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

FORM 10-Q

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the quarterly period ended: March 31, 2023
or
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _______ to _______
Commission file number 1-1687

PPG INDUSTRIES INC.
(Exact name of registrant as specified in its charter)

25-0730780
(I.R.S. Employer Identification No.)
Pennsylvania
(State or Other Jurisdiction of Incorporation or Organization)
One PPG Place, Pittsburgh, Pennsylvania
(Address of Principal Executive Offices)
15272
(Zip Code)
(412) 434-3131
(Registrant's Telephone Number, Including Area Code)
Not Applicable
(Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report)
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $1.66 2/3	PPG	New York Stock Exchange
0.875% Notes due 2025	PPG 25	New York Stock Exchange
1.875% Notes due 2025	PPG 25A	New York Stock Exchange
1.400% Notes due 2027	PPG 27	New York Stock Exchange
2.750% Notes due 2029	PPG 29A	New York Stock Exchange

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

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

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

Large Accelerated Filer	☑	Accelerated Filer	☐
Non-accelerated Filer	☐	Smaller Reporting Company	☐
		Emerging Growth Company	☐

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

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

As of March 31, 2023, 235,416,045 shares of the Registrant's common stock, par value $1.66 2/3 per share, were outstanding.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Statement of Income (Unaudited)

	Three Months Ended March 31	
($ in millions, except per share amounts)	**2023**	**2022**
Net sales	$4,380	$4,308
Cost of sales, exclusive of depreciation and amortization	2,596	2,698
Selling, general and administrative	992	974
Depreciation	92	102
Amortization	41	43
Research and development, net	104	115
Interest expense	59	30
Interest income	(25)	(9)
Impairment and other related charges	—	290
Pension settlement charge	190	—
Other income, net	(22)	(13)
Income before income taxes	$353	$78
Income tax expense	80	55
Net income attributable to controlling and noncontrolling interests	$273	$23
Net income attributable to noncontrolling interests	(9)	(5)
Net income (attributable to PPG)	$264	$18
Earnings per common share (attributable to PPG)	$1.12	$0.08
Earnings per common share (attributable to PPG) - assuming dilution	$1.11	$0.08

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)

	Three Months Ended March 31	
($ in millions)	**2023**	**2022**
Net income attributable to controlling and noncontrolling interests	$273	$23
Other comprehensive income, net of tax:		
Defined benefit pension and other postretirement benefits	139	(4)
Unrealized foreign currency translation adjustments	264	37
Other comprehensive income, net of tax	$403	$33
Total comprehensive income	$676	$56
Less: amounts attributable to noncontrolling interests:		
Net income	(9)	(5)
Unrealized foreign currency translation adjustments	(1)	3
Comprehensive income attributable to PPG	$666	$54

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, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$1,426	$1,099
Short-term investments	56	55
Receivables, net	3,595	3,303
Inventories	2,599	2,272
Other current assets	517	444
Total current assets	$8,193	$7,173
Property, plant and equipment (net of accumulated depreciation of $4,756 and $4,649)	3,355	3,328
Goodwill	6,163	6,078
Identifiable intangible assets, net	2,442	2,414
Deferred income taxes	259	95
Investments	255	244
Operating lease right-of-use assets	829	829
Other assets	603	583
Total	$22,099	$20,744
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$4,347	$4,087
Restructuring reserves	127	138
Short-term debt and current portion of long-term debt	209	313
Current portion of operating lease liabilities	185	183
Total current liabilities	$4,868	$4,721
Long-term debt	7,082	6,503
Operating lease liabilities	632	636
Accrued pensions	573	566
Other postretirement benefits	475	476
Deferred income taxes	571	501
Other liabilities	645	632
Total liabilities	$14,846	$14,035
Commitments and contingent liabilities (Note 14)		
Shareholders' equity:		
Common stock	$969	$969
Additional paid-in capital	1,150	1,130
Retained earnings	20,946	20,828
Treasury stock, at cost	(13,515)	(13,525)
Accumulated other comprehensive loss	(2,408)	(2,810)
Total PPG shareholders' equity	$7,142	$6,592
Noncontrolling interests	111	117
Total shareholders' equity	$7,253	$6,709
Total	$22,099	$20,744

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 Shareholders' Equity (Unaudited)

($ in millions)	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total PPG	Non-controlling Interests	Total
January 1, 2023	$969	$1,130	$20,828	($13,525)	($2,810)	$6,592	$117	$6,709
Net income attributable to controlling and noncontrolling interests	—	—	264	—	—	264	9	273
Other comprehensive income, net of tax	—	—	—	—	402	402	1	403
Cash dividends	—	—	(146)	—	—	(146)	—	(146)
Issuance of treasury stock	—	21	—	10	—	31	—	31
Stock-based compensation activity	—	(1)	—	—	—	(1)	—	(1)
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(1)	(1)
Reductions in noncontrolling interests	—	—	—	—	—	—	(15)	(15)
March 31, 2023	$969	$1,150	$20,946	($13,515)	($2,408)	$7,142	$111	$7,253

($ in millions)	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total PPG	Non-controlling Interests	Total
January 1, 2022	$969	$1,081	$20,372	($13,386)	($2,750)	$6,286	$125	$6,411
Net income attributable to controlling and noncontrolling interests	—	—	18	—	—	18	5	23
Other comprehensive income/(loss), net of tax	—	—	—	—	36	36	(3)	33
Cash dividends	—	—	(139)	—	—	(139)	—	(139)
Issuance of treasury stock	—	24	—	5	—	29	—	29
Stock-based compensation activity	—	(12)	—	—	—	(12)	—	(12)
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(1)	(1)
Reductions in noncontrolling interests	—	—	—	—	—	—	(11)	(11)
March 31, 2022	$969	$1,093	$20,251	($13,381)	($2,714)	$6,218	$115	$6,333

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 Cash Flows (Unaudited)

($ in millions)	Three Months Ended March 31 2023	2022
Operating activities:		
Net income attributable to controlling and noncontrolling interests	$273	$23
Adjustments to reconcile net income to cash from operations:		
Depreciation and amortization	133	145
Pension settlement charge	190	—
Impairment and other related charges	—	290
Stock-based compensation expense	17	6
Deferred income taxes	(131)	(36)
Cash used for restructuring actions	(16)	(32)
Change in certain asset and liability accounts (net of acquisitions):		
Receivables	(277)	(530)
Inventories	(308)	(325)
Other current assets	(88)	(88)
Accounts payable and accrued liabilities	175	326
Taxes and interest payable	111	(54)
Noncurrent assets and liabilities, net	(39)	(30)
Other	45	1
Cash from/(used for) operating activities	$85	($304)
Investing activities:		
Capital expenditures	($120)	($194)
Business acquisitions, net of cash balances acquired	—	(9)
Proceeds from the settlement of cross currency swap contracts	50	17
Other	6	3
Cash used for investing activities	($64)	($183)
Financing activities:		
Net proceeds from commercial paper and short-term debt	$638	$586
Net change in borrowing with maturities of three months or less	190	2
Repayment of Term Loan Credit Agreement	(100)	—
Proceeds from the issuance of debt, net of discounts and fees	—	55
Repayment of long-term debt	(300)	—
Purchase of treasury stock	—	(40)
Dividends paid on PPG common stock	(146)	(139)
Other	(5)	(21)
Cash from financing activities	$277	$443
Effect of currency exchange rate changes on cash and cash equivalents	29	(1)
Net increase/(decrease) in cash and cash equivalents	$327	($45)
Cash and cash equivalents, beginning of period	1,099	1,005
Cash and cash equivalents, end of period	$1,426	$960
Supplemental disclosures of cash flow information:		
Interest paid, net of amount capitalized	$73	$52
Taxes paid, net of refunds	$107	$114
Supplemental disclosure of noncash investing activities:		
Capital expenditures accrued within Accounts payable and accrued liabilities at period-end	$48	$31

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 Securities and Exchange Commission (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 and shareholders' equity of PPG as of March 31, 2023 and the results of its operations and cash flows for the three months ended March 31, 2023 and 2022. 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 2022 Annual Report on Form 10-K (the "2022 Form 10-K").

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, 2023 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. These reclassifications had no impact on our previously reported Net income, total assets, cash flows or shareholders’ equity.

2. New Accounting Standards

Accounting Standards Adopted in 2023

Effective January 1, 2023, PPG adopted Accounting Standards Update ("ASU") No. 2022-04, “Liabilities - Supplier Finance Programs." This ASU is intended to enhance the transparency surrounding the use of supplier finance programs. The guidance does not affect the recognition, measurement, or financial statement presentation of obligations covered by supplier finance programs.

PPG has certain voluntary supply chain finance programs with financial intermediaries which provide participating suppliers the option to be paid by the intermediary earlier than the original invoice due date. PPG’s responsibility is limited to making payments on the terms originally negotiated with the suppliers, regardless of whether the intermediary pays the supplier in advance of the original due date. The range of payment terms PPG negotiates with suppliers are consistent, regardless of whether a supplier participates in a supply chain finance program. The total amount due to financial intermediaries to settle supplier invoices under supply chain finance programs was $199 million and $390 million as of March 31, 2023 and December 31, 2022, respectively. These amounts are included within Accounts payable and accrued liabilities on the accompanying consolidated balance sheets.

