Included in net cash provided by (used for) operating activities are legacy product, environmental and other claims paid of \$18.1 million and \$50.1 million; repositioning expenses paid of \$16.6 million and \$6.3 million; and restructuring expenses paid of \$8.0 million and \$10.9 million; and cash paid for third-party acquisition-related costs of \$9.2 million and \$0.1 million for the nine months and prior-year period, respectively; and accelerated defined benefit pension plan contributions of \$50.0 million for the nine months. These cash flows totaled \$101.9 million and \$67.4 million for the nine months and prior-year period, respectively. We do not include these cash flows when evaluating the performance of our businesses.

Debt and Other Contractual Obligations

Total debt outstanding at September 30, 2018, was \$1,986.5 million. The Credit Agreement we entered into on April 3, 2018, provides for new senior secured credit facilities, consisting of a \$950 million term loan due in 2025 and a \$400 million revolving credit facility due in 2023. In connection with the Credit Agreement, our previous U.S. dollar and euro term loans were repaid in full. As part of the financing, we reduced our exposure to rising interest rates; currently 85% of our long-term debt is fixed-rate.

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See Note 8 to the Consolidated Financial Statements for a discussion of Financial Assurances.

Employee Benefit Plans

See Note 6 to the Consolidated Financial Statements for further discussion of Pension Plans and Other Postretirement Benefit Plans.

Defined Benefit Pension Plans

The following table presents the components of cash contributions for the advance-funded and pay-as-you-go plans:

(In millions)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
U.S. advance-funded plans	\$ —	\$ 0.3	\$ 50.0	\$ 0.3
U.S. pay-as-you-go plans	1.6	2.1	5.1	5.8
Non-U.S. advance-funded plans	0.3	0.2	0.8	0.7
Non-U.S. pay-as-you-go plans	2.0	1.8	5.9	5.4
Total Cash Contributions	\$ 3.9	\$ 4.4	\$ 61.8	\$ 12.2

We intend to fund non-U.S. pension plans based upon applicable legal requirements and actuarial and trustee recommendations. We contributed \$6.7 million and \$6.1 million to these plans during the nine months and the prior-year period.

Other Contingencies

See Note 8 to the Consolidated Financial Statements for a discussion of our other contingent matters.

Inflation

We recognize that inflationary pressures may have an adverse effect on us through higher asset replacement costs and higher raw materials and other operating costs. We experienced raw materials cost inflation during the 2017 second half and through the 2018 nine months, and expect to see continued inflation in the 2018 fourth quarter. We try to minimize these impacts through effective control of operating expenses, productivity improvements, and hedging purchases of certain raw materials, as well as price increases on our products.

Critical Accounting Estimates

See the "Critical Accounting Estimates" heading in Management's Discussion and Analysis of Financial Condition and Results of Operations in our Form 10-K for the year ended December 31, 2017, for a discussion of our critical accounting estimates, incorporated by reference into Item 7 thereof.

We disclosed in Note 10 to our Form 10-K for the year ended December 31, 2017, that we would adjust our reserves for the Libby mine and surrounding area, known as Operable Unit 3 ("OU3"), when meaningful new information became available. In the third quarter, we recorded a pretax charge of \$70.0 million for the estimated costs of remediation of OU3. The estimated costs of remediation are preliminary and consist of several components, each of which may vary significantly as the remedial alternatives are further developed, and it is reasonably possible that the ultimate costs of remediation could range between \$30 million and \$170 million. We are working closely with the EPA, and the ultimate remedy will be determined by the EPA after the remedial investigation and feasibility study ("RI/FS") is finalized. Such remedy will be set forth in a Record of Decision ("ROD") that is expected to be issued by the EPA during or after 2020. Costs associated with the more active remedial alternatives would be expected to be incurred over a decade or more. It is possible that maintenance and monitoring activities may extend beyond this timeframe, which are not currently estimable. We will reevaluate our estimated liability as remedial alternatives evolve based on further work by the engineering and consulting firm and discussions with the EPA as the RI/FS process moves toward a ROD. Depending on the remedial alternatives that the EPA selects in the ROD, as well as the extent and timing of maintenance and monitoring activities, the total cost of remediating OU3 may exceed Grace's current estimate by material amounts.

