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

FORM 10-Q

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the quarterly period ended: September 30, 2022
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 September 30, 2022, 235,027,394 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 September 30		Nine Months Ended September 30	
($ in millions, except per share amounts)	2022	2021	2022	2021
Net sales	$4,468	$4,372	$13,467	$12,612
Cost of sales, exclusive of depreciation and amortization	2,821	2,733	8,473	7,594
Selling, general and administrative	931	950	2,887	2,796
Depreciation	95	100	296	286
Amortization	40	46	125	126
Research and development, net	110	114	340	323
Interest expense	46	30	114	91
Interest income	(14)	(7)	(34)	(19)
Impairment and other related charges, net	—	21	230	21
Business restructuring, net	36	—	36	(21)
Other income, net	(15)	(56)	(62)	(118)
Income before income taxes	$418	$441	$1,062	$1,533
Income tax expense	79	96	252	370
Income from continuing operations	$339	$345	$810	$1,163
Loss from discontinued operations, net of tax	—	—	(2)	—
Net income attributable to controlling and noncontrolling interests	$339	$345	$808	$1,163
Net income attributable to noncontrolling interests	(10)	(1)	(20)	(10)
Net income (attributable to PPG)	$329	$344	$788	$1,153
Amounts attributable to PPG:				
Income from continuing operations, net of tax	$329	$344	$790	$1,153
Loss from discontinued operations, net of tax	—	—	(2)	—
Net income (attributable to PPG)	$329	$344	$788	$1,153
Earnings per common share:				
Income from continuing operations, net of tax	$1.40	$1.45	$3.34	$4.85
Loss from discontinued operations, net of tax	—	—	(0.01)	—
Earnings per common share (attributable to PPG)	$1.40	$1.45	$3.33	$4.85
Earnings per common share – assuming dilution:				
Income from continuing operations, net of tax	$1.39	$1.43	$3.33	$4.81
Loss from discontinued operations, net of tax	—	—	(0.01)	—
Earnings per common share (attributable to PPG) - assuming dilution	$1.39	$1.43	$3.32	$4.81

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

Condensed Consolidated Statement of Comprehensive (Loss)/Income (Unaudited)

($ in millions)	Three Months Ended September 30		Nine Months Ended September 30	
	2022	2021	2022	2021
Net income attributable to controlling and noncontrolling interests	$339	$345	$808	$1,163
Other comprehensive loss, net of tax:				
Defined benefit pension and other postretirement benefits	2	6	11	(1)
Unrealized foreign currency translation adjustments	(353)	(215)	(543)	(276)
Other comprehensive loss, net of tax	($351)	($209)	($532)	($277)
Total comprehensive (loss)/income	($12)	$136	$276	$886
Less: amounts attributable to noncontrolling interests:				
Net income	(10)	(1)	(20)	(10)
Unrealized foreign currency translation adjustments	7	2	16	5
Comprehensive (loss)/income attributable to PPG	($15)	$137	$272	$881

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)	September 30, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	$1,029	$1,005
Short-term investments	60	67
Receivables, net	3,541	3,152
Inventories	2,411	2,171
Other current assets	449	379
Total current assets	$7,490	$6,774
Property, plant and equipment (net of accumulated depreciation of $4,435 and $4,532)	3,140	3,442
Goodwill	5,884	6,248
Identifiable intangible assets, net	2,352	2,783
Deferred income taxes	182	197
Investments	253	274
Operating lease right-of-use assets	815	891
Other assets	752	742
Total	$20,868	$21,351
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$4,299	$4,392
Restructuring reserves	135	173
Short-term debt and current portion of long-term debt	314	9
Current portion of operating lease liabilities	178	192
Total current liabilities	$4,926	$4,766
Long-term debt	6,478	6,572
Operating lease liabilities	631	693
Accrued pensions	801	834
Other postretirement benefits	657	672
Deferred income taxes	539	646
Other liabilities	692	757
Total liabilities	$14,724	$14,940
Commitments and contingent liabilities (Note 15)		
Shareholders' equity:		
Common stock	$969	$969
Additional paid-in capital	1,122	1,081
Retained earnings	20,736	20,372
Treasury stock, at cost	(13,527)	(13,386)
Accumulated other comprehensive loss	(3,266)	(2,750)
Total PPG shareholders' equity	$6,034	$6,286
Noncontrolling interests	110	125
Total shareholders' equity	$6,144	$6,411
Total	$20,868	$21,351

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, 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
Net income attributable to the controlling and noncontrolling interests	—	—	441	—	—	441	5	446
Other comprehensive loss, net of tax	—	—	—	—	(208)	(208)	(6)	(214)
Cash dividends	—	—	(140)	—	—	(140)	—	(140)
Purchase of treasury stock	—	—	—	(150)	—	(150)	—	(150)
Issuance of treasury stock	—	6	—	3	—	9	—	9
Stock-based compensation activity	—	9	—	—	—	9	—	9
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(6)	(6)
Other	—	3	—	—	—	3	1	4
June 30, 2022	$969	$1,111	$20,552	($13,528)	($2,922)	$6,182	$109	$6,291
Net income attributable to the controlling and noncontrolling interests	—	—	329	—	—	329	10	339
Other comprehensive loss, net of tax	—	—	—	—	(344)	(344)	(7)	(351)
Cash dividends	—	—	(145)	—	—	(145)	—	(145)
Issuance of treasury stock	—	2	—	1	—	3	—	3
Stock-based compensation activity	—	9	—	—	—	9	—	9
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(1)	(1)
Reductions in noncontrolling interests	—	—	—	—	—	—	(1)	(1)
September 30, 2022	$969	$1,122	$20,736	($13,527)	($3,266)	$6,034	$110	$6,144

($ in millions)	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total PPG	Non-controlling Interests	Total
January 1, 2021	$969	$1,008	$19,469	($13,158)	($2,599)	$5,689	$126	$5,815
Net income attributable to controlling and noncontrolling interests	—	—	378	—	—	378	7	385
Other comprehensive loss, net of tax	—	—	—	—	(131)	(131)	(2)	(133)
Cash dividends	—	—	(128)	—	—	(128)	—	(128)
Issuance of treasury stock	—	25	—	10	—	35	—	35
Stock-based compensation activity	—	(4)	—	—	—	(4)	—	(4)
Reductions in noncontrolling interests	—	—	—	—	—	—	(1)	(1)
March 31, 2021	$969	$1,029	$19,719	($13,148)	($2,730)	$5,839	$130	$5,969
Net income attributable to the controlling and noncontrolling interests	—	—	431	—	—	431	2	433
Other comprehensive income/(loss), net of tax	—	—	—	—	66	66	(1)	65
Cash dividends	—	—	(128)	—	—	(128)	—	(128)
Issuance of treasury stock	—	17	—	10	—	27	—	27
Stock-based compensation activity	—	7	—	—	—	7	—	7
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(4)	(4)
Acquisition of noncontrolling interests	—	—	—	—	—	—	53	53
Reductions in noncontrolling interests	—	—	—	—	—	—	(11)	(11)
June 30, 2021	$969	$1,053	$20,022	($13,138)	($2,664)	$6,242	$169	$6,411
Net income attributable to the controlling and noncontrolling interests	—	—	344	—	—	344	1	345
Other comprehensive loss, net of tax	—	—	—	—	(207)	(207)	(2)	(209)
Cash dividends	—	—	(140)	—	—	(140)	—	(140)
Issuance of treasury stock	—	3	—	2	—	5	—	5
Stock-based compensation activity	—	9	—	—	—	9	—	9
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(1)	(1)
Reductions in noncontrolling interests	—	—	—	—	—	—	(10)	(10)
September 30, 2021	$969	$1,065	$20,226	($13,136)	($2,871)	$6,253	$157	$6,410

