

PPG INDUSTRIES INC  
Form 10-K  
February 21, 2013  
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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

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FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF  
THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2012

Commission File Number 1-1687

PPG INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Pennsylvania

25-0730780

(State or other jurisdiction of  
incorporation or organization)

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

One PPG Place, Pittsburgh, Pennsylvania  
(Address of principal executive offices)

15272  
(Zip code)

Registrant's telephone number, including area code:  
Securities Registered Pursuant to Section 12(b) of the Act:

412-434-3131

Title of each class

Name of each exchange on  
which registered

Common Stock – Par Value \$1.66<sup>2</sup>/<sub>3</sub>

New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer as defined in Rule 405 of the Securities Act. YES  NO

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES  NO

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months, and (2) has been subject to such filing requirements for the past 90 days. YES  NO

Indicate by checkmark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES  NO

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller

reporting company)

Indicate by check mark whether the Registrant is a shell company (as defined by Rule 12b-2 of the Act). YES  NO

The aggregate market value of common stock held by non-affiliates as of June 30, 2012, was \$16,150 million. As of January 31, 2013, 142,846,149 shares of the Registrant's common stock, with a par value of \$1.66<sup>2</sup>/<sub>3</sub> per share, were outstanding. As of that date, the aggregate market value of common stock held by non-affiliates was \$19,627 million.

DOCUMENTS INCORPORATED BY REFERENCE

Document

Portions of PPG Industries, Inc. Proxy Statement for its 2013 Annual Meeting of Shareholders

Incorporated By  
Reference In Part No.

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AND CONSOLIDATED SUBSIDIARIES

As used in this report, the terms “PPG,” “Company,” “Registrant,” “we,” “us” and “our” refer to PPG Industries, Inc., and its subsidiaries, taken as a whole, unless the context indicates otherwise.

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## Note on Incorporation by Reference

Throughout this report, various information and data are incorporated by reference from the Company’s 2012 Annual Report (hereinafter referred to as “the Annual Report”). Any reference in this report to disclosures in the Annual Report shall constitute incorporation by reference only of that specific information and data into this Form 10-K.



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Part I

Item 1. Business

PPG Industries, Inc., incorporated in Pennsylvania in 1883, is comprised of six reportable business segments: Performance Coatings, Industrial Coatings, Architectural Coatings – EMEA (Europe, Middle East and Africa), Optical and Specialty Materials, Commodity Chemicals and Glass. Each of the business segments in which PPG is engaged is highly competitive. The diversification of product lines and worldwide markets served tend to minimize the impact on PPG's total sales and earnings from changes in demand for a particular product line or in a particular geographic area. Refer to Note 24, "Reportable Business Segment Information" under Item 8 of this Form 10-K for financial information relating to our reportable business segments.

On January 28, 2013, PPG completed the separation of its commodity chemicals business and the merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of the Georgia Gulf Corporation ("Georgia Gulf"). The combined company formed by uniting Georgia Gulf with PPG's former commodity chemicals business is named Axiall Corporation. PPG holds no ownership interest in Axiall Corporation. Refer to Note 25, "Separation and Merger Transaction" under Item 8 of this Form 10-K for financial information relating to this transaction.

Performance Coatings, Industrial Coatings and Architectural Coatings – EMEA

PPG is a major global supplier of coatings. The Performance Coatings, Industrial Coatings and Architectural Coatings – EMEA reportable segments supply coatings for customers in a wide array of end use markets, including industrial equipment, appliances and packaging; factory-finished aluminum extrusions and steel and aluminum coils; marine and aircraft equipment; automotive original equipment; and other industrial and consumer products. In addition to supplying coatings to the automotive original equipment market ("OEM"), PPG supplies refinishes to the automotive aftermarket. PPG also serves commercial and residential new build and maintenance markets by supplying coatings to painting and maintenance contractors and directly to consumers for decoration and maintenance. The coatings industry is highly competitive and consists of a few large firms with global presence and many smaller firms serving local or regional markets. PPG competes in its primary markets with the world's largest coatings companies, most of which have global operations, and many smaller regional coatings companies. Product development, innovation, distribution, quality and technical and customer service have been stressed by PPG and have been significant factors in developing an important supplier position by PPG's coatings businesses comprising the Performance Coatings, Industrial Coatings and Architectural Coatings – EMEA reportable segments.

The Performance Coatings reportable segment is comprised of the refinish, aerospace, protective and marine and architectural – Americas and Asia Pacific coatings businesses.

The refinish coatings business supplies coatings products for automotive and commercial transport/fleet repair and refurbishing, light industrial coatings for a wide array of markets and specialty coatings for signs. These products are sold primarily through independent distributors.

The aerospace coatings business supplies sealants, coatings, technical cleaners and transparencies for commercial, military, regional jet and general aviation aircraft and transparent armor for military land vehicles. PPG supplies products to aircraft manufacturers and maintenance and aftermarket customers around the world both on a direct basis and through a company-owned distribution network.

The protective and marine coatings business supplies coatings and finishes for the protection of metals and structures to metal fabricators, heavy duty maintenance contractors and manufacturers of ships, bridges, rail cars and shipping containers. These products are sold through the company-owned architectural coatings stores, independent distributors and directly to customers.

Product performance, technology, quality, distribution and technical and customer service are major competitive factors in these three coatings businesses.

The architectural coatings-Americas and Asia Pacific business primarily produces coatings used by painting and maintenance contractors and by consumers for decoration and maintenance of residential and commercial building structures. These coatings are sold under a number of brands. Architectural coatings – Americas and Asia Pacific products are sold through a combination of company-owned stores, home centers, paint dealers, and independent distributors and directly to customers. Price, product performance, quality, distribution and brand recognition are key competitive factors for these architectural coatings businesses. In 2012, the architectural coatings-Americas and Asia Pacific business operated about 400 company-owned stores in North America and about 40 company-owned stores in Australia.

On December 13, 2012, PPG entered into an agreement to acquire the North American architectural coatings business of Akzo Nobel N.V. in a deal valued at \$1.05 billion. The acquisition, which is currently expected to close in the first half of 2013, includes the acquisition of a number of leading brands and approximately 600 paint stores in the United States, Canada and the Caribbean. With regard to this pending acquisition, the statutory waiting period prescribed by the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, expired on February 1, 2013. Canadian competition clearance and Investment Canada Act approval remain pending.

The major global competitors of the Performance Coatings reportable segment are Akzo Nobel N.V., Axalta Coating Systems (former DuPont performance coatings business), BASF Corporation, Hempel A/S, the Jotun Group, Masco Corporation, the Sherwin-Williams Company, Valspar Corporation and GKN plc. The average number of persons employed by the Performance Coatings reportable segment during 2012 was about 12,100.

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The Industrial Coatings reportable segment is comprised of the automotive OEM, industrial and packaging coatings businesses. Industrial, automotive OEM and packaging coatings are formulated specifically for the customers' needs and application methods.

The industrial and automotive OEM coatings businesses sell directly to a variety of manufacturing companies. PPG also supplies adhesives and sealants for the automotive industry and metal pretreatments and related chemicals for industrial and automotive applications. PPG has established alliances with Kansai Paints and Helios Group to serve certain automotive original equipment manufacturers in various regions of the world. PPG owns a 60% interest in PPG Kansai Finishes to serve Japanese-based automotive OEM customers in North America and Europe and PPG owns a 60% interest in PPG Helios Ltd. to serve Russian-based automotive OEM customers in Russia and the Ukraine.

The packaging coatings business supplies coatings and inks to the manufacturers of aerosol, food and beverage containers.

Product performance, technology, cost effectiveness, quality and technical and customer service are major competitive factors in the industrial coatings businesses. The major global competitors of the Industrial Coatings reportable segment are Akzo Nobel N.V., Axalta Coating Systems, BASF Corporation, Valspar Corporation and Nippon Paint. The average number of persons employed by the Industrial Coatings reportable segment during 2012 was about 8,600. PPG has established an alliance with Asian Paints Ltd. to serve customers in India. PPG and Asian Paints Ltd. each own a 50% interest in Asian PPG Paints to serve global and domestic-based automotive OEM and aftermarket customers in India. In July 2012, PPG expanded the current Asian Paints joint venture and also created a second 50-50 joint venture with Asian Paints. As part of these changes, PPG gained effective management control of the existing joint venture, while Asian Paints has effective management control of the newly formed joint venture. The existing joint venture expanded its scope to serve India's industrial liquid, marine, consumer packaging and transportation coatings markets. The newly formed venture serves the protective, industrial powder, industrial containers and light industrial coatings markets.

The Architectural Coatings – EMEA business supplies a variety of coatings under a number of brands and purchased sundries to painting contractors and consumers in Europe, the Middle East and Africa. Architectural Coatings – EMEA products are sold through a combination of nearly 700 company-owned stores, home centers, paint dealers, and independent distributors and directly to customers. Price, product performance, quality, distribution and brand recognition are key competitive factors for this business. The major competitors of the Architectural Coatings – EMEA reportable segment are Akzo Nobel N.V. and Materis Paints. The average number of persons employed by the Architectural Coatings – EMEA reportable segment during 2012 was about 8,000.

### Optical and Specialty Materials

PPG's Optical and Specialty Materials reportable segment is comprised of the optical products and silicas businesses. The primary Optical and Specialty Materials products are Transitions® lenses, optical lens materials and high performance sunlenses; amorphous precipitated silicas for tire, battery separator and other end-use markets; and Teslin® substrate used in such applications as radio frequency identification (RFID) tags and labels, e-passports, drivers' licenses and identification cards. Transition® lenses are processed and distributed by PPG's 51%-owned joint venture with Essilor International ("Essilor"). In the Optical and Specialty Materials businesses, product quality and performance, branding, distribution and technical service are the most critical competitive factors. The major global competitors of the Optical and Specialty Materials reportable segment are Vision-Ease Lens, Carl Zeiss AG, Corning, Inc., Hoya Corporation, Mitsui Chemicals, Inc., Solvay Group, J.M. Huber and Evonik Industries, A.G. The average number of persons employed by the Optical and Specialty Materials reportable business segment during 2012 was about 2,900.

### Commodity Chemicals

Until January 28, 2013, PPG was a producer and supplier of basic chemicals. The Commodity Chemicals reportable segment produced chlor-alkali and derivative products, including chlorine, caustic soda, vinyl chloride monomer, chlorinated solvents, calcium hypochlorite, ethylene dichloride, hydrochloric acid and phosgene derivatives. Most of

these products were sold directly to manufacturing companies in the chemical processing, plastics, including polyvinyl chloride (“PVC”), paper, minerals, metals, agricultural products and water treatment industries. The segment competed with the following other major domestic producers of chlor-alkali products, including The Dow Chemical Company, Formosa Plastics Corporation, U.S.A., Occidental Chemical Corporation, Olin Corporation, Shintech, Inc. and Westlake Chemical Corporation. Price, product availability, product quality and customer service are the key competitive factors. The average number of persons employed by the Commodity Chemicals reportable business segment during 2012 was about 2,000. On January 28, 2013, PPG completed the separation of its commodity chemicals business and merged the subsidiary holding this business with a subsidiary of Georgia Gulf.

#### Glass

The Glass reportable business segment is comprised of the flat glass and fiber glass businesses. PPG is a producer of flat glass in North America and a global producer of continuous-strand fiber glass. PPG’s major markets are commercial and residential construction and the wind energy, energy infrastructure, transportation and electronics industries. Most glass products are sold directly to manufacturing companies. PPG manufactures flat glass by the float process and fiber glass by the continuous-strand process.

The bases for competition in the Glass businesses are price, quality, technology and customer service. The Company competes with four major producers of flat glass, including Asahi Glass Company, Cardinal Glass Industries, Guardian



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Industries and NSG Pilkington, and eight major producers of fiber glass throughout the world, including Owens Corning-Vetrotex, Jushi Group, Johns Manville Corporation, CPIC Fiberglass, AGY, NEG, 3B and Taishan Fiberglass. The average number of persons employed by the Glass reportable business segment during 2012 was about 3,200.

### Raw Materials and Energy

The effective management of raw materials and energy is important to PPG's continued success. The Company's most significant raw materials are epoxy and other resins, titanium dioxide and other pigments, and solvents in the coatings businesses; lenses, sand and soda ash in the Optical and Specialty Materials segment; brine and ethylene in the Commodity Chemicals segment; and sand, clay and soda ash in the Glass segment. Many raw material prices began to inflate during 2010, continued through 2011 and into 2012, reflecting recovering economic demand and decreased supply stemming from capacity idled or closed during the recession. Also, adverse effects of supplier disruptions due to natural disasters placed additional pressure on some of our supply chains leading to higher prices. Raw material prices began to moderate in the second half of 2012 due to lower global demand, including the effect of lower economic activity in Europe.

Coatings raw materials include both organic, primarily petroleum based, materials and inorganic materials, including titanium dioxide, and generally comprise 70-to-80% of cost of goods sold in most coatings formulations and represent PPG's single largest production cost component. PPG input prices inflated further in the first half of 2012, and then, in the second half of the year, moderated modestly from the year's peak levels. The largest inflationary impact was from titanium dioxide pigments, with year-over-year reductions in the cost of various petrochemical-based materials partially offsetting those increases. Raw material costs for our coatings businesses increased nearly \$725 million due to inflation during the three year period ended December 31, 2012. The inflation rate for 2012 was low single-digit percentages.

Energy is a significant production cost in the Commodity Chemicals and Glass segments, and our primary energy cost is natural gas. PPG has historically purchased 60-to-70 trillion British Thermal Units (BTUs) of natural gas each year. Inclusive of the impact of PPG's natural gas hedging activities, PPG's 2012 natural gas unit cost decreased 35% in the U.S. compared to 2011, reflecting continued higher natural gas supply stemming from the success of shale gas drilling. The separation of PPG's commodity chemicals business greatly reduced PPG's natural gas exposure, with annual purchases now expected to range from 10-to-20 trillion BTUs per year. In our Commodity Chemicals segment, we also experienced lower average ethylene unit costs, compared to 2011. Lower ethane feedstock values, partially due to the expansion of shale gas production, was the main driver of an approximate 13% decline in our average unit cost of ethylene. The separation of PPG's commodity chemicals business also eliminated PPG's direct exposure with respect to the volatility of ethylene prices.

