UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q

QUARTERLY REPORT UNDER SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For Quarter Ended March 31, 2018
Commission File Number 1-1687

PPG INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Pennsylvania	**25-0730780**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
One PPG Place, Pittsburgh, Pennsylvania	**15272**
(Address of principal executive offices)	**(Zip Code)**

(412) 434-3131
(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, 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 and posted on its corporate Web site, if any, 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 and post 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. (Check one):

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 ☒

As of May 31, 2018, 243,474,044 shares of the Registrant's common stock, par value $1.66 2/3 per share, were outstanding.

EXPLANATORY NOTE

As described in additional detail in the Explanatory Note to its amended Annual Report on Form 10-K/A for the year ended December 31, 2017 (the "2017 Form 10-K/A") and in Note 2, " Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements ," to the Company's condensed consolidated financial statements included herein, PPG Industries, Inc. (together with its subsidiaries, the "Company" or "PPG") has identified misstatements in the financial statements included in its Annual Report on Form 10-K for the year ended December 31, 2017 filed with the Securities and Exchange Commission (the "SEC") on February 15, 2018 (the "Original 10-K Filing").

On May 10, 2018, management, in consultation with the Audit Committee of the Board of Directors (the "Audit Committee") and the Company's independent registered public accounting firm, PricewaterhouseCoopers LLP ("PwC"), concluded that the Company's consolidated financial statements for the year ended December 31, 2017 included in the Original 10-K Filing and the related report of PwC, and for the quarterly and year-to-date periods in 2017, should no longer be relied upon because of certain misstatements contained in those financial statements.

As a result, the Company has restated certain unaudited quarterly results related to the quarter ended March 31, 2017.

The Company delayed the filing of this Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 (this "Form 10-Q") pending the completion of the internal investigation described in the Explanatory Note to the 2017 Form 10-K/A and in Note 2, including the completion of the restatement. As a result of that investigation, the condensed consolidated financial statements as of and for the quarter ended March 31, 2017 included in this Form 10-Q have been restated to reflect the adjustments described in the 2017 Form 10-K/A.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

INDEX

		PAGE
Part I. Financial Information		
Item 1.	Financial Statements (Unaudited):	
	Condensed Consolidated Statement of Income	2
	Condensed Consolidated Statement of Comprehensive Income	3
	Condensed Consolidated Balance Sheet	4
	Condensed Consolidated Statement of Cash Flows	5
	Notes to Condensed Consolidated Financial Statements	6
Item 2.	Management's Discussion and Analysis of Financial Condition and Results of Operations	27
Item 3.	Quantitative and Qualitative Disclosures About Market Risk	36
Item 4.	Controls and Procedures	37
Part II. Other Information		
Item 1.	Legal Proceedings	39
Item 1A.	Risk Factors	39
Item 2.	Unregistered Sales of Equity Securities and Use of Proceeds	39
Item 6.	Exhibits	40
Signature		42

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Statement of Income (Unaudited)
($ in millions, except per share amounts)

	Three Months Ended March 31	
	2018	2017
		As Restated
Net sales	$3,781	$3,486
Cost of sales, exclusive of depreciation and amortization	2,181	1,902
Selling, general and administrative	906	875
Depreciation	87	79
Amortization	36	31
Research and development, net	112	109
Interest expense	26	25
Interest income	(5)	(4)
Pension settlement charge	—	22
Other charges	41	25
Other income	(24)	(24)
Income from continuing operations before income taxes	$421	$446
Income tax expense	87	110
Income from continuing operations	$334	$336
Income from discontinued operations, net of tax	6	6
Net income attributable to the controlling and noncontrolling interests	$340	$342
Less: Net income attributable to noncontrolling interests	(6)	(5)
Net income (attributable to PPG)	$334	$337
Amounts attributable to PPG:		
Income from continuing operations, net of tax	$328	$331
Income from discontinued operations, net of tax	6	6
Net income (attributable to PPG)	$334	$337
Earnings per common share:		
Income from continuing operations, net of tax	$1.32	$1.29
Income from discontinued operations, net of tax	0.02	0.02
Net income (attributable to PPG)	$1.34	$1.31
Earnings per common share – assuming dilution:		
Income from continuing operations, net of tax	$1.31	$1.28
Income from discontinued operations, net of tax	0.02	0.02
Net income (attributable to PPG)	$1.33	$1.30
Dividends per common share	$0.45	$0.40

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Statement of Comprehensive Income (Unaudited)
($ in millions)

	Three Months Ended March 31	
	2018	2017
		As Restated
Net income attributable to the controlling and noncontrolling interests	$340	$342
Other comprehensive income, net of tax:		
Defined benefit pension and other postretirement benefits	(67)	21
Unrealized foreign currency translation adjustments	123	279
Derivative financial instruments	(2)	(13)
Other comprehensive income, net of tax	$54	$287
Total comprehensive income	$394	$629
Less: amounts attributable to noncontrolling interests:		
Net income	(6)	(5)
Unrealized foreign currency translation adjustments	(2)	(7)
Comprehensive income attributable to PPG	$386	$617

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Balance Sheet (Unaudited)
($ in millions)

	March 31, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$1,346	$1,436
Short-term investments	58	55
Receivables (less allowance for doubtful accounts of $23 and $25)	3,343	2,903
Inventories	1,963	1,730
Other	400	353
Total current assets	$7,110	$6,477
Property, plant and equipment (net of accumulated depreciation of $3,887 and $3,770)	2,862	2,824
Goodwill	4,100	3,942
Identifiable intangible assets, net	2,132	2,045
Deferred income taxes	351	305
Investments	270	268
Other assets	719	677
Total	$17,544	$16,538
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$3,924	$3,781
Restructuring reserves	87	102
Short-term debt and current portion of long-term debt	19	12
Total current liabilities	$4,030	$3,895
Long-term debt	5,199	4,134
Accrued pensions	694	729
Other postretirement benefits	698	699
Deferred income taxes	471	442
Other liabilities	985	967
Total liabilities	$12,077	$10,866
Commitments and contingent liabilities (Note 17)		
Shareholders' equity:		
Common stock	969	969
Additional paid-in capital	761	756
Retained earnings	17,464	17,140
Treasury stock, at cost	(11,843)	(11,251)
Accumulated other comprehensive loss	(2,005)	(2,057)
Total PPG shareholders' equity	$5,346	$5,557
Noncontrolling interests	121	115
Total shareholders' equity	$5,467	$5,672
Total	$17,544	$16,538

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

Table of Contents

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Statement of Cash Flows (Unaudited)

($ in millions)

	Three Months Ended March 31	
	2018	2017
		As Restated
Operating activities:		
Net income attributable to controlling and noncontrolling interests	$340	$342
Less: Income from discontinued operations	(6)	(6)
Income from continuing operations	$334	$336
Adjustments to reconcile net income to cash from operations:		
Depreciation and amortization	123	110
Pension expense	10	18
Pension settlement	—	22
Environmental remediation charge	34	—
Stock-based compensation expense	9	9
Equity affiliate earnings, net of distributions received	(4)	(1)
Deferred income tax benefit	(5)	6
Cash contributions to pension plans	(30)	(34)
Cash used for restructuring actions	(17)	(10)
Change in certain asset and liability accounts:		
Receivables	(373)	(296)
Inventories	(202)	(157)
Other current assets	(46)	(47)
Accounts payable and accrued liabilities	74	62
Taxes and interest payable	(45)	(82)
Noncurrent assets and liabilities, net	(75)	39
Other	(15)	24
Cash used for operating activities - continuing operations	($228)	($1)
Cash from operating activities - discontinued operations	—	10
Cash (used for) from operating activities	($228)	$9
Investing activities:		
Capital expenditures	(75)	(63)
Business acquisitions, net of cash balances acquired	(96)	(61)
Payments for the settlement of cross currency swap contracts	(13)	(34)
Proceeds from the settlement of cross currency swap and foreign currency contracts	—	19
Other	6	2
Cash used for investing activities - continuing operations	($178)	($137)
Cash used for investing activities - discontinued operations	—	(1)
Cash used for investing activities	($178)	($138)
Financing activities:		
Net change in borrowing with maturities of three months or less	7	(7)
Net payments on commercial paper and short-term debt	—	(32)
Proceeds from the issuance of debt, net of discounts and fees	992	—
Repayment of long-term debt	(1)	(7)
Purchase of treasury stock	(600)	(163)
Issuance of treasury stock	9	9
Dividends paid	(112)	(103)
Payments related to tax withholding on stock-based compensation awards	(13)	(16)
Other	13	(53)
Cash from (used for) financing activities	$295	($372)
Effect of currency exchange rate changes on cash and cash equivalents	21	30

Net decrease in cash and cash equivalents	($90)	($471)
Cash and cash equivalents, beginning of period	1,436	1,820
Cash and cash equivalents, end of period	$1,346	$1,349
Supplemental disclosures of cash flow information:		
Interest paid, net of amount capitalized	$24	$23
Taxes paid, net of refunds	$118	$90

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Notes to Condensed Consolidated Financial Statements (Unaudited)

1 . Basis of Presentation

The condensed consolidated financial statements included herein are unaudited and have been prepared following the requirements of the SEC and accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim reporting. Under these rules, certain footnotes and other financial information that are normally required for annual financial statements can be condensed or omitted. These statements include all adjustments, consisting only of normal, recurring adjustments, necessary for a fair presentation of the financial position of PPG as of March 31, 2018 , and the results of its operations and cash flows for the three months ended March 31, 2018 and 2017 . All intercompany balances and transactions have been eliminated. Material subsequent events are evaluated through the report issuance date and disclosed where applicable. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes included in PPG's 2017 Form 10-K/A .

Net sales, expenses, assets and liabilities can vary during each quarter of the year. Accordingly, the results of operations for the three months ended March 31, 2018 and the trends in these unaudited condensed consolidated financial statements may not necessarily be indicative of the results to be expected for the full year.

Certain prior period amounts have been reclassified to conform to the current period presentation and reflect the adoption of certain accounting standard updates, including the information presented for our reportable segments. These reclassifications had no impact on our previously reported net income, total assets, cash flows or shareholders' equity.

2 . Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements

On April 16, 2018, PPG received a report through the Company's internal reporting system alleging violations of the Company's accounting policies and procedures regarding the failure to accrue certain specified expenses in the first quarter of 2018. Based on the Company's initial review at that time, the Company identified approximately $1.4 million of expenses (including legal fees, property taxes and performance-based compensation) that should have been accrued in the first quarter of 2018 and that were then reflected in PPG's earnings for the quarter ended March 31, 2018, released on April 19, 2018. In addition, the report alleged that there may have been other unspecified expenses, potentially up to $5 million in the aggregate, that were improperly not accrued in the first quarter.

The Audit Committee oversaw an investigation of the matters set forth in the internal report, with the assistance of outside counsel and forensic accountants. The investigation identified the following items with respect to the quarter ended March 31, 2018, in addition to the approximately $1.4 million of expenses described above: (1) failure to record amortization expense in the amount of $1.4 million to correct for amortization of an intangible asset that was inadvertently not recorded over a three-year period and discovered in March 2018; (2) understatement of a health insurance accrued liability in the amount of $0.5 million ; and (3) failure to record an adjustment increasing the value of inventory in PPG's Europe, Middle East and Africa region in the amount of $2.2 million due to inflation of raw materials costs which, when corrected, had a positive effect on income in the first quarter of 2018. These three items resulted in a net increase to income from continuing operations before income taxes of approximately $0.3 million .

The investigation also identified certain inadvertent errors with respect to the quarter ended March 31, 2018. Correction of such inadvertent errors, together with the matters discussed in the immediately preceding paragraph, resulted in a net decrease in income from continuing operations before income taxes of $5.7 million for the quarter ended March 31, 2018.

The investigation identified an improper reduction in the payout assumption for certain performance-based restricted stock units that had the impact of recognizing a $6.8 million reduction in stock based compensation expense in the fourth quarter of 2016. In the first quarter of 2017, the payout assumption for these same performance-based restricted stock units was increased, resulting in $6.8 million of stock-based compensation expense in the first quarter of 2017 that would not have been recorded if the payout assumption had not been reduced in the fourth quarter of 2016.

On May 10, 2018, management, in consultation with the Audit Committee and the Company's independent registered public accounting firm, PwC, concluded that the Company's consolidated financial statements for the year ended December 31, 2017 included in the Original Filing and the related report of PwC, and for the quarterly and year-to-date periods in 2017, should no longer be relied upon because of certain misstatements contained in those financial statements.

On June 27, 2018, the Audit Committee determined that its investigation was complete, and authorized the filing of our restated audited consolidated financial statements for the years ended December 31, 2017 and 2016 and certain quarterly periods within those fiscal years in order to correct our previously issued financial statements.

Impact of the Restatement

As a result of the restatement, reported net income from continuing operations and earnings per diluted share from continuing operations was adjusted for the quarter ended March 31, 2017 as follows:

- For the three months ended March 31, 2017, net income from continuing operations increased $3 million , or $0.01 per diluted share, and there was no impact to income from discontinued operations, net of tax

The categories of misstatements and their impact on previously reported consolidated financial statements are described below:

(a) Customer Rebates

The Company did not properly recognize expense associated with certain customer rebates, resulting in a misstatement of Net sales in the first quarter of 2017. The misstatements overstated previously reported Income before income taxes by $0.4 million .

(b) Stock-Based Compensation

In the fourth quarter of 2016, the Company improperly reduced the payout assumption for the 2015 grant of performance-based restricted stock units from 150% to 100% , which had the effect of reducing stock-based compensation expense in that period by $6.8 million . In the first quarter of 2017, the Company increased the payout assumption for these same restricted stock units from 100% back to 150% . These improper changes to the payout assumption for these restricted stock units resulted in a misstatement of stock-based compensation expense in the first quarter of 2017. The misstatements understated previously reported Income before income taxes by $6.8 million for the quarter ended March 31, 2017.