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)	Nine Months Ended September 30 2022	2021
Operating activities:		
Net income attributable to controlling and noncontrolling interests	$808	$1,163
Less: Loss from discontinued operations	(2)	—
Income from continuing operations	$810	$1,163
Adjustments to reconcile net income to cash from operations:		
Depreciation and amortization	421	412
Pension income	(19)	(27)
Environmental remediation charges	—	26
Business restructuring, net	36	(21)
Impairment and other related charges, net	230	21
Stock-based compensation expense	27	39
Gain from sale of production facility	—	(34)
Equity affiliate income, net of dividends	(15)	(6)
Deferred income taxes	(129)	58
Cash used for restructuring actions	(63)	(60)
Change in certain asset and liability accounts (net of acquisitions):		
Receivables	(644)	(376)
Inventories	(458)	(334)
Other current assets	(68)	24
Accounts payable and accrued liabilities	340	423
Taxes and interest payable	67	(52)
Noncurrent assets and liabilities, net	(41)	(74)
Other	(118)	(76)
Cash from operating activities	$376	$1,106
Investing activities:		
Capital expenditures	($368)	($220)
Business acquisitions, net of cash balances acquired	(43)	(2,137)
Proceeds from asset sales	116	—
Proceeds from sale of production facility	—	47
Other	49	34
Cash used for investing activities	($246)	($2,276)
Financing activities:		
Proceeds from commercial paper and short-term debt, net of payments	($439)	$375
Proceeds from Term Loan Credit Agreement, net of fees	—	699
Repayment of Term Loan Credit Agreement	(100)	—
Repayment of term loan	—	(400)
Proceeds from the issuance of debt, net of discounts and fees	1,116	692
Repayment of long-term debt	(3)	(173)
Repayment of acquired debt	(2)	(207)
Purchase of treasury stock	(190)	—
Issuance of treasury stock	11	46
Dividends paid on PPG common stock	(424)	(396)
Payments related to tax withholding on stock-based compensation awards	(14)	(18)
Other	(11)	(12)
Cash (used for)/from financing activities	($56)	$606
Effect of currency exchange rate changes on cash and cash equivalents	(50)	(46)
Net increase/(decrease) in cash and cash equivalents	$24	($610)
Cash and cash equivalents, beginning of period	1,005	1,826
Cash and cash equivalents, end of period	$1,029	$1,216
Supplemental disclosures of cash flow information:		
Interest paid, net of amount capitalized	$119	$110
Taxes paid, net of refunds	$343	$376
Supplemental disclosure of noncash investing and financing activities:		
Capital expenditures accrued within Accounts payable and accrued liabilities at period-end	$76	$76

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 September 30, 2022 and the results of its operations and cash flows for the three and nine months ended September 30, 2022 and 2021. 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 2021 Annual Report on Form 10-K (the "2021 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 and nine months ended September 30, 2022 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.

2. New Accounting Standards

Accounting Standards Adopted in 2022

Effective January 1, 2022, PPG adopted Accounting Standards Update ("ASU") No. 2020-06, "Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)." This ASU simplifies the accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts in an entity's own equity. Adoption of this standard did not materially impact PPG's consolidated financial position, results of operations or cash flows.

Recently Issued Accounting Standards

In March 2020, the FASB issued ASU No. 2020-04, “Reference Rate Reform." This ASU provides optional expedients and exceptions to U.S. GAAP for a limited period of time to ease potential accounting impacts associated with transitioning away from reference rates that are expected to be discontinued, such as the London Interbank Offered Rate ("LIBOR"). The amendments in this ASU apply only to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued. The amendments in this ASU are effective through December 31, 2022. As of September 30, 2022, PPG has not applied any of the optional expedients or exceptions allowed under this ASU. PPG does not believe that this ASU will have a material impact on its consolidated financial position, results of operations or cash flows.

3. Inventories

($ in millions)	September 30, 2022	December 31, 2021
Finished products	$1,293	$1,175
Work in process	255	234
Raw materials	824	723
Supplies	39	39
Total Inventories	$2,411	$2,171

Most U.S. inventories are valued using the last-in, first-out method. These inventories represented approximately 34% and 29% of total inventories at September 30, 2022 and December 31, 2021, respectively. If the first-in, first-out ("FIFO") method of inventory valuation had been used, inventories would have been $260 million and $174 million higher as of September 30, 2022 and December 31, 2021, respectively.

4. Goodwill and Other Identifiable Intangible Assets

The Company tests indefinite-lived intangible assets and goodwill for impairment by either performing 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.

In the first quarter 2022, due to the adverse economic impacts of Russian military forces invading Ukraine, the Company identified indicators that the carrying value of an indefinite-lived intangible asset and certain definite-lived intangible assets associated with the Company's operations in Russia may not be recoverable as of March 31, 2022, and the carrying value of those assets was assessed for impairment. As a result of this assessment, the Company recorded impairment charges of $124 million related to the indefinite-lived intangible asset and $23 million related to definite-lived intangible assets in the condensed consolidated statement of income during the three months ended March 31, 2022. Refer to Note 8, "Impairment and Other Related Charges, Net" for additional information.

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 September 30, 2022.

The change in the carrying amount of goodwill attributable to each reportable segment for the nine months ended September 30, 2022 was as follows:

($ in millions)	**Performance Coatings**	**Industrial Coatings**	**Total**
January 1, 2022	$5,034	$1,214	$6,248
Acquisitions, including purchase accounting adjustments	31	(6)	25
Divestitures	(40)	—	(40)
Foreign currency impact	(270)	(79)	(349)
September 30, 2022	$4,755	$1,129	$5,884

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

	September 30, 2022			**December 31, 2021**		
($ in millions)	**Gross Carrying Amount**	**Accumulated Amortization**	**Net**	**Gross Carrying Amount**	**Accumulated Amortization**	**Net**
Indefinite-Lived Identifiable Intangible Assets						
Trademarks	$1,274	N/A	$1,274	$1,449	N/A	$1,449
Definite-Lived Identifiable Intangible Assets						
Acquired technology	$829	($628)	$201	$862	($616)	$246
Customer-related	1,756	(1,034)	722	1,956	(1,064)	892
Trade names	303	(150)	153	336	(144)	192
Other	47	(45)	2	51	(47)	4
Total Definite-Lived Intangible Assets	$2,935	($1,857)	$1,078	$3,205	($1,871)	$1,334
Total Identifiable Intangible Assets	$4,209	($1,857)	$2,352	$4,654	($1,871)	$2,783

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

As of September 30, 2022, estimated future amortization expense of identifiable intangible assets is as follows:

($ in millions)	Future Amortization Expense
Remaining three months of 2022	$40
2023	$165
2024	$150
2025	$135
2026	$115
2027	$100
Thereafter	$373

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 17, "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 lower 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. Based on the approval of this business restructuring plan, the Company recorded net business restructuring charges of $36 million during the three months ended September 30, 2022, comprised of $84 million of charges related to the recently approved business restructuring plan, partially offset by $48 million of income due to releases of existing restructuring reserves recorded to reflect the current estimate of costs to complete previously approved business restructuring actions.

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.

In the second quarter 2020, the Company approved a business restructuring plan which included actions to reduce its global cost structure. The program addressed weakened global economic conditions stemming from COVID-19 and related pace of recovery in a few end-use markets along with further opportunities to optimize supply chain and functional costs. In the second quarter 2019, the Company approved a business restructuring plan which included actions to reduce its global cost structure. Substantially all remaining actions of the 2020 and 2019 restructuring programs are expected to be completed in 2022.

The following table summarizes restructuring reserve activity for the nine months ended September 30, 2022 and 2021:

	Total Reserve	
($ in millions)	2022	2021
January 1	$231	$293
Approved restructuring actions	84	2
Release of prior reserves and other adjustments[(a)]	(48)	(23)
Cash payments	(63)	(60)
Foreign currency impact	(23)	(14)
September 30	$181	$198

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

6. Borrowings

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 13 "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 1.200% notes discussed below. 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 13 "Financial Instruments, Hedging Activities and Fair Value Measurements" for additional information.

In the second quarter of 2021, two of PPG's long-term debt obligations matured; $134 million 9% non-callable debentures and non-U.S. debt of €30 million. The Company paid $170 million to settle these obligations using cash on hand.

In March 2021, PPG completed a public offering of $700 million aggregate principal amount of 1.200% notes due 2026. These notes were issued pursuant to PPG's existing shelf registration statement and pursuant to the Indenture between the Company and the Bank of New York Mellon Trust Company, N.A., as trustee, as supplemented (the "2021 Indenture"). The 2021 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 the notes upon a Change of Control Triggering Event (as defined in the 2021 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 2021 Indenture. The aggregate cash proceeds from the notes, net of discounts and fees, was $692 million.

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 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 the third quarter 2022, PPG repaid $100 million of the Term Loan Credit Agreement using cash on hand. Borrowings of $1.3 billion and $1.4 billion were outstanding under the Term Loan Credit Agreement as of September 30, 2022 and December 31, 2021, respectively.

In April 2020, PPG entered into a $1.5 billion 364-Day Term Loan Credit Agreement (the "Term Loan"). The Term Loan contained 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. In 2020, PPG repaid $1.1 billion of the Term Loan using cash on hand. In the first quarter 2021, PPG repaid the remaining $400 million of the Term Loan using cash on hand. The Term Loan terminated on April 13, 2021.