Recently Issued Accounting Standards

There were no accounting pronouncements promulgated prior to March 31, 2023 that are not effective until a future date which are expected to have a material impact on PPG's consolidated financial position, results of operations or cash flows.

3. Inventories

($ in millions)	March 31, 2023	December 31, 2022
Finished products	$1,441	$1,209
Work in process	282	238
Raw materials	833	784
Supplies	43	41
Total Inventories	$2,599	$2,272

Most U.S. inventories are valued using the last-in, first-out method. These inventories represented approximately 16% and 21% of total inventories at March 31, 2023 and December 31, 2022, respectively. If the first-in, first-out ("FIFO") method of inventory valuation had been used, inventories would have been $281 million and $272 million higher as of March 31, 2023 and December 31, 2022, respectively.

4. Goodwill and Other Identifiable Intangible Assets

The Company tests indefinite-lived intangible assets and goodwill for impairment by performing either a qualitative evaluation or a quantitative test at least annually, or more frequently if an indication of impairment arises. The qualitative evaluation is an assessment of factors to determine whether it is more likely than not that the fair value of a reporting unit or asset is less than its carrying amount.

The Company did not identify an indication of goodwill impairment for any of its reporting units or an indication of impairment of any of its indefinite-lived intangible assets during the quarter ended March 31, 2023.

The change in the carrying amount of goodwill attributable to each reportable segment for the three months ended March 31, 2023 was as follows:

($ in millions)	**Performance Coatings**	**Industrial Coatings**	**Total**
January 1, 2023	$4,881	$1,197	$6,078
Acquisitions, including purchase accounting adjustments	—	10	10
Foreign currency impact	68	7	75
March 31, 2023	$4,949	$1,214	$6,163

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

	March 31, 2023			**December 31, 2022**		
($ in millions)	**Gross Carrying Amount**	**Accumulated Amortization**	**Net**	**Gross Carrying Amount**	**Accumulated Amortization**	**Net**
Indefinite-Lived Identifiable Intangible Assets						
Trademarks	$1,387	$—	$1,387	$1,325	$—	$1,325
Definite-Lived Identifiable Intangible Assets						
Acquired technology	$829	($647)	$182	$827	($636)	$191
Customer-related	1,874	(1,153)	721	1,855	(1,112)	743
Trade names	315	(165)	150	311	(158)	153
Other	50	(48)	2	50	(48)	2
Total Definite-Lived Intangible Assets	$3,068	($2,013)	$1,055	$3,043	($1,954)	$1,089
Total Identifiable Intangible Assets	$4,455	($2,013)	$2,442	$4,368	($1,954)	$2,414

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

As of March 31, 2023, estimated future amortization expense of identifiable intangible assets is as follows:

($ in millions)	**Future Amortization Expense**
Remaining nine months of 2023	$109
2024	$127
2025	$115
2026	$93
2027	$85
2028	$73
Thereafter	$453

5. Business Restructuring

The Company records restructuring liabilities that represent charges incurred in connection with consolidations of certain operations, including both operations from acquisitions and headcount reduction programs. These charges consist primarily of severance costs and certain other cash costs. As a result of these programs, the Company also incurs incremental non-cash accelerated depreciation expense for certain assets due to their reduced expected useful life. These charges are not allocated to the Company’s reportable business segments. Refer to Note 16, "Reportable Business Segment Information" for additional information.

In the third quarter 2022, the Company approved a business restructuring plan which included actions to reduce its global cost structure in response to current economic conditions, including softening demand in Europe and slower than expected demand recovery in China. The Company performed a comprehensive evaluation to identify opportunities to reduce costs and improve the profitability of the overall business portfolio. The program includes actions to right-size employee headcount, reductions in functional and administrative costs and other cost savings actions. The majority of these restructuring actions are expected to be completed by the end of 2023.

In the fourth quarter 2021, the Company approved business restructuring actions related to recent acquisitions targeting further consolidation of its manufacturing footprint and headcount reductions. The majority of these restructuring actions are expected to be completed by the end of 2023.

The following table summarizes restructuring reserve activity for the three months ended March 31, 2023 and 2022:

	Total Reserve	
($ in millions)	2023	2022
January 1	$169	$231
Release of prior reserves and other adjustments[(a)]	(3)	—
Cash payments	(16)	(32)
Foreign currency impact	2	(5)
March 31	$152	$194

(a) Certain releases were recorded to reflect the current estimate of costs to complete planned business restructuring actions.

6. Borrowings

In March 2023, PPG's $300 million 3.2% notes matured, and the Company repaid this obligation using cash on hand.

In May 2022, PPG completed a public offering of €300 million 1.875% Notes due 2025 and €700 million 2.750% Notes due 2029. 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 "2022 Indenture"). The 2022 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 2022 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 $1,061 million. The notes are denominated in euro and have been designated as hedges of net investments in the Company's European operations. For more information, refer to Note 12 "Financial Instruments, Hedging Activities and Fair Value Measurements."

In March 2022, PPG privately placed a 15-year €50 million 1.95% fixed interest note. This note contains covenants materially consistent with the 1.875% notes discussed above. This debt arrangement is denominated in euros and has been designated as a net investment hedge of the Company's European operations. Refer to Note 12 "Financial Instruments, Hedging Activities and Fair Value Measurements" for additional information.

In February 2021, PPG entered into a $2.0 billion Term Loan Credit Agreement (the "Term Loan Credit Agreement") to finance the Company's acquisition of Tikkurila, and to pay fees, costs and expenses related thereto. The Term Loan Credit Agreement provided the Company with the ability to borrow up to an aggregate principal amount of $2.0 billion on an unsecured basis. In addition to the amounts borrowed to finance the acquisition of Tikkurila, the Term Loan Credit Agreement allowed the Company to make up to eleven additional borrowings prior to December 31, 2021, to be used for working capital and general corporate purposes. The Term Loan Credit Agreement contains covenants that are consistent with those in the Credit Agreement discussed below and that are usual and customary restrictive covenants for facilities of its type, which include, with specified exceptions, limitations on the Company's ability to create liens or other encumbrances, to enter into sale and leaseback transactions and to enter into consolidations, mergers or transfers of all or substantially all of its assets. The Term Loan Credit Agreement matures and all outstanding borrowings are due and payable on the third anniversary of the date of the initial borrowing under the Agreement. In March 2023, PPG amended the Term Loan Credit Agreement to replace the LIBOR-based reference interest rate option with a reference interest rate option based upon Term Secured Overnight Financing Rate ("SOFR"). The other terms of the Term Loan Credit Agreement remain unchanged. In June 2021, PPG borrowed $700 million under the Term Loan Credit Agreement to finance the Company's acquisition of Tikkurila, and to pay fees, costs and expenses related thereto. In December 2021, PPG borrowed an additional $700 million under the Term Loan Credit Agreement. In 2022, PPG repaid $300 million of the Term Loan Credit Agreement using cash on hand. In the first quarter 2023, PPG repaid $100 million of the Term Loan Credit Agreement using cash on hand. Borrowings of $1.0 billion and $1.1 billion were outstanding under the Term Loan Credit Agreement as of March 31, 2023 and December 31, 2022, respectively.

In March 2023, PPG amended its five-year credit agreement (the “Credit Agreement”) dated as of August 30, 2019. The amendments to the Credit Agreement replace the LIBOR-based reference interest rate option with a reference interest rate option based upon Term SOFR. The other terms of the Credit Agreement remain unchanged. The Credit Agreement provides for a $2.2 billion unsecured revolving credit facility. The Company has the ability to increase the size of the Credit Agreement by up to an additional $750 million, subject to the receipt of lender commitments and other conditions precedent. The Credit Agreement will terminate on August 30, 2024. The Company has the right, subject to certain conditions set forth in the Credit Agreement, to designate certain subsidiaries of the Company as borrowers under the Credit Agreement. In connection with any such designation, the Company is required to guarantee the obligations of any such subsidiaries under the Credit Agreement. There were no amounts outstanding under the Credit Agreement as of March 31, 2023 and December 31, 2022.

The Term Loan Credit Agreement and Credit Agreement require the Company to maintain a ratio of Total Indebtedness to Total Capitalization, as defined in the Term Loan Credit Agreement and Credit Agreement, of 60% or less; provided, that for any fiscal quarter in which the Company has made an acquisition for consideration in excess of $1 billion and for the next five fiscal quarters thereafter, the ratio of Total Indebtedness to Total Capitalization may not exceed 65% at any time. As of March 31, 2023, Total Indebtedness to Total Capitalization as defined under the Credit Agreement and Term Loan Credit Agreement was 49%.

The Credit Agreement also supports the Company’s commercial paper borrowings which are classified as long-term based on PPG’s intent and ability to refinance these borrowings on a long-term basis. There were $638 million commercial paper borrowings outstanding as of March 31, 2023. There no commercial paper borrowings outstanding as of December 31, 2022.

As of March 31, 2023, PPG was in full compliance with the restrictive covenants under its various credit agreements, loan agreements and indentures.

Letters of Credit and Surety Bonds

The Company had outstanding letters of credit and surety bonds of $223 million as of March 31, 2023.