(c) Environmental Reserve

In the first quarter of 2017, the Company failed to appropriately update the discount rate used to calculate a long-term environmental remediation reserve, which had the effect of understating Other expense by $0.5 million in the quarter. The misstatement overstated previously reported Income before taxes by $0.5 million for the quarter ended March 31, 2017.

(d) Income Taxes

Adjustments related to the income tax effects of other restatement adjustments noted above.

The financial statements included in this Form 10-Q have been restated to reflect the adjustments described above. The table below summarizes the effects of the restatement on the Consolidated Statements of Income for the three months ended March 31, 2017.

Consolidated Statement of Income (unaudited) - Summary of Restatement

($ in millions)	Three Months Ended March 31, 2017 As Previously Reported [1]	Restatement Adjustment	Reference	As Restated
Net sales	$3,486	$—	(a)	$3,486
Selling, general and administrative	881	(6)	(b)	875
Other charges	25	—	(c)	25
Income from continuing operations before income taxes	$440	$6		$446
Income tax expense	107	3	(d)	110
Income from continuing operations	$333	$3		$336
Income from discontinued operations, net of tax	6	—		6
Net income attributable to the controlling and noncontrolling interests	$339	$3		$342
Less: Net income attributable to noncontrolling interests	(5)	—		(5)
Net income (attributable to PPG)	$334	$3		$337
Amounts attributable to PPG:				
Income from continuing operations, net of tax	$328	$3		$331
Income from discontinued operations, net of tax	6	—		6
Net income (attributable to PPG)	$334	$3		$337
Earnings per common share:				
Income from continuing operations, net of tax	$1.28	$0.01		$1.29
Income from discontinued operations, net of tax	0.02	—		0.02
Net income (attributable to PPG)	$1.30	$0.01		$1.31
Earnings per common share – assuming dilution:				
Income from continuing operations, net of tax	$1.27	$0.01		$1.28
Income from discontinued operations, net of tax	0.02	—		0.02
Net income (attributable to PPG)	$1.29	$0.01		$1.30
Dividends per common share	$0.40	$—		$0.40

(1) Certain "As Previously Reported" amounts have been reclassified to reflect the adoption of ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost" as of January 1, 2018.

Quarterly Condensed Consolidated Statement of Comprehensive Income (unaudited) - Summary of Restatement

In the Statement of Comprehensive Income for the interim period ended March 31, 2018, Net income attributable to the controlling and noncontrolling interests reflects the impact of the restatement adjustments. The restatement adjustments had no impact to the previously disclosed components of Other comprehensive income, net of tax.

Quarterly Condensed Consolidated Statement of Cash Flows (unaudited) - Summary of Restatement

There was no net impact of the restatement adjustments on net cash provided by operating activities, net cash provided by investing activities or net cash used in financing activities in the Consolidated Statement of Cash Flows. The adjustments only had an impact on certain captions within cash from operating activities.

3 . New Accounting Standards

Accounting Standards Adopted in 2018

PPG's adoption of the following Accounting Standard Updates ("ASU") in 2018 did not have a significant impact on PPG's consolidated financial position, results of operations or cash flows:

Accounting Standard Update	
2018-02	Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income
2017-12	Derivatives and Hedging - Targeted Improvements to Accounting for Hedging Activities
2017-09	Stock Compensation - Scope of Modification Accounting
2017-07	Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost
2016-16	Intra-Entity Transfers of Assets Other Than Inventory
2016-05	Classification of Certain Cash Receipts and Cash Payments
2016-01	Recognition and Measurement of Financial Assets and Liabilities
2014-09	Revenue from Contracts with Customers: Topic 606

Accounting Standards to be Adopted in Future Years

In June 2016, the Financial Accounting Standards Board ("FASB") issued ASU No. 2016-13, "Financial Instruments - Credit Losses." This ASU requires an organization to measure all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. Financial institutions and other organizations will now use forward-looking information to better inform their credit loss estimates. The amendments in this ASU are effective for fiscal years beginning after December 15, 2019 and for interim periods therein. Entities may choose to adopt the new ASU as of its fiscal year beginning after December 15, 2018. PPG does not believe this ASU will have a material impact on its consolidated financial position, results of operations or cash flows.

In February 2016, the FASB issued ASU No. 2016-02, "Leases." This ASU requires all lessees to recognize on the balance sheet right to use assets and lease liabilities for the rights and obligations created by lease arrangements with terms greater than 12 months. The amendments in this ASU are effective for fiscal years beginning after December 15, 2018 and for interim periods therein. PPG is in the process of assessing the impact the adoption of this ASU will have on its consolidated financial position, results of operations and cash flows. At a minimum, total assets and total liabilities will increase in the period the ASU is adopted. Early adoption of this ASU is permitted. At December 31, 2017, PPG's undiscounted future minimum payments outstanding for lease obligations were approximately $840 million .

4 . Revenue Recognition

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers: Topic 606." This ASU replaces nearly all existing U.S. GAAP guidance on revenue recognition. The standard prescribes a five-step model for recognizing revenue, the application of which may require significant judgment. The new guidance requires PPG to evaluate the transfer of promised goods or services to customers and recognize revenue in an amount that reflects the consideration which the Company expects to be entitled to receive in exchange for those goods and services.

The Company recognizes revenue when control of the promised goods or services is transferred to the customer and in amounts that the Company expects to collect. The timing of revenue recognition takes into consideration the various shipping terms applicable to the Company's sales. For most transactions, control passes in accordance with agreed upon delivery terms. This approach is consistent with the Company's historical revenue recognition methodology.

The Company delivers products to company-owned stores, home centers and other regional or national consumer retail outlets, paint dealers, concessionaires and independent distributors, company-owned distribution networks, and directly to manufacturing companies and retail customers. Each product delivered to a third party customer is considered to satisfy a performance obligation. Performance obligations generally occur at a point in time and are satisfied when control of the goods passes to the customer. The Company is entitled to collection of the sales price under normal credit terms in the regions in which it operates.

The Company also provides services by applying coatings to customers' manufactured parts and assembled products and by providing technical support to certain customers. Performance obligations are satisfied over time as critical milestones are met and as services are provided. PPG is entitled to payment as the services are rendered. As of March 31, 2018 and 2017, service revenue constituted approximately 5% of total revenue, while the balance constituted standard ship and bill, retail or consignment arrangements. Accounts receivable are recognized when there is an

unconditional right to consideration. Payment terms vary from customer to customer, depending on creditworthiness, prior payment history and other considerations.

Net sales by segment and region for the three months ended March 31, 2018 and 2017 were as follows:

($ in millions)	Performance Coatings		Industrial Coatings		Total Net Sales	
	Three Months Ended March 31		Three Months Ended March 31		Three Months Ended March 31	
	2018	2017	2018	2017	2018	2017
		As Restated				*As Restated*
United States and Canada	$974	$962	$611	$581	$1,585	$1,543
EMEA	707	629	473	394	1,180	$1,023
Asia-Pacific	242	220	388	363	630	$583
Latin America	237	206	149	131	386	$337
Total	$2,160	$2,017	$1,621	$1,469	$3,781	$3,486

The Company adopted the ASU using the modified retrospective approach which required the financial statements to reflect the new standard as of January 1, 2018, and as a result, contracts that ended prior to January 1, 2018 were not included within the Company's assessment. Accordingly, the comparative statements of income and statement of financial position have not been recast according to the new accounting standard. There was no adjustment to opening retained earnings for PPG. The ASU also provided additional clarity that resulted in reclassifications to or from Net Revenue, Cost of sales, Selling, General and Administrative and Other income. Certain costs historically reported in Selling, general and administrative costs will now be recorded in Cost of sales, exclusive of depreciation and amortization on the Consolidated Statement of Income, as they represent costs incurred in satisfaction of performance obligations. In addition, the cost of certain customer incentives are now recorded as a reduction of Net sales rather than Cost of sales, exclusive of depreciation and amortization or Selling, general and administrative costs.

The following table summarizes the March 31, 2018 consolidated statement of operations as if the ASU had not been adopted and the adjustment required upon the adoption of the ASU.

	Three Months Ended March 31, 2018		
($ in millions)	As Reported	Adjustments	Without adoption
Net sales	$3,781	$4	$3,785
Cost of sales, exclusive of depreciation and amortization	2,181	(25)	2,156
Selling, general and administrative	906	27	933
Other income	(24)	2	(22)
Income before income taxes from continuing operations	421	—	421

5 . Acquisitions and Divestitures

Acquisitions

In January 2018, PPG acquired ProCoatings, a leading architectural paint and coatings wholesaler located in The Netherlands. ProCoatings, established in 2001, distributes a large portfolio of well-known professional paint brands through its network of 23 multi-brand stores.

In January 2017, PPG completed the acquisition of DEUTEK S.A., a leading Romanian paint and architectural coatings manufacturer, from the Emerging Europe Accession Fund. DEUTEK, established in 1993, manufactures and markets a large portfolio of well-known professional and consumer paint brands, including OSKAR ® and DANKE! ® . The company's products are sold in more than 120 do-it-yourself stores and 3,500 independent retail outlets in Romania.

In January 2017, PPG also acquired certain assets of automotive refinish coatings company Futian Xinshi ("Futian"), an automotive refinish coatings company based in the Guangdong province of China. Futian distributes its products in China through a network of more than 200 distributors.

Divestitures

Glass Segment

The net sales and income from discontinued operations related to the former Glass reportable business segment for the three months ended March 31, 2017 were as follows:

($ in millions)	Three Months Ended March 31, 2017
Net sales	$83
Income from operations	$8
Income tax expense	2
Income from discontinued operations, net of tax	$6

6 . Inventories

($ in millions)	March 31, 2018	December 31, 2017
Finished products	$1,235	$1,083
Work in process	200	177
Raw materials	493	437
Supplies	35	33
Total Inventories	$1,963	$1,730

Most U.S. inventories are valued using the last-in, first-out method. These inventories represented approximately 32% and 34% of total inventories at March 31, 2018 and December 31, 2017 , respectively. If the first-in, first-out method of inventory valuation had been used, inventories would have been $110 million and $103 million higher as of March 31, 2018 and December 31, 2017 , respectively.

7 . Goodwill and Other Identifiable Intangible Assets

The change in the carrying amount of goodwill attributable to each reportable segment for the three months ended March 31, 2018 was as follows:

($ in millions)	Performance Coatings	Industrial Coatings	Total
January 1, 2018	$3,104	$838	$3,942
Acquisitions	53	1	54
Foreign currency	93	11	104
March 31, 2018	$3,250	$850	$4,100

A summary of the carrying value of the Company's identifiable intangible assets is as follows:

	March 31, 2018			December 31, 2017		
($ in millions)	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
Trademarks - indefinite lives	$1,218	N/A	$1,218	$1,158	N/A	$1,158
Customer-related intangibles	$1,484	($798)	$686	$1,437	($762)	$675
Acquired technology	638	(500)	138	613	(489)	124
Trade names	173	(94)	79	166	(87)	79
Other	47	(36)	11	44	(35)	9
Total	$3,560	($1,428)	$2,132	$3,418	($1,373)	$2,045

The Company’s identifiable intangible assets with finite lives are being amortized over their estimated useful lives.

($ in millions)	Three Months Ended March 31 2018	2017
Amortization expense related to identifiable intangible assets	$36	$31

As of March 31, 2018 , estimated future amortization expense of identifiable intangible assets is as follows:

($ in millions)	Future Amortization Expense
Remaining nine months of 2018	$89
2019	115
2020	105
2021	100
2022	100
2023	90
Thereafter	315

8 . Business Restructuring

The Company records restructuring liabilities that represent charges incurred in connection with consolidations of certain operations, including operations from acquisitions, as well as headcount reduction programs. These charges consist primarily of severance costs and asset write-downs.

In December 2016, PPG's Board of Directors approved a business restructuring program which includes actions necessary to reduce the Company's global cost structure. The program is focused on certain regions and end-use markets where business conditions are the weakest, as well as reductions in production capacity and various global functional and administrative costs. The restructuring actions will result in the net reduction of approximately 2,000 positions, with substantially all actions to be completed in 2018.

In the first quarter of 2018, adjustments of approximately $17 million were recorded to reduce the remaining restructuring reserves established in 2016 to reflect the current estimate of the costs to complete these actions. Also in the first quarter of 2018, some additional restructuring actions were approved and charges of approximately $17 million were recorded.

The following table summarizes the reserve activity for the three months ended March 31, 2018 :

($ in millions, except for employees impacted)	Severance and Other Costs	Employees Impacted
December 31, 2017	$102	949
2018 Activity	(17)	(151)
Foreign currency	2	
March 31, 2018	$87	798

9 . Borrowings

In February 2018, PPG completed a public offering of $300 million aggregate principal amount of 3.2% notes due 2023 and $700 million aggregate principal amount of 3.75% notes due 2028. These notes were issued pursuant to PPG's existing shelf registration statement and pursuant to an indenture between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee, as supplemented. The Indenture governing these notes contains covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all the Company's assets. The terms of these notes also require the Company to make an offer to repurchase Notes upon a Change of Control Triggering Event (as defined in the Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest. The Company may issue additional debt from time to time pursuant to the Indenture.

The aggregate cash proceeds from the notes, net of discounts and fees, was $992 million . A portion of the notes were converted from a fixed interest rate to a floating interest rate using interest rate swap contracts. For more information, refer to Note 15 , " Financial Instruments, Hedging Activities and Fair Value Measurements ."

10 . Earnings Per Share

The effect of dilutive securities on the weighted average common shares outstanding included in the calculation of earnings per diluted common share for the three months ended March 31, 2018 and 2017 were as follows:

	Three Months Ended March 31	
(number of shares in millions)	**2018**	**2017**
Weighted average common shares outstanding	249.8	257.6
Effect of dilutive securities:		
Stock options	0.9	1.1
Other stock compensation awards	0.7	0.8
Potentially dilutive common shares	1.6	1.9
Adjusted weighted average common shares outstanding	251.4	259.5

Excluded from the computation of earnings per diluted share due to their antidilutive effect were 1.1 million and 1.2 million outstanding stock options for the three months ended March 31, 2018 and 2017 , respectively.