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See Note 8 to the Consolidated Financial Statements for further discussion of our vermiculite-related environmental matters.

Recent Accounting Pronouncements

See Note 1 to the Consolidated Financial Statements for a discussion of recent accounting pronouncements and their effect on us.

Forward-Looking Statements

This document contains, and our other public communications may contain, forward-looking statements, that is, information related to future, not past, events. Such statements generally include the words “believes,” “plans,” “intends,” “targets,” “will,” “expects,” “suggests,” “anticipates,” “outlook,” “continues,” or similar expressions. Forward-looking statements include, without limitation, expected financial positions; results of operations; cash flows; financing plans; business strategy; operating plans; capital and other expenditures; competitive positions; growth opportunities for existing products; benefits from new technology and cost reduction initiatives, plans and objectives; and markets for securities. For these statements, we claim the protections of the safe harbor for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Exchange Act. Like other businesses, we are subject to risks and uncertainties that could cause our actual results to differ materially from our projections or that could cause other forward-looking statements to prove incorrect. Factors that could cause actual results to differ materially from those contained in the forward-looking statements include, without limitation: risks related to foreign operations, especially in emerging regions; the costs and availability of raw materials, energy and transportation; the effectiveness of Grace’s research and development and growth investments; acquisitions and divestitures of assets and businesses; developments affecting Grace’s outstanding indebtedness; developments affecting Grace’s pension obligations; Grace’s legal and environmental proceedings; environmental compliance costs; the inability to establish or maintain certain business relationships; the inability to hire or retain key personnel; natural disasters such as storms and floods, and force majeure events; changes in tax laws and regulations; international trade disputes, tariffs, and sanctions; the potential effects of cyberattacks; and those additional factors set forth in our most recent Annual Report on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K, which have been filed with the Securities and Exchange Commission and are readily available on the Internet at www.sec.gov. Our reported results should not be considered as an indication of our future performance. Readers are cautioned not to place undue reliance on our projections and forward-looking statements, which speak only as of the dates those projections and statements are made. We undertake no obligation to release publicly any revision to the projections and forward-looking statements contained in this document, or to update them to reflect events or circumstances occurring after the date of this document.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

With respect to information disclosed in the “Quantitative and Qualitative Disclosures About Market Risk” section of our Annual Report on Form 10-K for the year ended December 31, 2017, more recent numerical measures and other information are available in the “Financial Statements” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections of this Report. These more recent measures and information are incorporated herein by reference.

Item 4. CONTROLS AND PROCEDURES

EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

As of September 30, 2018, Grace carried out an evaluation of the effectiveness of the design and operation of its disclosure controls and procedures pursuant to Rule 13a-15 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Based upon that evaluation, Grace’s Principal Executive Officer and Acting Principal Financial Officer concluded that Grace’s disclosure controls and procedures are effective to ensure that information required to be disclosed in Grace’s Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that material information relating to Grace is made known to management, including Grace’s Principal Executive Officer and Acting Principal Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no changes in Grace’s internal control over financial reporting during the quarter ended September 30, 2018, that have materially affected, or are reasonably likely to materially affect, Grace’s internal control over financial reporting.

PART II. OTHER INFORMATION**Item 1. LEGAL PROCEEDINGS**

Note 8 to the interim Consolidated Financial Statements in Part I of this Report is incorporated herein by reference.

Item 1A. RISK FACTORS

In addition to the other information set forth below and elsewhere in this Report, you should carefully consider the risk factors discussed in the “Risk Factors” section of our Annual Report on Form 10-K for the year ended December 31, 2017, which could materially affect our business, financial condition or future results. The risks described in this Report and in our Annual Report on Form 10-K are not the only risks facing Grace. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition or future results. With respect to certain risk factors discussed in our Annual Report on Form 10-K, more recent numerical measures and other information are available in the “Financial Statements” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections of this Report. These more recent measures and information are incorporated herein by reference.

The global scope of our operations subjects us to the risks of doing business in foreign countries, and with other parties located in foreign jurisdictions, which could adversely affect our business, financial condition and results of operations.