Subsequent Event

On April 12, 2023, PPG entered into a €500 million Term Loan Credit Agreement (the "Term Loan"). The Term Loan provides the Company with the ability to increase the size of the loan by an amount not to exceed €250 million. The Term Loan contains covenants that are consistent with those in the Credit Agreement and that are usual and customary restrictive covenants for facilities of its type, which include, with specified exceptions, limitations on the Company’s ability to create liens or other encumbrances, to enter into sale and leaseback transactions and to enter into consolidations, mergers or transfers of all or substantially all of its assets. The Term Loan also requires the Company to maintain a ratio of Total Indebtedness to Total Capitalization, as each term is defined in the Term Loan, of 60% or less; provided, that for any fiscal quarter in which the Company has made an acquisition for consideration in excess of $1 billion and for the next five fiscal quarters thereafter, the ratio of Total Indebtedness to Total Capitalization may not exceed 65% at any time. In April 2023, PPG borrowed €500 million under the Term Loan. The Term Loan terminates and all amounts outstanding are payable on April 10, 2026.

7. Impairment and Other Related Charges

In the first quarter 2022, Russian military forces invaded Ukraine. This military action had significant and immediate adverse economic impacts on businesses operating in Russia and Ukraine. Based on deteriorating business conditions and regulatory restrictions, including the impact of economic sanctions imposed on Russia by the United States, the European Union and other governments, PPG immediately ceased sales to Russian state-owned entities, announced that the Company would cease all new investments in Russia and commenced actions to wind down most of the Company’s operations in Russia.

Based on this change in facts and circumstances, the long-term cash flow forecast for the Company’s operations in Russia was significantly reduced. This reduction in the long-term cash flow forecast indicated that the carrying amounts of long-lived assets and certain indefinite-lived intangible assets associated with the Company’s operations in Russia may not be recoverable, and the carrying value of these assets was tested for impairment. Additionally, the Company evaluated trade receivables for estimated future credit losses, inventories for declines in net realizable value and other current assets for impairment in light of the deteriorating economic conditions in Russia and Ukraine. As a result, during the three months ended March 31, 2022, the Company recognized $290 million of Impairment and other related charges in the condensed consolidated statement of income, comprised of $201 million of long-lived asset impairment charges and $89 million of other related charges.

The $201 million of long-lived asset impairment charges recorded during first quarter 2022 was comprised of $124 million related to indefinite-lived intangible assets, $54 million related to property, plant and equipment, net and $23 million related to definite-lived intangible assets. The $89 million of other related charges represented reserves established for receivables and other current assets and the write-down of inventories impacted by the adverse economic consequences of the Russian invasion of Ukraine.

Subsequently, during 2022, the Company released a portion of the previously established reserves due to the collection of certain trade receivables and recorded recoveries due to the realization of certain previously written-down inventories, resulting in recognition of income of $63 million within Impairment and other related charges, net.

The Company continues to explore various options to exit Russia, including a possible sale of its Russian business or controlled withdrawal from the Russia market.

During both the three months ended March 31, 2023 and the twelve months ended December 31, 2022, net sales in Russia represented approximately 1% of PPG net sales.

8. Earnings Per Common 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, 2023 and 2022 were as follows:

	Three Months Ended March 31	
(number of shares in millions)	2023	2022
Weighted average common shares outstanding	235.8	236.6
Effect of dilutive securities:		
Stock options	0.5	0.9
Other stock compensation plans	0.6	0.7
Potentially dilutive common shares	1.1	1.6
Adjusted weighted average common shares outstanding	236.9	238.2
Dividends per common share	$0.62	$0.59

Excluded from the computation of earnings per diluted share due to their antidilutive effect were 1.2 million and 0.5 million outstanding stock options for the three months ended March 31, 2023 and 2022, respectively.

9. Income Taxes

	Three Months Ended March 31	
	2023	2022
Effective tax rate on pretax income	22.7 %	70.5 %

The effective tax rate of 70.5% for the three months ended March 31, 2022 reflected a tax benefit of $27 million on the $290 million Impairment and other related charges associated with PPG's operations in Russia.

Income tax expense for the three months ended March 31, 2023 and 2022 is based on an estimated annual effective rate, which requires management to make its best estimate of annual pretax income or loss. During the year, PPG management regularly updates forecasted annual pretax results for the various countries in which PPG operates based on changes in factors such as prices, shipments, product mix, raw material inflation and manufacturing operations. To the extent that actual 2023 pretax results for U.S. and foreign income or loss vary from estimates, the actual Income tax expense recognized in 2023 could be different from the forecasted amount used to estimate Income tax expense for the three months ended March 31, 2023.

10. Pensions and Other Postretirement Benefits

U.S. Pension Annuity Contracts

In March 2023, the Company purchased group annuity contracts that transferred to third-party insurance companies pension benefit obligations for certain of the Company's retirees in the U.S. who were receiving their monthly retirement benefit payments from the U.S. pension plan. The amount of each affected retiree's annuity payment is equal to the amount of such individual's pension benefit. The purchase of group annuity contracts was funded directly by the assets of the U.S. plans. By transferring the obligations and assets to the insurance companies, the Company reduced its overall pension projected benefit obligation by $309 million and recognized a non-cash Pension settlement charge of $190 million.

The service cost component of net periodic pension and other postretirement benefit cost/(income) is included in Cost of sales, exclusive of depreciation and amortization, Selling, general and administrative, and Research and development, net in the accompanying condensed consolidated statement of income. Except for the Pension settlement charge in the quarter ended March 31, 2023, all other components of net periodic benefit cost are recorded in Other income, net in the accompanying condensed consolidated statement of income.

Net periodic pension benefit cost/(income) and other postretirement benefit cost for the three months ended March 31, 2023 and 2022 was as follows:

	Pension		Other Postretirement Benefits	
	Three Months Ended March 31		Three Months Ended March 31	
($ in millions)	2023	2022	2023	2022
Service cost	$2	$2	$1	$3
Interest cost	31	19	7	4
Expected return on plan assets	(31)	(36)	—	—
Amortization of actuarial losses	7	8	—	4
Amortization of prior service credit	—	—	(2)	(3)
Settlement	190	—	—	—
Net periodic benefit cost/(income)	$199	($7)	$6	$8

Net periodic pension cost was higher for the three months ended March 31, 2023 compared to 2022, primarily due the Pension settlement charge recognized in the first quarter 2023 and higher interest cost driven by an increase in discount rates. In addition, declines in the market value of pension investments during 2022 resulted in a lower asset base to generate returns on plan assets in 2023.

PPG expects 2023 full year net periodic pension expense, excluding the impact of pension settlement charges, of approximately $30 million and net periodic other postretirement expense of approximately $25 million.

Contributions to Defined Benefit Pension Plans

	Three Months Ended March 31	
($ in millions)	2023	2022
Non-U.S. defined benefit pension mandatory contributions	$1	$1

PPG expects to make contributions to its defined benefit pension plans in the range of $5 million to $10 million during the remaining nine months of 2023. PPG may make voluntary contributions to its defined benefit pension plans in 2023 and beyond.

11. Accumulated Other Comprehensive Loss (AOCL)

($ in millions)	Foreign Currency Translation Adjustments [(a)]	Pension and Other Postretirement Benefit Adjustments, net of tax [(b)]	Unrealized Gain on Derivatives, net of tax	Accumulated Other Comprehensive Loss
January 1, 2022	($1,988)	($763)	$1	($2,750)
Current year deferrals to AOCL	30	(11)	—	19
Reclassifications from AOCL to net income	10	7	—	17
March 31, 2022	($1,948)	($767)	$1	($2,714)
January 1, 2023	($2,254)	($557)	$1	($2,810)
Current year deferrals to AOCL	262	(9)	—	253
Reclassifications from AOCL to net income	1	148	—	149
March 31, 2023	($1,991)	($418)	$1	($2,408)

(a) The tax cost related to unrealized foreign currency translation adjustments on net investment hedges was $64 million and $11 million as of March 31, 2023 and 2022, respectively.

(b) The tax (benefit)/cost related to the adjustment for pension and other postretirement benefits was $(46) million and $2 million for the three months ended March 31, 2023 and 2022, respectively. Reclassifications from AOCL are included in the computation of net periodic benefit cost (See Note 10, "Pensions and Other Postretirement Benefits").

12. 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, 2023 and December 31, 2022, 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 a portion of these underlying economic exposures. Certain of these instruments may qualify as fair value, cash flow, and net investment hedges upon meeting the requisite criteria, including effectiveness of offsetting hedged or underlying exposures. Changes in the fair value of derivatives that do not qualify for hedge accounting are recognized in Income before income taxes 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 months ended March 31, 2023 and 2022.

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

There were no derivative instruments de-designated or discontinued as hedging instruments during the three months ended March 31, 2023 and 2022, and there were no gains or losses deferred in Accumulated other comprehensive loss on the condensed consolidated balance sheet that were reclassified to Income before income taxes in the condensed consolidated statement of income in the three months ended March 31, 2023 and 2022 related to hedges of anticipated transactions that were no longer expected to occur.

Fair Value Hedges

The Company uses interest rate swaps from time to time to manage its exposure to changing interest rates. When outstanding, the interest rate swaps are typically designated as fair value hedges of certain outstanding debt obligations of the Company and are recorded at fair value.

PPG has interest rate swaps which converted $375 million and $525 million of fixed rate debt to variable rate debt as of March 31, 2023 and December 31, 2022, respectively. These swaps are designated as fair value hedges and are carried at fair value. Changes in the fair value of these swaps and changes in the fair value of the related debt are recorded in interest expense in the accompanying condensed consolidated statement of income. The fair value of these interest rate swaps was a liability of $13 million and $20 million at March 31, 2023 and December 31, 2022, respectively.