11 . Income Taxes

	Three Months Ended March 31	
	2018	**2017**
		As Restated
Effective tax rate on pre-tax income from continuing operations	20.7%	24.7%

In the Company's first quarter earnings release on April 19, 2018, income tax expense was initially recorded at an effective rate of 23.5%. Since that time, further consideration of information relating to the Company's unrecognized tax benefits, primarily settlements of U.S. and Canadian returns for open tax years, led to the conclusion that a portion of the Company's reserve for unrecognized tax benefits should be released in the first quarter 2018, rather than be included in the effective tax rate to be applied over the course of 2018. The impact of these discrete items was to reduce income tax expense for the three months ended March 31, 2018 by $15 million. This reduced the first quarter 2018 effective tax rate to 20.7% .

The effective tax rate for 2017 of 24.7% is lower than the U.S. federal statutory rate primarily due to earnings in foreign jurisdictions which are taxed at rates lower than the U.S. statutory rate and the impact of certain U.S. tax incentives. The effective tax rate for the three months ending March 31, 2017 includes a benefit of $8 million from the settlement of U.S. non-qualified pension plan obligations, as described in Note 12 , "Pensions and Other Postretirement Benefits".

In December 2017, the U.S. enacted the Tax Cuts and Jobs Act ("the Act") which, among other things, lowered the U.S. corporate statutory income tax rate from 35% to 21%, eliminated certain deductible items and added other deductible items for corporations, imposed a tax on unrepatriated foreign earnings and eliminated U.S. taxes on most future foreign earnings. PPG recorded a provisional amount as of December 31, 2017, which represented the Company's best estimate using information available as of February 1, 2018. The Company anticipates U.S. regulatory agencies will issue further regulations during 2018, which may alter this estimate. The Company is still evaluating among other things, its position with respect to permanent reinvestment of foreign earnings overseas and other related outside basis difference considerations and the amount of tax owed on unrepatriated earnings by subsidiaries. The Company believes its remeasurement of its U.S deferred tax assets and liabilities is complete, except for changes in estimates that can result from finalizing the filing of our 2017 U.S. income tax return, which are not anticipated to be material, and changes that may be a direct impact of other provisional amounts recorded due to the enactment of the Act. The Company will refine its estimates to incorporate new or better information as it comes available through the filing date of its 2017 U.S. income tax returns in the fourth quarter of 2018.

The tax owed by PPG on its unrepatriated foreign earnings is payable over eight years and is subject to a prescriptive calculation to determine the portion payable in 2018 and beyond. PPG's current estimate, using this prescriptive method, indicates its tax payable will be increased by approximately $1 million to $3 million per year through 2025. As such, the portion of the tax on unrepatriated foreign earnings not payable within the next 12 months is presented within "Other liabilities" on the consolidated balance sheet.

The Company files federal, state and local income tax returns in numerous domestic and foreign jurisdictions. In most tax jurisdictions, returns are subject to examination by the relevant tax authorities for a number of years after the returns

have been filed. The Company is no longer subject to examinations by tax authorities in any major tax jurisdiction for years before 2006. In addition, the Internal Revenue Service has completed its examination of the Company's U.S. federal income tax returns filed for years through 2013.

12 . Pensions and Other Postretirement Benefits

Service cost for net periodic pension and other postretirement benefit costs are included in Cost of sales, exclusive of depreciation and amortization, Selling, general and administrative, and Research and development in the accompanying condensed consolidated statements of income. All other components of net periodic benefit cost are recorded in Other charges, except for pension settlement charges, in the accompanying condensed consolidated statements of income.

The net periodic pension and other postretirement benefit costs for the three months ended March 31, 2018 and 2017 were as follows:

	Pension		Other Postretirement Benefits	
	Three Months Ended March 31		Three Months Ended March 31	
($ in millions)	2018	2017	2018	2017
Service cost	$8	$9	$2	$2
Interest cost	24	24	6	7
Expected return on plan assets	(38)	(34)	—	—
Amortization of actuarial losses	16	19	5	5
Amortization of prior service credit	—	—	(15)	(13)
Pension settlement charge	—	22	—	—
Net periodic benefit cost	$10	$40	($2)	$1

PPG expects its 2018 net periodic pension and other postretirement benefit cost, excluding settlement losses, to be approximately $25 million , with pension expense representing approximately $35 million and other postretirement benefit cost representing a benefit of approximately $10 million .

Contributions to Defined Benefit Pension Plans

	Three Months Ended March 31	
($ in millions)	2018	2017
U.S. defined benefit pension contributions	$25	$29
Non-U.S. defined benefit pension mandatory contributions	$5	$5

PPG made a $25 million voluntary contribution to its U.S. defined benefit pension plans in January 2018. PPG expects to make mandatory contributions to its non-U.S. pension plans in the range of $20 million to $30 million during the remaining nine months of 2018 and may make voluntary contributions to its defined benefit pension plans in 2018 and beyond.

U.S. Non-qualified Pension

In the first quarter 2017, PPG made lump-sum payments to certain retirees who had participated in PPG's U.S. non-qualified pension plan (the "Nonqualified Plan") totaling approximately $40 million . As the lump-sum payments were in excess of the expected 2017 service and interest costs for the Nonqualified Plan, PPG remeasured the periodic benefit obligation of the Nonqualified Plan as of March 1, 2017 and recorded a settlement charge totaling $ 22 million million ($14 million after-tax).

13 . Shareholders' Equity

Changes to shareholders' equity for the three months ended March 31, 2018 and 2017 were as follows:

($ in millions)	Total PPG Shareholders' Equity	Non-controlling Interests	Total
January 1, 2018	$5,557	$115	$5,672
Net income	334	6	340
Other comprehensive income, net of tax	52	2	54
Reclassifications from other comprehensive income to retained earnings - Adoption ASU 2018 - 02	107	—	107
Cash dividends	(112)	—	(112)
Issuance of treasury stock	31	—	31
Stock repurchase program	(600)	—	(600)
Stock-based compensation activity	(19)	—	(19)
Other	(4)	(2)	(6)
March 31, 2018	$5,346	$121	$5,467

($ in millions)	Total PPG Shareholders' Equity	Non-controlling Interests	Total
January 1, 2017	$4,828	$87	$4,915
Net income (As Restated)	337	5	342
Other comprehensive income, net of tax	280	7	287
Cash dividends	(103)	—	(103)
Issuance of treasury stock	34	—	34
Stock repurchase program	(163)	—	(163)
Stock-based compensation activity (As Restated)	(21)	—	(21)
Other	—	(5)	(5)
March 31, 2017 (As Restated)	$5,192	$94	$5,286

14 . Accumulated Other Comprehensive Loss

($ in millions)	Unrealized Foreign Currency Translation Adjustments	Pension and Other Postretirement Benefit Adjustments, net of tax	Unrealized Gain (Loss) on Derivatives, net of tax	Accumulated Other Comprehensive (Loss) Income
January 1, 2018	($1,567)	($493)	$3	($2,057)
Current year deferrals to AOCI	189 [a]	—	—	189
Current year deferrals to AOCI, net of tax	(45) [b]	14	(5) [d]	(36)
Reclassification from AOCI to Retained earnings - Adoption ASU 2018 - 02	(23)	(84)	—	(107)
Reclassifications from AOCI to net income	—	3 [c],[e]	3 [d],[e]	6
Net change	$121	($67)	($2)	$52
March 31, 2018	($1,446)	($560)	$1	($2,005)
January 1, 2017	($1,798)	($571)	$13	($2,356)
Current year deferrals to AOCI	262 [a]	—	—	262
Current year deferrals to AOCI, net of tax	10 [b]	—	(12) [d]	(2)
Reclassifications from AOCI to net income	—	21 [c],[e]	(1) [d],[e]	20
Net change	$272	$21	($13)	$280
March 31, 2017	($1,526)	($550)	$—	($2,076)

(a) Unrealized foreign currency translation adjustments related to the translation of foreign denominated balance sheet account balances are not presented net of tax given that no deferred U.S. income taxes have been provided on the undistributed earnings of non-U.S. subsidiaries because they are deemed to be reinvested for an indefinite period of time.

(b) The tax cost (benefit) related to unrealized foreign currency translation adjustments on cross currency swaps and debt instruments for the three months ended March 31, 2018 and 2017 was $21 million and ($34) million , respectively.

(c) The tax benefit related to the adjustment for pension and other postretirement benefits for the three months ended March 31, 2018 and 2017 was ($1) million and ($11) million , respectively.

(d) The tax benefit related to the changes in the unrealized gain (loss) on derivatives for the three months ended March 31, 2018 and 2017 was $(1) million and ($6) million , respectively.

(e) Reclassifications from AOCI are included in the computation of net periodic pension and other post-retirement benefit costs (See Note 12 , "Pensions and Other Postretirement Benefits") and in the gain recognized on cash flow hedges (See Note 15 , "Financial Instruments, Hedging Activities and Fair Value Measurements").

15 . Financial Instruments, Hedging Activities and Fair Value Measurements

Financial instruments include cash and cash equivalents, short-term investments, cash held in escrow, marketable equity securities, accounts receivable, company-owned life insurance, accounts payable, short-term and long-term debt instruments, and derivatives. The fair values of these financial instruments approximated their carrying values at March 31, 2018 and December 31, 2017 , in the aggregate, except for long-term debt instruments.

Hedging Activities

The Company has exposure to market risk from changes in foreign currency exchange rates and interest rates. As a result, financial instruments, including derivatives, have been used to hedge these underlying economic exposures. Certain of these instruments qualify as cash flow, fair value and net investment hedges upon meeting the requisite criteria, including effectiveness of offsetting hedged or underlying exposures. In certain cases, PPG employs foreign currency contracts to economically hedge net foreign currency exposures, which do not qualify for hedge accounting. Accordingly, changes in the fair value of such derivatives are recognized in income from continuing operations in the period incurred.

PPG’s policies do not permit speculative use of derivative financial instruments. PPG enters into derivative financial instruments with high credit quality counterparties and diversifies its positions among such counterparties in order to reduce its exposure to credit losses. The Company did not realize a credit loss on derivatives during the three month periods ended March 31, 2018 and 2017 .

All of PPG's outstanding derivative instruments are subject to accelerated settlement in the event of PPG’s failure to meet its debt or payment obligations under the terms of the instruments’ contractual provisions. In addition, should the

Company be acquired and its payment obligations under the derivative instruments' contractual arrangements not be assumed by the acquirer, or should PPG enter into bankruptcy, receivership or reorganization proceedings, the instruments would also be subject to accelerated settlement.

There were no derivative instruments de-designated or discontinued as hedging instruments during the three month periods ended March 31, 2018 and 2017 and there were no gains or losses deferred in AOCI that were reclassified to income from continuing operations during the three month periods ended March 31, 2018 and 2017 related to hedges of anticipated transactions there were no longer expected to occur.

Fair Value Hedges

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to minimize its interest costs. PPG principally manages its fixed and variable interest rate risk by retiring and issuing debt from time to time and occasionally through the use of interest rate swaps. In February of 2018, PPG entered into interest rate swaps which converted $525 million of fixed rate debt to variable rate debt. The swaps are designated as fair value hedges. As such, these swaps are carried at fair value. Changes in the fair value of these swaps and that of the related debt are recorded in "Interest expense" in the accompanying consolidated statement of income. There were no interest rate swaps outstanding as of December 31, 2017 . However, in prior years PPG settled interest rate swaps and received cash. The fair value adjustment of the debt at the time the interest rate swaps were settled continues to be amortized as a reduction to interest expense over the remaining term of the related debt, which matures in 2021. The amount being amortized to interest expense is insignificant.

As of March 31, 2018 and December 31, 2017 , there were no outstanding foreign currency forward contracts designated as hedges against future changes in the fair value of certain firm sales commitments.

Cash Flow Hedges

PPG designates certain foreign currency forward contracts as cash flow hedges of the Company's exposure to variability in exchange rates on intercompany and third party transactions denominated in foreign currencies.

Net Investment Hedges

PPG uses cross currency swaps and euro-denominated debt to hedge a portion of its net investment in its European operations.

In February 2018, PPG entered into U.S. dollar to euro cross currency swap contracts with a total notional amount of $575 million and designated these contracts as hedges of the Company's net investment in its European operations. During the term of these contracts, PPG will receive payments in U.S. dollars and make payments in euros to the counterparties. The Company also settled outstanding U.S. dollar to euro cross currency swap contracts with a total notional amount of $560 million . At settlement of the outstanding contracts, PPG received $560 million U.S. dollars and paid euros to the counterparties.

As of March 31, 2018 and December 31, 2017 , PPG had designated €2.3 billion of euro-denominated borrowings as hedges of a portion of its net investment in the Company's European operations. The carrying value of these instruments as of March 31, 2018 and December 31, 2017 was $2.8 billion and $2.7 billion , respectively.

Gains/Losses Deferred in AOCI

As of March 31, 2018 , the Company had accumulated pre-tax unrealized net foreign currency translation losses in AOCI related to the euro-denominated borrowings, foreign currency forward contracts and cross currency swaps of $77 million . As of December 31, 2017, the Company had accumulated pre-tax unrealized net foreign currency translation gains of $16 million .

The following table summarizes the location within the financial statements and amount of gains (losses) related to derivative financial instruments activity for the three months ended March 31, 2018 and 2017 . All dollar amounts are shown on a pre-tax basis.

($ in millions)	March 31, 2018		March 31, 2017		Caption In Condensed Consolidated Statement of Income
	Loss Deferred in OCI	Gain (Loss) Recognized	Loss Deferred in OCI	Gain Recognized	
Not Designated as Hedging Instruments:					
Foreign currency forward contracts [1]		$4			Other charges
Fair Value					
Interest rate swaps [2]		1		—	Interest expense
Cash Flow					
Foreign currency forward contracts	($6)	(3)	($15)	$4	Other charges and Cost of Sales
Total Cash Flow	($6)	$2	($15)	$4	
Net Investment					
Cross currency swaps	($26)	$1	($4)		Interest expense
Foreign denominated debt	(68)		(38)		
Total Net Investment	($94)	$1	($42)		

(1)For the period ended, March 31, 2018, the amounts excluded from effectiveness testing recognized in earnings based on an amortized approach was expense of $1 million , with a deferred loss balance of $1 million remaining in accumulated other comprehensive income as of March 31, 2018.