In August 2019, PPG amended and restated its five-year credit agreement (the “Credit Agreement”) with several banks and financial institutions. 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 September 30, 2022 and December 31, 2021.

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 September 30, 2022, Total Indebtedness to Total Capitalization as defined under the Credit Agreement and Term Loan Credit Agreement was 50%.

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. Commercial paper borrowings of zero and $440 million were outstanding as of September 30, 2022 and December 31, 2021, respectively.

Letters of Credit and Surety Bonds

The Company had outstanding letters of credit and surety bonds of $235 million as of September 30, 2022.

7. Other Income, Net

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Gain on sale of assets[(a)]	$2	$34	$7	$38
Foreign currency gain, net	—	4	27	14
Share of net earnings of equity affiliates	6	4	20	9
Income from legal settlements	—	—	—	22
Other, net	7	14	8	35
Total Other income, net	$15	$56	$62	$118

(a) In the third quarter 2021, PPG recognized a $34 million gain on the sale of a production facility in connection with the Company’s manufacturing footprint consolidation plans and associated restructuring programs.

8. Impairment and Other Related Charges, Net

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, net 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.

In the second quarter 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 $60 million within Impairment and other related charges, net.

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

During the nine months ended September 30, 2022 and the twelve months ended December 31, 2021, net sales in Russia represented approximately 1% of PPG net sales.

9. 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 and nine months ended September 30, 2022 and 2021 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
(number of shares in millions)	2022	2021	2022	2021
Weighted average common shares outstanding	235.5	237.9	236.2	237.7
Effect of dilutive securities:				
Stock options	0.4	1.1	0.6	1.0
Other stock compensation plans	0.7	0.8	0.7	0.8
Potentially dilutive common shares	1.1	1.9	1.3	1.8
Adjusted weighted average common shares outstanding	236.6	239.8	237.5	239.5
Dividends per common share	$0.62	$0.59	$1.80	$1.67

Excluded from the computation of earnings per diluted share due to their antidilutive effect were 0.9 million of outstanding stock options for the three and nine months ended September 30, 2022, respectively, and zero outstanding stock options for the three and nine months ended and September 30, 2021.

10. Income Taxes

	Nine Months Ended September 30	
	2022	2021
Effective tax rate on pretax income	23.7 %	24.1 %

The effective tax rate of 23.7% for the nine months ended September 30, 2022 reflects a tax benefit of $27 million on the $230 million net charges associated with PPG's operations in Russia. In the second quarter 2021, PPG recorded a net tax charge of $22 million as a result of new legislation enacted in June 2021 that increased the United Kingdom's corporation tax rate.

Income tax expense for the nine months ended September 30, 2022 and 2021 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 2022 pretax results for U.S. and foreign income or loss vary from estimates, the actual Income tax expense recognized in 2022 could be different from the forecasted amount used to estimate Income tax expense for the nine months ended September 30, 2022.

11. Pensions and Other Postretirement Benefits

The service cost component of net periodic pension and other postretirement benefit (income)/costs 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 statements of income. All other components of net periodic benefit cost are recorded in Other income, net in the accompanying condensed consolidated statements of income.

Net periodic pension benefit income and other postretirement benefit cost/(income) for the three and nine months ended September 30, 2022 and 2021 was as follows:

	Pension			
	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2022	2021	2022	2021
Service cost	$3	$3	$7	$8
Interest cost	18	17	55	49
Expected return on plan assets	(35)	(38)	(106)	(114)
Amortization of actuarial losses	8	10	25	30
Net periodic benefit income	($6)	($8)	($19)	($27)

	Other Postretirement Benefits			
	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2022	2021	2022	2021
Service cost	$2	$3	$6	$9
Interest cost	4	3	12	10
Amortization of actuarial losses	3	5	9	15
Amortization of prior service credit	(3)	(14)	(8)	(41)
Net periodic benefit cost/(income)	$6	($3)	$19	($7)

Net periodic other postretirement expense was higher for both the three and nine months ended September 30, 2022 compared to 2021 due to a decrease in the benefit associated with a 2017 other postretirement benefit plan design change. The 2017 plan design change resulted in a significant reduction in the Company's postretirement benefit obligation, the impact of which was amortized as a reduction of net periodic benefit cost through 2021.

PPG expects 2022 full year net periodic pension income of approximately $25 million and net periodic other postretirement expense of approximately $25 million.

Contributions to Defined Benefit Pension Plans

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2022	2021	2022	2021
Non-U.S. defined benefit pension mandatory contributions	$—	$1	$2	$3

PPG expects to make contributions to its defined benefit pension plans in the range of $5 million to $10 million during the remaining three months of 2022. PPG may make voluntary contributions to its defined benefit pension plans in 2022 and beyond.

12. 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, 2021	($1,663)	($937)	$1	($2,599)
Current year deferrals to AOCL	(271)	(5)	—	(276)
Reclassifications from AOCL to net income	—	4	—	4
September 30, 2021	($1,934)	($938)	$1	($2,871)
January 1, 2022	($1,988)	($763)	$1	($2,750)
Current year deferrals to AOCL	(537)	(9)	—	(546)
Reclassifications from AOCL to net income	10	20	—	30
September 30, 2022	($2,515)	($752)	$1	($3,266)

(a) The tax cost related to unrealized foreign currency translation adjustments on net investment hedges was $96 million and $40 million as of September 30, 2022 and 2021, respectively.

(b) The tax cost related to the adjustment for pension and other postretirement benefits was $6 million and $1 million as of September 30, 2022 and 2021, respectively. Reclassifications from AOCL are included in the computation of net periodic benefit costs (See Note 11, "Pensions and Other Postretirement Benefits").

13. 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 September 30, 2022 and December 31, 2021, 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 and nine months ended September 30, 2022 and 2021.

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 and nine months ended September 30, 2022 and 2021, 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 nine months ended September 30, 2022 and 2021 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 $525 million of fixed rate debt to variable rate debt. 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 $23 million and an asset of $36 million at September 30, 2022 and December 31, 2021, 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 September 30, 2022 and December 31, 2021.

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:

As of both September 30, 2022 and December 31, 2021, PPG had U.S. dollar to euro cross currency swap contracts with total notional amounts of $775 million and designated these contracts as hedges of the Company's net investment in its European operations. During the term of these contracts, PPG will receive payments in U.S. dollars and make payments in euros to the counterparties. As of September 30, 2022 and December 31, 2021, the fair value of the U.S. dollar to euro cross currency swap contracts were net assets of $139 million and $50 million, respectively.

As of September 30, 2022 and December 31, 2021, PPG had designated €2.5 billion and €1.4 billion, respectively, 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 $2.4 billion and $1.6 billion as of September 30, 2022 and December 31, 2021, 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 $1.9 billion at both September 30, 2022 and December 31, 2021. As of September 30, 2022 and December 31, 2021, the fair value of these contracts was a net liability of $13 million and a net asset of $24 million, respectively.

Gains/Losses Deferred in Accumulated Other Comprehensive Loss

As of September 30, 2022 and December 31, 2021, the Company had accumulated pretax unrealized translation gains in Accumulated other comprehensive loss on the condensed consolidated balance sheet related to the euro-denominated borrowings, foreign currency forward contracts, and the cross currency swaps of $600 million and $204 million, respectively.

The following table summarizes the amount of gains deferred in Other comprehensive (loss)/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 nine months ended September 30, 2022 and 2021. All amounts are shown on a pretax basis.

	September 30, 2022		September 30, 2021		
($ in millions)	**Gain Deferred in OCI**	**Gain Recognized**	**Gain Deferred in OCI**	**Gain Recognized**	**Caption In Condensed Consolidated Statement of Income**
Economic					
Foreign currency forward contracts	$—	$34	$—	$14	Other income, net
Fair Value					
Interest rate swaps	—	7	—	11	Interest expense
Total forward contracts and interest rate swaps	$—	$41	$—	$25	
Net Investment					
Cross currency swaps	$89	$11	$41	$10	Interest expense
Foreign denominated debt	307	—	125	—	
Total Net Investment	$396	$11	$166	$10	

Fair Value Measurements

The Company follows a fair value measurement hierarchy to measure its assets and liabilities. As of September 30, 2022 and December 31, 2021, the assets and liabilities measured at fair value on a recurring basis were cash equivalents, equity securities and derivatives. In addition, the Company measures its pension plan assets at fair value (see Note 13, "Employee Benefit Plans" under Item 8 in the 2021 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 September 30, 2022 and December 31, 2021 that were measured using Level 3 inputs.