In addition to the risks and uncertainties that we discussed in our Annual Report on Form 10-K, recent world events have increased the risks posed by international trade disputes, tariffs, and sanctions. We procure a wide spectrum of commodities globally to support our production. For materials sourced from nations that could be impacted by trade disputes, tariffs or sanctions, we could potentially face increased costs, supply disruptions and/or costs associated with securing alternative materials. Additionally, such disputes, tariffs, and sanctions could potentially lead to a reduction in our sales of products, technology, and services. We view geopolitical risk along with other potential supply chain and sales risks, and work actively to diversify and mitigate these potential impacts; however, such events could adversely affect our business, financial condition and results of operations.

Item 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS*Share Repurchase Program*

On February 8, 2017, we announced that our Board of Directors had authorized a share repurchase program of up to \$250 million. Repurchases under the program may be made through one or more open market transactions at prevailing market prices; unsolicited or solicited privately negotiated transactions; accelerated share repurchase programs; or through any combination of the foregoing, or in such other manner as determined by management. The timing of the repurchases and the actual amount repurchased will depend on a variety of factors, including the market price of the Company’s shares, the strategic deployment of capital, and general market and economic conditions.

The following table presents information regarding the repurchase of Company common stock by or on behalf of Grace or any “affiliated purchaser” of Grace during the three months ended September 30, 2018:

Period	Total number of shares purchased (#)	Average price paid per share (\$/share)	Total number of shares purchased as part of publicly announced plans or programs (#)	Approximate dollar value of shares that may yet be purchased under the plans or programs (\$ in millions)
7/1/2018 - 7/31/2018	99,341	73.87	99,341	161.8
8/1/2018 - 8/31/2018	28,329	70.99	28,329	159.8
9/1/2018 - 9/30/2018	14,587	71.48	14,587	158.7
Total	142,257	73.05	142,257	

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Item 4. MINE SAFETY DISCLOSURES

Information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K (17 CFR 229.104) is included in Exhibit 95 to this Report.

Item 6. EXHIBITS

In reviewing the agreements included as exhibits to this and other Reports filed by Grace with the Securities and Exchange Commission (the "SEC"), please remember they are included to provide you with information regarding their terms and are not intended to provide any other factual or disclosure information about Grace or other parties to the agreements. The agreements generally contain representations and warranties by each of the parties to the applicable agreement. These representations and warranties have been made solely for the benefit of the other parties to the applicable agreement. These representations and warranties:

- Are not statements of fact, but rather are used to allocate risk to one of the parties if the statements prove to be inaccurate;
- May have been qualified by disclosures that were made to the other parties in connection with the negotiation of the applicable agreement, which disclosures are not necessarily reflected in the agreement;
- May apply standards of materiality in a way that is different from what may be viewed as material to you or other investors; and
- Were made only as of the date of the applicable agreement or such other date or dates as may be specified in the agreement and do not reflect more recent developments.

Accordingly, these representations and warranties may not describe the actual state of affairs as of the date they were made or at any other time. Additional information about Grace may be found elsewhere in this report and Grace's other public filings, which are available without charge through the SEC's website at <http://www.sec.gov>.

The following is a list of Exhibits filed as part of this Quarterly Report on Form 10-Q:

Exhibit No.	Description of Exhibit	Location
3.1	Amended and Restated Certificate of Incorporation	Exhibit 3.01 to Form 8-K (filed 2/07/14) SEC File No.: 001-13953
3.2	Amended and Restated By-laws	Exhibit 3.01 to Form 8-K (filed 1/23/15) SEC File No.: 001-13953
4.1	Credit Agreement, dated as of April 3, 2018, by and among W. R. Grace & Co., W. R. Grace & Co.–Conn., certain subsidiaries thereof, Goldman Sachs Bank USA, as Administrative Agent and Collateral Agent, and the other lenders from time to time party thereto	Exhibit 4.1 to Form 8-K (filed 4/03/18) SEC File No.: 001-13953
4.2	Second Supplemental Indenture, dated as of April 3, 2018, by and among W. R. Grace & Co.–Conn., the guarantors party thereto and Wilmington Trust, National Association, as trustee	Exhibit 4.2 to Form 10-Q (filed 5/09/18) SEC File No.: 001-13953
15	Accountants' Awareness Letter	Filed herewith
31(i).1	Certification of Periodic Report by Principal Executive Officer under Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
31(i).2	Certification of Periodic Report by Principal Financial Officer under Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
32	Certification of Periodic Report by Principal Executive Officer and Principal Financial Officer under Section 906 of the Sarbanes-Oxley Act of 2002	Filed herewith
95	Mine Safety Disclosure Exhibit	Filed herewith