Most of the raw materials and energy used in production are purchased from outside sources, and the Company has made, and plans to continue to make, supply arrangements to meet the planned operating requirements for the future. Supply of critical raw materials and energy is managed by establishing contracts, multiple sources, and identifying alternative materials or technology whenever possible. The Company is continuing its aggressive sourcing initiatives to support its continuous efforts to find the lowest raw material costs. These initiatives include reformulation of our products using both petroleum-derived and bio-based materials as part of a product renewal strategy, qualifying multiple and local sources of supply, including suppliers from Asia and other lower cost regions of the world. The Company also has undertaken a strategic initiative with multiple global suppliers to secure and enhance PPG's supply of titanium dioxide, as well as to add to the global supply of this raw material. PPG possesses intellectual property and expertise in the production and finishing of titanium dioxide pigment and we have and intend to continue to leverage this and engage potential partners to develop innovative supply solutions through technical collaborations, joint ventures, licensing or other commercial initiatives. In 2012, PPG signed a memorandum of understanding with Henan Billions Chemicals Co., Ltd. ("Billions"), by which PPG will license certain chloride-based titanium dioxide technologies to Billions for use at Billions' titanium dioxide refinement facilities in China. In addition, PPG has signed a long-term purchase agreement for titanium dioxide with Billions. PPG intends to use the chloride-based titanium dioxide manufactured by Billions for various end-use applications, including paints and other coatings. Billions is also

able to sell the chloride-based titanium dioxide to third parties. Our efforts to reduce titanium dioxide consumption resulted in a 4% reduction in titanium dioxide usage during 2012.

We are subject to existing and evolving standards relating to the registration of chemicals that impact or could potentially impact the availability and viability of some of the raw materials we use in our production processes. Our ongoing global product stewardship efforts are directed at maintaining our compliance with these standards.

In 2006, the European Union (“EU”) member states adopted new comprehensive chemical registration legislation known as “REACH” (Registration, Evaluation, and Authorization of Chemicals). REACH applies to all chemical substances manufactured or imported into the EU in quantities of one metric ton or more annually and will require the registration of approximately 30,000 chemical substances with the European Chemicals Agency. REACH requires the registration of these substances, entailing the filing of extensive data on their potential risks to human health and the environment. Registration activities are occurring in three phases over an 11-year period, based on tonnage and level of concern. The first registration deadline was in 2010 with subsequent phases ending in 2013 and 2018. In the case of chemicals with a high level of concern, the regulation calls for progressive substitution unless no alternative can be found; in these cases, authorization of the chemicals will be required.

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PPG established a dedicated organization to manage REACH implementation. We have continued to review our product portfolio, worked closely with our suppliers to assure their commitment to register substances in our key raw materials and started registration of substances that PPG manufactures or imports as raw materials. We will continue to work with our suppliers to understand the future availability and viability of the raw materials we use in our production processes.

Compliance with the REACH legislation will result in increased costs related to the registration process, product testing and reformulation, risk characterization and participation in Substance Information Exchange Forums (“SIEFs”) required to coordinate registration dossier preparation. PPG identified 10 substances that required registration in 2010 and engaged with other key companies through SIEFs to develop the required registration dossiers. Actual costs for substance registration were not significant in 2010 through 2012, due primarily to fewer substances requiring registration than originally anticipated. The costs for 2013 and 2018 registrations and potential additional future testing in support of 2010 registrations are currently unclear; however, our current estimate of the total spend during 2013-2018 has been lowered to a range of \$5 million to \$10 million. We anticipate that some current raw materials and products will be subject to the REACH authorization process and believe that we will be able to demonstrate adequate risk management for the use and application of the majority of such substances.

Changes to chemical control regulations have been proposed or implemented in many countries beyond the EU, including China, Canada, the United States, and Korea. Because implementation of many of these programs has not been finalized, the financial impact cannot be estimated at this time. We anticipate chemical control regulations will continue to increase globally, and we have implemented programs to track and comply with the regulations.

### Research and Development

Technology innovation has been a hallmark of PPG’s success throughout its history. Research and development costs, including depreciation of research facilities, were \$470 million, \$445 million and \$408 million during 2012, 2011 and 2010, respectively. These costs totaled approximately 3% of sales in each year of the period from 2010 to 2012. PPG owns and operates several facilities to conduct research and development relating to new and improved products and processes. Additional process and product research and development work is also undertaken at many of the Company’s manufacturing plants. As part of our ongoing efforts to manage our formulations and raw material costs effectively, we operate a global competitive sourcing laboratory in China. We have obtained government funding of a small portion of the Company’s research efforts, and we will continue to pursue government funding. Because of the Company’s broad array of products and customers, PPG is not materially dependent upon any single technology platform.

The Company seeks to optimize its investment in research and development to create new products to drive profitable growth. We align our product development with the macro trends in the end-use markets we serve and leverage core technology platforms to develop products for unmet market needs. Our history of successful technology introductions is based on a commitment to an efficient and effective innovation process and disciplined portfolio management.

### Patents

PPG considers patent protection to be important. The Company’s reportable business segments are not materially dependent upon any single patent or group of related patents. PPG earned \$51 million in 2012, \$55 million in 2011 and \$58 million in 2010 from royalties and the sale of technical know-how.

### Backlog

In general, PPG does not manufacture its products against a backlog of orders. Production and inventory levels are geared primarily to projections of future demand and the level of incoming orders.

### Non-U.S. Operations

PPG has a significant investment in non-U.S. operations. This broad geographic footprint serves to lessen the significance of economic impacts occurring in any one region. As a result of our expansion outside the U.S., we are subject to certain inherent risks, including economic and political conditions in international markets and fluctuations in foreign currency exchange rates.

Our sales generated by products sold in the developed and emerging regions of the world over the past three years are summarized below:

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(millions)	Sales		
	2012	2011	2010
United States, Canada, Western Europe	\$ 11,031	\$ 10,844	\$ 9,837
Latin America, Eastern Europe, Middle East, Africa, Asia Pacific	4,169	4,041	3,586
Total	\$ 15,200	\$ 14,885	\$ 13,423

Seasonality

PPG's earnings are typically greater in the second and third quarters and cash flow from operations is greatest in the fourth quarter due to end-use market seasonality, primarily in PPG's architectural coatings businesses. Demand for PPG's architectural coatings products is typically strongest in the second and third quarters due to higher home improvement, maintenance and construction activity during the spring and summer months in North America and Europe. This higher activity level results in higher outstanding receivables that are collected in the fourth quarter generating higher fourth quarter cash flow.

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### Employee Relations

The average number of persons employed worldwide by PPG at December 31, 2012 was 39,200. The Company has numerous collective bargaining agreements throughout the world. While we have experienced occasional work stoppages as a result of the collective bargaining process and may experience some work stoppages in the future, we believe we will be able to negotiate all labor agreements on satisfactory terms. To date, these work stoppages have not had a significant impact on PPG's operating results. Overall, the Company believes it has good relationships with its employees.

### Environmental Matters

PPG is subject to existing and evolving standards relating to protection of the environment. Capital expenditures for environmental control projects were \$12 million, \$15 million and \$16 million in 2012, 2011 and 2010, respectively. It is expected that expenditures for such projects in 2013 will be in the range of \$10-\$15 million, excluding the recently separated commodity chemicals business. Although future capital expenditures are difficult to estimate accurately because of constantly changing regulatory standards and policies, it can be anticipated that environmental control standards will become increasingly stringent and the cost of compliance will increase.

In March of 2011, the United States Environmental Protection Agency ("USEPA") proposed amendments to the national emission standards for hazardous air pollutants for mercury emissions from mercury cell chlor-alkali plants known as Mercury Maximum Achievable Control Technology ("Mercury MACT"). USEPA's proposed amendments would require improvements in work practices to reduce fugitive emissions and would result in reduced levels of mercury emissions while still allowing the mercury cell facilities to continue to operate. Prior to the separation of its commodity chemicals business, PPG operated a 200 ton-per-day mercury cell production unit at the Natrium, W.Va. facility. This unit constituted approximately 4% of PPG's total chlor-alkali production capacity. The Mercury MACT has no impact on any other PPG facility.

Separately, the Natrium, W.Va facility discharges its wastewater into the Ohio River pursuant to a National Pollution Discharge Elimination System ("NPDES") permit issued by the West Virginia Department of Environmental Protection ("WVDEP"). Because it discharges into the Ohio River, the NPDES permit terms must conform to pollution control standards for the Ohio River set by the Ohio River Valley Water Sanitation Commission ("ORSANCO"). On October 12, 2012, ORSANCO granted PPG's request for a variance which will allow the Natrium, W.Va. facility to continue to have a mixing zone for its discharge of mercury for a five-year period after ORSANCO's prohibition on mixing zones takes effect on October 16, 2013.

PPG is negotiating with various government agencies concerning 108 current and former manufacturing sites and offsite waste disposal locations, including 20 sites on the National Priority List. While PPG is not generally a major contributor of wastes to these offsite waste disposal locations,

each potentially responsible party may face governmental agency assertions of joint and several liability. Generally, however, a final allocation of costs is made based on relative contributions of wastes to the site. There is a wide range of cost estimates for cleanup of these sites, due largely to uncertainties as to the nature and extent of their condition and the methods that may have to be employed for their remediation. The Company has established reserves for onsite and offsite remediation of those sites where it is probable that a liability has been incurred and the amount can be reasonably estimated.

As of December 31, 2012 and 2011, PPG had reserves for estimated environmental remediation costs totaling \$332 million and \$226 million, respectively, of which \$101 million and \$59 million, respectively, were classified as current liabilities. Pretax charges against income for environmental remediation costs in 2012, 2011 and 2010 totaled \$167 million, \$16 million and \$21 million, respectively. Cash outlays related to such environmental remediation aggregated \$66 million, \$59 million and \$34 million in 2012, 2011 and 2010, respectively. The impact of foreign currency translation increased the liability by \$2 million in 2012 and decreased the liability by \$3 million in 2011. As a result of the allocation of the purchase price of acquisitions to assets acquired and liabilities assumed, the liability for environmental contingencies was increased by \$3 million in 2012. Environmental remediation of a former chromium manufacturing plant site and associated sites in Jersey City, N.J. (which we refer to as "New Jersey Chrome") represents the major part of our existing reserves. Included in the amounts mentioned above were \$221 million and \$129 million

in reserves at December 31, 2012 and 2011, respectively, associated with all New Jersey chromium sites. The Company's experience to date regarding environmental matters leads it to believe that it will have continuing expenditures for compliance with provisions regulating the protection of the environment and for present and future remediation efforts at waste and plant sites. Management anticipates that such expenditures will occur over an extended period of time.

The Company continues to analyze, assess and remediate the environmental issues associated with New Jersey Chrome. In connection with the preparation of a final draft soil remedial action work plan and cost estimate that was initially required to be submitted to the NJDEP in May 2012 but now will be submitted in 2013, the Company compiled updated information about the sites that was used to develop a new estimate of the cost to remediate these sites which resulted in a charge against earnings of \$145 million in the first quarter of 2012. A charge of \$165 million for the estimated costs of remediating these sites was recorded in the third quarter of 2006. Information will continue to be generated from the ongoing groundwater remedial investigation activities related to New Jersey Chrome and will be incorporated into a final draft remedial action work plan for groundwater expected to be submitted to NJDEP in the second quarter of 2014.

These charges for estimated environmental remediation costs in 2006 and 2012 were significantly higher than PPG's historical range. Excluding 2006 and 2012, pre-tax charges

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against income for environmental remediation have ranged between \$10 million and \$35 million per year for the past 16 years. Charges in 2013 are expected to again be within this historical range. In addition to the amounts currently reserved, we may be subject to loss contingencies related to environmental matters estimated to be as much as \$100 million to \$275 million. This range of reasonably possible unreserved loss relates to environmental matters at a number of sites including each of the following; i) additional costs at New Jersey Chrome, which represent about one third of this potential range, ii) a number of other locations, including legacy glass and chemical manufacturing sites and iii) the Calcasieu River Estuary and two operating plant sites in the Company's former commodity chemicals business. 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.

All known and currently reserved environmental liabilities associated with the commodity chemicals business were transferred with the separation of this business from PPG and subsequent merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. The newly merged company, Axiall, will assume responsibility for these liabilities. As a result of this transaction, PPG will retain responsibility for potential environmental liabilities that may result from future Natural Resource Damage claims and any potential tort claims at the Calcasieu River Estuary associated with activities and historical operations of the Lake Charles, La. facility. PPG will additionally retain responsibility for all liabilities relating to, arising out of or resulting from sediment contamination in the Ohio River resulting from historical activities and operations at the Natrium, W.Va. facility.

In management's opinion, the Company operates in an environmentally sound manner, is well positioned, relative to environmental matters, within the industries in which it operates and the outcome of these environmental contingencies will not have a material adverse 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.

See Note 15, "Commitments and Contingent Liabilities," under Item 8 of this Form 10-K for additional information related to environmental matters and our accrued liability for estimated environmental remediation costs.

Public and governmental concerns related to climate change continue to grow, leading to efforts to limit the greenhouse gas ("GHG") emissions believed to be responsible. While PPG has operations in many countries, a substantial portion of PPG's GHG emissions are generated by locations in the U.S., where considerable legislative and regulatory activity has been taking place.

As a result of a U.S. Supreme Court ruling in April 2007 declaring that GHGs are air pollutants covered by the Clean Air Act, USEPA proposed and later finalized in December 2009 an Endangerment Finding that GHG emissions "threaten public health and welfare of current and future generations". Based on the Endangerment Finding, the USEPA proposed

then finalized new, "tailored" thresholds for GHG emissions that define when Clean Air Act New Source Review and Title V operating permit programs would be required for new or existing industrial facilities. These rules impose new permit requirements on PPG facilities emitting more than 100,000 tons of GHGs per year as well as on new equipment installations that will emit more than 75,000 tons of GHGs per year. The U.S. federal government has committed to a 17% economy-wide emission reduction target below 2005 levels by 2020. These rules were upheld by a Federal Appeals court in 2012 in a challenge filed by industry. To date, no PPG facility in the U.S. has triggered either the 100,000 ton or 75,000 ton per year permit requirement thresholds. PPG has, and will continue to, annually report our global GHG emissions to the voluntary Carbon Disclosure project.