Cash Flow Hedges

At times, PPG designates certain foreign currency forward contracts as cash flow hedges of the Company's exposure to variability in exchange rates on third party transactions denominated in foreign currencies. There were no outstanding cash flow hedges at March 31, 2023 and December 31, 2022.

Net Investment Hedges

PPG uses cross currency swaps and foreign currency euro-denominated debt to hedge a significant portion of its net investment in its European operations, as follows:

PPG had U.S. dollar to euro cross currency swap contracts with total notional amounts of $475 million and $775 million as of March 31, 2023 and December 31, 2022, respectively, 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. As of March 31, 2023 and December 31, 2022, the fair value of the U.S. dollar to euro cross currency swap contracts were net assets of $46 million and $88 million, respectively.

As of both March 31, 2023 and December 31, 2022, PPG had designated €2.5 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 were $2.7 billion and $2.6 billion as of March 31, 2023 and December 31, 2022, respectively.

Other Financial Instruments

PPG uses foreign currency forward contracts to manage certain net transaction exposures that either have not been elected, or do not qualify for hedge accounting; therefore, the change in the fair value of these instruments is recorded in Other income, net in the condensed consolidated statement of income in the period of change. Underlying notional amounts related to these foreign currency forward contracts were $2.0 billion and $1.8 billion at March 31, 2023 and December 31, 2022, respectively. The fair values of these contracts was a net asset of $51 million and $24 million as of March 31, 2023 and December 31, 2022, respectively.

Gains/Losses Deferred in Accumulated Other Comprehensive Loss

The following table summarizes the amount of gains deferred in Other comprehensive income ("OCI") and the amount and location of gains recognized within the condensed consolidated statement of income related to derivative and debt financial instruments for the three months ended March 31, 2023 and 2022. All amounts are shown on a pretax basis.

	March 31, 2023		March 31, 2022		
($ in millions)	**Loss Deferred in OCI**	**Gain/(Loss) Recognized**	**Gain Deferred in OCI**	**Gain Recognized**	**Caption In Condensed Consolidated Statement of Income**
Economic					
Foreign currency forward contracts	$—	$13	$—	$12	Other income, net
Fair Value					
Interest rate swaps	—	(2)	—	3	Interest expense
Total forward contracts and interest rate swaps	$—	$11	$—	$15	
Net Investment					
Cross currency swaps	($3)	$5	$5	$3	Interest expense
Foreign denominated debt	(33)	—	43	—	
Total Net Investment	($36)	$5	$48	$3	

Fair Value Measurements

The Company follows a fair value measurement hierarchy to measure its assets and liabilities. As of March 31, 2023 and December 31, 2022, 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 14, "Employee Benefit Plans" under Item 8 in the 2022 Form 10-K 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 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 did not have any recurring financial assets or liabilities recorded in its condensed consolidated balance sheets as of March 31, 2023 and December 31, 2022 that were measured using Level 3 inputs.

Assets and liabilities reported at fair value on a recurring basis

	March 31, 2023			December 31, 2022		
($ in millions)	**Level 1**	**Level 2**	**Level 3**	**Level 1**	**Level 2**	**Level 3**
Assets:						
Other current assets:						
Marketable equity securities	$9	$—	$—	$9	$—	$—
Foreign currency forward contracts [(a)]	—	53	—	—	27	—
Cross currency swaps [(b)]	—	—	—	—	39	—
Investments:						
Marketable equity securities	$65	$—	$—	$61	$—	$—
Other assets:						
Cross currency swaps [(b)]	$—	$46	$—	$—	$49	$—
Liabilities:						
Accounts payable and accrued liabilities:						
Foreign currency forward contracts [(a)]	$—	$2	$—	$—	$3	$—
Interest rate swaps [(c)]	—	—	—	—	1	—
Other liabilities:						
Interest rate swaps [(c)]	$—	$13	$—	$—	$19	$—

(a) Derivatives not designated as hedging instruments

(b) Net investment hedges

(c) Fair value hedges

Long-Term Debt

($ in millions)	**March 31, 2023 [(a)]**	**December 31, 2022 [(b)]**
Long-term debt - carrying value	$7,075	$6,796
Long-term debt - fair value	$6,738	$6,375

(a) Excludes finance lease obligations of $10 million and short-term borrowings of $206 million as of March 31, 2023.

(b) Excludes finance lease obligations of $10 million and short-term borrowings of $10 million as of December 31, 2022.

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

13. 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 ("TSR"). All current grants of stock options, RSUs and contingent shares are made under the PPG Industries, Inc. Amended and Restated Omnibus Incentive Plan (“PPG Amended Omnibus Plan”), which was amended and restated effective April 21, 2016.

Stock-based compensation expense and the associated income tax benefit recognized during the three months ended March 31, 2023 and 2022 were as follows:

	Three Months Ended March 31	
($ in millions)	2023	2022
Stock-based compensation expense	$17	$6
Income tax benefit recognized	$4	$1

Grants of stock-based compensation during the three months ended March 31, 2023 and 2022 were as follows:

	Three Months Ended March 31			
	2023		2022	
	Shares	Fair Value	Shares	Fair Value
Stock options	410,001	$38.55	487,277	$36.52
Restricted stock units	248,949	$124.44	189,411	$143.92
Contingent shares [a]	52,389	$129.03	57,134	$151.87

(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 options granted during the three months ended March 31, 2023 was calculated with the following weighted average assumptions:

Weighted average exercise price	$130.08
Risk-free interest rate	3.9 %
Expected life of option in years	6.5
Expected dividend yield	1.7 %
Expected volatility	27.8 %

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 past 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 adjusted 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.

The amount paid upon vesting of performance-based RSUs may range from 0% to 200% of the original grant, based upon the level of adjusted earnings per share growth achieved and frequency with which the annual cash flow return on capital performance target is met over the three calendar year periods comprising the vesting period. Performance against the earnings per share growth and the cash flow return on capital target is calculated annually, and the annual payout for each goal is weighted equally over the three-year period.

The Company also provides grants of contingent shares to selected key executives that may be earned based on PPG's TSR over the three-year period following the date of grant. Contingent share grants (referred to as “TSR awards”) are made annually and are paid out at the end of each three-year period based on the Company’s stock performance. Performance is measured by determining the percentile rank of the total shareholder return of PPG common stock in relation to the TSR of the S&P 500 Index for the three-year period following the date of grant. This comparison group represents the entire S&P 500 Index as it existed at the beginning of the performance period, excluding any companies that were removed from the index because they ceased to be publicly traded. The payment of awards following the three-year award period is based on performance achieved in accordance with the scale set forth in the plan agreement and may range from 0% to 200% of the initial grant. A payout of 100% is earned if target performance is achieved. Contingent share awards earn dividend equivalents for the award period, which are paid to participants or credited to the participants’ deferred compensation plan accounts with the award payout at the end of the period based on the actual number of contingent shares that are earned. Any payments made at the end of the award period may be in the form of stock, cash or a combination of both. The TSR awards are classified 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 TSR) remeasured in each reporting period until settlement of the awards.

14. 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, antitrust, employment 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, property damage and certain other claims, 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 with respect to some of the claims 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 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

As of March 31, 2023, the Company was aware of certain asbestos-related claims pending against the Company and certain of its subsidiaries. The Company is defending these asbestos-related claims vigorously. The asbestos-related claims consist of claims against the Company alleging:

- exposure to asbestos or asbestos-containing products manufactured, sold or distributed by the Company or its subsidiaries (“Products Claims”);
- personal injury caused by asbestos on premises presently or formerly owned, leased or occupied by the Company (“Premises Claims”); and
- asbestos-related claims against a subsidiary the Company acquired in 2013 (“Subsidiary Claims”).

The Company monitors and reviews the activity associated with its asbestos claims and evaluates, on a periodic basis, its estimated liability for such claims and all underlying assumptions to determine whether any adjustment to the reserves for these claims is required. Additionally, as a supplement to its periodic monitoring and review, the Company conducts discussions with counsel and engages valuation consultants to analyze its claims history and estimate the amount of the Company’s potential liability for asbestos-related claims. As of both March 31, 2023 and December 31, 2022, the Company's asbestos-related reserves totaled $51 million.

The Company believes that, based on presently available information, the total reserves of $51 million for asbestos-related claims will be sufficient to encompass all of the Company’s current and estimable potential future asbestos liabilities. These reserves, which are included within Other liabilities on the accompanying consolidated balance sheets, involve significant management judgment and represent the Company’s current best estimate of its liability for these claims.

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) whether closed, dismissed or dormant claims are reinstituted, reinstated or revived; (iii) the amounts required to resolve both currently known and future unknown claims; (iv) the amount of insurance, if any, available to cover such claims; (v) the unpredictable aspects of the tort system, including a changing trial docket and the jurisdictions in which trials are scheduled; (vi) the outcome of any trials, including potential judgments or jury verdicts; (vii) the lack of specific information in many cases concerning exposure for which the Company is allegedly responsible, and the claimants' alleged diseases resulting from such exposure; and (viii) 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. While the ultimate outcome of the Company's asbestos litigation cannot be predicted with certainty, the Company believes that any financial exposure resulting from its asbestos-related claims will not have a material adverse effect on the Company's consolidated financial position, liquidity or results of operations.

Environmental Matters

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.