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Exhibit No.	Description of Exhibit	Location
101.INS	XBRL Instance Document	Filed herewith
101.SCH	XBRL Taxonomy Extension Schema	Filed herewith
101.CAL	XBRL Taxonomy Extension Calculation Linkbase	Filed herewith
101.DEF	XBRL Taxonomy Extension Definition Linkbase	Filed herewith
101.LAB	XBRL Taxonomy Extension Label Linkbase	Filed herewith
101.PRE	XBRL Taxonomy Extension Presentation Linkbase	Filed herewith

* Management contracts and compensatory plans, contracts or arrangements required to be filed as exhibits to this Report.

SIGNATURES

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

W. R. GRACE & CO.
(Registrant)

Date: November 8, 2018

By: _____
Hudson La Force
President and Chief Executive Officer
(Principal Executive Officer and
Acting Principal Financial Officer)

Date: November 8, 2018

By: _____
William C. Dockman
Vice President and Controller
(Principal Accounting Officer)

November 8, 2018

Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Commissioners:

We are aware that our report dated November 8, 2018 on our review of interim financial information of W. R. Grace & Co., which appears in this Quarterly Report on Form 10-Q, is incorporated by reference in its Registration Statements on Form S-8 dated May 12, 2000, April 28, 2011, May 2, 2013, February 27, 2014, February 23, 2017 and May 9, 2018.

Very truly yours,

/s/ PricewaterhouseCoopers LLP
Baltimore, Maryland

**CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Hudson La Force, certify that:

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

Date: November 8, 2018

/s/ HUDSON LA FORCE

Hudson La Force
President and Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Hudson La Force, certify that:

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

Date: November 8, 2018

/s/ HUDSON LA FORCE

Hudson La Force
President and Chief Executive Officer
(Acting Principal Financial Officer)

CERTIFICATION UNDER SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350), the undersigned certifies that (1) this Quarterly Report of W. R. Grace & Co. (the "Company") on Form 10-Q for the period ended September 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (this "Report"), fully complies with the requirements of Sections 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and (2) the information contained in this Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ HUDSON LA FORCE

Hudson La Force
President and Chief Executive Officer
(Principal Executive Officer)

/s/ HUDSON LA FORCE

Hudson La Force
President and Chief Executive Officer
(Acting Principal Financial Officer)

Date: November 8, 2018

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

MINE SAFETY DISCLOSURES

The following table provides information about citations, orders and notices issued from the Mine Safety and Health Administration (the "MSHA") under the Federal Mine Safety and Health Act of 1977 (the "Mine Act") during the most recent fiscal quarter.

Mine	§104 S&S* Citations (#)	§104(b) Orders (#)	§104(d) Citations and Orders (#)	§110(b)(2) Violations (#)	§107(a) Orders (#)	Total Dollar Value of MSHA Assessments Proposed (\$)	Total Number of Mining-Related Fatalities (#)	Received Written Notice of Pattern of S&S* Violations under §104(e) (yes/no)	Received Notice of Potential to have Pattern of S&S* Violations under §104(e) (yes/no)
Clay Mine Aiken, SC	—	—	—	—	—	118	—	No	No

* S&S refers to violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a coal or other mine safety or health hazard under §104 of the Mine Act.

The following tables provide information about legal actions before the Federal Mine Safety and Health Review Commission (the "FMSHRC") during the most recent fiscal quarter.

Mine	Pending as of the end of most recent fiscal quarter (#)	Instituted during most recent fiscal quarter (#)	Resolved during most recent fiscal quarter (#)
Clay Mine Aiken, SC	—	—	—

With Respect to Legal Actions Pending as of the end of most recent fiscal quarter

Mine	Contests of Citations and Orders per Subpart B* (#)	Contests of Proposed Penalties per Subpart C* (#)	Complaints for Compensation per Subpart D* (#)	Complaints of Discharge, Discrimination or Interference per Subpart E* (#)	Applications for Temporary Relief per Subpart F* (#)	Appeals of Judge's Decisions or Orders to the FMSHRC per Subpart H* (#)
Clay Mine Aiken, SC	—	—	—	—	—	—

* 29 CFR part 2700.