Energy prices and availability of supply continue to be a concern for major energy users. Since PPG's GHG emissions arise principally from combustion of fossil fuels, PPG has for some time recognized the desirability of reducing energy consumption and GHG generation. In 2007, PPG announced corporate targets, namely (i) a reduction in energy intensity by 25% from 2006 to 2016 and (ii) a 10% absolute reduction in GHG emissions from 2006 to 2011.

Effective energy management practices led to a 10% reduction in PPG's GHG emissions at the end of 2011. PPG estimates a 50% to 70% reduction in its total annual energy consumption and GHG emissions as a result of the separation of its commodity chemicals business on January 28, 2013. New energy intensity and GHG emissions intensity targets have been established to better reflect what will be possible given the portfolio of businesses that remain with PPG. With the base year of 2012 and a termination year of 2020, the company has established several

new key sustainability metrics; 1) an annual energy intensity reduction target of 1.5%, 2) an annual GHG emission intensity reduction of 1.5%, 3) a hazardous waste to landfill reduction of 20%, 4) a non-hazardous waste to landfill reduction of 10%, 5) a 10% reduction in reportable spills, 6) a 5% reduction in serious employee injuries, and 7) a target of 30% of product sales from sustainable technology. These new sustainability goals represent opportunities to reduce costs, improve operational efficiencies and support customer needs.

PPG participates in the U.S. Department of Energy (“DOE”) Save Energy Now LEADER Program reinforcing the company’s voluntary efforts to significantly reduce its industrial energy intensity. In September 2011, the DOE changed its approach to energy efficiency in the industrial sector and initiated the Better Buildings, Better Plants program. PPG is currently participating in this new program, which sets energy savings targets and provides a suite of educational, training, and technical resources to help meet those targets. Recognizing the continuing importance of this matter, PPG has a senior management group with a mandate to guide the Company’s progress in this area. In December 2012, after lengthy challenges and re-proposals, the USEPA issued its final Clean Air Act emissions standards for large and small boilers and incinerators that burn fossil fuels known as the Boiler Maximum Achievable Control Technology (“Boiler MACT”) regulations. These regulations



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are aimed at controlling emissions of air toxics and will regulate emissions of particulate matter, carbon monoxide, mercury, dioxin and hydrogen chloride from boilers, requiring that covered facilities achieve compliance within three years. There are 13 PPG facilities that are subject to these regulations. The facility most impacted by these regulations is the 115 megawatt coal fired power plant at the Natrium, W. Va. chlor-alkali facility that was part of the commodity chemicals business that was separated as of January 28, 2013. The other 12 facilities have natural gas-fired boilers which are subject to minimal regulatory oversight in the final rule, requiring only routine and reasonable maintenance and recordkeeping and need no add-on pollution control equipment. Facilities must achieve compliance with these regulations by early 2016. The cost impact for PPG's remaining affected facilities is not expected to be significant. PPG's public disclosure on energy security and climate change can be viewed in our Sustainability Report at [www.ppg.com/sustainability](http://www.ppg.com/sustainability) or at the Carbon Disclosure Project [www.cdproject.net](http://www.cdproject.net).

Available Information

The Company's website address is [www.ppg.com](http://www.ppg.com). The Company posts, and shareholders may access without charge, the Company's recent filings and any amendments thereto of its annual reports on Form 10-K, quarterly reports on Form 10-Q and its proxy statements as soon as reasonably practicable after such reports are filed with the Securities and Exchange Commission ("SEC"). The Company also posts all financial press releases, including earnings releases, to its website. All other reports filed or furnished to the SEC, including reports on Form 8-K, are available via direct link on PPG's website to the SEC's website, [www.sec.gov](http://www.sec.gov). Reference to the Company's and SEC's websites herein does not incorporate by reference any information contained on those websites and such information should not be considered part of this Form 10-K.

Item 1A. Risk Factors

As a global manufacturer of coatings, optical and specialty materials and glass products, we operate in a business environment that includes risks. These risks are not unlike the risks we have faced in the recent past nor are they unlike risks faced by our competitors. Each of the risks described in this section could adversely affect our operating results, financial position and liquidity. While the factors listed here are considered to be the more significant factors, no such list should be considered to be a complete statement of all potential risks and uncertainties. Unlisted factors may present significant additional obstacles which may adversely affect our businesses and our results of operations.

Increases in prices and declines in the availability of raw materials could negatively impact our financial results. Our financial results are significantly affected by the cost of raw materials. Coatings raw materials both organic, primarily petroleum based, materials and inorganic materials, including titanium dioxide, generally comprise between 70-to-80% of cost of goods sold in most coatings formulations and represent PPG's single largest production cost component. PPG input prices inflated further in the first half of 2012 continuing the trend of 2010 and 2011, and then, in the second half of the year, moderated modestly from the year's peak levels. The largest inflationary impact related to the cost of titanium dioxide pigments, with year-over-year reductions in the costs for various petrochemical-based materials countering those increases. Raw material costs for our coatings businesses increased nearly \$725 million due to inflation during the three year period ended December 31, 2012. The inflation rate for 2012 was low single-digit percentages.

We also import raw materials and intermediates, particularly for use at our manufacturing facilities in the emerging regions of the world. In most cases, those imports are priced in the currency of the supplier and, therefore, if that currency strengthens against the currency of our manufacturing facility, our margins are at risk of being lowered. Most of the raw materials used in production are purchased from outside sources, and the Company has made, and plans to continue to make, supply arrangements to meet the planned operating requirements for the future. Supply of critical raw materials is managed by establishing contracts, procuring from multiple sources, and identifying alternative materials or technology whenever possible. The Company is continuing its aggressive sourcing initiatives to support its continuous efforts to find the lowest raw material costs. These initiatives include reformulation of our products using both petroleum-derived and bio-based materials as part of a product renewal strategy, qualifying multiple and local sources of supply, including suppliers from Asia and other lower cost regions of the world, and strategic initiatives with multiple global suppliers to secure and enhance PPG's supply of titanium dioxide and other

materials.

An inability to obtain critical raw materials would adversely impact our ability to produce products. Increases in the cost of raw materials may have an adverse effect on our earnings or cash flow in the event we are unable to offset these higher costs in a timely manner.

The pace of economic growth and level of uncertainty could have a negative impact on our results of operations and cash flows.

During 2010, the global economy began to mend from the economic downturn of 2008 and 2009; however, the pace of recovery was uneven. Beginning in 2011, overall activity levels in most major global economies and in most end-use markets exhibited year-over-year growth. During 2012, overall activity levels varied greatly among the major global economies, with similar differences experienced among the various coatings end-use markets. Because of this variation, overall aggregate PPG global volume grew modestly for the year, with some deviation from quarter-to-quarter. Entering

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2013, the disparity of economic activity by region and end use market is anticipated to continue. Of the major regions, growth prospects remain in North America, bolstered by further anticipated recovery in construction activity and continued strength in various industrial markets, including automotive production and increased investment related to the energy and chemical industries. However, concerns over fiscal uncertainty and unemployment temper these prospects somewhat. The 2013 growth rate in emerging regions is expected to remain mixed, but improve somewhat based on increases in local consumption, less inventory destocking associated with lower exports, and government stimulus actions. The Eurozone is expected to remain subdued with very few end-use markets expected to deliver growth, and downside risk to regional economic conditions remains.

PPG provides products and services to a variety of end-use markets and in many geographies. This broad end-use market exposure and expanded geographic presence lessens the significance of any significant or rapid decrease in activity levels; nonetheless, lower demand levels may result in lower sales, which would result in reduced earnings and cash flows.

We are subject to existing and evolving standards relating to the protection of the environment.

Environmental laws and regulations control, among other things, the discharge of pollutants into the air and water, the handling, use, treatment, storage and clean-up of hazardous and non-hazardous wastes, the investigation and remediation of soil and groundwater affected by hazardous substances, and regulate various health and safety matters. The environmental laws and regulations we are subject to, including those in the United States as well as in other countries in which we operate, impose liability for the costs of, and damages resulting from, cleaning up current sites, past spills, disposals and other releases of hazardous substances. Violations of these laws and regulations can also result in fines and penalties. Future environmental laws and regulations may require substantial capital expenditures or may require or cause us to modify or curtail our operations, which may have a material adverse impact on our business, financial condition and results of operations.

As described in Note 15, "Commitments and Contingent Liabilities," under Item 8 of this Form 10-K, we are currently undertaking environmental remediation activities at a number of our facilities and properties, the cost of which is substantial. We have accrued a \$332 million liability for estimated environmental remediation costs at December 31, 2012. Our 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. As such, in addition to the amounts currently reserved, we may be subject to loss contingencies related to environmental matters estimated to be as much as \$100 million to \$275 million. Such unreserved losses are reasonably possible but are not currently considered to be probable of occurrence.

We are involved in a number of lawsuits and claims, and we may be involved in future lawsuits and claims, in which substantial monetary damages are sought.

PPG is involved in a number of lawsuits and claims, both actual and potential in which substantial monetary damages are sought. Those lawsuits and claims relate to contract, patent, environmental, product liability, antitrust and other matters arising out of the conduct of PPG's current and past business activities. Any such claims, whether with or without merit, could be time consuming, expensive to defend and could divert management's attention and resources. We maintain insurance against some, but not all, of these potential claims, and the levels of insurance we do maintain may not be adequate to fully cover any and all losses. We believe that, in the aggregate, the outcome of all current lawsuits and claims involving PPG, including asbestos-related claims in the event the settlement described in Note 15, "Commitments and Contingent Liabilities" under Item 8 of this Form 10-K does not become effective, 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. Nonetheless, the results of any future litigation or claims are inherently unpredictable, but such outcomes could have a material adverse effect on our results of operations, cash flow or financial condition.

For over 30 years, we have been a defendant in lawsuits involving claims alleging personal injury from exposure to asbestos.

Most of our potential exposure relates to allegations by plaintiffs that PPG should be liable for injuries involving asbestos containing thermal insulation products manufactured by Pittsburgh Corning Corporation (“PC”). PPG is a 50% shareholder of PC. Although we have entered into a settlement arrangement with several parties concerning these asbestos claims as discussed in Note 15, “Commitments and Contingent Liabilities,” under Item 8 of this Form 10-K, the arrangement remains subject to court proceedings and, if not approved, the outcome could be material to the results of operations of any particular period.

We are subject to a variety of complex U.S. and non-U.S. laws and regulations which could increase our compliance costs.

We are subject to a wide variety of complex U.S. and non-U.S. laws and regulations, and legal compliance risks, including securities laws, tax laws, environmental laws, employment and pension-related laws, competition laws, U.S. and foreign export and trading laws, and laws governing improper business practices, including bribery. We are affected by new laws and regulations and changes to existing laws and regulations, including interpretations by courts and regulators. These laws and regulations effectively expand our compliance obligations and potential enforcement actions by governmental authorities or litigation related to them.

New laws and regulations or changes in existing laws or regulations or their interpretation could increase our compliance costs. For example, regulations concerning the composition, use and transport of chemical products continue to evolve. Developments concerning these regulations could

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potentially impact (i) the availability or viability of some of the raw materials we use in our product formulations and/or (ii) our ability to supply certain products to some customers or markets. Import/export regulations also continue to evolve and could result in increased compliance costs, slower product movements or additional complexity in our supply chains.

Our international operations expose us to additional risks and uncertainties that could affect our financial results. PPG has a significant investment in non-U.S. operations. This broad geographic footprint serves to lessen the significance of economic impacts occurring in any one region. Notwithstanding the benefits of geographic diversification, our ability to achieve and maintain profitable growth in international markets is subject to risks related to the differing legal, political, social and regulatory requirements and economic conditions of many countries. As a result of our expansion outside the U.S., we are subject to certain inherent risks, including political and economic uncertainty, inflation rates, exchange rates, trade protection measures, local labor conditions and laws, restrictions on foreign investments and repatriation of earnings, and weak intellectual property protection. Our percentage of sales generated in 2012 by products sold outside the U.S. was approximately 57%.

Fluctuations in foreign currency exchange rates could affect our financial results.

We earn revenues, pay expenses, own assets and incur liabilities in countries using currencies other than the U.S. dollar. Because our consolidated financial statements are presented in U.S. dollars, we must translate revenues and expenses into U.S. dollars at the average exchange rate during each reporting period, as well as assets and liabilities into U.S. dollars at exchange rates in effect at the end of each reporting period. Therefore, increases or decreases in the value of the U.S. dollar against other major currencies will affect our net revenues, operating income and the value of balance sheet items denominated in foreign currencies. We use derivative financial instruments to reduce our net exposure to currency exchange rate fluctuations related to foreign currency transactions. However, fluctuations in foreign currency exchange rates, particularly the strengthening of the U.S. dollar against major currencies, could materially affect our financial results.

As a producer of coatings and specialty materials, we manufacture and transport certain materials that are inherently hazardous due to their toxic nature.

We have significant experience in handling these materials and take precautions to handle and transport them in a safe manner. However, these materials, if mishandled or released into the environment, could cause substantial property damage or personal injuries resulting in significant legal claims against us. The separation of the commodity chemicals business on January 28, 2013, significantly reduces the volumes of these materials that we handle and transport.

Business disruptions could have a negative impact on our results of operations and financial condition.

Unexpected events, including supply disruptions, temporary plant and/or power outages, work stoppages, natural disasters and severe weather events, computer system disruptions, fires, war or terrorist activities, could increase the

cost of doing business or otherwise harm the operations of PPG, our customers and our suppliers. It is not possible for us to predict the occurrence or consequence of any such events. However, such events could reduce demand for our products or make it difficult or impossible for us to receive raw materials from suppliers or to deliver products to customers.

We may have difficulty integrating acquired businesses.