(2) Interest rate swaps lowered interest expense by $6 million . The change in the fair value of long-term debt increased interest expense by $5 million .

Fair Value Measurements

The Company follows a fair value measurement hierarchy to measure its assets and liabilities. As of March 31, 2018 and December 31, 2017 , the assets and liabilities measured at fair value on a recurring basis were cash equivalents, equity securities and derivatives. In addition, the Company measures its pension plan assets at fair value (see Note 13, "Employee Benefit Plans" under Item 8 in the 2017 Form 10-K/A for further details). The Company's financial assets and liabilities are measured using inputs from the following three levels:

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets and liabilities that the Company has the ability to access at the measurement date. Level 1 inputs are considered to be the most reliable evidence of fair value as they are based on unadjusted quoted market prices from various financial information service providers and securities exchanges.

Level 2 inputs are directly or indirectly observable prices that are not quoted on active exchanges, which include quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability and inputs that are derived principally from or corroborated by observable market data by correlation or other means. The fair values of the derivative instruments reflect the instruments' contractual terms, including the period to maturity, and uses observable market-based inputs, including forward curves.

Level 3 inputs are unobservable inputs employed for measuring the fair value of assets or liabilities. The Company does not have any recurring financial assets or liabilities that are recorded in its consolidated balance sheets as of March 31, 2018 and December 31, 2017 that are classified as Level 3 inputs.

Assets and liabilities reported at fair value on a recurring basis:

	March 31, 2018			December 31, 2017		
($ in millions)	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Assets:						
Other current assets:						
Marketable equity securities	$4	$—	$—	$4	$—	$—
Foreign currency forward contracts [a]	—	—	—	—	4	—
Foreign currency forward contracts [b]	—	12	—	—	2	—
Cross currency swaps	—	—	—	—	2	—
Investments:						
Marketable equity securities	78	—	—	79	—	—
Other assets						
Interest rate swaps [c]	—	5	—	—	—	—
Liabilities:						
Accounts payable and accrued liabilities:						
Foreign currency forward contracts [a]	—	3	—	—	1	—
Foreign currency forward contracts [b]	—	28	—	—	22	—
Other liabilities	—		—	—	—	—
Cross currency swaps [d]		11				

(a) Cash flow hedges

(b) Derivatives not designated as hedging instruments

(c) Fair value hedges

(d) Net investment hedges

Long-Term Debt

($ in millions)	March 31, 2018 [a]	December 31, 2017 [b]
Long-term debt - carrying value	$5,187	$4,123
Long-term debt - fair value	$5,385	$4,341

(a) Excluding capital lease obligations of $16 million and short term borrowings of $15 million as of March 31, 2018 .

(b) Excluding capital lease obligations of $15 million and short term borrowings of $8 million as of December 31, 2017 .

The fair values of the debt instruments were based on discounted cash flows and interest rates then currently available to the Company for instruments of the same remaining maturities and were measured using level 2 inputs.

16 . Stock-Based Compensation

The Company's stock-based compensation includes stock options, restricted stock units ("RSUs") and grants of contingent shares that are earned based on achieving targeted levels of total shareholder return. All current grants of stock options, RSUs and contingent shares are made under the PPG Industries, Inc. Amended and Restated Omnibus Incentive Plan (the "PPG Amended Omnibus Plan"), which was amended and restated effective April 21, 2016. Shares available for future grants under the PPG Amended Omnibus Plan were 7.4 million as of March 31, 2018 .

Stock-based compensation and the income tax benefit recognized during the three months ended March 31, 2018 and 2017 were as follows:

	Three Months Ended March 31	
($ in millions)	2018	2017
		As Restated
Stock-based compensation	$9	$9
Income tax benefit recognized	$2	$3

Grants of stock-based compensation during the three months ended March 31, 2018 and 2017 were as follows:

	Three Months Ended March 31			
	2018		2017	
Grant Details	**Shares**	**Fair Value**	**Shares**	**Fair Value**
Stock options	517,433	$25.38	637,607	$21.15
Restricted stock units	168,432	$110.28	182,070	$95.86
Contingent shares (a)	49,278	$116.32	58,557	$100.00

(a) The number of contingent shares represents the target value of the award.

Stock options are generally exercisable 36 months after being granted and have a maximum term of 10 years. Compensation expense for stock options is recorded over the vesting period based on the fair value on the date of grant. The fair value of the stock option grants issued during the three months ended March 31, 2018 was calculated with the following weighted average assumptions:

Weighted average exercise price	$116.32
Risk-free interest rate	2.9%
Expected life of option in years	6.5
Expected dividend yield	1.7%
Expected volatility	21.1%

The risk-free interest rate is determined by using the U.S. Treasury yield curve at the date of the grant and using a maturity equal to the expected life of the option. The expected life of options is calculated using the average of the vesting term and the maximum term, as prescribed by accounting guidance on the use of the simplified method for determining the expected term of an employee share option. The expected dividend yield and volatility are based on historical stock prices and dividend amounts over historical time periods equal in length to the expected life of the options.

Time-based RSUs generally vest over the three -year period following the date of grant, unless forfeited, and will be paid out in the form of stock, cash or a combination of both at the Company's discretion at the end of the vesting period. Performance-based RSUs vest based on achieving specific annual performance targets for earnings per share growth and cash flow return on capital over the three calendar year-end periods following the date of grant. Unless forfeited, the performance-based RSUs will be paid out in the form of stock, cash or a combination of both at the Company's discretion at the end of the three -year performance period if PPG meets the performance targets.

Contingent share grants (referred to as "TSR awards") are made annually and are paid out at the end of each three -year period following the date of grant based on PPG's performance. Performance is measured by determining the percentile rank of the total shareholder return of PPG common stock in relation to the total shareholder return of the S&P 500 as it existed at the beginning of the three -year performance period excluding any companies that have been removed from the index because they ceased to be publicly traded during the performance period. Any payments made at the end of the award period may be in the form of stock, cash or a combination of both at the Company's discretion. The TSR awards qualify as liability awards, and compensation expense is recognized over the three -year award period based on the fair value of the awards (giving consideration to the Company's percentile rank of total shareholder return) remeasured in each reporting period until settlement of the awards.

17 . Commitments and Contingent Liabilities

PPG is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others, in which substantial monetary damages are sought. These lawsuits and claims may relate to contract, patent, environmental, product liability, asbestos exposure, antitrust, employment, securities and other matters arising out of the conduct of PPG's current and past business activities. To the extent that these lawsuits and claims involve personal injury and property damage, PPG believes it has adequate insurance; however, certain of PPG's insurers are contesting coverage with respect to some of these claims, and other insurers, as they had prior to the asbestos settlement described below, may contest coverage in the future. PPG's lawsuits and claims against others include claims against insurers and other third parties with respect to actual and contingent losses related to environmental, asbestos and other matters.

The results of any current or future litigation and claims are inherently unpredictable. However, management believes that, in the aggregate, the outcome of all lawsuits and claims involving PPG, including asbestos-related claims, will not have a material effect on PPG's consolidated financial position or liquidity; however, such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized.

Asbestos Matters

Prior to 2000, the Company had been named as a defendant in numerous claims alleging bodily injury from (i) exposure to asbestos-containing products allegedly manufactured, sold or distributed by the Company, its subsidiaries, or for which they are otherwise alleged to be liable; (ii) exposure to asbestos allegedly present at a facility owned or leased by the Company; or (iii) exposure to asbestos-containing products of Pittsburgh Corning Corporation ("PC") for which the Company was alleged to be liable under a variety of legal theories (the Company and Corning Incorporated were each 50% shareholders in PC).

Pittsburgh Corning Corporation asbestos bankruptcy

In 2000, PC filed for Chapter 11 in the U.S. Bankruptcy Court for the Western District of Pennsylvania in an effort to permanently and comprehensively resolve all of its pending and future asbestos-related liability claims. At the time of the bankruptcy filing, the Company had been named as one of many defendants in approximately 114,000 open claims. The Bankruptcy Court subsequently entered a series of orders preliminarily enjoining the prosecution of asbestos litigation against PPG until after the effective date of a confirmed PC plan of reorganization. During the pendency of this preliminary injunction staying asbestos litigation against PPG, PPG and certain of its historical liability insurers negotiated a settlement with representatives of present and future asbestos claimants. That settlement was incorporated into a PC plan of reorganization that was confirmed by the Bankruptcy Court on May 24, 2013 and ultimately became effective on April 27, 2016. With the effectiveness of the plan, the preliminary injunction staying the prosecution of asbestos litigation against PPG expired by its own terms on May 27, 2016. In accordance with the settlement, the Bankruptcy Court issued a permanent channeling injunction under Section 524(g) of the Bankruptcy Code that prohibits present and future claimants from asserting claims against PPG that arise, in whole or in part, out of exposure to asbestos or asbestos-containing products manufactured, sold and/or distributed by PC or asbestos on or emanating from any PC premises. The channeling injunction, by its terms, also prohibits codefendants in cases that are subject to the channeling injunction from asserting claims against PPG for contribution, indemnification or other recovery. The channeling injunction also precludes the prosecution of claims against PPG arising from alleged exposure to asbestos or asbestos-containing products to the extent that a claimant is alleging or seeking to impose liability, directly or indirectly, for the conduct of, claims against, or demands on PC by reason of PPG's: (i) ownership of a financial interest in PC; (ii) involvement in the management of PC, or service as an officer, director or employee of PC or a related party; (iii) provision of insurance to PC or a related party; or (iv) involvement in a financial transaction affecting the financial condition of PC or a related party. The foregoing PC related claims are referred to as "PC Relationship Claims."

The channeling injunction channels the Company's liability for PC Relationship Claims to a trust funded in part by PPG and its participating insurers for the benefit of current and future PC asbestos claimants (the "Trust"). The Trust is the sole recourse for holders of PC Relationship Claims. PPG and its affiliates have no further liability or responsibility for, and will be permanently protected from, pending and future PC Relationship Claims. The channeling injunction does not extend to present and future claims against PPG that arise out of alleged exposure to asbestos or asbestos-containing products historically manufactured, sold and/or distributed by PPG or its subsidiaries or for which they are alleged to be liable that are not PC Relationship Claims, and does not extend to claims against PPG alleging personal injury allegedly caused by asbestos on premises presently or formerly owned, leased or occupied by PPG. These claims are referred to as non-PC Relationship Claims.

In accordance with the PC plan of reorganization, PPG's equity interest in PC was canceled. PPG satisfied its funding obligations to the Trust on June 9, 2016, when it conveyed to the Trust the stock it owned in Pittsburgh Corning Europe and 2,777,778 shares of PPG's common stock and made a cash payment to the Trust in the amount of $764 million . PPG's historical insurance carriers participating in the PC plan of reorganization are required to make cash payments to the Trust of approximately $1.7 billion , subject to a right of prepayment at a 5.5% discount rate.

On October 13, 2016, the Bankruptcy Court issued an order entering a final decree and closing the Chapter 11 case. That order provided that the Bankruptcy Court retained jurisdiction to enforce any order issued in the case and any agreements approved by the court, enforce the terms and conditions of the modified third amended Plan, and consider any requests to reopen the case.

Non-PC relationship asbestos claims

At the time PC filed for bankruptcy, PPG had been named as one of many defendants in one or more of the categories of asbestos-related claims identified above. Over the course of the 16 years during which the PC bankruptcy proceedings, and corresponding preliminary injunction staying the prosecution of asbestos-related claims against PPG, were pending, certain plaintiffs alleging premises claims filed motions seeking to lift the stay with respect to more than 1,000 individually-identified premises claims. The Bankruptcy Court granted motions to lift the stay in respect to certain of these premises claims and directed PPG to engage in a process to address any additional premises claims that were the subject of pending or anticipated lift-stay motions. As a result of the overall process as directed by the Bankruptcy Court involving more than 1,000 premises claims between 2006 and May 27, 2016, hundreds of these claims were withdrawn or dismissed without payment and approximately 650 premises claims were dismissed upon agreements by PPG and its insurers to resolve such claims in exchange for monetary payments.

With respect to the remaining claims still reportable within the inventory of 114,000 asbestos-related claims at the time PC filed for bankruptcy, the Company considers such claims to fall within one or more of the following categories: (1) claims that have been closed or dismissed as a result of processes undertaken during the bankruptcy; (2) claims that may have been previously filed on the dockets of state and federal courts in various jurisdictions, but are inactive as to the Company; and (3) claims that are subject, in whole or in part, to the channeling injunction and thus will be resolved, in whole or in part, in accordance with the Trust procedures established under the PC bankruptcy reorganization plan. As a result of the foregoing, the Company does not consider these three categories of claims to be open or active litigation against it, although the Company cannot now determine whether, or the extent to which, any of these claims may in the future be reinstituted, reinstated, or revived such that they may become open and active asbestos-related claims against it.

Current open and active claims post-Pittsburgh Corning bankruptcy

As of March 31, 2018 , the Company was aware of approximately 475 open and active asbestos-related claims pending against the Company and certain of its subsidiaries. These claims consist primarily of non-PC Relationship Claims and claims against a subsidiary of PPG. The Company is defending the remaining open and active claims vigorously.

Since April 1, 2013, a subsidiary of PPG has been implicated in claims alleging death or injury caused by asbestos-containing products manufactured, distributed or sold by a North American architectural coatings business or its predecessors which was acquired by PPG. All such claims have been either served upon or tendered to the seller for defense and indemnity pursuant to obligations undertaken by the seller in connection with the Company's purchase of the North American architectural coatings business. The seller has accepted the defense of these claims subject to the terms of various agreements between the Company and the seller. The seller's defense and indemnity obligations in connection with newly filed claims ceased with respect to claims filed after April 1, 2018.