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

	September 30, 2022			December 31, 2021		
($ in millions)	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Assets:						
Other current assets:						
Marketable equity securities	$9	$—	$—	$6	$—	$—
Foreign currency forward contracts [(a)]	—	8	—	—	28	—
Cross currency swaps [(b)]	—	61	—	—	—	—
Investments:						
Marketable equity securities	$61	$—	$—	$98	$—	$—
Other assets:						
Cross currency swaps [(b)]	$—	$78	$—	$—	$50	$—
Interest rate swaps [(c)]	—	—	—	—	36	—
Liabilities:						
Accounts payable and accrued liabilities:						
Foreign currency forward contracts [(a)]	$—	$21	$—	$—	$4	$—
Interest rate swaps [(c)]	—	1	—	—	—	—
Other liabilities:						
Interest rate swaps [(c)]	$—	$22	$—	$—	$—	$—

(a) Derivatives not designated as hedging instruments

(b) Net investment hedges

(c) Fair value hedges

Long-Term Debt

($ in millions)	September 30, 2022 [(a)]	December 31, 2021 [(b)]
Long-term debt - carrying value	$6,770	$6,565
Long-term debt - fair value	$6,336	$6,958

(a) Excluding finance lease obligations of $9 million and short-term borrowings of $13 million as of September 30, 2022.

(b) Excluding finance lease obligations of $10 million and short-term borrowings of $6 million as of December 31, 2021.

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.

14. Stock-Based Compensation

The Company's stock-based compensation includes stock options, restricted stock units ("RSUs") and grants of contingent shares that are earned based on achieving targeted levels of total shareholder return. All current grants of stock options, RSUs and contingent shares are made under the PPG Industries, Inc. Amended and Restated Omnibus Incentive Plan (the "PPG Amended Omnibus Plan"), which was amended and restated effective April 21, 2016. There were 4.6 million shares available for future grants under the PPG Amended Omnibus Plan as of September 30, 2022.

Stock-based compensation expense and the associated income tax benefit recognized during the three and nine months ended September 30, 2022 and 2021 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2022	2021	2022	2021
Stock-based compensation expense	$9	$4	$27	$39
Income tax benefit recognized	$2	$1	$6	$9

Grants of stock-based compensation during the nine months ended September 30, 2022 and 2021 were as follows:

	Nine Months Ended September 30			
	2022		2021	
	Shares	Fair Value	Shares	Fair Value
Stock options	487,277	$36.52	527,464	$29.27
Restricted stock units	223,729	$141.50	201,068	$134.54
Contingent shares [(a)]	57,134	$151.87	55,540	$136.60

(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 nine months ended September 30, 2022 was calculated with the following weighted average assumptions:

Weighted average exercise price	$151.87
Risk free interest rate	2.0 %
Expected life of option in years	6.5
Expected dividend yield	1.6 %
Expected volatility	25.7 %

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 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 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 total shareholder return ("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 total shareholder return 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. 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 qualify as liability awards, and compensation expense is recognized over the three-year award period based on the fair value of the awards (giving consideration to the Company's percentile rank of total shareholder return) remeasured in each reporting period until settlement of the awards.

15. 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, as they had prior to the asbestos settlement described below, may contest coverage with respect to some of the asbestos claims. 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

Prior to 2000, the Company had been named as a defendant in numerous claims alleging bodily injury from exposure to asbestos, including exposure to asbestos-containing products of Pittsburgh Corning Corporation ("PC") for which the Company was alleged to be liable (the Company and Corning Incorporated were each 50% shareholders in PC prior to April 27, 2016). In 2000, PC filed for relief under Chapter 11 of the Bankruptcy Code in the U.S. Bankruptcy Court for the Western District of Pennsylvania, and the Bankruptcy Court enjoined the prosecution of asbestos litigation against the Company during the pendency of the bankruptcy proceeding.

Following a settlement with certain of the Company's insurers that was incorporated into a plan of reorganization for PC, the Bankruptcy Court issued a channeling injunction that prohibits claimants from asserting claims against, among others, the Company arising out of exposure to asbestos or asbestos-containing products manufactured, sold or distributed by PC or asbestos on or emanating from any PC premises. The channeling injunction by its terms also precludes the prosecution of other asbestos-related claims against the Company arising out of prior relationships with PC. The foregoing PC-related claims are referred to as "PC Relationship Claims." The channeling injunction channels the Company's liability for PC Relationship Claims to a trust funded in part by the Company and certain of its insurers (the "Trust"), and this Trust is the sole recourse for holders of PC Relationship Claims.

The channeling injunction does not extend to claims against the Company alleging:

- exposure to asbestos or asbestos-containing products manufactured, sold or distributed by the Company or its subsidiaries that are not PC Relationship Claims ("Products Claims"); and

- personal injury caused by asbestos on premises presently or formerly owned, leased or occupied by the Company (“Premises Claims”).

In 2009, the Company established a $162 million reserve for Products Claims that it has monitored and reviewed on a periodic basis, and until 2021, the Company had not had sufficient current claims information or settlement history on which to base a better estimate of this liability in light of the Bankruptcy Court’s injunction staying most asbestos claims against the Company which was in effect from April 2000 through May 2016.

Current Open and Active Claims

The Company is aware of certain asbestos-related claims pending against the Company and certain of its subsidiaries, consisting of Products Claims, Premises Claims and claims against a subsidiary the Company acquired in 2013 (“Subsidiary Claims”). The Company is defending these claims vigorously.

In 2019, as certain claims data became available and as a supplement to its periodic monitoring and review, the Company began performing an annual valuation analysis, based in part on discussions with counsel and reports from valuation consultants, of its claims history and the amount of the Company’s potential liability for asbestos-related claims. As a result of the Company’s 2019 review of its asbestos-related liabilities, a charge of $12 million was recorded in the consolidated statement of income to increase the reserve to reflect the Company’s estimates of potential liability for Premises Claims and Subsidiary Claims.

In 2020, based on the results of the Company’s annual valuation analysis, no adjustments to the Company’s estimate of its asbestos-related liabilities were required.

In the fourth quarter of 2021, as additional claims data became available following the expiration of the Bankruptcy Court’s injunction in May 2016, the Company adjusted its estimate of potential liability for Products Claims. The 2021 valuation analysis with respect to Products Claims was based, in part, upon a review of claims data; annual filings by disease and year; pending, paid and dismissed claims; indemnity cash flows; and estimates of future claim, indemnity and acceptance rates. The Company also further adjusted its estimates of potential liability for Premises Claims and Subsidiary Claims in the fourth quarter of 2021.

As a result of the Company’s fourth quarter 2021 review of its asbestos-related liabilities, income of $133 million was recorded in the consolidated statement of income to reduce the reserve to reflect the Company’s current estimate of potential liability for asbestos-related bodily injury claims through December 31, 2057. As of December 31, 2021, the Company’s asbestos-related reserves totaled $54 million.

As of September 30, 2022, the Company's total asbestos-related reserves were $52 million. The Company believes that, based on presently available information, the total reserves of $52 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 condensed consolidated balance sheets, involve significant management judgment and represent the Company’s current best estimate of its liability for these 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.

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 2022 and 2021, 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 September 30, 2022 and December 31, 2021, 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)	**September 30, 2022**	**December 31, 2021**
New Jersey Chrome	$61	$89
Glass and chemical	67	83
Other	97	110
Total	$225	$282
Current portion	*$68*	*$97*

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 and nine months ended September 30, 2022 and 2021 were as follows:

	Three Months Ended September 30		**Nine Months Ended September 30**	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Environmental remediation pretax charges	$3	$5	$11	$36
Cash outlays for environmental remediation activities	$18	$17	$65	$34

Remediation: New Jersey Chrome

In June 2009, PPG entered into a settlement agreement with the New Jersey Department of Environmental Protection ("NJDEP") and Jersey City, New Jersey (which had asserted claims against PPG for lost tax revenue) which was in the form of a Judicial Consent Order (the "JCO"). Under the JCO, PPG accepted sole responsibility for the remediation activities at its former chromium manufacturing location in Jersey City and 19 additional sites. The principal contaminant of concern is hexavalent chromium. The JCO also provided for the appointment of a court-approved Site Administrator who is responsible for establishing a master schedule for the remediation of the 20 PPG sites which existed at that time. Over the years, sites have been added as well as removed from the JCO process. Of the original sites in the JCO, a total of 5 soil sites and 11 groundwater sites remain subject to the JCO process.