As remediation at certain environmental sites progresses, PPG continues to refine its assumptions underlying the estimates of the expected future costs of its remediation programs. PPG's ongoing evaluation may result in additional charges against income to adjust the reserves for these sites. In 2023 and 2022, certain charges have been recorded based on updated estimates to increase existing reserves for these sites. Certain other charges related to environmental remediation actions are expensed as incurred.

As of March 31, 2023 and December 31, 2022, PPG had reserves for environmental contingencies associated with PPG's former chromium manufacturing plant in Jersey City, New Jersey ("New Jersey Chrome"), glass and chemical manufacturing sites, and for other environmental contingencies, including current manufacturing locations and National Priority List 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, 2023**	**December 31, 2022**
New Jersey Chrome	$53	$58
Glass and chemical	58	60
Other	100	99
Total	$211	$217
Current portion	*$50*	*$50*

Pretax charges against income for environmental remediation costs are included in Other income, net in the accompanying condensed consolidated statement of income. The pretax charges and cash outlays related to such environmental remediation for the three months ended March 31, 2023 and 2022 were as follows:

	Three Months Ended March 31	
($ in millions)	**2023**	**2022**
Environmental remediation pretax charges	$3	$6
Cash outlays for environmental remediation activities	$9	$23

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 a number of additional surrounding sites. Remediation of the New Jersey Chrome sites requires PPG to remediate soil and groundwater contaminated by hexavalent chromium, as well as perform certain other environmental remediation activities. The most significant assumptions underlying the estimate of remediation costs for all New Jersey Chrome sites relate to the extent and concentration of chromium in the soil.

PPG regularly evaluates the assessments of costs incurred to date versus current progress and the potential cost impacts of the most recent information, including the extent of impacted soils, percentage of hazardous versus nonhazardous soils, daily soil excavation rates, and engineering, administrative and other associated costs. Based on these assessments, the reserve is adjusted accordingly. As of March 31, 2023 and December 31, 2022, PPG's reserve for remediation of all New Jersey Chrome sites was $53 million and $58 million, respectively. The major cost components of this liability are related to excavation of impacted soil, as well as groundwater remediation. These components each account for approximately 65% and 10% of the amount accrued at March 31, 2023, 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. Further 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 continue to be adjusted.

Remediation: Glass, Chemicals and Other Sites

Among other sites at which PPG is managing environmental liabilities, remedial actions are occurring at a chemical manufacturing site in Barberton, Ohio where PPG has completed a Facility Investigation and Corrective Measure Study under the United States Environmental Protection Agency's Resource Conservation and Recovery Act 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 and a site associated with a legacy plate glass manufacturing site near Ford City, Pennsylvania under the Pennsylvania Land Recycling Program under the oversight of the Pennsylvania Department of Environmental Protection. PPG is currently performing additional investigation and remedial activities at these locations.

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.

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.

15. Revenue Recognition

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.

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. 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.

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. For the three months ended March 31, 2023 and 2022, service revenue constituted less than 5% of total revenue.

Net sales by segment and region for the three months ended March 31, 2023 and 2022 were as follows:

	Three Months Ended March 31	
($ in millions)	**2023**	**2022**
Performance Coatings		
United States and Canada	$1,123	$1,063
Europe, Middle East and Africa ("EMEA")	900	949
Asia Pacific	256	274
Latin America	349	284
Total	$2,628	$2,570
Industrial Coatings		
United States and Canada	$653	$652
EMEA	528	504
Asia Pacific	391	423
Latin America	180	159
Total	$1,752	$1,738
Total Net Sales		
United States and Canada	$1,776	$1,715
EMEA	1,428	1,453
Asia Pacific	647	697
Latin America	529	443
Total PPG	$4,380	$4,308

Allowance for Doubtful Accounts

All trade receivables are reported on the condensed consolidated balance sheet at the outstanding principal amount adjusted for any allowance for doubtful accounts and any charge-offs. PPG provides an allowance for doubtful accounts to reduce trade receivables to their estimated net realizable value equal to the amount that is expected to be collected. This allowance is estimated based on historical collection experience, current regional economic and market conditions, the aging of accounts receivable, assessments of current creditworthiness of customers and forward-looking information. The use of forward-looking information is based on certain macroeconomic and microeconomic indicators including, but not limited to, regional business environment risk, political risk, and commercial and financing risks.

PPG reviews its allowance for doubtful accounts on a quarterly basis to ensure the estimate reflects regional risk trends as well as current and future global operating conditions.

The following table summarizes the activity for the allowance for doubtful accounts for the three months ended March 31, 2023 and 2022:

	Trade Receivables Allowance for Doubtful Accounts	
($ in millions)	**2023**	**2022**
January 1	$31	$31
Bad debt expense	3	43
Recoveries of previously reserved trade receivables	(3)	(6)
Other	(1)	—
March 31	$30	$68

In the first quarter 2022, PPG recorded a bad debt reserve of $43 million associated with the adverse economic impacts of the Russian invasion of Ukraine. Refer to Note 7, "Impairment and Other Related Charges" for additional information.

16. Reportable Business Segment Information

PPG is a multinational manufacturer with 10 operating segments (which the Company refers to as “strategic business units”) that are organized based on the Company’s major products lines. The Company’s reportable business segments include the following two segments: Performance Coatings and Industrial Coatings. The operating segments have been aggregated based on economic similarities, the nature of their products, production processes, end-use markets and methods of distribution.

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

The Industrial Coatings reportable business segment is comprised of the automotive original equipment manufacturer ("OEM") coatings, industrial coatings, packaging coatings and specialty coatings and materials operating segments. This reportable business 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 and other specialty materials.

Reportable business segment net sales and segment income for the three months ended March 31, 2023 and 2022 were as follows:

	Three Months Ended March 31	
($ in millions)	**2023**	**2022**
Net sales:		
Performance Coatings	$2,628	$2,570
Industrial Coatings	1,752	1,738
Total	$4,380	$4,308
Segment income:		
Performance Coatings	$395	$319
Industrial Coatings	240	140
Total	$635	$459
Corporate	(67)	(52)
Interest expense, net of interest income	(34)	(21)
Pension settlement charge (a)	(190)	—
Insurance recovery of expenses incurred due to a natural disaster (b)	9	—
Impairment and other related charges (c)	—	(290)
Business restructuring-related costs, net (d)	—	(14)
Acquisition-related costs (e)	—	(4)
Income before income taxes	$353	$78

(a) In the first quarter 2023, PPG purchased group annuity contracts that transferred pension benefit obligations for certain of the company’s retirees in the U.S. to third-party insurance companies, resulting in a non-cash pension settlement charge.

(b) The company incurred expenses due to damages at a southern U.S. factory resulting from a hurricane in 2020. In the first quarter 2023, the company received reimbursement under its insurance policies related to the damages incurred at this factory due to this hurricane.

(c) In the first quarter 2022, the Company recorded impairment and other related charges due to the wind down of the company’s operations in Russia.

(d) Included in business restructuring-related costs, net are business restructuring charges, accelerated depreciation of certain assets and other related costs, offset by releases related to previously approved programs.

(e) Acquisition-related costs include advisory, legal, accounting, valuation, other professional or consulting fees, and certain internal costs directly incurred to effect acquisitions. These costs are included in Selling, general and administrative expense in the condensed consolidated statement of income.

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 2022 Form 10-K.

Highlights

Net sales were approximately $4.4 billion for the three months ended March 31, 2023, an increase of 1.7% compared to the prior year, driven by higher selling prices. The Company increased net sales despite lower absolute levels of demand in Europe due to geopolitical issues, slower manufacturing recovery in China and lower do-it-yourself paint demand in most regions.

Income before income taxes was $353 million for the three months ended March 31, 2023, an increase of $275 million compared to the prior year. This increase was primarily due to selling price increases and the absence of $290 million of Impairment and other related charges recorded in the first quarter 2022, partially offset by lower sales volumes and a $190 million Pension settlement charge in the first quarter 2023.

Results of Operations

	Three Months Ended March 31		Percent Change
($ in millions, except percentages)	**2023**	**2022**	**2023 vs. 2022**
Net sales	$4,380	$4,308	1.7 %
Cost of sales, exclusive of depreciation and amortization	2,596	2,698	(3.8)%
Selling, general and administrative	992	974	1.8 %
Depreciation	92	102	(9.8)%
Amortization	41	43	(4.7)%
Research and development, net	104	115	(9.6)%
Interest expense	59	30	96.7 %
Interest income	(25)	(9)	177.8 %
Impairment and other related charges	—	290	(100.0)%
Pension settlement charge	190	—	100.0 %
Other income, net	(22)	(13)	69.2 %

Net Sales by Region

	Three Months Ended March 31		Percent Change
($ in millions, except percentages)	**2023**	**2022**	**2023 vs. 2022**
United States and Canada	$1,776	$1,715	3.6 %
Europe, Middle East and Africa ("EMEA")	1,428	1,453	(1.7)%
Asia Pacific	647	697	(7.2)%
Latin America	529	443	19.4 %
Total	$4,380	$4,308	1.7 %

Three Months Ended March 31, 2023

Net sales increased $72 million due to the following:

- *Higher selling prices (+8%)*

Partially offset by:

- *Lower sales volumes (-3%)*
- *Unfavorable foreign currency translation (-2%)*
- *Divestiture-related sales and wind down of Russia operations (-1%)*

For specific business results, see the Performance of Reportable Business Segments section within Item 2 of this Form 10-Q.