PPG has established reserves totaling approximately $180 million for asbestos-related claims that would not be channeled to the Trust which, based on presently available information, we believe will be sufficient to encompass all of PPG's current and potential future asbestos liabilities. These reserves include a $162 million reserve established in 2009 in connection with an amendment to the PC plan of reorganization. These reserves, which are included within "Other liabilities" on the accompanying condensed consolidated balance sheets, represent PPG's best estimate of its liability for these claims. PPG does not have sufficient current claim information or settlement history on which to base a better estimate of this liability in light of the fact that the Bankruptcy Court's injunction staying most asbestos claims against the Company was in effect from April 2000 through May 2016. PPG will monitor the activity associated with its remaining asbestos claims and evaluate, on a periodic basis, its estimated liability for such claims, its insurance assets then available, and all underlying assumptions to determine whether any adjustment to the reserves for these claims is required.

The amount reserved for asbestos-related claims by its nature is subject to many uncertainties that may change over time, including (i) the ultimate number of claims filed; (ii) the amounts required to resolve both currently known and future unknown claims; (iii) the amount of insurance, if any, available to cover such claims; (iv) the unpredictable aspects of the litigation process, including a changing trial docket and the jurisdictions in which trials are scheduled; (v) the outcome of any trials, including potential judgments or jury verdicts; (vi) the lack of specific information in many cases concerning exposure for which PPG is allegedly responsible, and the claimants' alleged diseases resulting from such exposure; and (vii) potential changes in applicable federal and/or state tort liability law. All of these factors may have a material effect upon future asbestos-related liability estimates. As a potential offset to any future asbestos financial exposure, under the PC plan of reorganization PPG retained, for its own account, the right to pursue insurance coverage from certain of its historical insurers that did not participate in the PC plan of reorganization. While the ultimate outcome of PPG's asbestos litigation cannot be predicted with certainty, PPG believes that any financial exposure

resulting from its asbestos-related claims will not have a material adverse effect on PPG's consolidated financial position, liquidity or results of operations.

Environmental Matters

It is PPG's policy to accrue expenses for environmental contingencies when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Reserves for environmental contingencies are exclusive of claims against third parties and are generally not discounted. In management's opinion, the Company operates in an environmentally sound manner and the outcome of the Company's environmental contingencies will not have a material effect on PPG's financial position or liquidity; however, any such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized. Management anticipates that the resolution of the Company's environmental contingencies will occur over an extended period of time. See Note 14, "Commitments and Contingent Liabilities," under Item 8 in the 2017 Form 10-K/A for additional descriptions of the following environmental matters.

As of March 31, 2018 and December 31, 2017 , PPG had reserves for environmental contingencies associated with PPG's former chromium manufacturing plant in Jersey City, N.J. and associated sites ("New Jersey Chrome") and for other environmental contingencies, including National Priority List sites and legacy glass and chemical manufacturing sites. These reserves are reported as "Accounts payable and accrued liabilities" and "Other liabilities" in the accompanying condensed consolidated balance sheet.

Environmental Reserves

($ in millions)	March 31, 2018	December 31, 2017
New Jersey Chrome	$149	$136
Legacy glass and chemical	78	71
Other	49	51
Total	$276	$258
Current portion	*$72*	*$73*

Pre-tax charges against income for environmental remediation costs are included in "Other charges" in the accompanying condensed consolidated statement of income. The pre-tax charges and cash outlays related to such environmental remediation for the three months ended March 31, 2018 and 2017 were as follows:

	Three Months Ended March 31	
($ in millions)	2018	2017
Environmental remediation pre-tax charges - see Note 19, "Subsequent Events"	$34	$1
Cash outlays for environmental remediation activities	$17	$12

Remediation: New Jersey Chrome

In June 2009, PPG entered into a settlement agreement with the New Jersey Department of Environmental Protection ("NJDEP") and Jersey City, New Jersey (which had asserted claims against PPG for lost tax revenue) which was in the form of a Judicial Consent Order (the "JCO"). Under the JCO, PPG accepted sole responsibility for the remediation activities at its former chromium manufacturing location in Jersey City and 19 additional sites. The principal contaminant of concern is hexavalent chromium. The JCO also provided for the appointment of a court-approved Site Administrator who is responsible for establishing a master schedule for the remediation of the 20 PPG sites which existed at that time. One site was subsequently removed from the JCO process during 2014 and will be remediated separately at a future date. A total of 19 sites remain subject to the JCO process.

The most significant assumptions underlying the estimate of remediation costs for all New Jersey Chrome sites are those related to the extent and concentration of chromium impacts in the soil, as these determine the quantity of soil that must be treated in place, the quantity that will have to be excavated and transported for offsite disposal, and the nature of disposal required. The reserve for the estimated costs to remediate all New Jersey Chrome sites are exclusive of any third party indemnification, as the recovery of any such amounts is uncertain.

Groundwater remediation at PPG's former chromium manufacturing site in Jersey City and five adjacent sites is expected to occur over several years after NJDEP's approval of a work plan. Ongoing groundwater monitoring will be utilized to develop a final groundwater remedial action work plan which is currently expected to be submitted to NJDEP in 2021.

PPG's financial reserve for remediation of all New Jersey Chrome sites is $149 million at March 31, 2018 . The major cost components of this liability continue to be related to excavation, transportation and disposal of impacted soil, as well as construction services. These components each account for approximately 31% , 34% and 14% of the accrued amount, respectively.

There are multiple, future events yet to occur, including further remedy selection and design, remedy implementation and execution and applicable governmental agency or community organization approvals. Considerable uncertainty exists regarding the timing of these future events for the New Jersey Chrome sites. Final resolution of these events is expected to occur over the next several years. As these events occur and to the extent that the cost estimates of the environmental remediation remedies change, the existing reserve for this environmental remediation matter will be adjusted.

Remediation: Other Legacy Sites

Among other sites at which PPG is managing environmental liabilities, remedial actions are occurring at a legacy chemical manufacturing site in Barberton, Ohio, where PPG has completed a Facility Investigation and Corrective Measure Study under the USEPA's Resource Conservation and Recovery Act ("RCRA") Corrective Action Program. PPG has also been addressing the impacts from a legacy plate glass manufacturing site in Kokomo, Indiana under the Voluntary Remediation Program of the Indiana Department of Environmental Management. PPG is currently performing additional investigation activities at this location.

With respect to certain other waste sites, the financial condition of other potentially responsible parties also contributes to the uncertainty of estimating PPG's final costs. Although contributors of waste to sites involving other potentially responsible parties may face governmental agency assertions of joint and several liability, in general, final allocations of costs are made based on the relative contributions of wastes to such sites. PPG is generally not a major contributor to such sites.

Separation and merger of the commodity chemicals business

As a result of the commodity chemicals business separation transaction in 2013, PPG has retained responsibility for potential environmental liabilities that may result from future Natural Resource Damage claims and any potential tort claims at the Calcasieu River Estuary associated with activities and historical operations of the Lake Charles, La. facility. In the fourth quarter of 2017, PPG signed a consent decree prepared by the US Department of Justice for settlement of potential natural resource damage claims at the Calcasieu River Estuary for $3.6 million . The agreement was filed with the court in March 2018 and payment of PPG's previously accrued for share of costs into an escrow account is required within 30 days. Payment was made in April 2018.

Remediation: Reasonably Possible Matters

In addition to the amounts currently reserved for environmental remediation, the Company may be subject to loss contingencies related to environmental matters estimated to be as much as $100 million to $200 million . Such unreserved losses are reasonably possible but are not currently considered to be probable of occurrence. These reasonably possible unreserved losses relate to environmental matters at a number of sites, none of which are individually significant. The loss contingencies related to these sites include significant unresolved issues such as the nature and extent of contamination at these sites and the methods that may have to be employed to remediate them.

The impact of evolving programs, such as natural resource damage claims, industrial site re-use initiatives and domestic and international remediation programs, also adds to the present uncertainties with regard to the ultimate resolution of this unreserved exposure to future loss. The Company's assessment of the potential impact of these environmental contingencies is subject to considerable uncertainty due to the complex, ongoing and evolving process of investigation and remediation, if necessary, of such environmental contingencies, and the potential for technological and regulatory developments.

Other Matters

The Company had outstanding letters of credit and surety bonds of $167 million and guarantees of $14 million as of March 31, 2018 . The Company does not believe any loss related to such guarantees is likely.

18 . Reportable Business Segment Information

PPG is a multinational manufacturer with 9 operating segments that are organized based on the Company's major product lines. These operating segments are also the Company's reporting units for purposes of testing goodwill for impairment. The operating segments have been aggregated based on economic similarities, the nature of their products, production processes, end-use markets and methods of distribution into two reportable business segments.

Effective January 1, 2018, the coatings services business unit was merged into the industrial coatings business unit to achieve operational efficiencies and to realign management teams and operations to better deliver the Company's total value proposition and provide optimal solutions to its customers.

The Performance Coatings reportable segment is comprised of the automotive refinish, aerospace, architectural coatings – Americas and Asia-Pacific, architectural coatings - EMEA, and protective and marine coatings operating segments. This reportable segment primarily supplies a variety of protective and decorative coatings, sealants and finishes along with paint strippers, stains and related chemicals, as well as transparencies and transparent armor.

The Industrial Coatings reportable segment is comprised of the automotive original equipment manufacturer ("OEM") coatings, industrial coatings, packaging coatings, and the specialty coatings and materials operating segments. This reportable segment primarily supplies a variety of protective and decorative coatings and finishes along with adhesives, sealants, metal pretreatment products, optical monomers and coatings, precipitated silicas, *Teslin*® and other specialty materials, and coatings services.

Reportable segment net sales and segment income for the three months ended March 31, 2018 and 2017 were as follows:

($ in millions)	Three Months Ended March 31	
	2018	2017
		As Restated
Net sales:		
Performance Coatings	$2,160	$2,017
Industrial Coatings	1,621	1,469
Total	$3,781	$3,486
Segment income: [a]		
Performance Coatings	$280	$285
Industrial Coatings	239	276
Total	$519	$561
Corporate [a]	(43)	(61)
Interest expense, net of interest income	(21)	(21)
Legacy items [b]	4	(7)
Costs related to customer assortment change	(4)	—
Environmental remediation charges	(34)	—
Pension settlement charge	—	(22)
Transaction-related costs [c]	—	(4)
Income from continuing operations before income taxes	$421	$446

(a) During the first quarter 2018, PPG recast 2017 segment income and corporate to present the non-service cost components of pension and other post-retirement benefit costs as corporate costs. Segment income only includes the service cost component of pension and other post-retirement benefit costs for all periods presented.

(b) Legacy items include current costs related to former operations of the Company, including pension and other postretirement benefit costs, certain charges for legal matters and environmental remediation costs, and certain other charges which are not associated with PPG's current business portfolio.

(c) Transaction-related costs include advisory, legal, accounting, valuation and other professional or consulting fees incurred to effect significant acquisitions, as well as similar fees and other costs to effect disposals not classified as discontinued operations. These costs may also include the flow-through cost of sales for the step up to fair value of inventories acquired in acquisitions.

19 . Subsequent Events

Business Restructuring

On April 23, 2018, the Company approved a business restructuring plan which includes actions to reduce its global cost structure. The program is in response to the impacts of a customer assortment change in our U.S. architectural coatings business during the first quarter 2018 and sustained, elevated raw material inflation. The program aims to further right-size employee headcount and production capacity in certain businesses based on current product demand, as well as reductions in various global functional and administrative costs. A pretax restructuring charge of $80 million to $85 million , based on current exchange rates, will be recorded in PPG's second quarter 2018 financial results, of which about $75 million to $80 million represents employee severance and other cash costs. The remainder of the charge represents the write-down of certain assets and other non-cash costs. In addition, other cash costs of up to $35 million to $40 million will be incurred, consisting of incremental restructuring-related cash costs for certain items that are required to be expensed on an as-incurred basis of approximately $15 million and approximately $20 million to $25 million for items which are expected to be capitalized. The Company also expects approximately $15 million of incremental non-cash accelerated depreciation expense for certain assets due to their reduced expected asset life as a result of this program. Substantially all restructuring actions are expected to be complete by the end of the second quarter 2019 and will result in the net reduction of approximately 1,100 positions.

Environmental Remediation Charges

Environmental remediation of the NJ Chrome sites and our legacy glass and chemical sites is ongoing. Information impacting the Company's estimates of future remediation costs at these sites that became available after March 31, 2018, led to a conclusion that the existing reserves for the NJ Chrome and legacy glass and chemical sites should be increased by $26 million and $8 million , respectively. Because this information concerning existing environmental remediation reserves became available prior to the issuance of the Company's condensed consolidated financial statements for the quarter ended March 31, 2018, applicable U.S. GAAP requires that these increases in the environmental remediation reserves be treated as a subsequent event that is recorded as of March 31, 2018. See Note 17 , "Commitments and Contingencies" for additional information concerning our environmental remediation reserves.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited financial statements and the notes thereto included in the condensed consolidated financial statements in Part I, Item 1, "Financial Statements," of this report and in conjunction with the 2017 Form 10-K/A. As described in Note 2, "Restatement of Previously Reported Consolidated Annual and Condensed Consolidated Quarterly (unaudited) Financial Statements," we restated our audited consolidated financial statements for the year ended December 31, 2017 and 2016. We have also restated certain unaudited quarterly results related to the three months ended December 31, 2016, March 31, 2017, June 30, 2017 (and six months ended), September 30, 2017 (and nine months ended) and December 31, 2017. The impact of the restatement is reflected below.

Executive Overview

Below are our key financial results for the three months ended March 31, 2018 :

- Net sales were approximately $3.8 billion , up 8.5% compared to the prior year, aided by favorable foreign currency translation of $203 million .
- Cost of sales, exclusive of depreciation and amortization was $2.2 billion , up 14.7% versus prior year, primarily driven by foreign currency translation.
- Selling, general and administrative ("SG&A") expense was $0.9 billion , up 3.5% year-over-year. As a percentage of sales, SG&A expense decreased 1.1% .
- Income before income taxes was $421 million .
- The effective tax rate was 20.7% .
- Net income from continuing operations was $328 million .
- Earnings per diluted share from continuing operations was $1.31 .
- Cash flows from operating activities - continuing operations was $(228) million , a decrease of $227 million year over year driven by higher working capital and higher cash paid for taxes.
- Capital expenditures, including acquisitions (net of cash acquired), was $171 million .
- The Company paid $112 million in dividends and repurchased $600 million of its outstanding common stock.