The most significant assumptions underlying the estimate of remediation costs for the New Jersey Chrome sites are those related to the extent and concentration of chromium impacts in the soil, as these determine the quantity of soil that must be excavated and transported for offsite disposal, and the nature of disposal required. Remediation of chromium contaminated soils at the location of the former manufacturing site has been substantially completed pursuant to approved remedial action work plans. Remediation of chromium contaminated soils at certain other smaller sites is dependent on redevelopment activity by others, the timing of which is unknown. PPG regularly evaluates the assessments of costs incurred to date versus current progress and the potential cost impacts of the most recent information. Based on these assessments, the reserve is adjusted accordingly.

Groundwater remediation at the former Garfield Avenue chromium manufacturing site and adjacent sites is expected to occur over several years. A final groundwater remedial action work plan was submitted to NJDEP in the fourth quarter of 2021. The NJDEP approved the groundwater remediation action work plan in the first quarter of 2022.

PPG’s financial reserve for remediation of all New Jersey Chrome sites was $61 million at September 30, 2022. 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 15% of the accrued amount, respectively.

There are multiple, future events yet to occur, including further remedy selection and design, remedy implementation and execution and applicable governmental agency or community organization approvals. Considerable uncertainty exists regarding the timing of these future events for the New Jersey Chrome sites. 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.

16. 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 and nine months ended September 30, 2022 and 2021, service revenue constituted less than 5% of total revenue.

Net sales by segment and region for the three and nine months ended September 30, 2022 and 2021 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Performance Coatings				
United States and Canada	$1,268	$1,177	$3,660	$3,374
Europe, Middle East and Africa ("EMEA")	841	965	2,784	2,746
Asia Pacific	281	325	842	913
Latin America	315	291	918	793
Total	$2,705	$2,758	$8,204	$7,826
Industrial Coatings				
United States and Canada	$686	$579	$2,024	$1,714
EMEA	445	453	1,452	1,380
Asia Pacific	453	433	1,278	1,257
Latin America	179	149	509	435
Total	$1,763	$1,614	$5,263	$4,786
Total Net Sales				
United States and Canada	$1,954	$1,756	$5,684	$5,088
EMEA	1,286	1,418	4,236	4,126
Asia Pacific	734	758	2,120	2,170
Latin America	494	440	1,427	1,228
Total PPG	$4,468	$4,372	$13,467	$12,612

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 nine months ended September 30, 2022 and 2021:

	Trade Receivables Allowance for Doubtful Accounts	
($ in millions)	**2022**	**2021**
January 1	$31	$44
Bad debt expense	46	4
Recoveries of previously reserved trade receivables	(46)	—
Other	4	(12)
September 30	$35	$36

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. During the second quarter 2022, the Company released a portion of this previously established bad debt reserve due to the collection of certain trade receivables, resulting in a bad debt reserve related to PPG's operations in Russia of $14 million at September 30, 2022. Refer to Note 8, "Impairment and Other Related Charges, Net" for additional information.

17. 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 and nine months ended September 30, 2022 and 2021 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Net sales:				
Performance Coatings	$2,705	$2,758	$8,204	$7,826
Industrial Coatings	1,763	1,614	5,263	4,786
Total	$4,468	$4,372	$13,467	$12,612
Segment income:				
Performance Coatings	$362	$408	$1,127	$1,248
Industrial Coatings	192	140	488	575
Total	$554	$548	$1,615	$1,823
Corporate	(59)	(45)	(166)	(149)
Interest expense, net of interest income	(32)	(23)	(80)	(72)
Impairment and other related charges, net [(a)]	—	(21)	(230)	(21)
Business restructuring-related costs, net [(b)]	(45)	25	(67)	40
Transaction-related costs [(c)]	—	(43)	(10)	(81)
Environmental remediation charges	—	—	—	(26)
Expenses incurred due to natural disasters [(d)]	—	—	—	(17)
Decrease in allowance for doubtful accounts related to COVID-19	—	—	—	14
Income from legal settlements	—	—	—	22
Income before income taxes	$418	$441	$1,062	$1,533

(a) 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. In the second quarter 2022, the Company released a portion of the previously established reserves for Receivables and Inventories due to the collection of certain trade receivables and the realization of certain inventories. In the third quarter 2021, an impairment charge was recorded related to the previously planned sale of certain smaller entities in non-strategic regions.

(b) 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 and a $34 million gain on the sale of certain assets recognized in the third quarter 2021 in connection with the Company’s manufacturing footprint consolidation plans and associated restructuring programs. This gain is included in Other income, net in the condensed consolidated statement of income.

(c) Transaction-related costs include advisory, legal, accounting, valuation, other professional or consulting fees, and certain internal costs directly incurred to effect acquisitions, as well as similar fees and other costs to effect disposals not classified as discontinued operations. These costs are included in Selling, general and administrative expense in the condensed consolidated statement of income. Transaction-related costs also include losses on the sale of certain assets, which are included in Other income, net in the condensed consolidated statement of income, and the impact for the step up to fair value of inventory acquired in certain acquisitions, which are included in Cost of sales, exclusive of depreciation and amortization in the condensed consolidated statement of income.

(d) In early 2021, a winter storm damaged a southern U.S. factory supporting the Company's specialty coatings and materials business as well as other Company factories in the southern U.S. Incremental expenses incurred due to this storm included costs related to maintenance and repairs of damaged property, freight and utility premiums and other incremental expenses directly related to the impacted areas.

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 2021 Form 10-K.

Highlights

Net sales were approximately $4.5 billion for the three months ended September 30, 2022, an increase of 2.2% compared to the prior year, driven by higher selling prices resulting from continued selling price initiatives. The Company increased net sales despite softer demand conditions in Europe due to geopolitical issues, resumption of COVID-19 restrictions in China and unfavorable foreign currency translation impacts due to the strong appreciation of the U.S. dollar versus many foreign currencies.

Income before income taxes was $418 million for the three months ended September 30, 2022, a decrease of $23 million compared to the prior year. This decrease was primarily due to raw material and other cost inflation, lower sales volumes and unfavorable foreign currency translation impact, partially offset by increased selling prices.

Results of Operations

	Three Months Ended September 30		Percent Change	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	2022	2021	2022 vs. 2021	2022	2021	2022 vs. 2021
Net sales	$4,468	$4,372	2.2 %	$13,467	$12,612	6.8 %
Cost of sales, exclusive of depreciation and amortization	2,821	2,733	3.2 %	8,473	7,594	11.6 %
Selling, general and administrative	931	950	(2.0)%	2,887	2,796	3.3 %
Depreciation	95	100	(5.0)%	296	286	3.5 %
Amortization	40	46	(13.0)%	125	126	(0.8)%
Research and development, net	110	114	(3.5)%	340	323	5.3 %
Interest expense	46	30	53.3 %	114	91	25.3 %
Interest income	(14)	(7)	100.0 %	(34)	(19)	78.9 %
Impairment and other related charges, net	—	21	(100.0)%	230	21	995.2 %
Business restructuring, net	36	—	100.0 %	36	(21)	(271.4)%
Other income, net	(15)	(56)	(73.2)%	(62)	(118)	(47.5)%

Net Sales by Region

	Three Months Ended September 30		Percent Change	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	**2022**	**2021**	**2022 vs. 2021**	**2022**	**2021**	**2022 vs. 2021**
United States and Canada	$1,954	$1,756	11.3 %	$5,684	$5,088	11.7 %
Europe, Middle East and Africa ("EMEA")	1,286	1,418	(9.3)%	4,236	4,126	2.7 %
Asia Pacific	734	758	(3.2)%	2,120	2,170	(2.3)%
Latin America	494	440	12.3 %	1,427	1,228	16.2 %
Total	$4,468	$4,372	2.2 %	$13,467	$12,612	6.8 %

Three Months Ended September 30, 2022

Net sales increased $96 million due to the following:

- *Higher selling prices (+12%)*

Partially offset by:

- *Unfavorable foreign currency translation (-6%)*
- *Lower sales volumes (-3%)*
- *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, increased $88 million primarily due to raw material and energy cost inflation, partially offset by lower sales volumes and favorable foreign currency translation impacts.

Selling, general and administrative expense decreased $19 million primarily due to favorable currency translation impacts and savings from previously approved restructuring actions, partially offset by wage and other cost inflation.

Interest expense increased $16 million primarily due to the unfavorable impact of higher interest rates on PPG’s variable rate debt obligations. Interest income increased $7 million primarily due to higher interest rates.

Impairment and other related charges decreased $21 million as there were no impairment charges recorded during the third quarter 2022. In the third quarter 2021, an incremental impairment charge was recorded for the write-down of certain assets related to the planned sale of certain entities in smaller, non-strategic countries.