Cost of sales, exclusive of depreciation and amortization, decreased $102 million primarily due to lower sales volumes and favorable foreign currency translation impacts.

Selling, general and administrative expense increased $18 million primarily due to wage and other cost inflation, partially offset by favorable currency translation impacts and savings from previously approved restructuring actions.

Interest expense increased $29 million primarily due to the unfavorable impact of higher interest rates on PPG's variable rate debt obligations. Interest income increased $16 million primarily due to higher interest rates.

Impairment and other related charges of $290 million were recorded during the three months ended March 31, 2022 associated with the wind down of the Company's operations in Russia. Refer to Note 7, "Impairment and Other Related Charges" in Part I, Item 1 of this Form 10-Q for additional information. There were no impairment charges recorded during the first quarter 2023.

A pension settlement charge of $190 million was recorded in the first quarter 2023 associated with the Company's purchase of group annuity contracts that transferred pension benefit obligations for certain of the company's retirees in the U.S. to third-party insurance companies. Refer to Note 10, "Pensions and Other Postretirement Benefits" in Part I, Item 1 of this Form 10-Q for additional information.

Effective Tax Rate and Earnings Per Diluted Share

	Three Months Ended March 31		Percent Change
($ in millions, except percentages and amounts per share)	**2023**	**2022**	**2023 vs. 2022**
Income tax expense	$80	$55	45.5 %
Effective tax rate	22.7 %	70.5 %	(47.8)%
Adjusted effective tax rate, continuing operations*	23.3 %	22.6 %	0.7 %
Earnings per diluted share, continuing operations	$1.11	$0.08	1,287.5 %
Adjusted earnings per diluted share*	$1.82	$1.37	32.8 %
*See Regulation G Reconciliation below			

The effective tax rate of 70.5% for the three months ended March 31, 2022 reflected a tax benefit of $27 million on the $290 million Impairment and other related charges associated with PPG's operations in Russia.

Adjusted earnings per diluted share for the three months ended March 31, 2023 increased year-over-year primarily due to increased selling prices partially offset by lower sales volumes.

Regulation G Reconciliations - Results from Operations

PPG believes investors' understanding of the Company's performance is enhanced by the disclosure of net income from continuing operations, earnings per diluted share from continuing operations, PPG's effective tax rate and segment income adjusted for certain items. PPG's management considers this information useful in providing insight into the Company's ongoing 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 from continuing operations, earnings per diluted share from continuing operations, the effective tax rate and segment income adjusted for these items are not recognized financial measures determined in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and should not be considered a substitute for net income from continuing operations, earnings per diluted share from continuing operations, the effective tax rate, segment income or other financial measures as computed in accordance with U.S. GAAP. In addition, adjusted net income, adjusted earnings per diluted share and the adjusted 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 from continuing operations, the effective tax rate from continuing operations is reconciled to the adjusted effective tax rate from continuing operations and net income from continuing operations (attributable to PPG) and earnings per share – assuming dilution (attributable to PPG) are reconciled to adjusted net income from continuing operations (attributable to PPG) and adjusted earnings per share – assuming dilution below.

($ in millions, except percentages and per share amounts)	Three Months Ended March 31, 2023 Income Before Income Taxes	Income Tax Expense	Effective Tax Rate	Net Income (attributable to PPG)	Earnings Per Diluted Share[(a)]
As reported, continuing operations	$353	$80	22.7 %	$264	$1.11
Adjusted for:					
Pension settlement charge [(b)]	190	46	24.3 %	144	0.61
Acquisition-related amortization expense	41	10	24.5 %	31	0.13
Insurance recovery of expenses incurred due to a natural disaster [(c)]	(9)	(2)	24.3 %	(7)	(0.03)
Adjusted, continuing operations, excluding certain items	$575	$134	23.3 %	$432	$1.82

($ in millions, except percentages and per share amounts)	Three Months Ended March 31, 2022 Income Before Income Taxes	Income Tax Expense	Effective Tax Rate	Net Income (attributable to PPG)	Earnings Per Diluted Share[(a)]
As reported, continuing operations	$78	$55	70.5 %	$18	$0.08
Adjusted for:					
Impairment and other related charges [(d)]	290	27	9.3 %	263	1.10
Acquisition-related amortization expense	43	10	24.8 %	33	0.14
Business restructuring-related costs, net [(e)]	14	4	25.8 %	10	0.04
Acquisition-related costs [(f)]	4	1	24.0 %	3	0.01
Adjusted, continuing operations, excluding certain items	$429	$97	22.6 %	$327	$1.37

(a) Earnings per diluted share is calculated based on unrounded numbers. Figures in the table may not recalculate due to rounding.

(b) In the first quarter 2023, PPG purchased group annuity contracts that transferred pension benefit obligations for certain of the company's retirees in the U.S. to third-party insurance companies, resulting in a non-cash pension settlement charge.

(c) The company incurred expenses due to damages at a southern U.S. factory resulting from a hurricane in 2020. In the first quarter 2023, the company received reimbursement under its insurance policies related to the damages incurred at this factory due to this hurricane.

(d) In the first quarter 2022, the Company recorded impairment and other related charges due to the wind down of the company's operations in Russia.

(e) Included in business restructuring-related costs, net are business restructuring charges, accelerated depreciation of certain assets and other related costs, offset by releases related to previously approved programs.

(f) Acquisition-related costs include advisory, legal, accounting, valuation, other professional or consulting fees, and certain internal costs directly incurred to effect acquisitions. These costs are included in Selling, general and administrative expense in the condensed consolidated statement of income.

Performance of Reportable Business Segments

Performance Coatings

($ in millions, except percentages)	**Three Months Ended March 31**		**$ Change**	**% Change**
	2023	**2022**	**2023 vs. 2022**	**2023 vs. 2022**
Net sales	$2,628	$2,570	$58	2.3 %
Segment income	$395	$319	$76	23.8 %
Amortization expense	$30	$32	($2)	(6.3)%
Segment income, excluding amortization expense	$425	$351	$74	21.1 %

Three Months Ended March 31, 2023

Performance Coatings net sales increased due to the following:

- *Higher selling prices (+9%)*

Partially offset by:

- *Lower sales volumes (-3%)*
- *Unfavorable foreign currency translation (-2%)*
- *Divestiture-related sales and wind down of Russia operations (-2%)*

Architectural coatings – EMEA net sales, excluding the impact of currency, acquisitions, divestitures and the wind down of Russia operations ("organic sales") were flat year over year as selling price increases were offset by lower sales volumes. Demand for architectural products in many countries decreased year over year primarily stemming from lower consumer confidence due to continued geopolitical issues in Europe.

Architectural coatings - Americas and Asia Pacific organic sales increased by a high single-digit percentage. Sales volumes in the U.S. and Canada were favorably impacted by continued strength in professional demand and new business wins, which more than offset the impact of weakened demand in the construction market. In Mexico, PPG Comex architectural coatings organic sales increased compared to the prior year as concessionaire network demand continued to be strong and further selling price increases were implemented.

Automotive refinish coatings organic sales were flat year over year as selling price increases were offset by lower sales volumes, which were negatively impacted by customer order patterns in the U.S. and continued distributor destocking in certain countries in Europe. Demand at U.S. collision body shops remained strong.

Aerospace coatings sales volumes increased by a high-teen percentage as demand was strong in all regions. Sales also increased due to the benefit of higher selling prices.

Protective and marine coatings organic sales were higher by a mid-single-digit percentage primarily due to selling price increases and strong demand in the U.S. and Latin America. Sales volumes were negatively impacted by COVID-19 restrictions in China.

Traffic solutions organic sales decreased by a high single-digit percentage due to lower sales volumes driven by unfavorable weather and customer order patterns.

Segment income increased $76 million year over year primarily due to higher selling prices, which more than offset aggregate cost inflation and lower sales volumes.

Looking Ahead

In the second quarter, demand conditions in Europe are expected to stabilize at lower levels than before the war in Ukraine, and economic activity in China is expected to continue to improve, albeit at a modest pace through the rest of 2023. Raw material and transportation availability are returning to pre-pandemic levels. Aggregate sales volumes are anticipated to be in the range of flat to up by a low single-digit percentage compared to the second quarter 2022. Second quarter divestiture-related sales and sales related to the Russia business, which the company is in the process of winding down, are estimated to reduce sales by about $20 million. The Company will continue to focus on executing against various existing cost-savings initiatives.

Industrial Coatings

($ in millions, except percentages)	Three Months Ended March 31 2023	Three Months Ended March 31 2022	$ Change 2023 vs. 2022	% Change 2023 vs. 2022
Net sales	$1,752	$1,738	$14	0.8 %
Segment income	$240	$140	$100	71.4 %
Amortization expense	$11	$11	$—	— %
Segment income, excluding amortization expense	$251	$151	$100	66.2 %

Three Months Ended March 31, 2023

Industrial Coatings segment net sales increased due to the following:

- *Higher selling prices (+7%)*
- *Acquisition-related sales (+1%)*

Partially offset by:

- *Lower sales volumes (-3%)*
- *Unfavorable foreign currency translation (-3%)*
- *Divestiture-related sales and wind down of Russia operations (-1%)*

Automotive OEM coatings organic sales increased by nearly 10% year over year driven by higher selling prices in all regions and strong sales volume growth in Europe.