Performance in the first quarter of 2018 compared to the first quarter of 2017

Performance Overview

Net Sales

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2018	2017	2018 vs. 2017
		As Restated	
United States and Canada	$1,585	$1,543	2.7%
Europe, Middle East and Africa (EMEA)	1,180	1,023	15.3%
Asia-Pacific	630	583	8.1%
Latin America	386	337	14.5%
Total	$3,781	$3,486	8.5%

2018 vs. 2017

Net sales increased $295 million due to the following:

- *Favorable foreign currency translation (+6%)*
- *Higher selling prices (+1.6%)*
- *Net sales from acquired businesses (+1%)*
- *Higher sales volumes (+0.5%)*

U.S. and Canada sales volumes were in-line with the prior year, including the unfavorable impact of lower automotive OEM production in the region. Aerospace coatings and packaging coatings had above market sales volume growth reflecting continued adoption of new PPG technologies. Organic sales in the automotive refinish coatings business grew year-over-year, despite slightly lower industry collision claims. General industrial coatings and our architectural coatings company-owned stores continued to perform well, as sales volumes increased a mid-single-digit percentage versus the prior year. These increases were more than offset by sales volumes declines in the architectural national retail (DIY) channel and independent dealer networks, including the unfavorable impact from a customer assortment change in the DIY channel and the impact of fewer shipping days due to the timing of the Easter holiday.

In February 2018, PPG announced that Lowe's will discontinue the sale of OLYMPIC® brand paints and stains in its U.S. retail stores, effective mid-2018. PPG has had a long standing relationship with Lowe's, which provided a primary sales channel for a number of PPG's brands, including its OLYMPIC® brand paints and stain products. PPG believes this will create an opportunity to expand the distribution of its products, including OLYMPIC® brand products, through PPG stores, dealers and other distribution partners. PPG remains confident in its long-term strategy to support customers and looks forward to expanding the OLYMPIC® brand and its strong portfolio of paints and stains to new points of distribution. During the second quarter 2018, the Company will launch its OLYMPIC® stain products at THE HOME DEPOT® U.S. retail stores, expanding our existing partnership arrangement; however, these incremental sales will not offset expected declines in the overall DIY and independent dealer network. Sales at Lowe's stores in the U.S. represent less than $270 million of PPG's annual sales. PPG plans to aggressively and appropriately adjust its cost structure to adapt to this change in its business. PPG continues to value its longstanding relationship with Lowe's and will continue to supply certain specialty building materials to Lowe's stores.

Europe, Middle East and Africa (EMEA) sales volumes were down modestly versus the prior year. Strong sales volume growth in general industrial coatings, automotive refinish coatings, automotive OEM coatings, and packaging coatings was offset by a mid-single-digit percentage decrease in architectural coatings due to fewer shipping days related to the timing of the Easter holiday, harsh weather conditions across most of the region which affected the ability to complete exterior paint projects, and softening industry demand in the U.K. Sales volumes in the protective and marine coatings business were lower due to project delays.

Asia-Pacific sales volumes were flat year-over-year, with growth in general industrial, aerospace, automotive refinish and protective coatings offset by lower sales volumes in marine, automotive OEM and packaging coatings. From a country and sub-region perspective, sales volumes grew in China at a more moderate pace as we experienced softer demand in China, as certain customers delayed their restart following the Chinese New Year holiday. Sales volumes in India increased by a mid-teen-digit percentage, while Korea sales volumes declined due to continuing soft but moderating marine shipbuilding activity.

Latin America sales volumes grew by a high-single-digit percentage versus the prior year, led by our automotive OEM, general industrial and architectural coatings businesses. PPG automotive OEM coatings continued to perform at above market levels, driven by new business secured in 2017. Within the region, sales volumes expanded in Mexico, Central America and South America.

Net sales from acquired businesses, net of dispositions added approximately $30 million, primarily from The Crown Group.

Foreign currency translation increased net sales by $203 million as the U.S. dollar weakened against several foreign currencies versus the prior year, most notably the Mexican peso and the euro.

Cost of Sales, exclusive of depreciation and amortization

	Three Months Ended March 31		Percent Change
($ in millions, except percentages)	**2018**	**2017**	**2018 vs. 2017**
Cost of sales, exclusive of depreciation and amortization	$2,181	$1,902	14.7%
Cost of sales as a percentage of net sales	57.7%	54.6%	3.1%

2018 vs. 2017

Cost of sales, exclusive of depreciation and amortization, increased $279 million (+14.7%) primarily due to the following:

- *Foreign currency translation*
- *Higher raw material costs*
- *Higher sales volumes*
- *Cost reclassifications associated with the adoption of the new revenue recognition standard. Refer to Note 4, "Revenue Recognition" within Part 1 of this 10-Q.*
- *Cost of sales attributable to acquired businesses*

Partially offset by:

- *Lower manufacturing costs, including restructuring cost savings*

Selling, general and administrative expenses

	Three Months Ended March 31		Percent Change
($ in millions, except percentages)	**2018**	**2017**	**2018 vs. 2017**
		As Restated	
Selling, general and administrative expenses (SG&A)	$906	$875	3.5 %
Selling, general and administrative expenses as a percentage of net sales	24.0%	25.1%	(1.1)%

2018 vs. 2017

SG&A expense increased $31 million (+3.5%) primarily due to the following:

- *Foreign currency translation*
- *Wage and other cost inflation*
- *SG&A expenses attributable to acquired businesses*

Partially offset by:

- *Cost reclassifications associated with the adoption of the new revenue recognition standard. Refer to Note 4, "Revenue Recognition" within Part 1 of this 10-Q.*
- *Restructuring cost savings*
- *Lower selling and advertising expense*

Other costs and income

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2018	2017	2018 vs. 2017
		As Restated	
Interest expense, net of Interest income	$21	$21	— %
Pension settlement charge	—	$22	(100.0)%
Other charges	$41	$25	64.0 %
Other income	($24)	($24)	— %

Pension Settlement Charge

During the first quarter 2017, PPG made lump-sum payments to certain retirees who had participated in PPG's U.S. non-qualified pension plan (the "Nonqualified Plan") totaling approximately $40 million . As the lump-sum payments were in excess of the expected 2017 service and interest costs for the Nonqualified Plan, PPG remeasured the periodic benefit obligation of the Nonqualified Plan as of March 1, 2017 and recorded a settlement charge totaling $22 million during the first quarter 2017.

Other Charges

Other charges were higher in the first quarter of 2018 due to an environmental remediation charge of $34 million. Additionally, the non-service components of net periodic pension and post-retirement benefit costs are recorded in Other charges. These costs decreased $10 million from March 31, 2017 to March 31, 2018 primarily due to higher expected return on assets and lower amortization of actuarial losses. We expect this trend to continue for the remainder of 2018.

Effective tax rate and earnings per diluted share

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2018	2017	2018 vs. 2017
		As Restated	
Income tax expense	$87	$110	(20.9)%
Effective tax rate	20.7%	24.7%	(4.0)%
Adjusted effective tax rate, continuing operations*	24.2%	25.2%	(1.0)%
Earnings per diluted share, continuing operations	$1.31	$1.28	2.3 %
Adjusted earnings per diluted share*	$1.36	$1.34	1.5 %

*See Regulation G Reconciliation.

The effective tax rate for the three months ending March 31, 2018 reflects the benefit of U.S. tax legislation enacted in December 2017 and the $15 million benefit associated with the release of reserve for unrecognized tax benefits primarily reflecting settlements of U.S. and Canadian returns for open years. The effective tax rate for the three months ending March 31, 2017 includes a benefit of $8 million from the settlement of U.S. non-qualified pension plan obligations.

Earnings per diluted share from continuing operations for the three months ended March 31, 2018 increased year-over-year due to the absence of the first quarter 2017 pension settlement charge, the impact of which was partially offset by the net impact of the first quarter 2018 environmental remediation charge and discrete tax items. The Company benefited from the 5.2 million shares repurchased in the first quarter of 2018 and 5.8 million shares repurchased in the third and fourth quarters of 2017.

Regulation G Reconciliation - Results from Operations

PPG Industries believes investors' understanding of the company's operating performance is enhanced by the disclosure of net income, earnings per diluted share and the effective tax rate adjusted for certain charges. PPG's management considers this information useful in providing insight into the company's ongoing operating performance because it excludes the impact of items that cannot reasonably be expected to recur on a quarterly basis or that are not attributable to our primary operations. Net income, earnings per diluted share and the effective tax rate adjusted for these items are not recognized financial measures determined in accordance with U.S. generally accepted accounting principles (GAAP) and should not be considered a substitute for net income, earnings per diluted share,

the effective tax rate or other financial measures as computed in accordance with U.S. GAAP. In addition, adjusted net income, earnings per diluted share and the effective tax rate may not be comparable to similarly titled measures as reported by other companies.

Income before income taxes from continuing operations is reconciled to adjusted income before income taxes, the effective tax rate from continuing operations is reconciled to the adjusted effective tax rate from continuing operations and net income (attributable to PPG) and earnings per share – assuming dilution (attributable to PPG) are reconciled to adjusted net income (attributable to PPG) and adjusted earnings per share – assuming dilution below:

	Three months ended March 31, 2018				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per diluted share
As reported, continuing operations [1]	$421	$87	20.7%	$328	$1.31
Adjusted for:					
Costs related to customer assortment change	4	1	24.3%	3	0.01
Environmental remediation charges	34	8	25.1%	26	0.10
Impact of discrete tax items	—	15	N/A	(15)	(0.06)
Adjusted, continuing operations, excluding certain charges	$459	$111	24.2%	$342	$ 1.36

As Restated	Three months ended March 31, 2017				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per share
As reported, continuing operations	$446	$110	24.7%	$331	$1.28
Adjusted for:					
Transaction-related costs [2]	4	1	37.9%	3	0.01
Pension settlement charge	22	8	37.9%	14	0.05
Adjusted, continuing operations, excluding certain charges	$472	$119	25.2%	$348	$1.34

(1) The Company originally reported Net income from continuing operations of $347 million, or $1.38 per diluted share, in its earnings release on April 19, 2018. As a result of the matters identified during the investigation described in the Explanatory Note to this Form 10-Q and additional amounts related to environmental remediation charges and the discrete treatment of certain tax items, Net income from continuing operations decreased by $19 million or $0.07 per diluted share. See Note 19, “Subsequent Events” and Note 11 , " Income Taxes " to the accompanying condensed consolidated financial statements in Item 1 of this Form 10-Q for more information.

(2) Transaction-related costs include advisory, legal, accounting, valuation and other professional or consulting fees incurred to effect significant acquisitions, as well as similar fees and other costs to effect disposals not classified as discontinued operations. These costs may also include the flow-through cost of sales for the step up to fair value of inventories acquired in acquisitions.

Performance of Reportable Business Segments

Performance Coatings

($ in millions, except per share amounts)	Three Months Ended March 31		$ Change	% Change
	2018	2017	2018 vs. 2017	2018 vs. 2017
		As Restated		
Net sales	$2,160	$2,017	$143	7.1 %
Segment income	$280	$285	($5)	(1.8) %

2018 vs. 2017

Performance Coatings net sales increased $143 million (+7.1%) due to the following:

- *Favorable foreign currency translation of $119 million (+6%)*
- *Higher selling prices (+1%)*

Architectural coatings - Americas and Asia-Pacific sales volumes were slightly lower versus the prior year. Sales volumes were positive year-over-year in the U.S. and Canada company-owned store network, as well as in Mexico, Central America, Australia, and Brazil. Sales volumes increased by a mid-single-digit percentage in U.S. and Canada company-owned stores, and marked the 9th consecutive quarterly improvement. The increase was more than offset by lower DIY and independent dealer network channel declines, including the unfavorable impact from a customer assortment change in the DIY channel.

Architectural coatings - EMEA sales volumes decreased by a mid-single-digit percentage year-over-year. Sales volumes were impacted by harsh weather, which caused store closures during the quarter in a few countries and fewer shipping days compared to the first quarter 2017 due to the timing of the Easter holiday. The business continues to work on implementing selling price increases.

Automotive refinish coatings organic sales grew by a low-single-digit percentage year-over-year, led by above-market performance in Europe, as customers adopted PPG's industry leading technologies. Organic sales across the other regions were consistent with the market.

Aerospace coatings sales volumes grew by a high-single-digit percentage versus the prior year, including above-market volume growth in the U.S. and Asia. Strong growth was supported by positive industry demand fundamentals and market outperformance in the U.S. from advantaged technology products.

Protective and marine coatings sales volumes were slightly lower year-over-year. Protective coatings sales volumes were up, driven by North America and China growth. These increases were more than offset by moderating decreases in marine coatings despite the continuing positive trend of improved ship-building orders placed to the shipyards in Asia, but it will be 12-24 months until these orders lead to increased paint consumption.

Segment income was consistent year-over-year despite significantly increasing raw material costs, wage and other cost inflation, and lower sales volumes. These cost increases were offset by higher selling prices, lower manufacturing and overhead costs generated from disciplined cost management actions, including further benefits from the Company's 2016 restructuring program. Favorable foreign currency translation increased segment income by approximately $15 million (Mexican peso and the euro).