In the past 15 years, PPG has completed over 50 acquisitions to further the growth of the Company, and we will likely acquire additional businesses and enter into additional joint ventures in the future as part of our growth strategy. Of particular note, PPG agreed in December 2012 to purchase the North American architectural coatings business of Akzo Nobel N.V. Upon closing, this acquisition will add approximately 600 stores and eight manufacturing facilities to PPG's North American coatings operations. Growth through acquisitions and the formation of joint ventures involve risks, including:

- difficulties in assimilating acquired companies and products into our existing business;
- delays in realizing the benefits from the acquired companies or products;
- diversion of our management's time and attention from other business concerns;
- difficulties due to lack of or limited prior experience in any new markets we may enter;

- unforeseen claims and liabilities, including unexpected environmental exposures or product liability;
- unexpected losses of customers or suppliers of the acquired or existing business;
- difficulty in conforming the acquired business' standards, processes, procedures and controls to those of our operations; and
- difficulties in retaining key employees of the acquired businesses.

Our failure to address these risks or other problems encountered in connection with our past or future acquisitions and joint ventures could cause us to fail to realize the anticipated benefits of such acquisitions or joint ventures and could adversely affect our results of operations, cash flow or financial condition.

Item 1B. Unresolved Staff Comments

None.

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Item 2. Properties

The Company's corporate headquarters is located in Pittsburgh, Pa. The Company's manufacturing facilities, sales offices, research and development centers and distribution centers are located throughout the world. As of February 21, 2013, the Company operated 124 manufacturing facilities in 44 countries, and the principal manufacturing and distribution facilities were as follows:

Performance Coatings:	Clayton, Australia; Delaware, Ohio; Dover, Del.; Huntsville, Ala.; Kunshan, China; Little Rock, Ark.; Milan, Italy; Mojave, Calif.; Stowmarket, United Kingdom; Sylmar, Calif.; about 400 company-owned stores in the United States and about 40 company-owned stores in Australia
Industrial Coatings:	Cieszyn, Poland; Circleville, Ohio; Cleveland, Ohio; Oak Creek, Wis.; Sumaré, Brazil; Suzhou, China; Tianjin, China; Zhangjiagang, China; Wuhu, China; Quattordio, Italy; San Juan del Rio, Mexico; Busan, South Korea; Valencia, Spain and Gainesville, Texas
Architectural Coatings—EMEA:	Soborg, Denmark; Moreuil, France; Budapest, Hungary; Amsterdam, Netherlands; Uithoorn, Netherlands; Wroclaw, Poland; Birstall, United Kingdom and nearly 700 company-owned stores, including 211 stores in France and 187 stores in the United Kingdom
Optical and Specialty Materials:	Barberton, Ohio; Bangkok, Thailand; Lake Charles, La. and Manila, Philippines
Glass:	Carlisle, Pa.; Hoogezaand, Netherlands; Lexington, N.C.; Shelby, N.C. and Wichita Falls, Texas

Including the principal manufacturing facilities noted above, the Company has manufacturing facilities in the following geographic areas:

United States:	32 manufacturing facilities in 17 states.
Other Americas:	7 manufacturing facilities in 5 countries.
EMEA:	57 manufacturing facilities in 27 countries.
Asia:	28 manufacturing facilities in 11 countries.

The Company's principal research and development centers are located in Allison Park, Pa.; Harmarville, Pa.; and Monroeville, Pa.

The Company's headquarters and substantially all company-owned paint stores are located in facilities that are leased while the Company's other facilities are generally owned. Our facilities are considered to be suitable and adequate for the purposes for which they are intended and overall have sufficient capacity to conduct business in the upcoming year.

Item 3. 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, the most significant of which are described below, relate to contract, patent, environmental, product liability, antitrust and other matters arising out of the conduct of PPG's current and past business activities. To the extent that these lawsuits and claims involve personal injury and property damage, PPG believes it has adequate insurance; however, certain of PPG's insurers are contesting coverage with respect to some of these claims, and other insurers, as they had prior to the asbestos settlement described below, may

contest coverage with respect to some of the asbestos claims if the settlement is not implemented. 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 future litigation and the above lawsuits and claims are inherently unpredictable. However, management believes that, in the aggregate, the outcome of all lawsuits and claims involving PPG, including asbestos-related claims in the event the settlement described below does not become effective, 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.

For over 30 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 and the terms and status of the proposed asbestos settlement arrangement, see Note 15, "Commitments and Contingent Liabilities" under Item 8 of this Form 10-K.

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.

PPG received a Consolidated Compliance Order and Notice of Proposed Penalty ("CO/NOPP") from the Louisiana Department of Environmental Quality ("LDEQ") in February 2006 alleging violation of various requirements of its Lake Charles, La. facility's air permit based largely upon permit deviations self-reported by PPG. The CO/NOPP did not contain a proposed civil penalty. PPG filed a request for hearing and has engaged LDEQ in settlement discussions. Since 2006, PPG has held discussions with LDEQ to try to resolve the CO/NOPP. In late 2012, PPG increased the offer to settle the CO/NOPP for a total of \$400,000, plus the performance of two Beneficial Environmental Projects with an expenditure for those projects to be at least \$220,000. This increased offer was accepted by the LDEQ in the fourth quarter of 2012. All known and currently reserved environmental liabilities associated with the commodity chemicals business were transferred with the separation of this business from PPG and subsequent merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. The newly merged company, Axiall, will assume responsibility for these liabilities.



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## Executive Officers of the Company

Set forth below is information related to the Company's executive officers as of February 21, 2013.

Name	Age	Title
Charles E. Bunch	63	Chairman and Chief Executive Officer since July 2005
Michael H. McGarry <sup>(a)</sup>	54	Executive Vice President since September 2012
Viktoras R. Sekmakas <sup>(b)</sup>	52	Executive Vice President since September 2012
Glenn E. Bost II <sup>(c)</sup>	61	Senior Vice President and General Counsel since July 2010
David B. Navikas <sup>(d)</sup>	62	Senior Vice President, Finance and Chief Financial Officer since June 2011
Richard C. Elias <sup>(e)</sup>	59	Senior Vice President, Optical and Specialty Materials since July 2008
Cynthia A. Niekamp <sup>(f)</sup>	53	Senior Vice President, Automotive Coatings since August 2010

In February 2013, Mr. McGarry became responsible for leading the Architectural Coatings EMEA (Europe, Middle East and Africa) segment, the architectural coatings Americas and Asia Pacific businesses, the flat glass business and the Europe, Middle East and Africa (EMEA) region. His responsibilities will continue to include the global Information Technology, Environmental Health and Safety and Corporate Quality functions. From September 2012

(a) until February 2013, he was responsible for the global aerospace and automotive refinish businesses. Mr. McGarry led the Commodity Chemicals segment from July 2008 until the separation of that business on January 28, 2013. He was appointed Executive Vice President in September 2012 and held the position of Senior Vice President, Commodity Chemicals from July 2008 until August 2012. Mr. McGarry previously served as Vice President, coatings, Europe and Managing Director, PPG Europe from July 2006 through June 2008.

Mr. Sekmakas is responsible for leading the industrial coatings, packaging coatings and protective and marine coatings businesses. In February 2013, he became responsible for the fiber glass business, the Asia Pacific region and the Purchasing and Logistics function. From September 2012 until February 2013, he was responsible for the EMEA region. He was appointed Executive Vice President in September 2012. Previously, he held the following

(b) leadership positions: Senior Vice President, industrial coatings and President, Europe from September 2011 until August 2012; Senior Vice President, industrial coatings and President, Asia Pacific coatings from August 2010 until September 2011; Vice President industrial coatings and President, Asia Pacific coatings from March 2010 until August 2010; President PPG Asia Pacific from July 2008 until March 2010; and Vice President and Managing Director Asia Pacific from July 2006 until July 2008.

(c) Mr. Bost held the position of Vice President and Associate General Counsel from July 2006 through June 2010.

(d) Mr. Navikas held the position of Vice President and Controller from March 2000 until June 2011.

(e) Mr. Elias held the position of Vice President, Optical Products from April 2000 until June 2008.

Ms. Niekamp is responsible for the automotive OEM coatings business and the Latin America regions. Ms.

(f) Niekamp was appointed Vice President, Automotive Coatings in January 2009 when she joined PPG from BorgWarner, Inc. She previously served as President of BorgWarner's TorqTransfer Systems business from 2004 until 2008.

## Item 4. Mine Safety Disclosures

Not Applicable.

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Part II

Item 5. Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

The information required by Item 5 regarding market information, including stock exchange listings and quarterly stock market prices, dividends and holders of common stock is included in Exhibit 13.1 filed with this Form 10-K and is incorporated herein by reference. This information is also included in the PPG Shareholder Information on page 3 of the Annual Report to shareholders.

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

Under the PPG Deferred Compensation Plan for Directors, each director may elect to defer the receipt of all or any portion of the compensation paid to such director for serving as a PPG director. All deferred payments are held in the form of common stock equivalents. Payments out of the deferred accounts are made in the form of common stock of the Company (and cash as to any fractional common stock equivalent). The directors, as a group, were credited with 30,491; 20,575; and 15,647 common stock equivalents in 2012, 2011 and 2010, respectively, under this plan. The values of the common stock equivalents, when credited, ranged from \$85.12 to \$124.55 in 2012, \$68.68 to \$94.64 in 2011 and \$60.36 to \$80.90 in 2010.

Issuer Purchases of Equity Securities

No shares were repurchased in the quarter ended December 31, 2012 under the current 10 million share repurchase program approved in October 2011. The maximum number of shares that may yet be purchased under this program is 7,988,694 shares. This repurchase program has no expiration date.

No shares were withheld or certified in satisfaction of the exercise price and/or tax withholding obligation by holders of employee stock options who exercised options granted under the Company's equity compensation plans in the fourth quarter of 2012.

Item 6. Selected Financial Data

The information required by Item 6 regarding the selected financial data for the five years ended December 31, 2012 is included in Exhibit 13.2 filed with this Form 10-K and is incorporated herein by reference. This information is also reported in the Five-Year Digest on page 86 of the Annual Report to shareholders.

Item 7. Management's Discussion and Analysis of

Financial Condition and Results of Operations

Separation of PPG's commodity chemicals business and merger of that business with Georgia Gulf Corporation and agreement to acquire the North American architectural coatings business of Akzo Nobel N.V.

Recently PPG took two major steps in its strategic transformation into a more focused coatings and specialty materials company.

On January 28, 2013, PPG completed the separation of its commodity chemicals business and the merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of the Georgia Gulf Corporation ("Georgia Gulf"). The combined company formed by uniting Georgia Gulf with PPG's former commodity chemicals business is named Axiall Corporation. PPG holds no ownership interest in Axiall Corporation. Refer to Note 25, "Separation and Merger Transaction" under Item 8 of this Form 10-K for financial information relating to this transaction.

In addition, in December 2012 PPG entered into an agreement to acquire the North American architectural coatings business of Akzo Nobel N.V. in a deal valued at \$1.05 billion. The acquisition, which is currently expected to close in

the first half of 2013, includes the acquisition of a number of leading brands and approximately 600 paint stores in the United States, Canada and the Caribbean. With regard to this pending acquisition, the statutory waiting period prescribed by the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, expired on February 1, 2013. Canadian competition clearance and Investment Canada Act approval remain pending.

Performance in 2012 compared with 2011

#### Performance Overview

Net sales in 2012 totaled \$15,200 million compared to \$14,885 million in 2011, an increase of 2%. Higher selling prices increased sales 2%, higher volumes increased sales 1% and acquisitions contributed 2% to sales. These increases were partially offset by 3% from negative foreign currency impact. Sales volumes varied significantly by region, with volume growth in North America of nearly 5% and modest growth in emerging regions. European volumes declined 4% versus the prior year period with every coatings business except aerospace experiencing sluggish end-use market conditions. Improved selling prices were achieved in each of the three coatings segments and Optical and Specialty Materials. In our coatings segments, higher selling prices were in response to persistent raw material and other cost inflation. The unfavorable currency impact was primarily driven by the U.S. dollar strengthening against the Euro and Latin American currencies.

Increased demand was driven by stronger industrial production activity, which aided many of our businesses. The global industrial recovery varied by region and end use market in 2012. North American growth was led by strength in the automotive OEM, aerospace and architectural coatings businesses. Automotive OEM coatings volumes were up year over year outpacing growth in industry demand. Aerospace coatings end-use market growth has remained strong. U.S. architectural coatings growth has been supported by

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improvement in construction spending, as U.S. residential construction improved throughout the year following several anemic years. Mild weather early in 2012 also aided U.S. architectural coatings volumes. Sluggish end-use market conditions in Europe were largely offset by incremental sales from acquired businesses in the region. Growth rates in Asia in 2012 were reduced by the low level of marine original-equipment new ship builds; however, aiding growth in Asia was strength in China auto production and the packaging business as well as the absence of the Thailand floods, which particularly impacted optical products in late 2011. Higher selling prices in every coatings reportable segment and the Optical and Specialty Materials segment in 2012 were somewhat offset by pricing declines in Commodity Chemicals and Glass reportable segments. In our coatings segments, prices were increased in response to persistent raw material cost inflation. The Commodity Chemicals segment's pricing declines reflect lower chlorine pricing, offset partially by higher caustic pricing reflecting solid demand and low caustic inventory levels throughout the year. The Glass segment's pricing was down, reflecting weaker global fiber glass demand.

Cost of sales, exclusive of depreciation and amortization, decreased by \$12 million in 2012 to \$9,069 million compared to \$9,081 million for 2011. The decrease was due to the impact of currency translation and lower manufacturing costs. These decreases were largely offset by the cost of sales of acquired businesses, the cost of sales associated with the sales volume growth and the negative impact of inflation. Cost of sales as a percentage of sales for 2012 was 59.7% down from 61.0% in 2011. The pricing for the Company's input costs varied, as coatings input costs increased; however, lower natural gas and ethylene pricing aided our Commodity Chemicals segment.

Selling, general and administrative expenses increased by \$101 million in 2012 to \$3,335 million as compared to 2011. The increase was due to increases from acquisitions, overhead inflation and higher costs to support the sales volume growth offset partially by the reduction in costs due to the impact of currency translation and the benefit of our restructuring actions. These expenses remained relatively flat as a percent of sales at 21.9% in 2012 and 21.7% in 2011 reflecting the benefits of our continuing effort to aggressively manage our costs even as our sales volume increases.