Other income, net was lower in the three months ended September 30, 2022 compared to 2021 primarily due to a $34 million gain on the sale of a production facility in connection with the Company’s manufacturing footprint consolidation plans and associated restructuring programs in the third quarter 2021.

Nine Months Ended September 30, 2022

Net sales increased $855 million due to the following:

- *Higher selling prices (+11%)*
- *Acquisition-related sales (+3%)*

Partially offset by:

- *Unfavorable foreign currency translation (-4%)*
- *Lower sales volumes (-3%)*

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, increased $879 million primarily due to raw material and energy cost inflation and cost of sales attributable to acquired businesses, partially offset by favorable foreign currency translation impacts and lower sales volumes.

Selling, general and administrative expense increased $91 million primarily due to expenses from acquired businesses and wage and other cost inflation, partially offset by favorable foreign currency translation impacts and restructuring cost savings.

Interest expense increased $23 million primarily due to the unfavorable impact of higher interest rates on PPG's variable rate debt obligations. Interest income increased $15 million primarily due to higher interest rates.

Impairment and other related charges of $290 million were recorded in the first quarter 2022 associated with the wind down of the Company's operations in Russia. In the second quarter 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 $60 million. The Company continues to consider actions to exit Russia, including a possible sale of its Russian business or controlled withdrawal from the Russia market. Refer to Note 8, "Impairment and Other Related Charges, Net" in Part I, Item 1 of this Form 10-Q for additional information. In the third quarter 2021, the Company recorded an impairment charge for the write-down of certain assets related to the planned sale of certain entities in smaller, non-strategic countries.

Other income, net was lower in the nine months ended September 30, 2022 compared to 2021 primarily due to a $34 million gain on the sale of a production facility in connection with the Company's manufacturing footprint consolidation plans and associated restructuring programs in the third quarter 2021 and favorable legal settlements in the second quarter 2021.

Effective Tax Rate and Earnings Per Diluted Share

	Three Months Ended September 30		Percent Change	Nine Months Ended September 30		Percent Change
($ in millions, except percentages and amounts per share)	**2022**	**2021**	**2022 vs. 2021**	**2022**	**2021**	**2022 vs. 2021**
Income tax expense	$79	$96	(17.7)%	$252	$370	(31.9)%
Effective tax rate	18.9 %	21.8 %	(2.9)%	23.7 %	24.1 %	(0.4)%
Adjusted effective tax rate, continuing operations*	19.9 %	22.1 %	(2.2)%	21.7 %	22.8 %	(1.1)%
Earnings per diluted share, continuing operations	$1.39	$1.43	(2.8)%	$3.33	$4.81	(30.8)%
Adjusted earnings per diluted share*	$1.66	$1.69	(1.8)%	$4.84	$5.51	(12.2)%
*See Regulation G Reconciliation below						

The effective tax rate for the three months ended September 30, 2022 reflects the impact of certain discrete tax items for the quarter.

Adjusted earnings per diluted share for the three months ended September 30, 2022 decreased year-over-year primarily due to raw material and other cost inflation, lower sales volumes and the impact of unfavorable foreign currency translation, partially offset by increased selling prices.

Adjusted earnings per diluted share for the nine months ended September 30, 2022 decreased year-over-year primarily due to raw material cost inflation, lower sales volumes stemming from raw material availability issues and semiconductor chip shortages, softer demand conditions in Europe and the impact of unfavorable foreign currency translation, partially offset by higher selling prices.

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.

	Three Months Ended September 30, 2022				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Income Tax Expense	Effective Tax Rate	Net Income (attributable to PPG)	Earnings Per Diluted Share[(a)]
As reported, continuing operations	$418	$79	18.9 %	$329	$1.39
Adjusted for:					
Business restructuring-related costs, net [(b)]	45	11	25.4 %	34	0.14
Acquisition-related amortization expense	40	10	24.6 %	30	0.13
Adjusted, continuing operations, excluding certain items	$503	$100	19.9 %	$393	$1.66

	Three Months Ended September 30, 2021				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Income Tax Expense	Effective Tax Rate	Net Income (attributable to PPG)	Earnings Per Diluted Share[(a)]
As reported, continuing operations	$441	$96	21.8 %	$344	$1.43
Adjusted for:					
Acquisition-related amortization expense	46	11	24.6 %	35	0.15
Transaction-related costs[(c)]	43	10	24.9 %	33	0.14
Impairment and other related charges, net [(d)]	21	6	29.2 %	12	0.05
Business restructuring-related costs, net [(b)]	(25)	(7)	29.9 %	(18)	(0.08)
Adjusted, continuing operations, excluding certain items	$526	$116	22.1 %	$406	$1.69

	Nine Months Ended September 30, 2022				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net Income from Continuing Operations (attributable to PPG)	Earnings per Diluted Share[(a)]
As reported, continuing operations	$1,062	$252	23.7 %	$790	$3.33
Adjusted for:					
Impairment and other related charges, net [(d)]	230	27	11.7 %	203	0.85
Acquisition-related amortization expense	125	30	24.0 %	95	0.40
Business restructuring-related costs, net [(b)]	67	17	25.4 %	50	0.21
Transaction-related costs [(c)]	10	(2)	(20.0)%	12	0.05
Adjusted, continuing operations, excluding certain items	$1,494	$324	21.7 %	$1,150	$4.84

($ in millions, except percentages and per share amounts)	Nine Months Ended September 30, 2021 Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net Income from Continuing Operations (attributable to PPG)	Earnings per Diluted Share[(a)]
As reported, continuing operations	$1,533	$370	24.1 %	$1,153	$4.81
Adjusted for:					
Acquisition-related amortization expense	126	31	24.6 %	95	0.40
Transaction-related costs[(c)]	81	16	19.8 %	65	0.27
Net tax charge related to UK statutory rate change	—	(22)	N/A	22	0.09
Environmental remediation charges	26	7	24.3 %	19	0.08
Expenses incurred due to natural disasters [(e)]	17	4	24.3 %	13	0.06
Impairment and other related charges, net [(d)]	21	6	29.2 %	12	0.05
Decrease in allowance for doubtful accounts related to COVID-19	(14)	(3)	24.7 %	(11)	(0.05)
Income from legal settlements	(22)	(5)	24.3 %	(17)	(0.07)
Business restructuring-related costs, net [(b)]	(40)	(10)	25.0 %	(30)	(0.13)
Adjusted, continuing operations, excluding certain items	$1,728	$394	22.8 %	$1,321	$5.51

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

(b) 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 and a $34 million gain on the sale of certain assets in the third quarter 2021 in connection with the Company's manufacturing footprint consolidation plans and associated restructuring programs. This gain is included in Other income, net in the condensed consolidated statement of income.

(c) Transaction-related costs include advisory, legal, accounting, valuation, other professional or consulting fees, and certain internal costs directly incurred to effect acquisitions, as well as similar fees and other costs to effect disposals not classified as discontinued operations. These costs are included in Selling, general and administrative expense in the condensed consolidated statement of income. Transaction-related costs also include losses on the sale of certain assets, which are included in Other income, net in the condensed consolidated statement of income, and the impact for the step up to fair value of inventory acquired in certain acquisitions, which are included in Cost of sales, exclusive of depreciation and amortization in the condensed consolidated statement of income.

(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. In the second quarter 2022, the Company released a portion of the previously established reserves for Receivables and Inventories due to the collection of certain trade receivables and the realization of certain inventories. An impairment charge was recorded in the third quarter 2021 related to the previously planned sale of certain smaller entities in non-strategic regions. Net loss of $12 million is attributable to PPG and net loss of $3 million is attributable to noncontrolling interests.

(e) In early 2021, a winter storm damaged a southern U.S. factory supporting the Company's specialty coatings and materials business as well as other Company factories in the southern U.S. Incremental expenses incurred due to this storm included costs related to maintenance and repairs of damaged property, freight and utility premiums and other incremental expenses directly related to the impacted areas.

Performance of Reportable Business Segments

Performance Coatings

($ in millions, except percentages)	Three Months Ended September 30 2022	2021	$ Change 2022 vs. 2021	% Change 2022 vs. 2021	Nine Months Ended September 30 2022	2021	$ Change 2022 vs. 2021	% Change 2022 vs. 2021
Net sales	$2,705	$2,758	($53)	(1.9)%	$8,204	$7,826	$378	4.8 %
Segment income	$362	$408	($46)	(11.3)%	$1,127	$1,248	($121)	(9.7)%
Amortization expense	$30	$33	($3)	(9.1)%	$93	$92	$1	1.1 %
Segment income, excluding amortization expense	$392	$441	($49)	(11.1)%	$1,220	$1,340	($120)	(9.0)%

Three Months Ended September 30, 2022

Performance Coatings net sales decreased due to the following:

- *Unfavorable foreign currency translation (-6%)*
- *Lower sales volumes (-6%)*

- *Divestiture-related sales and wind down of Russia operations (-1%)*

Partially offset by:

- *Higher selling prices (+11%)*

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 due to the continuing decrease in do-it-yourself ("DIY") paint demand in many countries primarily due to lower consumer confidence and demand weakness stemming from the war in Ukraine.