Looking Ahead

In the second quarter 2018, we anticipate higher net sales sequentially due to normal seasonality, specifically in our architectural businesses in Europe, the U.S. and Canada. From a business perspective, we anticipate consistent sales volume growth trends in automotive refinish coatings and aerospace coatings, supported by customer demand for PPG's industry leading technologies. Further, we expect architectural - EMEA coatings sales volumes in the second quarter to improve sequentially, driven by one additional shipping day. Industry demand in the U.K. will likely continue to be impacted by consumer apprehension surrounding the Brexit process. Architectural coatings U.S. and Canada sales volumes are expected to be lower in aggregate, but varied by channel with lower year-over-year DIY and independent dealer sales due to the impact of a change in customer assortment, partially offset by continued growth in company-owned stores. The Company will launch OLYMPIC® stain brand at THE HOME DEPOT® U.S. retail stores during the second quarter; these incremental sales are not expected to fully offset declines in the overall DIY and independent dealer networks. Architectural coatings Latin America sales volumes are expected to grow by a low-single-digit percentage. The protective and marine coatings business is expected to perform in line with the market in the second quarter. We also anticipate continued growth-related spending of up to $5 million in the second quarter to drive higher demand.

We expect raw material costs to remain elevated in the second quarter 2018 at similar levels experienced in the first quarter. We plan to offset a portion of these elevated costs with additional selling price initiatives that have been secured for the second quarter. There will be no material benefit from acquisition-related sales in the segment, and based on current exchange rates, foreign currency translation is expected to have a slightly lower sequential favorable impact on segment net sales and income in the second quarter 2018 compared to the first quarter.

Industrial Coatings

	Three Months Ended March 31		$ Change	% Change
($ in millions, except per share amounts)	**2018**	**2017**	**2018 vs. 2017**	**2018 vs. 2017**
Net sales	$1,621	$1,469	$152	10.3 %
Segment income	$239	$276	($37)	(13.4)%

2018 vs. 2017

Industrial Coatings segment net sales increased $152 million (+10.3%) due to the following:

- *Favorable foreign currency translation of approximately $84 million (+6%)*
- *Acquisition-related sales (+2%)*
- *Higher sales volumes (+1.5%), led by growth in Latin America and Asia-Pacific*
- *Higher selling prices (+1%)*

Automotive OEM coatings sales volumes were flat versus the prior year, consistent with global automotive industry growth rate. PPG's sales volume growth was strongest in Mexico and South America.

General industrial coatings and specialty coatings and materials sales volumes, in aggregate, continued to grow and outpaced global industrial production rates for the ninth consecutive quarter, driven by strong end-market demand for heavy-duty equipment, and electronics materials. Overall growth in this business moderated from the past few quarters, reflecting comparisons to strong growth in the previous year. From a geographic perspective, sales volumes were positive in each major region, led by the U.S. and Canada. Acquisition-related sales from The Crown Group added approximately $30 million in sales during the first quarter.

Packaging coatings sales volumes were up a mid-single-digit percentage year-over-year, driven by ongoing customer adoption of PPG's new can coating technologies. The business successfully collaborated with customers to implement selling price initiatives in the quarter. From a geographic perspective, sales volumes in the developed regions grew a mid-single-digit percentage, led by Europe. In the Asia-Pacific region, sales volumes decreased modestly due to lower demand in the region.

Segment income decreased $37 million (-13%) year-over-year primarily due to continuing significant raw material and logistics costs, higher overhead costs, and wage and other cost inflation, partially offset by lower manufacturing costs, including benefits from business restructuring actions and higher selling prices. Favorable foreign currency translation added $12 million to segment income.

Looking ahead

During the second quarter, we anticipate modestly higher sequential sales due to normal seasonal demand patterns. We expect raw material inflation to persist but the pace of inflation to moderate, and we plan to implement further pricing actions to be implemented to combat higher inflation. Global automotive OEM industry growth is expected to improve in the second quarter. In particular, industry demand in China is projected to increase at a high-single-digit percentage. We expect general industrial coatings year-over-year sales volume growth to be similar to the first quarter, in line with continued overall general industrial demand growth. We anticipate packaging coatings sales volume growth to continue, due to the ongoing industry conversion to BPA non-intent interior can coatings, with PPG's year-over-year aggregate growth rates continuing at an above market level in 2018. Second quarter acquisition-related sales are expected to be approximately $30 million, with contribution margins from acquired businesses below segment levels.

Based on current exchange rates, foreign currency translation is expected to have a favorable, but slightly lower sequential impact on segment net sales and income in the second quarter 2018 compared to the first quarter. PPG will continue to prioritize selling price increases and operating margin recovery.

Liquidity and Capital Resources

PPG had cash and short-term investments totaling $1.4 billion and $1.5 billion at March 31, 2018 and December 31, 2017 , respectively.

Cash used for operating activities - continuing operations for the three months ended March 31, 2018 was $228 million . Cash used for operating activities - continuing operations was $1 million for the three months ended March 31, 2017 . Operating cash flow decreased primarily due to higher working capital and higher cash paid for taxes.

Other uses of cash during the three months ended March 31, 2018 included:

- Capital expenditures, excluding acquisitions, of $75 million , or about 2% of sales.
- Business acquisition cash spending of $96 million .
- Contributions to pension plans of $30 million .
- Cash dividends paid of $112 million .
- Share repurchases of $600 million .

In February 2018, PPG completed a public debt offering of $300 million aggregate principal amount of 3.2% notes due 2023 and $700 million aggregate principal amount of 3.75% notes due 2028 and received aggregate net proceeds of $992 million.

Total capital spending in 2018 is expected to be in the range of 3.0% of full year sales. PPG made a $25 million voluntary contribution to its U.S. defined benefit pension plans in January 2018. PPG expects to make mandatory contributions to its non-U.S. pension plans in the range of $20 million to $30 million during the remaining nine months of 2018.

We intend to deploy our cash in a timely, disciplined manner with a continued emphasis on incremental earnings accretive initiatives, including additional acquisitions and share repurchases. The Company expects cash deployment for acquisitions and share repurchases of at least $2.4 billion for 2018.

PPG's total debt to equity ratio (total debt, including capital leases, to total debt and PPG shareholders' equity) was 49% at March 31, 2018 and 43% at December 31, 2017 .

Operating Working Capital is a subset of total working capital and represents (1) trade receivables – net of the allowance for doubtful accounts, (2) FIFO inventories and (3) trade liabilities. We believe Operating Working Capital represents the key components of working capital under the operating control of our businesses. A key metric we use to measure improvement in our working capital management is Operating Working Capital as a percentage of sales (current quarter sales annualized).

($ in millions, except percentages)	**March 31, 2018**	**December 31, 2017**	**March 31, 2017**
Trade Receivables, Net	$2,979	$2,559	$2,639
Inventories, FIFO	2,073	1,833	1,803
Trade Creditors' Liabilities	2,492	2,321	2,097
Operating Working Capital	$2,560	$2,071	$2,345
Operating Working Capital as a % of Sales	16.9%	14.1%	16.8%
Days sales outstanding	63	57	59
Days payable outstanding	98	96	89

Other Liquidity Information

The Company continues to believe that cash on hand and short term investments, cash from operations and the Company's access to capital markets will continue to be sufficient to fund our operating activities, capital spending, acquisitions, dividend payments, debt service, share repurchases, contributions to pension plans and PPG's significant contractual obligations.

Environmental

($ in millions)	Three Months Ended March 31 2018	2017
Cash outlays for environmental remediation activities	$17	$12

($ in millions)	Remainder of 2018	Annually 2019 - 2022
Projected future cash outlays for environmental remediation activities	$47	$25 - $75

Restructuring

The 2016 restructuring actions have anticipated annual savings of approximately $125 million once fully implemented. The company expects to achieve at least $50 million in savings in 2018.

On April 23, 2018, the Company approved a business restructuring plan which includes actions to reduce its global cost structure. The program is in response to a customer assortment change in our U.S. architectural coatings business during the first quarter 2018 and sustained, elevated raw material inflation. The program aims to further right-size employee headcount and production capacity in certain businesses based on current product demand, as well as reductions in various global functional and administrative costs. A pretax restructuring charge of $80 million to $85 million, based on current exchange rates, will be recorded in PPG's second quarter 2018 financial results, of which about $75 million to $80 million represents employee severance and other cash costs. The remainder of the charge represents the write-down of certain assets and other non-cash costs. In addition, other cash costs of up to $35 million to $40 million will be incurred, consisting of incremental restructuring-related cash costs for certain items that are required to be expensed on an as-incurred basis of approximately $20 million to $25 million for items which are expected to be capitalized. The Company also expects approximately $15 million of incremental non-cash accelerated depreciation expense for certain assets due to their reduced expected asset life as a result of this program. Substantially all restructuring actions are expected to be complete by the end of the second quarter 2019 and will result in the net reduction of approximately 1,100 positions. The Company expects the cash payback of the restructuring program to be less than two years.

In addition, the Company continues to review its cost structure to identify additional cost savings opportunities.

Currency

Comparing exchange rates as of December 31, 2017 to March 31, 2018 , the U.S. dollar weakened against numerous currencies in which PPG operates, most notably the Mexican peso and Euro. As a result, consolidated net assets at March 31, 2018 increased by $121 million, compared to December 31, 2017 .

Comparing exchange rates during the first three months of 2018 to those of the first three months of 2017 , the U.S. dollar weakened against the currencies of most countries in which PPG operates, most notably the euro, Mexican peso and British pound. This had a favorable impact on income from continuing operations before income taxes for the three months ended March 31, 2018 of $27 million from the translation of these foreign earnings into U.S. dollars.

New Accounting Standards

See Note 3 , " New Accounting Standards ," to the accompanying condensed consolidated financial statements for further details on recently issued accounting guidance.

Commitments and Contingent Liabilities, including Environmental Matters

PPG is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others, in which substantial monetary damages are sought. See Part II, Item 1, "Legal Proceedings" of this Form 10-Q and Note 17 , " Commitments and Contingent Liabilities ," to the accompanying condensed consolidated financial statements for a description of certain of these lawsuits.

As discussed in Part II, Item 1 and Note 17 , although the result of any future litigation of such lawsuits and claims is inherently unpredictable, management believes that, in the aggregate, the outcome of all lawsuits and claims involving PPG, including asbestos-related claims, will not have a material effect on PPG's consolidated financial position or liquidity; however, any such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized.

As also discussed in Note 17 , PPG has significant reserves for environmental contingencies. Please refer to the Environmental Matters section of Note 17 for details of these reserves. A significant portion of our reserves for environmental contingencies relate to ongoing remediation at PPG's former chromium manufacturing plant in Jersey City, N.J. and associated sites ("New Jersey Chrome"). The Company continues to analyze, assess and remediate the environmental issues associated with New Jersey Chrome. Information will continue to be generated from the ongoing groundwater remedial investigation activities related to New Jersey Chrome and will be incorporated into a final draft remedial action work plan for groundwater expected to be submitted to the New Jersey Department of Environmental Protection no later than 2020.

It is possible that technological, regulatory and enforcement developments, the results of environmental studies and other factors could alter the Company's expectations with respect to future charges against income and future cash outlays. Specifically, the level of expected future remediation costs and cash outlays is highly dependent upon activity related to New Jersey Chrome.

Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of the Company. Management's Discussion and Analysis and other sections of this Quarterly Report contain forward-looking statements that reflect the Company's current views with respect to future events and financial performance. You can identify forward-looking statements by the fact that they do not relate strictly to current or historic facts. Forward-looking statements are identified by the use of the words "aim," "believe," "expect," "anticipate," "intend," "estimate," "project," "outlook," "forecast" and other expressions that indicate future events and trends. Any forward-looking statement speaks only as of the date on which such statement is made, and the Company undertakes no obligation to update any forward looking statement, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosures we make on related subjects in our reports to the Securities and Exchange Commission. Also, note the following cautionary statements.

Many factors could cause actual results to differ materially from the Company's forward-looking statements. Such factors include global economic conditions, increasing price and product competition by foreign and domestic competitors, fluctuations in cost and availability of raw materials, the ability to achieve selling price increases, the ability to recover margins, the ability to maintain favorable supplier relationships and arrangements, the timing of and the realization of anticipated cost savings from restructuring initiatives, the ability to identify additional cost savings opportunities, difficulties in integrating acquired businesses and achieving expected synergies therefrom, economic and political conditions in international markets, the ability to penetrate existing, developing and emerging foreign and domestic markets, foreign exchange rates and fluctuations in such rates, fluctuations in tax rates, the impact of future legislation, the impact of environmental regulations, unexpected business disruptions, our ability to successfully remediate the material weakness in our internal control over financial reporting disclosed in this report within the time periods and in the manner currently anticipated, the effectiveness of our internal control over financial reporting, including the identification of additional control deficiencies, further expenditures related to our restatement, the results of governmental actions relating to pending investigations, the results of shareholder actions relating to the restatement of our financial statements and the unpredictability of existing and possible future litigation.

Consequently, while the list of factors presented here and in the 2017 Form 10-K/A under the caption "Item 1A Risk Factors" are considered representative, no such list should be considered to be a complete statement of all potential risks and uncertainties. Unlisted factors may present significant additional obstacles to the realization of forward-looking statements.

Consequences of material differences in the results compared with those anticipated in the forward-looking statements could include, among other things, lower sales or earnings, business disruption, operational problems, financial loss, legal liability to third parties, other factors set forth in "Item 1A. Risk Factors" of the 2017 Form 10-K/A and similar risks, any of which could have a material adverse effect on the Company's consolidated financial condition, results of operations or liquidity.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Risk

In February 2018, PPG entered into U.S. dollar to euro cross currency swap contracts with a total notional amount of $575 million outstanding, which had a fair value of a net liabilty of $11 million as of March 31, 2018. As of December 31, 2017 , PPG had U.S. dollar to euro cross currency swap contracts with a total notional amount of $560 million outstanding, which had a fair value of a net asset of $2 million. A 10% increase in the value of the euro to the U.S. dollar would have had an unfavorable effect on the fair value of these swap contracts by reducing the value of these instruments by $65 million and by $58 million at March 31, 2018 and December 31, 2017, respectively.

Interest Rate Risk

In March of 2018, PPG entered into interest rate swaps which converted $525 million of fixed rate debt to variable rate debt. The fair value of these contracts was an asset of $5 million. An increase in variable interest rates of 10% would lower the fair value of these swaps and increase interest expense by $11 million over the term of the instrument.