The business restructuring charge of \$208 million in 2012 represents the costs associated with a restructuring plan focused on further reducing PPG's global cost structure. The actions included in the restructuring plan delivered pretax cost savings in the second half of 2012 of approximately \$50 million and an additional savings of \$80 million expected in 2013. The savings are expected to grow to an annual run rate of about \$140 million following completion of these actions in 2013.

Other charges increased to \$232 million in 2012 as compared to \$73 million in 2011, due largely to the \$159 million environmental remediation charge recorded in the first quarter of 2012 related primarily to costs at a former chromium manufacturing plant and associated sites in Jersey City, New Jersey.

Other earnings decreased to \$149 million in 2012 as compared to \$177 million in 2011. This decrease was primarily

due to \$26 million of lower equity earnings, primarily from our Asian fiber glass joint ventures, reflecting demand decline in the consumer electronics market.

The effective tax rate on pretax earnings was approximately 24% in 2012 and 2011. The effective tax rate for the year ended December 31, 2012 includes tax benefits of \$60 million or approximately 38% on the \$159 million charge for environmental remediation costs, \$45 million or approximately 21% on the \$208 million business restructuring charge, \$2 million or approximately 29% for expenses of \$6 million stemming from the acquisition of Dyrup A/S in Europe and Colpisa in Latin America, and \$3 million or 11% on certain business separation and acquisition related costs of \$26 million. The 2011 rate includes a benefit of \$12 million resulting from a favorable tax audit settlement. The 2011 rate also includes the impact of the non-taxable bargain purchase gain resulting from the Equa-Chlor acquisition. The effective tax rate on the remaining pre-tax earnings was 25% in 2012 and 2011.

Diluted earnings-per-share for 2012 were \$6.06. Excluding the charges related to business restructuring and environmental remediation, acquisition-related costs and the costs related to the separation and merger transaction, adjusted diluted earnings-per share for 2012 were \$7.94. This compares to the 2011 diluted earnings-per-share of \$6.87. The increase in diluted earnings-per-share resulted primarily from higher adjusted income before income taxes and a reduction in the shares outstanding as a result of share repurchases in the second half of 2011 and first quarter of 2012. Average shares used to calculate earnings per share – assuming dilution were 155.1 million in 2012 and

159.3 million in 2011.

Regulation G Reconciliation - Results from Operations

PPG Industries believes investors' understanding of the Company's operating performance is enhanced by the disclosure of income before income taxes, net income and earnings per diluted share adjusted for nonrecurring charges. PPG's management considers this information useful in providing insight into the company's ongoing operating performance because it excludes the impact of items that cannot reasonably be expected to recur on an ongoing basis. Income before income taxes, net income and earnings per diluted share adjusted for these items are not recognized financial measures determined in accordance with U.S. generally accepted accounting principles ("GAAP") and should not be considered a substitute for income before income taxes, net income or earnings per diluted share or other financial measures as computed in accordance with U.S. GAAP. In addition, adjusted income before income taxes, adjusted net income and adjusted earnings per diluted share may not be comparable to similarly titled measures as reported by other companies.

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Income before income taxes is reconciled to adjusted income before income taxes below:

Year-ended December 31, 2012	Income Before
(Millions, except per share amounts)	Income Taxes
Income before income taxes	\$1,402
Income before income taxes includes:	
Pretax charges related to business restructuring	208
Pretax charges related to environmental remediation	159
Pretax charges related to the business separation- and acquisition-related costs	26
Pretax charges related to the acquisition of Dyrup and Colpisa	6
Adjusted income before income taxes	\$1,801

Net income (attributable to PPG) and earnings per share – assuming dilution (attributable to PPG) are reconciled to adjusted net income (attributable to PPG) and adjusted earnings per share – assuming dilution below:

Year-ended December 31, 2012	Net Income	
(Millions, except per share amounts)	\$	EPS
Net income (attributable to PPG)	\$941	\$6.06
Net income (attributable to PPG) includes:		
Charges related to business restructuring	163	1.06
Charges related to environmental remediation	99	0.64
Charges related to the business separation- and acquisition-related costs	23	0.15
Charges related to the acquisition of Dyrup and Colpisa	4	0.03
Adjusted net income	\$1,230	\$7.94

## Results of Reportable Business Segments

(Millions)	Net sales		Segment income	
	2012	2011	2012	2011
Performance Coatings	\$4,752	\$4,626	\$744	\$673
Industrial Coatings	4,379	4,158	590	438
Architectural Coatings –EMEA	2,147	2,104	145	123
Optical and Specialty Materials	1,202	1,204	348	326
Commodity Chemicals	1,688	1,732	372	370
Glass	1,032	1,061	63	97

For Performance Coatings, 2012 sales were \$4.8 billion, \$126 million, or 3%, higher than 2011. The sales increase was comprised of 4% due to price, partially offset by a 2% decline due to the impact of foreign currency translation. Sales from acquired businesses contributed 1% to growth. Higher pricing was achieved by all the businesses in the segment reflecting continuing efforts to offset significant inflationary impacts over the past two years. Year-over-year segment sales volumes were nearly flat in 2012 with aerospace and architectural coatings business volume growth being offset by automotive refinish and protective and marine coatings business volume declines. Sales volume in the aerospace business continued to benefit from excellent end-use market growth despite increasingly difficult prior year comparable periods. U.S. architectural coatings were aided by early signs of a construction market recovery in the U.S. and mild weather early in 2012, offset by the absence of elevated sales in the prior year from the introduction of a new

product in the national account channel. Volumes declined in the automotive refinish coatings business, particularly in Europe, and in the protective and marine coatings business as lower marine new build volume was somewhat offset by higher volume in protective coatings. Segment earnings grew to \$744 million, a \$71 million, or 11%, improvement over prior year. Earnings improved as lower costs, relating to benefits from PPG's restructuring and other cost management actions, coupled with the effect from the higher sales were partly offset by inflation, higher selling costs and the negative impact of foreign currency.

Looking ahead to the first quarter 2013, aerospace sales growth is expected to continue, despite more difficult comparison periods due to consecutive years of good industry growth. Challenging marine new-build conditions remain, and favorable weather conditions during the first quarter 2012 present a difficult comparable period for U.S. architectural coatings. Lastly, the segment is expected to benefit from incremental savings from the previously announced restructuring program and currency-translation impacts are expected to be minimal given current exchange rates.

The Industrial Coatings segment's sales increased to \$4.4 billion, up 5% from the prior year. The sales increase was comprised of 3% due to price and 4% due to volume offset by a 3% decrease due to currency translation. Sales from acquisitions contributed 1% to the increase. The segment sales volume growth of 4% was driven by automotive OEM coatings growth especially in North America, due in part to the recovery from the 2011 Japanese tsunami as well as continued strength in China, offset by European economic weakness. The current year volume gains by our automotive OEM coatings business outpaced industry growth. Industrial and packaging coatings volumes were mixed by region. Europe was weaker in both businesses. U.S. industrial coatings improved while emerging region demand varied by end-use with markets aligned with construction activity being down in Asia and Argentina being impacted by import restrictions. The consumer electronics market in Asia was slower, but packaging volumes in Asia improved. Emerging region sales were supplemented by sales from acquired businesses and the reorganization of our joint venture in India. Segment earnings of \$590 million increased \$152 million as the impact of higher pricing, sales volume growth and manufacturing cost savings overcame the adverse impact of inflation and higher overhead costs incurred to support growth. Restructuring related cost savings also aided earnings in 2012.

Looking ahead to the first quarter 2013, higher year-over-year general industrial activity is expected globally, aided by modest anticipated improvement in Asia. Global automotive OEM vehicle production is expected to be flat versus robust 2012 results, reflecting less global inventory build and a more severe negative impact from lower European auto builds. However, PPG share gains are expected to continue in this business. Ongoing PPG cost-management actions are expected to continue, including incremental benefits from the 2012 restructuring program. Lastly, currency translation impact is expected to be muted based on current exchange rates.

Architectural Coatings – EMEA segment sales were \$2,147 million in 2012, up \$43 million, or 2%, versus 2011. The

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acquisition of Dyrup in January 2012 contributed 8% sales growth; however, sales were negatively impacted by 7% due to the impact of foreign currency translation. Pricing increased sales mid-single digit percents which was substantially offset by volume declines due to market weakness throughout the region. Segment earnings increased \$22 million, to \$145 million, due to lower costs stemming from aggressive ongoing cost management and supplemented by the cost benefits from PPG's restructuring actions and higher pricing. These earnings improvements were reduced by the impact of lower sales volumes and cost inflation. In addition, negative currency translation impact of \$13 million was largely offset by the absence of a \$9 million charge in the prior year related to a customer bankruptcy.

Looking ahead, we expect overall market conditions to remain challenging in the region as we begin 2013.

Implementation of previously announced restructuring actions continues, with expanded benefits expected in the first quarter and full year 2013. Currency translation impacts, which have been a significant headwind for the segment, are expected to be minimal in the first quarter.

Optical and Specialty Materials segment 2012 sales were \$1.2 billion, essentially flat with sales in 2011. A 3% unfavorable impact of foreign currency translation was offset by a 1% price increase and 2% volume growth. Optical products achieved sales volume growth with the majority due to higher Transitions® lens market penetration. Volumes were also aided by the absence of the prior year negative impacts from extensive Thailand flooding that disrupted optical customers and supply chains in the fourth quarter 2011. Silicas volumes were down modestly year over year. Segment earnings grew by 7% to \$348 million as earnings improved in both businesses. The increase in earnings is primarily due to higher sales volumes, overhead and manufacturing cost improvements, including restructuring cost savings, and higher pricing. Earnings were reduced by the negative impact of foreign currency translation and inflation.

Looking ahead, the absence of a segment sales recovery stemming from the 2011 Thailand flooding is expected to be somewhat offset in the first quarter 2013 with the favorable impact from the new Generation VII Transitions product introduction. Modest silica demand growth is expected to continue. Currency impacts are expected to be negligible based on current exchange rates.

As previously disclosed, PPG is currently in discussions with Essilor relating to the future of PPG's and Essilor's joint venture, Transitions Optical. PPG cannot predict the outcome of the discussions with Essilor with respect to the future of Transitions Optical; however, PPG believes that possible outcomes may include (1) a modification of the current joint venture structure, (2) a sale of all or a portion of PPG's interests in Transitions Optical to Essilor, or (3) a sale of all or a portion of Essilor's interests in Transitions Optical to PPG. PPG cannot predict the timing of its discussions with Essilor but expects that these discussions are likely to continue over the next several months.

Commodity Chemicals segment sales in 2012 versus the prior year declined by \$44 million to \$1,688 million while earnings increased \$2 million to \$372 million. Sales decreased

due to lower chlorine selling prices in each quarter, outpacing higher year-over-year caustic pricing achieved in each quarter this year. These price declines were offset partially by higher year over year chlorine and caustic volumes, as well as by the favorable sales impact of the May 2011 acquisition of Equa-Chlor. Segment income was up slightly as the impact on earnings of lower pricing was offset by lower energy, primarily natural gas, and raw material costs. Lower manufacturing costs also benefited earnings. Segment earnings were negatively affected by approximately \$5 million stemming from the two unplanned production outages late in 2012.

Looking forward, PPG will report results for the Commodity Chemicals segment in discontinued operations in 2013, following the completion of the separation of its commodity chemicals business and the merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf Corporation, which occurred on January 28, 2013.

Glass segment 2012 sales were \$1.0 billion, down \$29 million, or 3%. The sales decrease was comprised of 3% due to price and 1% due to currency, offset by higher sales volumes of 1%. Improved flat glass volumes as a result of increased demand in the commercial and solar markets were substantially offset by lower fiber glass volume. Fiber glass volumes have declined due to weak demand in Europe versus a strong prior year comparable period. Lower pricing in both businesses and the negative impact of currency translation drove the sales decline. Segment earnings



declined to \$63 million compared to \$97 million a year ago. Lower pricing, cost inflation, as well as lower equity earnings, primarily related to our fiber glass joint venture selling to the consumer electronics industry, contributed to the earnings decline. These factors were only partially offset with improved flat glass volumes and improved manufacturing cost performance in fiber glass.

Looking ahead to the first quarter 2013, fiber glass volumes are expected to remain consistent with lower 2012 results. Recent positive flat glass volume trends are expected to continue. Equity earnings are expected to remain at lower levels, compared with stronger comparable levels in the beginning of 2012. Both businesses remain focused on cost management.

#### Outlook

During 2012, overall activity levels varied greatly among the major global economies, with similar variations in activity level experienced by the major coatings end-use markets. Because of these variations, overall aggregate PPG global volume grew modestly for the year.

For PPG, North American demand was the most stable, with growth occurring across most end-use markets. Overall industrial growth continued, aided by declining natural gas costs and further expansion in industries such as aerospace, where growth continued. Also, further strengthening occurred throughout the year in automotive OEM production, as the industry continues to recover, but activity still remains below pre-recession production levels. Regional growth was also supported by a long-awaited improvement in construction spending, as U.S. residential construction improved throughout the year following several anemic years. Moderating growth in the region was continued uncertainty relating to the long-term

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fiscal direction of the federal and state governments. Despite these limitations and persistently high U.S. unemployment rates, the region delivered solid growth during the year, and remains the region with the most promising growth prospects for PPG heading into 2013.

During 2012, the European economy continued to underperform versus most other major economies as elevated regional concerns continued regarding government budget deficits and refinancing of government debt loads. Anxiety rose in the middle of year due to several political elections and associated concerns over the implementation of austerity programs to address fiscal deficits. Export growth from the region, which had been one of the few positive economic factors, began to erode reflecting a slowdown in emerging regions' growth rates, and placing further economic restraint on the Eurozone. Year-over-year activity levels in the region remained negative throughout the year, and demonstrated no meaningful signs of improvement as 2012 came to conclusion.

In the aggregate, emerging region economies continued to expand during 2012, but at a much lower level than recent history and with considerable variation by individual country, and also by industry within countries. PPG's largest emerging region exposure remains Asia, where annual sales are approaching \$3.0 billion. Approximately 40% of the company's Asian sales are in China, which now represents PPG's third largest individual country in terms of sales. Activity in China, and more broadly Asia, moderated in 2012, with solid growth realized in certain industrial markets including increased automotive production. These advances were partly offset by considerable declines in other markets due, in large part, to decreased global demand in such markets as consumer electronics and marine new-build, as the majority of the global production in these markets occurs in Asia. Demand in the Latin American economies was also erratic reflecting, in part, heavy annual inflation rates the past few years and lower demand for commodities. PPG's Latin American volumes fell reflecting the weaker regional performance and certain company specific actions to reduce our operations in certain markets and countries based on lower profitability expectations.