Architectural coatings - Americas and Asia Pacific organic sales increased by a mid-single-digit percentage. Sales in the U.S. and Canada were unfavorably impacted by lower DIY demand. In Mexico, PPG Comex architectural coatings organic sales increased compared to the prior year as concessionaire network demand continued to be strong throughout the quarter and further selling price increases were implemented.

Automotive refinish coatings organic sales increased by a mid-single-percentage, reflecting higher prices in all regions and improved body shop activity in the U.S. stemming from the continuing return to office work and increased collision claims. Sales volumes were negatively impacted by COVID-19 restrictions in China and certain supply chain disruptions in the U.S.

Aerospace coatings sales volumes increased by more than 10% compared to the prior year, as commercial aftermarket and military demand remained strong, but overall demand remained below pre-pandemic levels. Sales also increased due to the benefit of higher selling prices.

Protective and marine coatings organic sales were higher by a low-single-digit percentage primarily due to selling price increases. Sales volumes were adversely impacted by continued COVID-19 restrictions in China.

Traffic solutions organic sales increased by a low-teen-percentage year-over-year due to the benefit of higher selling prices.

Segment income decreased $46 million year-over-year primarily due to higher raw material and logistics cost inflation, lower sales volumes, the impact of unfavorable foreign currency translation and increased manufacturing costs, partially offset by higher selling prices and savings from previously approved restructuring actions.

Nine Months Ended September 30, 2022

Performance Coatings net sales increased due to the following:

- *Higher selling prices (+10%)*
- *Acquisition-related sales (+3%)*

Partially offset by:

- *Unfavorable foreign currency translation (-4%)*
- *Lower sales volumes (-4%)*

Architectural coatings – EMEA organic sales decreased by a low-single-digit percentage year-over-year as selling price increases did not fully offset lower sales volumes. The first nine months of 2022 were negatively impacted by geopolitical uncertainty in Europe and lower demand for DIY paint products.

Architectural coatings - Americas and Asia Pacific organic sales increased by a mid-single-digit percentage primarily due to selling price increases. Sales in the U.S. and Canada were unfavorably impacted by lower DIY demand and raw material and transportation availability challenges, which improved at the end of the second quarter and broadly throughout the third quarter. In Mexico, PPG Comex architectural coatings organic sales increased compared to the prior year as concessionaire network demand continued to be strong throughout the first nine months of 2022 and further selling price increases were implemented.

Automotive refinish coatings organic sales increased by a high-single-digit percentage due to selling price increases in all regions and strong growth in the U.S. stemming from higher miles driven, increased collision claims and more people returning to office work versus 2021.

Aerospace coatings sales volumes increased by a low-teen-percentage compared to the prior year but still remain below pre-pandemic levels. During the first nine months of 2022, demand remained strong for commercial aftermarket and military applications. Sales also grew due to higher selling prices.

Protective and marine coatings organic sales were higher by a mid-single-digit percentage primarily due to selling price increases in all regions. While there was modest sales volume improvement in the first quarter 2022 due to improving demand in the oil and gas industry, sales volumes in the second and third quarter 2022 were adversely impacted by COVID-19 restrictions in China.

Traffic solutions organic sales increased by a mid-teen-percentage year-over-year due to higher selling prices and increased sales volumes in the U.S. and Latin America.

Segment income decreased $121 million year-over-year primarily due to raw material and logistics cost inflation, lower sales volumes and the impact of unfavorable foreign currency translation, partially offset by higher selling prices, acquisition-related earnings and savings from previously approved restructuring actions.

Looking Ahead

In the fourth quarter, demand conditions in Europe and architectural DIY globally are expected to be softer. Raw material and transportation availability continue to broadly improve; however, the supply of certain key inputs remains tight, which will continue to constrain select sales activity, most notably in automotive refinish and aerospace coatings. Selling prices are expected to be higher by about 18% on a two-year stacked basis. Aggregate sales volumes are anticipated to be down a mid-single-digit percentage compared to the fourth quarter 2021 driven by the unfavorable impacts in Europe and China. The impact of divestiture-related sales and sales related to the Russian business, which the Company is in the process of winding down, are anticipated to reduce sales by about $50 million. In addition to executing against various existing cost-savings initiatives, cost-mitigation actions have been implemented in Europe and other contingency actions have been developed in case there is a broader economic downturn.

Industrial Coatings

	Three Months Ended September 30		$ Change	% Change	Nine Months Ended September 30		$ Change	% Change
($ in millions, except percentages)	2022	2021	2022 vs. 2021	2022 vs. 2021	2022	2021	2022 vs. 2021	2022 vs. 2021
Net sales	$1,763	$1,614	$149	9.2 %	$5,263	$4,786	$477	10.0 %
Segment income	$192	$140	$52	37.1 %	$488	$575	($87)	(15.1)%
Amortization expense	$10	$13	($3)	(23.1)%	$32	$34	($2)	(5.9)%
Segment income, excluding amortization expense	$202	$153	$49	32.0 %	$520	$609	($89)	(14.6)%

Three Months Ended September 30, 2022

Industrial Coatings segment net sales increased due to the following:

- *Higher selling prices (+14%)*
- *Higher sales volumes (+2%)*

Partially offset by:

- *Unfavorable foreign currency translation (-6%)*
- *Divestiture-related sales and wind down of Russia operations (-1%)*

Automotive OEM coatings organic sales increased by more than 20% year-over-year led by higher selling prices and higher sales volumes in all regions. Sales volumes were negatively impacted by semiconductor chip shortages that continued into the third quarter, but the impact was less severe as compared to the prior year.

In the industrial coatings business, organic sales increased by a high-single-digit percentage year-over-year as strong selling price increases were partially offset by lower sales volumes in Europe and China. Sales volume growth continued to be solid in the U.S. and Latin America, particularly in the general finishes and heavy-duty equipment sub-segments.

Packaging coatings organic sales increased by about 10% year-over-year primarily due to selling price increases in all regions. Sales volumes were strong in the U.S., led by the canned beverage sub-segment and the global personal care sub-segment. Sales volumes were adversely impacted by geopolitical uncertainty in Europe and continued COVID-19 restrictions in China.

Segment income increased $52 million year-over-year due to higher selling prices and higher sales volumes, partially offset by manufacturing cost increases, raw material and logistics cost inflation and the impact of unfavorable foreign currency translation.

Nine Months Ended September 30, 2022

Industrial Coatings segment net sales increased due to the following:

- *Higher selling prices (+13%)*
- *Acquisition-related sales (+3%)*

Partially offset by:

- *Unfavorable foreign currency translation (-4%)*
- *Lower sales volumes (-2%)*

Automotive OEM coatings organic sales increased by more than 10% year-over-year led by higher selling prices in all regions and higher sales volumes in the U.S. and Latin America. Sales volumes were adversely impacted by the shortage of semiconductor chips, which continued in the first nine months of 2022 but at a lower severity as compared the prior year. Sales volumes were also impacted by lower automotive industry production due to geopolitical uncertainty in Europe and COVID-19 restrictions in China.

Organic sales in the industrial coatings business increased by a high-single-digit percentage year-over-year as strong selling price increases in all regions and solid volume growth in the U.S. and Latin America were partially offset by reduced sales volumes reflecting lower economic activity in China and Europe.

Packaging coatings organic sales increased by more than 10% year-over-year primarily due to selling price increases in all regions. Sales volumes were strong in the U.S. led by the canned beverage sub-segment. Sales volumes were negatively impacted by geopolitical uncertainty in Europe and COVID-19 restrictions in China.

Segment income decreased $87 million year-over-year due to raw material cost inflation and lower sales volumes, partially offset by higher selling prices and savings from previously approved restructuring actions.