There were no other material changes in the Company's exposure to market risk from December 31, 2017 to March 31, 2018 . See Note 15 , " Financial Instruments, Hedging Activities and Fair Value Measurements " for a description of our instruments subject to market risk.

Item 4. Controls and Procedures

a. Evaluation of disclosure controls and procedures. The Company's management is responsible for establishing and maintaining adequate disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Disclosure controls and procedures means controls and other procedures of the Company that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act, is recorded, processed, summarized, and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

The Company's principal executive officer and principal financial officer have evaluated the effectiveness of the Company's disclosure controls and procedures as of March 31, 2018 and, due to the existence of the material weakness in internal control over financial reporting described below, the Company's principal executive and principal financial officers have determined that such disclosure controls and procedures were not effective as of such date. In light of the material weakness, the Company performed additional analysis and other post-closing procedures to ensure the Company's condensed consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States. Accordingly, the Company's management, including its principal executive and principal financial officers, has concluded that the condensed consolidated financial statements included in this Form 10-Q present fairly, in all material respects, the Company's financial position, results of operations and cash flows for the periods presented in conformity with accounting principles generally accepted in the United States.

Material Weakness

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

The Company did not maintain effective controls within our financial close process. Specifically, the Company's former Vice President and Controller directed his subordinates to improperly override the Company's internal controls during the Company's financial close process, which directions were followed and not disclosed to others in senior management, the Audit Committee or the Company's independent registered public accounting firm and not otherwise detected by the Company's internal controls. These actions often occurred after the end of a quarter and close to the end of the financial close process for the quarter and had the effect of positively impacting income from continuing operations reported for such quarter. This material weakness resulted in misstatements in the Company's interim and annual financial statements that were not prevented or detected on a timely basis and led to the restatement of the Company's financial statements for the years ended 2016 and 2017 and each of the quarters in the periods ended December 31, 2016, March 31, 2017, June 30, 2017, September 30, 2017 and December 31, 2017, as described in Note 2, " Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements ."

Until such time as it is remediated, this material weakness could result in material misstatements of the Company's financial statements that would not be prevented or detected.

Remediation of Material Weakness

In connection with the investigation described in Note 2, " Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements ," the Company has identified and implemented, and continues to identify and implement, actions to improve the effectiveness of its internal control over financial reporting and disclosure controls and procedures, including plans to enhance the Company's resources and training with respect to financial reporting and disclosure responsibilities. Management has reviewed and will continue to review such actions with the Audit Committee. To date, the following steps have been taken towards the remediation of the Company's material weakness:

- The Company has terminated the employment of the former Vice President and Controller. Two employees who acted under his direction have been re-assigned to different positions within the Company where they

do not have a role in the Company's internal control over financial reporting or its disclosure controls and procedures.

- The Company has appointed its former Director of Corporate Audit Services and former Assistant Controller, Financial Reporting as Acting Controller and has initiated a search to fill this role on a permanent basis.
- The Company's Chairman and Chief Executive Officer has emphasized to all employees, and to the Company's finance employees specifically, the importance of acting ethically and adhering to the Company's Global Code of Ethics.

The Company is committed to maintaining a strong internal control environment and to ensuring that a proper, consistent tone is communicated throughout the organization, including the expectation that previously existing deficiencies will be remediated through the implementation of processes and controls to ensure strict compliance with generally accepted accounting principles. In addition to the steps set forth above, the Company plans to take other remedial measures as described below:

- The Company will re-emphasize (1) its commitment to ethical standards, (2) the requirements of the Company's Code of Ethics, (3) reporting obligations and (4) non-retaliation policy for complaints;
- The Company will enhance its corporate finance department by adding personnel with responsibility for areas identified in the investigation and enhance segregation of duties in the finance department;
- The Company will enhance policies and procedures relating to the preparation, approval and entry of journal entries;
- The Company will enhance its process to evaluate and adjust certain significant expense accruals;
- The Company will enhance its policies and procedures relating to inventory standard cost revaluations;
- The Company will enhance its policies and procedures concerning accounting entries related to discontinued operations;
- The Company will require additional annual/onboarding education for finance staff;
- The Company will conduct additional periodic risk assessments and targeted internal audit reviews; and
- The Company will separate the financial forecasting process from financial accounting.

As the Company continues to evaluate and work to improve internal control over financial reporting, the Company may determine to take additional measures to strengthen its internal control environment or modify the remediation efforts described above. Until the remediation efforts discussed above, including any additional remediation efforts that the Company identifies as necessary, are implemented, tested and deemed to be operating effectively, the material weakness described above will continue to exist.

b. Changes in internal control. There were no changes in the Company's internal control over financial reporting that occurred during the Company's quarter ended March 31, 2018 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

PPG is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others, in which substantial monetary damages are sought. These lawsuits and claims may relate to contract, patent, environmental, product liability, asbestos exposure, antitrust, employment, securities and other matters arising out of the conduct of PPG's current and past business activities. To the extent that these lawsuits and claims involve personal injury and property damage, PPG believes it has adequate insurance; however, certain of PPG's insurers are contesting coverage with respect to some of these claims, and other insurers may contest coverage. PPG's lawsuits and claims against others include claims against insurers and other third parties with respect to actual and contingent losses related to environmental, asbestos and other matters.

The Company has self-reported to the SEC information concerning the internal investigation of accounting matters described in the Explanatory Note and in Note 2, "Restatement of Previously Reported Annual Consolidated and Condensed Consolidated Quarterly (unaudited) Financial Statements" under Item 1 of this Form 10-Q . The Company's cooperation with the SEC's investigation is continuing.

On May 20, 2018, a putative securities class action lawsuit was filed in the U.S. District Court for the District for the Central District of California against the Company and certain of its current or former officers. This action, captioned *Trevor Mild v. PPG Industries, Inc., Michael H. McGarry, Vincent J. Morales, and Mark C. Kelly* , asserts securities fraud claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 on behalf of putative classes of persons who purchased or otherwise acquired stock of the Company during various time periods between April 24, 2017 and May 10, 2018. The allegations relate to, among other things, allegedly false and misleading statements and/or failures to disclose information about the Company's business, operations and prospects. This action remains pending. The Company believes this action is without merit and intends to defend itself vigorously .

For many years, PPG has been a defendant in lawsuits involving claims alleging personal injury from exposure to asbestos. For a description of asbestos litigation affecting the Company, see Note 17 , " Commitments and Contingent Liabilities " to the accompanying condensed consolidated financial statements under Part I, Item 1 of this Form 10-Q.

In the past, the Company and others have been named as defendants in several cases in various jurisdictions claiming damages related to exposure to lead and remediation of lead-based coatings applications. PPG has been dismissed as a defendant from most of these lawsuits and has never been found liable in any of these cases.

In March 2016, the Natural Resource Trustees for the Calcasieu River Estuary (the United States Department of the Interior, acting through the United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration of the United States Department of Commerce, the Louisiana Department of Environmental Quality and the Louisiana Department of Wildlife and Fisheries) reached an agreement in principle with PPG and two other potentially responsible parties to resolve the Trustees' claims for natural resource damages alleged to have been caused by the release of hazardous substances into the Estuary. In the fourth quarter of 2017, PPG signed a consent decree prepared by the US Department of Justice for settlement of potential natural resource damage claims at the Calcasieu River Estuary. PPG's share of this settlement is $3.6 million. The agreement was filed with the court in March 2018 and payment of PPG's previously accrued for share of costs into an escrow account is required within 30 days. Payment will be made in the second quarter.

Item 1A. Risk Factors

There were no material changes in the Company's risk factors from the risks disclosed in the 2017 Form 10-K/A.

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

Directors who are not also officers of the Company receive common stock equivalents pursuant to the PPG Industries, Inc. Deferred Compensation Plan for Directors ("PPG Deferred Compensation Plan for Directors"). Common stock equivalents are hypothetical shares of common stock having a value on any given date equal to the value of a share of common stock. Common stock equivalents earn dividend equivalents that are converted into additional common stock equivalents but carry no voting rights or other rights afforded to a holder of common stock. The common stock equivalents credited to directors under both plans are exempt from registration under Section 4(a)(2) of the Securities Act of 1933 as private offerings made only to directors of the Company in accordance with the provisions of the plans.

Under the PPG Deferred Compensation Plan for Directors, each director may elect to defer the receipt of all or any portion of the compensation paid to such director for serving as a PPG director. All deferred payments are held in the form of common stock equivalents. Payments out of the deferred accounts are made in the form of common stock of the Company (and cash as to any fractional common stock equivalent). In the first quarter of 2018 , the directors, as

a group, were credited with 1,583 common stock equivalents under this plan. The value of these common stock equivalents, when credited, ranged from $116.46 to $118.00.

Issuer Purchases of Equity Securities

The following table summarizes the Company's stock repurchase activity for the three months ended March 31, 2018 :

Month	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Programs (1)	Maximum Number of Shares That May Yet Be Purchased Under the Programs (1)
January 2018				
Repurchase program	1,456,679	$118.21	1,456,679	28,503,275
February 2018				
Repurchase program	1,352,259	$115.19	1,352,259	28,712,471
March 2018				
Repurchase program	2,396,012	$113.62	2,396,012	26,489,240
Total quarter ended March 31, 2018				
Repurchase program	5,204,950	$115.31	5,204,950	26,489,240

(1) In December 2017, PPG's board of directors approved a $2.5 billion share repurchase program. This program is in addition to the company's share repurchase authorization, which was approved in October 2016. The remaining shares yet to be purchased under the programs have been calculated using PPG's closing stock price on the last business day of the respective month. These repurchase programs have no expiration date.

Item 6. Exhibits

See the Index to Exhibits on Page 41.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Index to Exhibits

The following exhibits are filed as part of, or incorporated by reference into, this Form 10-Q.

†**10.1	Separation Agreement and Release by and between PPG Industries, Inc. and Viktoras R. Sekmakas, was filed as Exhibit 10.30 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2017.
†12	Computation of Ratio of Earnings to Fixed Charges for the Three Months Ended March 31, 2018 and for the Five Years Ended December 31, 2017.
†31.1	Certification of Principal Executive Officer Pursuant to Rule 13a-14(a) or 15d-14(a) of the Exchange Act, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
†31.2	Certification of Principal Financial Officer Pursuant to Rule 13a-14(a) or 15d-14(a) of the Exchange Act, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
††32.1	Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
††32.2	Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

† Filed herewith.
†† Furnished herewith.
* Attached as Exhibit 101 to this report are the following documents formatted in XBRL (Extensible Business Reporting Language): (i) the Condensed Consolidated Statement of Income for the three months ended March 31, 2018 and 2017 , (ii) the Condensed Consolidated Balance Sheet at March 31, 2018 and December 31, 2017 , (iii) the Condensed Consolidated Statement of Cash Flows for the three months ended March 31, 2018 and 2017 , and (iv) Notes to Condensed Consolidated Financial Statements for the three months ended March 31, 2018 .
**Management contract, compensatory plan or arrangement required to be filed as an exhibit hereto pursuant to Item 601 of Regulation S-K.

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.

PPG INDUSTRIES, INC.

(Registrant)

Date: June 28, 2018

By: /s/ Vincent J. Morales

Vincent J. Morales

Senior Vice President and Chief Financial Officer
(Principal Financial Officer and Duly Authorized Officer)

By: /s/ William E. Schaupp

William E. Schaupp

Assistant Controller and Acting Controller (Principal Accounting Officer and Duly Authorized Officer)

Exhibit 12

PPG INDUSTRIES, INC. AND CONSOLIDATED SUBSIDIARIES
Computation of Ratio of Earnings to Fixed Charges
(Dollars in millions)

	Three Months Ended March 31	Year Ended December 31				
	2018	**2017**	**2016**	**2015**	**2014**	**2013**
		As Restated	***As Restated***			
Earnings:						
Earnings before income taxes and net earnings in equity affiliates	$ 416	$ 1,988	$ 767	$ 1,735	$ 1,216	$ 1,177
Plus:						
Fixed charges exclusive of capitalized interest	52	200	215	210	278	280
Amortization of capitalized interest	2	6	5	5	5	4
Adjustments for equity affiliates	—	8	7	73	5	1
Total	**$ 470**	**$ 2,202**	**$ 994**	**$ 2,023**	**$ 1,504**	**$ 1,462**
Fixed Charges:						
Interest expense including amortization of debt discount/premium and debt expense	$ 27	$ 105	$ 125	$ 125	$ 187	$ 196
Rentals - portion representative of interest	25	95	90	85	91	84
Fixed charges exclusive of capitalized interest	52	200	215	210	278	280
Capitalized interest	1	7	8	9	16	10
Total	**$ 53**	**$ 207**	**$ 223**	**$ 219**	**$ 294**	**$ 290**
Ratio of earnings to fixed charges	**8.9**	**10.6**	**4.5**	**9.2**	**5.1**	**5.0**

Note: The financial information of all prior periods has been reclassified to reflect discontinued operations.

Exhibit 31.1

PRINCIPAL EXECUTIVE OFFICER CERTIFICATION

I, Michael H. McGarry, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PPG Industries, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer 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 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: June 28, 2018

/s/ Michael H. McGarry

Michael H. McGarry
Chairman and Chief Executive Officer

Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER CERTIFICATION

I, Vincent J. Morales, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PPG Industries, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer 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 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: June 28, 2018

/s/ Vincent J. Morales

Vincent J. Morales
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of PPG Industries, Inc. for the period ended March 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Michael H. McGarry, Chairman and Chief Executive Officer of PPG Industries, Inc., certify to the best of my knowledge, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of PPG Industries, Inc.

/s/ Michael H. McGarry

Michael H. McGarry
Chairman and Chief Executive Officer

June 28, 2018

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

Exhibit 32.2

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

In connection with the Quarterly Report on Form 10-Q of PPG Industries, Inc. for the period ended March 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Vincent J. Morales, Senior Vice President and Chief Financial Officer of PPG Industries, Inc., certify to the best of my knowledge, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of PPG Industries, Inc.

/s/ Vincent J. Morales

Vincent J. Morales
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

June 28, 2018

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