As a proactive response to the mixed global end-use market conditions and particularly the lower European demand, PPG initiated a restructuring program in early 2012 to reduce its cost structure. The earnings charge associated with the program, which was focused on our European operations, was just over \$200 million, including about \$160 million in cash costs. Resultant program savings of \$140 million annually are expected, including approximately \$50 million achieved during 2012. The remainder of the savings are anticipated to be achieved in 2013.

Since mid-2010, commodity and oil prices have experienced inflation due to tight supply stemming from manufacturing capacity remaining idled or removed from service during the recession and improving demand for commodities. PPG typically experiences fluctuating prices for energy and raw materials used in many of our businesses. Factors which impact our input prices are supply/demand imbalances, global industrial activity levels and changes in supplier feedstock costs and inventories. PPG input prices inflated further in the first half of 2012, and then, in the second half of the year, moderated

modestly from the year's peak levels. Our current forecast for the early portion of 2013 is for overall coatings raw material prices to be flat with year-end 2012, but results will be mixed based on the respective commodity. Given the volatility in supply/demand, energy cost and the currency environment, it is not feasible to project full-year 2013 raw material pricing.

Changes in natural gas pricing have a significant impact on the financial performance of our Commodity Chemicals and Glass segments. Our 2012 U.S. natural gas costs averaged approximately \$3.00 per mmbtu for the year, while our 2011 costs averaged about \$4.65 per unit. Through 2012, each one-dollar change in our unit cost of natural gas per million British Thermal Units had a direct impact of approximately \$60 million to \$70 million on our annual operating costs. The separation of PPG's commodity chemical business in January 2013 greatly reduced PPG's natural gas exposure, reducing the impact of each one-dollar change in input cost to about \$10 million to \$20 million in annual costs. Despite the reduced annual requirement, we will continue to use a variety of techniques to manage these costs, which include reducing consumption through improved manufacturing processes, switching to alternative fuels and hedging.

In an effort to offset the adverse impact of cost inflation on earnings during 2011 and 2012, higher coatings selling prices were implemented. In 2012, the higher selling prices reflected efforts to counteract 2012 inflation, as well as absorb 2011 inflation which was not fully offset by higher pricing in that year. In 2013, additional, targeted pricing is

expected to be implemented in our businesses which remain impacted by the cost inflation. Selling prices in Commodity Chemicals and Glass declined modestly during 2012.

Pension and postretirement benefit costs were \$260 million in 2012. These costs included about \$25 million associated with the Commodity Chemicals segment. In 2013, pension and other postretirement benefit costs are expected to decline roughly \$40 million due to strong pension asset performance in 2012 and because PPG will no longer bear the costs associated with the Commodity Chemicals segment as a result of the separation of that business. During 2012, PPG's cash contributions to pension plans totaled \$81 million, following cash contributions of \$121 and \$340 million, in 2011 and 2010, respectively we anticipate 2013 contributions will be in the range of \$75 million to \$100 million.

We expect our ongoing tax rate in 2013 to be in the range of 23.5% to 24.5%, lower than the 2012 rate, due to the absence of Commodity Chemical segment earnings which were primarily U.S. based. The U.S. remains one of the company's highest taxed countries. Because of the differences in country tax rates, a shift in the geographic mix of earnings will impact our overall ongoing tax rate.

The Company generated cash from operations during 2012 of about \$1.8 billion, a record level of performance for the company. The Company entered 2013 with about \$2.4 billion in cash and short-term investments, which is an historically high level for the Company. During 2012, PPG completed the acquisitions of Dyrup, Colpisa and Spraylat, with the annual sales of these businesses approximating \$400 million. PPG also announced the acquisition of Akzo Nobel's North American

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Architectural Coatings business in December 2012, which is expected to close in the first half of 2013. Over the past three years, the Company has repurchased about 19 million shares of stock at a cost of \$1.5 billion, and the Company ended the year with approximately 8 million shares available for repurchase under the current authorization from the Board of Directors. We anticipate making additional acquisitions and share repurchases in 2013, as we target earnings accretive deployment of our strong cash position.

Entering 2013, the disparity of economic activity by region is anticipated to continue. Of the major regions, growth prospects remain in North America, bolstered by further anticipated recovery in construction activity and continued strength in various industrial markets, including automotive production and increased investment related to the energy and chemical industries. However, concerns over fiscal uncertainty and unemployment temper these prospects somewhat. The 2013 growth rate in emerging regions is expected to remain mixed, but improve somewhat based on increases in local consumption, less inventory destocking associated with lower exports, and government stimulus actions. Economic activity in the Eurozone is expected to remain subdued with very few end-use markets expected to deliver growth, with downside risk from regional economic conditions continuing.

PPG intends to remain proactive in managing our businesses to address these varied market conditions and economic uncertainty by maintaining strict operating cost management policies, which coupled with the anticipated restructuring savings, are expected to temper the impact of any negative market conditions on our business margins.

Accounting Standards Adopted in 2012

Note 1, "Summary of Significant Accounting Policies," under Item 8 describes the Company's recently adopted accounting pronouncements.

Accounting Standards to be Adopted in Future Years

Note 1, "Summary of Significant Accounting Policies," under Item 8 describes accounting pronouncements that have been promulgated prior to December 31, 2012 but are not effective until a future date.

Performance in 2011 compared with 2010

Performance Overview

Net sales in 2011 totaled \$14,885 million compared to \$13,423 million in 2010, an increase of 11%. Higher volumes contributed just over 2% and higher selling prices increased sales by 5%. The remainder of the sales increase was due to the impact of foreign currency translation and acquisitions. The higher sales volumes were achieved in all major geographic regions, while four reportable segments had increased volume levels and the other two had level year-over-year volumes.

Increased demand was driven by stronger global industrial production activity, which aided many of our businesses. The global industrial recovery continued in 2011 with solid growth in emerging regions and North America and with modest improvement in Europe despite a slight decline in volume in the second half of 2011 due to reduced end-use market demand for fiber glass and automotive refinish based on softness in the

region. Growth rates in Asia in 2011 were reduced by the shrinking level of marine original-equipment new ship builds. Growth was impacted early in the year due to the effects of the Japanese earthquake and tsunami and was also tempered late in the year by the negative sales impact stemming from the Thailand floods, particularly in optical products. North American growth was impacted by unscheduled production outages in the Commodity Chemicals segment earlier in 2011 as well as decreased chlorine industry demand in the fourth quarter. Activity in construction markets in the developed regions of the world remained at low levels and has not demonstrated any consistent improvement. Our volume growth for 2011 versus the prior year growth which benefited from increasing demand as the global industrial economy began to recover from the recession. Also, volumes were flat in the fourth quarter of 2011 as customers curtailed their inventory and were cautious with their order patterns, reflecting economic uncertainty. The improved selling prices in 2011 were achieved in every reporting segment, led by Commodity Chemicals and each of the three coatings segments. The Commodity Chemicals segment achieved pricing gains due to continued strong demand and tightening supply of caustic soda. In our coatings segments, prices were raised in response to persistent raw material cost inflation. The higher coatings selling prices significantly, but did not fully, offset the impact of raw material inflation rates that began to flatten in the fourth quarter. The favorable currency impact was primarily driven by strengthening European, Asian and Latin American currencies against the U.S. dollar

compared to 2010, despite a decline in the value of the Euro in the second half of 2011.

Cost of sales, exclusive of depreciation and amortization, increased by \$867 million in 2011 to \$9,081 million compared to \$8,214 million in 2010. About 55% of the increase was driven by inflation, particularly increases in raw material costs, primarily in our coatings businesses. Manufacturing costs were again positive in 2011. Additionally, about 20% of the increase in cost of sales was due to sales growth from volume and acquisitions. The effect of foreign currency accounts for about 25% of the increase in cost of sales for the year. Cost of sales as a percentage of sales was 61.0% in 2011 compared to 61.2% in 2010. This improvement reflects a combination of slightly higher margins on the sales volume growth in 2011 due to improved product mix and the benefit of selling price increases, particularly in Commodity Chemicals, net of the impact of inflation on cost of sales. For the coatings businesses, higher pricing significantly offset inflation, as raw material costs escalated throughout 2011. However, the coatings businesses did not fully offset raw material cost inflation with higher pricing in 2011, and additional pricing actions are underway in 2012 in several businesses to further counter inflation absorbed in 2011. For the Company in total, inflation was more than offset by higher pricing aided by Commodity Chemicals.

Selling, general and administrative expenses increased by \$255 million to \$3,234 million in 2011 compared to \$2,979 million in 2010. The effects of foreign currency, inflation, and growth in costs to support the increased sales volumes and acquisitions were approximately equal. Selling, general and administrative costs as a percentage of sales were 21.7% in 2011, down from 22.2% in 2010 reflecting the benefit of our

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continuing effort to aggressively manage our cost growth as our sales volume increases.

Interest expense increased \$21 million to \$210 million in 2011 from \$189 million in 2010. This increase was driven by the Company's \$1 billion debt issuance in November of 2010 partially offset by an early repayment of \$400 million in term loans in June 2011. Interest income increased \$8 million to \$42 million in 2011 from \$34 million in 2010 due to higher average short term investment balances in 2011 compared to 2010.

Other charges decreased \$11 million to \$73 million in 2011 from \$84 million in 2010 due principally to the absence of a \$6 million antitrust litigation settlement charge which occurred in 2010 and lower environmental remediation expense in 2011 of \$5 million.

The effective tax rate on pretax earnings in 2011 was approximately 24% compared to approximately 32% in 2010.

The 2011 rate includes a benefit of \$12 million resulting from a favorable tax audit settlement. The 2011 rate also includes the impact of the non-taxable bargain purchase gain resulting from the Equa-Chlor acquisition. The effective rate was 25% on the remaining pretax earnings in 2011.

The 2010 tax rate includes expense of \$85 million resulting from the reduction of our previously provided deferred tax asset related to our liability for retiree medical costs. The deferred tax asset needed to be reduced because the healthcare legislation enacted in March 2010 included a provision that reduced the amount of retiree medical costs that will be deductible after December 31, 2012. The 2010 rate also included a \$5 million benefit as a result of enacted changes in statutory tax rates outside the U.S. The effective rate was 26% on the remaining pretax earnings in 2010. The decrease in the tax rate on the remaining pretax earnings in 2011 is mainly the result of tax planning initiatives in the fourth quarter.

Net income (attributable to PPG) and earnings per share – assuming dilution (attributable to PPG) for 2011 and 2010 are summarized below:

(Millions, except per share amounts)

Year ended December 31, 2011	Net Income	
	\$	EPS
Net income (attributable to PPG)	\$1,095	\$6.87

(Millions, except per share amounts)

Year ended December 31, 2010	Net Income	
	\$	EPS
Net income (attributable to PPG)	\$769	\$4.63

Net income (attributable to PPG) includes:

Charge related to change in U.S. tax law	\$85	\$0.51
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Average shares used to calculate earnings per share – assuming dilution were 157.3 million in 2011 and 164.5 million in 2010. The reduction is the result of share buyback activity in 2011.

### Results of Reportable Business Segments

(Millions)	Net sales		Segment income	
	2011	2010	2011	2010
Performance Coatings	\$4,626	\$4,281	\$673	\$661
Industrial Coatings	4,158	3,708	438	378
Architectural Coatings –EMEA	2,104	1,874	123	113
Optical and Specialty Materials	1,204	1,141	326	307
Commodity Chemicals	1,732	1,434	370	189
Glass	1,061	985	97	74

Performance Coatings sales increased \$345 million, or 8%, to \$4,626 million in 2011. The sales increase was comprised of 5% due to price and 3% due to currency. Volumes for the segment were slightly favorable as volume increases in automotive refinish and aerospace were offset by low-single digit percentage volume declines in the protective and marine coatings and the architectural-Americas and Asia Pacific coatings businesses. Aerospace volumes continued to grow reflecting robust industry demand and PPG share gains. Automotive refinish volume increased, but growth was impacted by customer inventory management at year-end and weaker European activity

levels in the second half of the year. Marine coatings volumes were down reflecting the decline in ship build activity and reduced global shipping during the last quarter of 2011. Improved protective coatings volumes in most regions, reflecting higher energy and infrastructure demand, partly offset the sales decline in marine. U.S. architectural coatings volumes were relatively flat. This included the severely negative volume trends in the U.S. early in 2011 due to weather conditions. Architectural volumes in the emerging regions declined low single digit percentages, including the negative impacts from lower demand near the end of 2011. Segment income in 2011 increased \$12 million to \$673 million. The impacts of improved volumes in automotive refinish and aerospace, manufacturing cost reductions and favorable currency impacts more than offset the negative impact of inflation net of price to result in the earnings improvement in 2011 compared to 2010. Pricing improved in all businesses reflecting our continuing efforts to address persistent input cost inflation.

Industrial Coatings sales increased \$450 million, or 12% compared to 2010, to \$4,158 million. The sales increase was comprised of 5% due to volume, 4% due to price and 3% due to currency. Segment income improved 16% versus 2010 to \$438 million in 2011. This increase was primarily due to increased volumes, lower manufacturing costs and currency, partially offset by the negative impact of inflation net of increases in selling prices and growth-driven increases in overhead costs. Segment volume grew by 5% on solid global industrial demand, with positive results in all three business units. Growth rates were robust in Asia as a result of continued growth in the region for all three businesses. The automotive OEM business delivered strong single-digit percentage growth reflecting high growth rates due to the automotive industry recovery with continued growth in North America, Asia Pacific and Latin America, and low growth in Europe where volumes were positive for the full year but weakened in the second half of the year. Global volumes in the industrial and packaging businesses were also favorable with Asia Pacific the strongest region delivering the majority of the growth, with somewhat lower or even declining

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volumes in Europe and North America due, in part, to late year customer destocking.