Looking Ahead

In the fourth quarter, global industrial production is expected to slow in the fourth quarter, partially due to higher energy prices in Europe and softer economic activity in China. Selling prices are expected to be higher by more than 20% on a two-year stacked basis. Aggregate sales volumes are anticipated to be down a mid-single-digit percentage compared to the fourth quarter 2021. A year-over-year sales volume increase is expected in the automotive OEM coatings business, but more than offset by lower industrial, packaging, and specialty coatings sales volumes. Year-over-year segment margins are expected to continue to improve on a sequential quarterly basis in the fourth quarter 2022. The impact of divestiture-related sales and sales related to the Russian business, which the Company is in the process of winding down, are anticipated to reduce sales by about $25 million for the fourth quarter. In addition to executing against various existing cost-savings initiatives, cost-mitigation actions have been implemented in Europe and other contingency actions have been developed in case there is a broader economic downturn.

Liquidity and Capital Resources

PPG had cash and short-term investments totaling $1.1 billion at both September 30, 2022 and December 31, 2021.

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 operating activities

Cash from operating activities for the nine months ended September 30, 2022 and 2021 was $376 million and $1,106 million, respectively. The $730 million decrease was primarily due to a larger increase in working capital in the first nine months of 2022 compared to the prior year, which reflects the impact of higher raw material costs on inventories and higher selling prices on trade receivables.

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)	September 30, 2022	December 31, 2021	September 30, 2021
Trade receivables, net	$3,040	$2,687	$2,995
Inventories, FIFO	2,671	2,345	2,402
Trade creditors' liabilities	2,717	2,734	2,726
Operating working capital	$2,994	$2,298	$2,671
Operating working capital as a % of Sales	16.8 %	13.7 %	15.3 %
Days sales outstanding	57	53	57

Environmental

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2022	2021	2022	2021
Cash outlays for environmental remediation activities	$18	$17	$65	$34

($ in millions)	Remainder of 2022	Annually 2023 - 2026
Projected future cash outlays for environmental remediation activities	$10 - $20	$20 - $75

Cash used for investing activities

Cash used for investing activities for the nine months ended September 30, 2022 and 2021 was $246 million and $2,276 million, respectively. The $2,030 million decrease in cash used for investing activities was primarily due to lower spending on business acquisitions and an increase in proceeds from asset sales, partially offset by higher capital expenditures.

Total capital spending is expected to be in the range of $450 million to $500 million in 2022 in support of future organic growth opportunities and reflecting lower capital spending in the past two years due to COVID-19 constraints.

Cash (used for)/from financing activities

Cash used for financing activities for the nine months ended September 30, 2022 was $56 million and cash from financing for the nine months ended September 30, 2021 months ended was $606 million. The $662 million decrease was primarily due to the proceeds from the issuance of long-term debt in 2021 to finance the Company's acquisition of Tikkurila and higher purchases of treasury stock in 2022.

Debt Issued and Repaid

In May 2022, PPG completed a public offering of €300 million 1.875% Notes due 2025 and €700 million 2.750% Notes due 2029. 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.

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 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 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 the third quarter 2022, PPG repaid $100 million of the Term Loan Credit Agreement using cash on hand. Borrowings of $1.3 billion and $1.4 billion were outstanding under the Term Loan Credit Agreement as of September 30, 2022 and December 31, 2021, respectively.

In August 2019, PPG amended and restated its five-year credit agreement (the "Credit Agreement") with several banks and financial institutions. 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 September 30, 2022 and December 31, 2021.

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 September 30, 2022, Total Indebtedness to Total Capitalization as defined under the Credit Agreement and Term Loan Credit Agreement was 50%.

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. Commercial paper borrowings of zero and $440 million were outstanding as of September 30, 2022 and December 31, 2021, respectively.

Other Liquidity Information

Restructuring

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 lower than expected demand recovery in China. We expect to achieve annualized cost savings from these program of about $70 million once fully implemented. Aggregate restructuring savings, including the impact of acquisition synergies, were approximately $15 million in the third quarter of 2022. Total restructuring savings are expected to be at least $60 million in 2022. 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 $115 million in 2022.

Currency

Comparing spot exchange rates at December 31, 2021 and at September 30, 2022, the U.S. dollar strengthened against the currencies of many countries within the regions PPG operates, most notably the euro, the British pound and the Chinese yuan. As a result, consolidated net assets at September 30, 2022 decreased by $527 million compared to December 31, 2021.

Comparing average exchange rates during the first nine months of 2022 to those of the first nine months of 2021, the U.S. dollar strengthened against the currencies of many countries where PPG operates, including most of the countries in the EMEA region. This had an unfavorable impact on Income before income taxes for the nine months ended September 30, 2022 of $71 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 15, “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 15, 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 15, PPG has significant reserves for environmental contingencies. Refer to the Environmental Matters section of Note 15 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 2021 Form 10-K. There were no material changes in the Company’s critical accounting estimates from the 2021 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 uncertainty 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 and production 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, 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 effectiveness of our internal control over financial reporting, the results of governmental investigations, and the unpredictability of existing and possible future litigation. However, it is not possible to predict or identify all such factors.

Consequently, while the list of factors presented here and in the 2021 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 2021 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 liability of $13 million and a net asset of $24 million as of September 30, 2022 and December 31, 2021, 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 $319 million for the three months ended September 30, 2022 and $306 million for the year ended December 31, 2021.

As of both September 30, 2022 and December 31, 2021, PPG had U.S. dollar to euro cross currency swap contracts with a total notional amount of $775 million. The fair value of these contracts were net assets of $139 million and $50 million as of September 30, 2022 and December 31, 2021, 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 $59 million and $77 million at September 30, 2022 and December 31, 2021, respectively.

As of September 30, 2022 and December 31, 2021, PPG had non-U.S. dollar denominated borrowings outstanding of $2.4 billion and $1.6 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 $268 million at September 30, 2022 and $178 million at December 31, 2021.

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 $525 million of fixed rate debt to variable rate debt. The fair values of these contracts was a liability of $23 million and an asset of $36 million as of September 30, 2022 and December 31, 2021, respectively. An increase in variable interest rates of 10% would have lowered the fair values of these swaps and increased interest expense by $7 million and $1 million for the periods ended September 30, 2022 and December 31, 2021, 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 $5 million and by less than $1 million for the periods ended September 30, 2022 and December 31, 2021, respectively. Further a 10% reduction in interest rates would have increased the fair value of the Company's fixed rate debt by approximately $121 million and $56 million at September 30, 2022 and December 31, 2021, 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, 2021 to September 30, 2022. Refer to Note 13, “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.

As previously disclosed, the SEC is conducting a non-public investigation of accounting matters described in the Explanatory Note and in Note 2, "Restatement of Previously Reported Consolidated Annual Financial Statements" under Item 8 of the Company's 2017 Form 10-K/A. On September 26, 2019, PPG announced a final settlement with the SEC as to the Company. Without admitting or denying the findings in the SEC's administrative cease-and-desist order, the Company consented to the entry of the order, which imposed no financial penalty. The Company cooperated fully with investigations by the SEC and the U.S. Attorney's Office for the Western District of Pennsylvania ("USAO") relating to these accounting matters. As previously disclosed, the USAO has informed PPG that it will not pursue any action as to the Company. In the third quarter of 2022, the SEC settled its investigation with respect to a former PPG employee and issued an Order Instituting Cease-and-Desist Proceedings (the "Order") finding that the former employee violated and caused PPG to violate certain securities laws, barring the former employee from practicing before the SEC as an accountant with no express right to apply for reinstatement and imposing a civil penalty. The former PPG employee neither admitted nor denied the SEC's findings in the Order. PPG believes that the Order concludes this matter and does not expect any further activity related to these investigations.

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 15, "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 2021 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 September 30, 2022 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 10,030,737 shares as of September 30, 2022. This repurchase program has no expiration date.

Item 6. Exhibits

See the Index to Exhibits on page 39.

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.

†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 and nine months ended September 30, 2022 and 2021, (ii) the Condensed Consolidated Balance Sheet at September 30, 2022 and December 31, 2021, (iii) the Condensed Consolidated Statement of Cash Flows for the nine months ended September 30, 2022 and 2021, and (iv) Notes to Condensed Consolidated Financial Statements for the nine months ended September 30, 2022.

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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: October 20, 2022

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, Michael H. McGarry, certify that:

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

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

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

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 20, 2022

/s/ Michael H. McGarry

Michael H. McGarry
Chairman and Chief Executive Officer

Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER CERTIFICATION

I, Vincent J. Morales, certify that:

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

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

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

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: October 20, 2022

/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 September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Michael H. McGarry, Chairman and Chief Executive Officer of PPG Industries, Inc., certify to the best of my knowledge, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

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

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

/s/ Michael H. McGarry

Michael H. McGarry
Chairman and Chief Executive Officer
October 20, 2022

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 September 30, 2022 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)
October 20, 2022

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.