In the industrial coatings business, organic sales decreased by a low single-digit percentage year over year as higher selling prices were more than offset by lower sales volumes in Europe and China due to softer general industrial production. Sales volumes in the U.S. were impacted by lower demand in the coil, extrusion and appliances subsegments.

Packaging coatings organic sales increased by a low single-digit percentage primarily due to selling price increases in most regions, partially offset by lower sales volumes in all regions. Sales volumes in the U.S. were negatively impacted by lower demand in the metal packaged food subsegment.

Segment income increased $100 million year over year primarily due to higher selling prices which more than offset lower sales volumes.

Looking Ahead

In the second quarter, global industrial production is expected to remain at lower levels. In China, manufacturing activity is expected to modestly improve on a sequential basis. Aggregate sales volumes are anticipated to decrease by a low single-digit percentage compared to the second quarter 2022. While sales volumes in automotive OEM coatings are expected to be higher than the prior year quarter, sales volumes are expected to be lower compared to the prior year in the industrial coatings, packaging coatings, and specialty coatings and materials businesses. Positive selling price increases are expected to continue; although, some of the strong selling prices realized in 2022 will begin to reach their anniversary in the second quarter. Year-over-year segment margins are expected to continue to improve on a sequential basis in the second quarter 2023. The Company will continue to focus on executing against various existing cost-savings initiatives.

Liquidity and Capital Resources

PPG had cash and short-term investments totaling $1.5 billion and $1.2 billion at March 31, 2023 and December 31, 2022, respectively.

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 be sufficient to fund our operating activities, capital spending, acquisitions, dividend payments, debt service, share repurchases, contributions to pension plans and PPG's contractual obligations.

Cash from/(used for) operating activities

Cash from operating activities for the three months ended March 31, 2023 was $85 million. Cash used for operating activities for the three months ended March 31, 2022 was $304 million. The $389 million increase was primarily due to higher net income driven by better price realization and favorable changes in working capital in the first quarter 2023 compared to the prior year.

Operating Working Capital

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 our working capital management is operating working capital as a percentage of sales (current quarter sales annualized).

($ in millions, except percentages)	March 31, 2023	December 31, 2022	March 31, 2022
Trade receivables, net	$3,142	$2,824	$3,090
Inventories, FIFO	2,880	2,544	2,645
Trade creditors' liabilities	2,805	2,538	2,978
Operating working capital	$3,217	$2,830	$2,757
Operating working capital as a % of Sales	18.4 %	16.9 %	16.0 %
Days sales outstanding	58	56	59

Environmental

	Three Months Ended March 31	
($ in millions)	2023	2022
Cash outlays for environmental remediation activities	$9	$23

($ in millions)	Remainder of 2023	Annually 2024 - 2027
Projected future cash outlays for environmental remediation activities	$30 - $50	$20 - $75

Cash used for investing activities

Cash used for investing activities for the three months ended March 31, 2023 and 2022 was $64 million and $183 million, respectively. The $119 million decrease in cash used for investing activities was primarily due to lower capital expenditures compared to the prior year.

Total capital spending is expected to be in the range of $500 million to $550 million in 2023 in support of future organic growth opportunities.

Cash from financing activities

Cash from financing activities for the three months ended March 31, 2023 and 2022 was $277 million and $443 million, respectively. The $166 million decrease was primarily due to repayments of long-term debt and the Term Loan Credit Agreement in the first quarter 2023, partially offset by increased borrowings with maturities of three months or less.

Debt Issued and Repaid

In March 2023, PPG's $300 million 3.2% notes matured, and the Company repaid this obligation using cash on hand. In addition, in the first quarter 2023, PPG repaid $100 million of the Term Loan Credit Agreement using cash on hand. Refer to Note 6, "Borrowings" in Part I, Item 1 of this Form 10-Q for additional information.

In March 2022, PPG privately placed a 15-year €50 million 1.95% fixed interest note. Refer to Note 6, "Borrowings" in Part I, Item 1 of this Form 10-Q for additional information.

In April 2023, PPG entered into a €500 million Term Loan Credit Agreement. Refer to Note 6, "Borrowings" in Part I, Item 1 of this Form 10-Q for additional information.

Credit Agreements

In February 2021, PPG entered into a $2.0 billion Term Loan Credit Agreement (the "Term Loan Credit Agreement") to finance the Company's acquisition of Tikkurila, and to pay fees, costs and expenses related thereto. The Term Loan Credit Agreement provided the Company with the ability to borrow up to an aggregate principal amount of $2.0 billion on an unsecured basis. In addition to the amounts borrowed to finance the acquisition of Tikkurila, the Term Loan Credit Agreement allowed the Company to make up to eleven additional borrowings prior to December 31, 2021, to be used for working capital and general corporate purposes. The Term Loan Credit Agreement contains covenants that are consistent with those in the Credit Agreement discussed below and that are usual and customary restrictive covenants for facilities of its type, which include, with specified exceptions, limitations on the Company's ability to create liens or other encumbrances, to enter into sale and leaseback transactions and to enter into consolidations, mergers or transfers of all or substantially all of its assets. The Term Loan Credit Agreement matures and all outstanding borrowings are due and payable on the third anniversary of the date of the initial borrowing under the Agreement. In March 2023, PPG amended the Term Loan Credit Agreement to replace the LIBOR-based reference interest rate option with a reference interest rate option based upon Term Secured Overnight Financing Rate ("SOFR"). The other terms of the Term Loan Credit Agreement remain unchanged.

In March 2023, PPG amended its five-year credit agreement (the "Credit Agreement") dated as of August 30, 2019. The amendments to the Credit Agreement replace the LIBOR-based reference interest rate option with a reference interest rate option based upon Term SOFR. The other terms of the Credit Agreement remain unchanged. The Credit Agreement provides for a $2.2 billion unsecured revolving credit facility. The Company has the ability to increase the size of the Credit Agreement by up to an additional $750 million, subject to the receipt of lender commitments and other conditions precedent. The Credit Agreement will terminate on August 30, 2024. The Company has the right, subject to certain conditions set forth in the Credit Agreement, to designate certain subsidiaries of the Company as borrowers under the Credit Agreement. In connection with any such designation, the Company is required to guarantee the obligations of any such subsidiaries under the Credit Agreement. There were no amounts outstanding under the credit agreement as of March 31, 2023 and December 31, 2022.

The Term Loan Credit Agreement and Credit Agreement require the Company to maintain a ratio of Total Indebtedness to Total Capitalization, as defined in the Term Loan Credit Agreement and Credit Agreement, of 60% or less; provided, that for any fiscal quarter in which the Company has made an acquisition for consideration in excess of $1 billion and for the next five fiscal quarters thereafter, the ratio of Total Indebtedness to Total Capitalization may not exceed 65% at any time. As of March 31, 2023, Total Indebtedness to Total Capitalization as defined under the Credit Agreement and Term Loan Credit Agreement was 49%.

The Credit Agreement also supports the Company's commercial paper borrowings which are classified as long-term based on PPG's intent and ability to refinance these borrowings on a long-term basis. There were $638 million commercial paper borrowings outstanding as of March 31, 2023. There no commercial paper borrowings outstanding as of December 31, 2022.

Other Liquidity Information

Restructuring

Aggregate restructuring savings, including the impact of acquisition synergies, were approximately $15 million in the first quarter 2023. Total restructuring savings are expected to be at least $60 million in 2023. In addition, the Company continues to review its cost structure to identify additional cost savings opportunities. Refer to Note 5, "Business Restructuring" in Part I, Item 1 of this Form 10-Q for further details on the Company's business restructuring programs. We expect cash outlays related to these actions of approximately $100 million in 2023.

Currency

Comparing spot exchange rates at December 31, 2022 and at March 31, 2023, the U.S. dollar weakened against the currencies of many countries within the regions PPG operates, most notably the Mexican peso, the euro and the British pound. As a result, consolidated net assets at March 31, 2023 increased by $263 million compared to December 31, 2022.

Comparing average exchange rates during the first three months of 2023 to those of the first three months of 2022, the U.S. dollar strengthened against the currencies of many countries where PPG operates, including many of the countries in the EMEA region. This had an unfavorable impact on Income before income taxes for the three months ended March 31, 2023 of $7 million from the translation of these foreign earnings into U.S. dollars.

New Accounting Standards

Refer to Note 2, “New Accounting Standards” in Part I, Item 1 of this Form 10-Q 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 14, “Commitments and Contingent Liabilities” in Part I, Item 1 of this Form 10-Q for a description of certain of these lawsuits.

As discussed in Part II, Item 1 and Note 14, 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 14, PPG has significant reserves for environmental contingencies. Refer to the Environmental Matters section of Note 14 for details of these reserves. It is PPG’s policy to accrue expenses for 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.

Critical Accounting Estimates

Management has evaluated the accounting policies used in the preparation of the financial statements and related notes presented in this Form 10-Q and believes those policies to be reasonable and appropriate. We believe that the most critical accounting estimates made in the preparation of our financial statements are those related to accounting for contingencies, under which we accrue a loss when it is probable that a liability has been incurred and the amount can be reasonably estimated, and to accounting for pensions, other postretirement benefits, business combinations, goodwill and other identifiable intangible assets with indefinite lives because of the importance of management judgment in making the estimates necessary to apply these policies.