Architectural Coatings - EMEA sales increased \$230 million, or 12%, to \$2,104 million in 2011. The sales increase was comprised of 5% due to the positive impact of foreign currency translation, a 1% increase from acquired business and the remainder from an increase in selling prices and volume gains. Segment earnings were up \$10 million compared to the prior year. Positive year-over-year earnings resulted from the earnings impact of volume growth and currency translation. Earnings in 2011 were reduced by a \$9 million charge related to a U.K.-based retail do-it-yourself customer who filed for bankruptcy during the second quarter of 2011 and the adverse impact of inflation net of price increases.

Optical and Specialty Materials sales for 2011 increased \$63 million, or 6%, compared to 2010, to \$1,204 million due to a 2% increase in volumes, pricing and the favorable impact of currency. Earnings grew by 6% to \$326 million. Both optical products and silicas achieved sales growth coming from higher volumes, pricing and the impact of currency. The silicas business' volumes benefited from the higher automotive OEM production resulting in increased demand for our products sold into the tire and battery markets. Segment results were tempered by the negative impact from the serious flooding in Thailand that disrupted optical customers and supply chains. The flooding also impacted production of PPG's optical materials, resulting in a declaration of force majeure during the fourth quarter. Segment earnings increased due to the factors increasing sales, which exceeded the impact of inflation, higher manufacturing costs and volume driven growth in overhead cost.

Commodity Chemicals sales in 2011 versus the prior year increased \$298 million, or 21%, to \$1,732 million. Higher pricing and the impact of the EquaChlor acquisition were the key factors producing the improved sales and earnings. Segment earnings increased \$181 million to \$370 million in 2011. Capacity utilization was lower in the second, third and fourth quarters due to planned and unplanned production outages, as well as lower chlorine industry demand in the fourth quarter due to customer inventory management and lower chlorine derivative exports, resulting in higher manufacturing and maintenance expenses. Natural gas unit costs were lower year-over-year, but ethylene costs were higher. An increase in overhead costs was substantially offset by gains from asset sales, primarily related to the lease of Marcellus Shale natural gas drilling rights on PPG owned property, and lower environmental expense.

Glass sales increased \$76 million, or 8%, compared to 2010 to \$1,061 million in 2011. Sales increased 4% due to pricing, 2% due to volume growth with the remainder attributable to favorable foreign currency impacts. Solid fiber glass pricing gains drove the sales growth, together with improved flat glass volumes. Fiber glass volumes were also up over 2010, but were lower in the fourth quarter of 2011 due to lower European demand. Segment earnings grew to \$97 million, compared to \$74 million a year ago. Higher sales prices and volumes were the primary drivers of the earnings improvement. The earnings results were tempered somewhat by raw material cost inflation, higher fiber glass maintenance costs and higher overhead costs.

See Note 24, "Reportable Business Segment Information," under Item 8 of this Form 10-K for further information related to the Company's operating segments and reportable business segments.

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 Item 3, "Legal Proceedings" and Note 15, "Commitments and Contingent Liabilities," under Item 8 of this Form 10-K for a description of certain of these lawsuits, including a description of the proposed asbestos settlement.

As discussed in Item 3 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 in the event the proposed asbestos settlement described in Note 15 does not become effective, 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.

It is PPG's policy to accrue expenses for environmental contingencies when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Reserves for environmental contingencies are exclusive of claims against third parties and are generally not discounted. In management's opinion, the Company operates in an



environmentally sound manner and the outcome of the Company's environmental contingencies will not have a material effect on PPG's financial position or liquidity; however, any such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized. Management anticipates that the resolution of the Company's environmental contingencies will occur over an extended period of time.

As of December 31, 2012 and 2011, PPG had reserves for environmental contingencies totaling \$332 million and \$226 million, respectively, of which \$101 million and \$59 million, respectively, were classified as current liabilities. Pretax charges against income for environmental remediation costs in 2012, 2011 and 2010 totaled \$167 million, \$16 million and \$21 million, respectively, and are included in "Other charges" in the accompanying consolidated statement of income. Cash outlays related to such environmental remediation aggregated \$66 million, \$59 million, and \$34 million in 2012, 2011 and 2010, respectively. The impact of foreign currency increased the liability by \$2 million in 2012 and decreased the liability by \$3 million in 2011. As a result of the allocation of the purchase price of acquisitions to assets acquired and liabilities assumed, the liability for environmental contingencies was increased by \$3 million during 2012.

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 \$275 million. This range is less than the comparable amount reported at the end of 2011 as a result of

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the additional environmental remediation charge recorded in the first quarter 2012. Such unreserved losses are reasonably possible but are not currently considered to be probable of occurrence. This range of reasonably possible unreserved loss relates to environmental matters at a number of sites including each of the following; i) additional costs at New Jersey Chrome, which represents about one third of this potential range, ii) a number of other sites, including legacy glass and chemical manufacturing sites and iii) the Calcasieu River Estuary and two operating plant sites in the Company's former commodity chemicals business. 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 Company continues to analyze, assess and remediate the environmental issues associated with New Jersey Chrome. In connection with the preparation of a final draft soil remedial action work plan and cost estimate that was initially required to be submitted to the NJDEP in May 2012 but now will be submitted in 2013, the Company compiled updated information about the sites that was used to develop a new estimate of the cost to remediate these sites which resulted in a charge against earnings of \$145 million in the first quarter of 2012. A charge of \$165 million for the estimated costs of remediating these sites was recorded in the third quarter of 2006. Information will continue to be generated from the ongoing groundwater remedial investigation activities related to New Jersey Chrome and will be incorporated into a final draft remedial action work plan for groundwater expected to be submitted to NJDEP in the second quarter of 2014. There are currently no amounts reserved for groundwater remediation. These charges for estimated environmental remediation costs in 2006 and 2012 were significantly higher than PPG's historical range. Excluding 2006 and 2012, pre-tax charges against income for environmental remediation have ranged between \$10 million and \$35 million per year for the past 16 years. Charges in 2013 are expected to again be within this historical range.

**Impact of Inflation**

Coatings raw materials both organic, primarily petroleum based, and inorganic materials, including titanium dioxide, generally comprise 70-to-80% of coatings cost of goods sold in most coatings formulations and represent PPG's single largest production cost component. PPG input prices inflated further in the first half of 2012, and then, in the second half of the year, moderated modestly from the year's peak levels. In 2012, PPG experienced a reduction in the price of natural gas, its primary energy cost, and also in ethylene, a Commodity Chemical raw material, and experienced low single digit percentage inflation in coatings raw material prices.

In 2011, PPG experienced a reduction in the price of natural gas, its primary energy cost, but experienced a significant rise in both ethylene, a Commodity Chemical raw material and in coatings raw material prices. In 2011, overall coatings raw material costs inflated by approximately 10-to-12% for the Company. The largest inflation impacts were from titanium dioxide pigments and certain propylene-based resins. This impact was not entirely offset by higher selling prices in our Performance Coatings and Architectural Coatings – EMEA

reportable segments. There was also a coverage gap in our Industrial Coatings reportable segment even with this segment using product reformulations to attempt to counter this impact. Our Commodity Chemicals and Glass reportable segments were able to more than fully offset the impact of inflation with price increases, while inflation was not significant for our Optical and Specialty Materials reportable segment.

In 2010, PPG experienced a reduction in its primary energy costs but a steady increase in its coatings raw material costs, most notably in the second half of the year. This was driven by higher global demand as a result of the gradual recovery in the global economy and tightness of supply as suppliers have not increased their capacities. This impact was offset by higher selling prices in our Performance Coatings and Architectural Coatings – EMEA reportable segments and partially offset in our Industrial Coatings reportable segment. Industrial Coatings partially addressed the remaining impact of raw material inflation with further cost reductions in 2010. The impact of inflation net of price was positive in the Optical and Specialty Materials reportable segment and negative in the Commodity Chemicals and Glass reportable segments.

Our current forecast for the early portion of 2013 is for overall coatings raw material prices to be flat with year-end 2012, but results will vary by commodity. Given the volatility in supply/demand, energy costs and the currency environment, it is not feasible to project full-year 2013 raw material pricing. The Company is continuing its

aggressive sourcing initiatives to support its continuous efforts to find the lowest raw material costs. These initiatives include reformulation of our products using both petroleum-derived and bio-based materials as part of a product renewal strategy, qualifying multiple and local sources of supply, including suppliers from Asia and other lower cost regions of the world, and strategic initiatives with multiple global suppliers to secure and enhance PPG's supply of titanium dioxide and other materials. We expect these efforts, combined with increases in our selling prices, will offset the negative impact of inflation on our coatings businesses in 2013 and recover margin lost from inflation absorbed over the last three years. The separation of PPG's commodity chemical business in January 2013 greatly reduced PPG's natural gas exposure, with each one-dollar change in unit cost per million BTUs now accounting for about \$10 million to \$20 million, instead of \$60 million to \$70 million, in annual costs, and removed PPG's direct exposure with respect to the volatility of ethylene prices. Despite the reduced annual requirement, we will continue to use a variety of techniques to manage our natural gas costs, which include reducing consumption through improved manufacturing processes, switching to alternative fuels and hedging.

#### Liquidity and Capital Resources

During the past three years, we had sufficient financial resources to meet our operating requirements, to fund our capital spending, share repurchases and pension plans and to pay increasing dividends to our shareholders.

Cash from operating activities was \$1,787 million, \$1,436 million, and \$1,310 million in 2012, 2011, and 2010, respectively. Cash from operations in 2012 compared to 2011 was aided by cash received from a decrease in working capital of \$113 million. Higher earnings increased cash from

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operations in 2011 compared to 2010, but the increase was reduced by cash used to fund an increase in working capital of \$212 million driven by our sales growth in 2011.

Operating Working Capital is a subset of total working capital and represents (1) trade receivables-net of the allowance for doubtful accounts, plus (2) inventories on a first-in, first-out (“FIFO”) basis, less (3) trade creditors’ liabilities. See Note 3, “Working Capital Detail” under Item 8 of this Form 10-K for further information related to the components of the Company’s Operating Working Capital. We believe Operating Working Capital represents the key components of working capital under the operating control of our businesses. Operating Working Capital at December 31, 2012 and 2011 was \$2.9 billion and \$2.7 billion, respectively. A key metric we use to measure our working capital management is Operating Working Capital as a percentage of sales (fourth quarter sales annualized).

(Millions, except percentages)	2012		2011	
Trade Receivables, net	\$2,568		\$2,512	
Inventories, FIFO	1,930		1,839	
Trade Creditor's Liabilities	1,620		1,612	
Operating Working Capital	\$2,878		\$2,739	
Operating Working Capital as % of Sales	19.7	%	19.5	%

Operating working capital at December 31, 2012 increased \$139 million compared with the prior year end level; however, excluding the impact of currency and acquisitions, the change was a decrease of \$21 million during the year ended December 31, 2012. This decrease was the net result of decreases in all components of operating working capital. Trade receivables from customers, net, as a percentage of fourth quarter sales, annualized, for 2012 was 17.6%, down slightly from 17.9% for 2011. Days sales outstanding was 61 days in 2012, a one day improvement from 2011. Inventories on a FIFO basis as a percentage of fourth quarter sales, annualized, for 2012 was 13.2% up slightly from 13.1% in 2011. Inventory turnover was 4.8 times in 2012 and 5.0 times in 2011.

Total capital spending, including acquisitions, was \$533 million, \$446 million and \$341 million in 2012, 2011, and 2010, respectively. Spending related to modernization and productivity improvements, expansion of existing businesses and environmental control projects was \$411 million, \$390 million and \$307 million in 2012, 2011, and 2010, respectively, and is expected to be in the range of \$350-\$450 million during 2013. Capital spending, excluding acquisitions, as a percentage of sales was 2.7%, 2.6% and 2.3% in 2012, 2011 and 2010, respectively. Capital spending related to business acquisitions amounted to \$122 million, \$56 million, and \$34 million in 2012, 2011 and 2010, respectively. A primary focus for the Corporation in 2013 will continue to be prudent cash deployment focused on profitable earnings growth including pursuing opportunities for additional strategic acquisitions.

In January 2013, PPG received \$900 million in cash proceeds in connection with the closing of the separation of its

commodity chemicals business and subsequent merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. Refer to Note 25, “Separation and Merger Transaction” for financial information regarding the separation of the commodity chemicals business.

In December 2012, the Company reached a definitive agreement to acquire the North American architectural coatings business of Akzo Nobel, N.V., Amsterdam, in a deal valued at \$1.05 billion. The transaction has been approved by the boards of directors of both companies and is expected to close in the first half of 2013, subject to regulatory approvals. In December 2012, the Company acquired Spraylat Corp., a privately-owned industrial coatings company based in Pelham, N.Y. In January 2012, the Company completed the previously announced acquisitions of Colpisa, a Colombian producer of automotive OEM and refinish coatings, and Dyrup, a European architectural coatings company. The total cost of 2012 acquisitions, including assumed debt, was \$288 million.

Dividends paid to shareholders totaled \$358 million, \$355 million and \$360 million in 2012, 2011 and 2010, respectively. PPG has paid uninterrupted annual dividends since 1899, and 2012 marked the 41st consecutive year of increased annual dividend payments to shareholders.

We did not have a mandatory contribution to our U.S. defined benefit pension plans in 2012 and we did not make a voluntary contribution to these plans. In 2011 and 2010, we made voluntary contributions to our U.S. defined benefit pension plans of \$50 million and \$250 million, respectively. We do not expect to make a contribution to our U.S. defined benefit pension plans in 2013. Contributions were made to our non-U.S. defined benefit pension plans of \$81

million, \$71 million and \$87 million for 2012, 2011 and 2010, respectively, some of which were required by local funding requirements. We expect to make mandatory contributions to our non-U.S. plans in 2013 in the range of approximately \$75 million to \$100 million.

The Company's share repurchase activity in 2012, 2011 and 2010 was 1 million shares at a cost of \$92 million, 10.2 million shares at a cost of \$858 million and 8.1 million shares at a cost of \$586 million, respectively. No PPG stock was purchased in the last nine months of 2012 during the completion of the separation of its commodity chemicals business and subsequent merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. The Company reinitiated our share repurchase activity in the first quarter of 2013. We anticipate spending between \$500 million and \$750 million for share repurchases during 2013. We can repurchase nearly 8 million shares under the current authorization from the Board of Directors.