For a comprehensive discussion of the Company’s critical accounting estimates, see Item 7, "Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our 2022 Form 10-K. There were no material changes in the Company’s critical accounting estimates from the 2022 Form 10-K.

Forward-Looking Statements

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,” "looking ahead" 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 ("SEC"). 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 statements related to the expected effects on our business of COVID-19, global economic conditions, geopolitical issues in Europe, increasing price and product competition by our competitors, fluctuations in cost and availability of raw materials, energy, labor and logistics, the ability to achieve selling price increases, the ability to recover margins, customer inventory levels, PPG inventory levels, our 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, the timing and expected benefits of our acquisitions, difficulties in integrating acquired businesses and achieving expected synergies therefrom, the amount of future share repurchases, economic and political conditions in the markets we serve, 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, the unpredictability of existing and possible future litigation, including asbestos litigation, and government investigations. However, it is not possible to predict or identify all such factors.

Consequently, while the list of factors presented here and in the 2022 Form 10-K under Item 1A is 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 income, business disruption, operational problems, financial loss, legal liability to third parties, other factors set forth in Item 1A of the 2022 Form 10-K 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

We conduct operations in many countries around the world. Our results of operations are subject to both currency transaction risk and currency translation risk. Certain foreign currency forward contracts outstanding during 2022 and 2021 served as a hedge of a portion of PPG’s exposure to foreign currency transaction risk. The fair value of these contracts was a net asset of $51 million and $24 million as of March 31, 2023 and December 31, 2022, respectively. The potential reduction in PPG's Income before income taxes resulting from the impact of adverse changes in exchange rates on the fair value of its outstanding foreign currency hedge contracts of 10% for European and Canadian currencies and 20% for Asian and Latin American currencies was $315 million for the three months ended March 31, 2023 and $304 million for the year ended December 31, 2022.

PPG had U.S. dollar to euro cross currency swap contracts with a total notional amount of $475 million and $775 million as of March 31, 2023 and December 31, 2022, respectively. The fair value of these contracts were net assets of $46 million and $88 million as of March 31, 2023 and December 31, 2022, respectively. 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 $50 million and $73 million at March 31, 2023 and December 31, 2022, respectively.

As of March 31, 2023 and December 31, 2022, PPG had non-U.S. dollar denominated borrowings outstanding of $2.8 billion and $2.6 billion, respectively. A weakening of the U.S. dollar by 10% against European currencies and by 20% against Asian and South American currencies would have resulted in unrealized translation losses on these borrowings of $318 million at March 31, 2023 and $293 million at December 31, 2022.

Interest Rate Risk

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to minimize its interest costs. PPG has interest rate swaps which converted $375 million and $525 million of fixed rate debt to variable rate debt as of March 31, 2023 and December 31, 2022, respectively. The fair values of these contracts was a liability of $13 million and $20 million as of March 31, 2023 and December 31, 2022, respectively. An increase in variable interest rates of 10% would have lowered the fair values of these swaps and increased interest expense by $6 million and $7 million for the periods ended March 31, 2023 and December 31, 2022, respectively. A 10% increase in interest rates in the U.S., Canada, Mexico and Europe and a 20% increase in interest rates in Asia and South America would have increased annual interest expense associated with PPG's variable rate debt obligations by $8 million and by $4 million for the periods ended March 31, 2023 and December 31, 2022, respectively. Further a 10% reduction in interest rates would have increased the fair value of the Company's fixed rate debt by approximately $112 million and $116 million at March 31, 2023 and December 31, 2022, respectively; however, such changes would not have had an effect on PPG's Income before income taxes or cash flows.

There were no other material changes in the Company’s exposure to market risk from December 31, 2022 to March 31, 2023. Refer to Note 12, “Financial Instruments, Hedging Activities and Fair Value Measurements” in Part I, Item 1 of this Form 10-Q for a description of our instruments subject to market risk.

Item 4. Controls and Procedures

a. Evaluation of disclosure controls and procedures. Based on their evaluation as of the end of the period covered by this Form 10-Q, the Company’s principal executive officer and principal financial officer have concluded that the Company’s disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities

Exchange Act of 1934 (the “Exchange Act”)) are effective to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and 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.

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

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 these lawsuits and claims involve personal injury, property damage and certain other claims, 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.

From the late 1880’s until the early 1970’s, PPG owned property located in Cadogan and North Buffalo Townships, Pennsylvania which was used for the disposal of solid waste from PPG’s former glass manufacturing facility in Ford City, Pennsylvania. In October 2018, the Pennsylvania Department of Environmental Protection (the “DEP”) approved PPG’s cleanup plan for the Cadogan Property. In April 2019, PPG and the DEP entered into a consent order and agreement (“CO&A”) which incorporated PPG’s approved cleanup plan and a draft final permit for the collection and discharge of seeps emanating from the former disposal area. The CO&A includes a civil penalty of $1.2 million for alleged past unauthorized discharges. PPG’s former disposal area is also the subject of a citizens’ suit filed by the Sierra Club and PennEnvironment seeking remedial measures beyond the measures specified in PPG’s approved cleanup plan, a civil penalty in addition to the penalty included in the CO&A and plaintiffs’ attorneys fees. PPG and the plaintiffs settled plaintiffs’ claims for injunctive relief and PPG agreed to enhancements to the DEP approved cleanup plan and a $250,000 donation to a Pennsylvania nonprofit organization. This settlement has been memorialized by an amendment to the CO&A which was appended to a Consent Agreement between PPG and the plaintiffs which has been entered by the federal court. The remaining claims in the case for attorneys’ fees and a civil penalty are not affected by this settlement. PPG believes that the remaining claims are without merit and intends to defend itself against these claims 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 14, “Commitments and Contingent Liabilities” in 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. After having not been named in a new lead-related lawsuit for 15 years, PPG was named as a defendant in two Pennsylvania state court lawsuits filed by Montgomery County and Lehigh County in the respective counties on October 4, 2018 and October 12, 2018. Both suits seek declaratory relief arising out of alleged public nuisances in the counties associated with the presence of lead paint on various buildings constructed prior to 1980. The Company believes these actions are without merit and intends to defend itself vigorously.

Item 1A. Risk Factors

There were no material changes in the Company’s risk factors from the risks disclosed in the 2022 Form 10-K.

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

Issuer Purchases of Equity Securities

No shares were repurchased in the three months ended March 31, 2023 under the current $2.5 billion share repurchase program approved in December 2017. The maximum number of shares that may yet be purchased under this program is 8,311,890 shares as of March 31, 2023. This repurchase program has no expiration date.

Item 6. Exhibits

See the Index to Exhibits on page 33.

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	Amendment No. 1, dated as of March 23, 2023, to Five Year Credit Agreement, dated as of August 30, 2019, among PPG Industries, Inc.; the several banks and financial institutions party thereto; JPMorgan Chase Bank, N.A., as administrative agent; BNP Paribas, Citibank, N.A., MUFG Bank, Ltd. and PNC Bank, National Association, as co-syndication agents; and J.P. Morgan Chase Bank, N.A., BNP Paribas Securities Corp., Citibank, N.A., MUFG Bank, Ltd. and PNC Capital Markets LLC, as co-lead arrangers and co-bookrunners was filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on March 27, 2023.
10.2	Amendment No. 1, dated as of March 23, 2023, to Term Loan Credit Agreement, dated as of February 19, 2021, among PPG Industries, Inc., the lenders parties thereto, BNP Paribas, as administrative agent, PNC Bank, National Association, as syndication agent and BNP Paribas Securities Corp. and PNC Capital Markets LLC, as co-lead arrangers and co-bookrunners was filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on March 27, 2023.
†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*	Inline XBRL Instance Document
101.SCH**	Inline XBRL Taxonomy Extension Schema Document
101.CAL**	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF**	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB**	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE**	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Inline XBRL for the cover page of this Quarterly Report on Form 10-Q, included in the Exhibit 101 Inline XBRL Document Set.

† Filed herewith.
†† Furnished herewith.
*The instance document does not appear in the Interactive Data File because its XBRL (Extensible Business Reporting Language) tags are embedded within the Inline XBRL document.
**Attached as Exhibit 101 to this report are the following documents formatted in Inline XBRL: (i) the Condensed Consolidated Statement of Income for the three months ended March 31, 2023 and 2022, (ii) the Condensed Consolidated Balance Sheet at March 31, 2023 and December 31, 2022, (iii) the Condensed Consolidated Statement of Cash Flows for the three months ended March 31, 2023 and 2022, and (iv) Notes to Condensed Consolidated Financial Statements for the three months ended March 31, 2023.

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: April 21, 2023

By: /s/ Vincent J. Morales
Vincent J. Morales
Senior Vice President and Chief Financial Officer
(Principal Financial Officer and Duly Authorized Officer)

By: /s/ Brian R. Williams
Brian R. Williams
Vice President and Controller
(Principal Accounting Officer and Duly Authorized Officer)

Exhibit 31.1

PRINCIPAL EXECUTIVE OFFICER CERTIFICATION

I, Timothy M. Knavish, 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: April 21, 2023

/s/ Timothy M. Knavish

Timothy M. Knavish
Director, President 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: April 21, 2023

/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, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Timothy M. Knavish, Director, President 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/ Timothy M. Knavish
Timothy M. Knavish
Director, President and Chief Executive Officer
April 21, 2023

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, 2023 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)
April 21, 2023

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.