In September 2012, PPG entered into a five-year credit agreement (the "Credit Agreement") with several banks and financial institutions as further discussed in Note 8, "Debt and Bank Credit Agreements and Leases". The Credit Agreement provides for a \$1.2 billion unsecured revolving credit facility. In connection with entering into this Credit Agreement, the

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Company terminated its \$1.2 billion credit facility that was scheduled to expire in August 2013. There was no outstanding amount due under the revolving facility at the time of its termination. The Company has the ability to increase the size of the Credit Agreement by up to an additional \$300 million, subject to the receipt of lender commitments and other conditions. The Credit Agreement will terminate and all amounts outstanding thereunder will be due and payable on September 12, 2017.

On July 31, 2012, PPG completed a public offering of \$400 million in aggregate principal amount of its 2.70% Notes due 2022 (the "2022 Notes"). The 2022 Notes were offered by the Company pursuant to its existing shelf registration statement. The proceeds of this offering of \$397 million, net of discount and issuance costs, are expected to be used to repay a portion of the \$600 million of 5.75% notes due in March 2013 (the "2013 Notes"). The discount and issuance costs related to the 2022 Notes, which totaled \$3 million, will be amortized to interest expense over the life of the 2022 Notes.

In April 2012, the Company reclassified the \$600 million of the 2013 Notes to "Short-term debt and current portion of long-term debt" in the accompanying consolidated balance sheet as these notes are due to be repaid in March 2013. Also during the year-ended December 31, 2012, the Company assumed \$120 million of debt in the Dyrup acquisition; repaid \$119 million of that debt, and repaid the \$71 million of 6.875% notes upon their maturity.

In June 2011, the Company repaid a \$400 million three year unsecured term loan, which had a scheduled maturity date of June 2012. There was no prepayment penalty. This \$400 million three year unsecured loan was entered into in June 2009 with a variable interest rate based on a spread over the LIBOR. This term loan was repaid using a portion of the proceeds from the \$1 billion debt we issued in November 2010.

On November 12, 2010, PPG completed a public offering of \$250 million in aggregate principal amount of its 1.900% Notes due 2016, \$500 million in aggregate principal amount of its 3.600% Notes due 2020 and \$250 million in aggregate principal amount of its 5.500% Notes due 2040. These notes were offered by the Company pursuant to its existing shelf registration statement. The proceeds of this offering were \$983 million (net of discount and issuance costs). We used the proceeds to repay \$400 million in term debt and to contribute to employee pension plans and we intend to use the remainder of the proceeds to fund certain asbestos claims and for other general corporate purposes of the Company.

The ratio of total debt, including capital leases, to total debt and equity was 50% at December 31, 2012 down from 53% in 2011.

The Company has \$3,476 million and \$2,920 million of undistributed earnings of non-U.S. subsidiaries as of December 31, 2012 and December 31, 2011, respectively. These amounts relate to approximately 300 subsidiaries in more than 70 taxable jurisdictions. No deferred U.S. income taxes have been provided on these earnings as they are considered to be

reinvested for an indefinite period of time or will be repatriated when it is tax effective to do so. We estimate that of these amounts, \$2,865 million as of December 31, 2012 and \$2,454 million as of December 31, 2011 of the Company's undistributed earnings, could be repatriated at little to no U.S. tax cost due in part to the benefit of U.S. foreign tax credits that would be available if these earnings were repatriated. The repatriation of undistributed earnings of non-U.S. subsidiaries of approximately \$611 million as of December 31, 2012 and \$466 million as of December 31, 2011 would have resulted in a U.S. tax cost of approximately \$110 million and \$85 million, respectively.

We continue to believe that our cash and short term investments on hand, cash from operations and the Company's available debt capacity will continue to be sufficient to fund our operating activities, capital spending, including acquisitions, dividend payments, debt service, amounts due under the proposed asbestos settlement, share repurchases, contributions to pension plans, and PPG's significant contractual obligations. These significant contractual obligations, along with amounts due under the proposed asbestos settlement are presented in the following table.

(Millions)	Total	Obligations Due In:			
		2013	2014- 2015	2016- 2017	Thereafter
Contractual Obligations					
Long-term debt	\$3,939	\$600	\$409	\$472	\$2,458

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Short-term debt	39	39	—	—	—
Capital lease obligations	32	3	5	5	19
Operating leases	695	171	242	147	135
Interest payments <sup>(1)</sup>	1,604	173	322	269	840
Pension contributions <sup>(2)</sup>	77	77	—	—	—
Unconditional purchase commitments	648	212	174	82	180
Total	\$7,034	\$1,275	\$1,152	\$975	\$3,632
Asbestos Settlement <sup>(3)</sup>					
Aggregate cash payments	\$825	\$479	\$5	\$67	\$274
PPG stock and other	204	204	—	—	—
Total	\$1,029	\$683	\$5	\$67	\$274

Includes interest on all outstanding debt. Interest for variable-rate debt instruments is based on effective rates at (1) December 31, 2012. Interest for fixed-rate debt instruments have been adjusted for the impact of interest rate swaps using the effective rate at December 31, 2012.

(2) Includes the estimated pension contribution for 2013 only, as PPG is unable to estimate the pension contributions beyond 2013.

(3) We have recorded an obligation equal to the net present value of the aggregate cash payments, along with the PPG stock and other assets to be contributed to a trust under the proposed asbestos settlement. However, PPG has no obligation to pay any amounts under this settlement until the Funding Effective Date, as more fully discussed in Note 15, "Commitments and Contingent Liabilities," under Item 8 of this Form 10-K.

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The unconditional purchase commitments are principally take-or-pay obligations related to the purchase of certain materials, including industrial gases, natural gas, coal and electricity, consistent with customary industry practice. These amounts also include PPG's commitment to purchase electricity and steam from our RS Cogen joint venture discussed in Note 5, "Investments," under Item 8 of this Form 10-K.

PPG's interest in RS Cogen including the commitment to purchase electricity of \$234 million, future minimum operating lease payments of \$32 million, as well as \$67 million of other unconditional purchase obligations listed in the contractual obligations table above were transferred in the separation of its commodity chemicals business and subsequent merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf completed on January 28, 2013.

See Note 8, "Debt and Bank Credit Agreements and Leases," under Item 8 of this Form 10-K for details regarding the use and availability of committed and uncommitted lines of credit, letters of credit, guarantees and debt covenants.

In addition to the amounts available under the lines of credit, the Company has an automatic shelf registration statement on file with the SEC pursuant to which it may issue, offer and sell from time to time on a continuous or delayed basis any combination of securities in one or more offerings.

### Off-Balance Sheet Arrangements

The Company's off-balance sheet arrangements include the operating leases and unconditional purchase commitments disclosed in the "Liquidity and Capital Resources" section in the contractual obligations table as well as letters of credit and guarantees as discussed in Note 8, "Debt and Bank Credit Agreements and Leases," under Item 8 of this Form 10-K.

### Critical Accounting Estimates

Management has evaluated the accounting policies used in the preparation of the financial statements and related notes presented under Item 8 of this Form 10-K 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, 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.

Contingencies, by their nature, relate to uncertainties that require management to exercise judgment both in assessing the likelihood that a liability has been incurred as well as in estimating the amount of potential loss. The most important contingencies impacting our financial statements are those related to the collectability of accounts receivable, to environmental remediation, to pending, impending or overtly threatened litigation against the Company and to the resolution

of matters related to open tax years. For more information on these matters, see Note 3, "Working Capital Detail," Note 13, "Income Taxes" and Note 15, "Commitments and Contingent Liabilities" under Item 8 of this Form 10-K.

Accounting for pensions and other postretirement benefits involves estimating the cost of benefits to be provided well into the future and attributing that cost over the time period each employee works. To accomplish this, extensive use is made of assumptions about inflation, investment returns, mortality, turnover, medical costs and discount rates. The Company has established a process by which management reviews and selects these assumptions annually. See Note 14, "Pensions and Other Postretirement Benefits," under Item 8 for information on these plans and the assumptions used.

The discount rate used in accounting for pensions and other postretirement benefits is determined by reference to a current yield curve and by considering the timing and amount of projected future benefit payments. The discount rate assumption at December 31, 2012 and for 2013 is 4.05% for our U.S. defined benefit pension and other postretirement benefit plans. A change in the discount rate of 75 basis points, with all other assumptions held constant, would impact 2012 net periodic benefit expense for our defined benefit pension and other postretirement benefit plans by approximately \$19 million and \$9 million, respectively.

The expected return on plan assets assumption used in accounting for our pension plans is determined by evaluating the mix of investments that comprise plan assets and external forecasts of future long-term investment returns. For 2012, the return on plan assets assumption for our U.S. defined benefit pension plans was 7.5%. This assumption will



be lowered to 7.25% for 2013. A change in the rate of return of 75 basis points, with other assumptions held constant, would impact 2013 net periodic pension expense by approximately \$24 million.

As discussed in Note 1, "Summary of Significant Accounting Policies," under Item 8 of this Form 10-K, the Company tests goodwill and identifiable intangible assets with indefinite lives for impairment at least annually by comparing the fair value of the reporting units to their carrying values. Fair values are estimated using discounted cash flow methodologies that are based on projections of the amounts and timing of future revenues and cash flows. Based on this testing, none of our goodwill or identifiable intangible assets with indefinite lives was impaired as of December 31, 2012.

As part of our ongoing financial reporting process, a collaborative effort is undertaken involving PPG managers with functional responsibility for financial, credit, environmental, legal, tax and benefit matters. The results of these efforts provide management with the necessary information on which to base their judgments on these contingencies and to develop the estimates and assumptions used to prepare the financial statements.

We believe that the amounts recorded in the financial statements under Item 8 of this Form 10-K related to these contingencies, pensions, other postretirement benefits, goodwill

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and other identifiable intangible assets with indefinite lives are based on the best estimates and judgments of the appropriate PPG management, although actual outcomes could differ from our estimates.

Currency

The U.S. dollar weakened from year-end December 31, 2011 to year-end December 31, 2012, against certain currencies of the countries in which PPG operates, most notably against the Euro, the British pound sterling, Polish zloty, and the South Korean won. A \$141 million increase in PPG consolidated net assets and shareholders equity resulted from translating PPG's foreign denominated net assets to U.S. dollars at December 31, 2012, compared to December 31, 2011. Comparing exchange rates during 2012 to those of 2011, in the countries in which PPG operates, the U.S. dollar was generally stronger, particularly against the Euro, which had an unfavorable impact on full year 2012 pretax earnings of approximately \$40 million from the translation of these foreign earnings into U.S. dollars. From December 31, 2010 to December 31, 2011, the U.S. dollar strengthened against the currencies of most of the countries in which PPG operates, most notably against the Euro, the Brazilian real, and the Polish zloty. A \$188 million decrease in PPG consolidated net assets and shareholders equity resulted from translating PPG's foreign denominated net assets to U.S. dollars at December 31, 2011, compared to December 31, 2010. However, during much of 2011, the U.S. dollar was weaker against the currencies of many countries in which PPG operates than it was in 2010, which had a favorable impact on 2011 pretax earnings of approximately \$40 million from the translation of these foreign earnings into U.S. dollars.

From December 31, 2009 to December 31, 2010, the U.S. dollar strengthened against the Euro, the Polish zloty, and the British pound sterling while at the same time it weakened against the Canadian and Australian dollar, the Chinese yuan, the South Korean won, and the Brazilian real, which had a nearly offsetting effect on the translation of the net assets of PPG's operations denominated in non-U.S. currencies to the U.S. dollar. A \$13 million decrease resulted from translating PPG's foreign denominated net assets at December 31, 2010, compared to December 31, 2009. The impact of translating foreign pretax earnings into U.S. dollars was insignificant.

Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of the Company. Management's Discussion and Analysis and other sections of this Annual Report contain forward-looking statements that reflect the Company's current views with respect to future events and financial performance.

You can identify forward-looking statements by the fact that they do not relate strictly to current or historic facts.

Forward-looking statements are identified by the use of the words "aim," "believe," "expect," "anticipate," "intend," "estimate," "project," "outlook," "forecast" and other expressions that indicate future events and trends. Any forward-looking statement speaks only as of the date on which such statement is made, and the Company undertakes no obligation to update any forward looking statement, whether as a result of new information, future events

or otherwise, except as otherwise required by applicable law. You are advised, however, to consult any further disclosures we make on related subjects in our reports to the Securities and Exchange Commission. Also, note the following cautionary statements.

Many factors could cause actual results to differ materially from the Company's forward-looking statements. Such factors include global economic conditions, increasing price and product competition by foreign and domestic competitors, fluctuations in cost and availability of raw materials, the ability to maintain favorable supplier relationships and arrangements, difficulties in integrating acquired businesses and achieving expected synergies therefrom, economic and political conditions in international markets, the ability to penetrate existing, developing and emerging foreign and domestic markets, foreign exchange rates and fluctuations in such rates, fluctuations in tax rates, the impact of future legislation, the impact of environmental regulations, unexpected business disruptions, the unpredictability of existing and possible future litigation, including litigation that could result if the proposed asbestos settlement does not become effective and the effect of the disposition of the Company's commodity chemical business. However, it is not possible to predict or identify all such factors. Consequently, while the list of factors presented here and 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.

This Annual Report also contains statements about PPG's agreement to purchase the North American architectural coatings business of Akzo Nobel N.V. (the "Transaction"). Many factors could cause actual results to differ materially from the company's forward-looking statements with respect to the Transaction, including the parties' ability to satisfy the conditions to the closing of the Transaction; the parties' ability to complete the Transaction on anticipated terms and schedule; risks relating to the ability of the parties to obtain regulatory approvals for the Transaction, any unforeseen liabilities, future capital expenditures, revenues, expenses, earnings, synergies, economic performance, indebtedness, financial condition, losses and future prospects; business and management strategies for the management, expansion and growth of PPG's coatings operations; PPG's ability to integrate the North American architectural coatings business of Akzo Nobel N.V. after the closing and to achieve anticipated synergies; and the risk that disruptions from the Transaction will harm PPG's business.

Consequences of material differences in the results compared with those anticipated in the forward-looking statements could include, among other things, business disruption, operational problems, financial loss, legal liability to third parties, other factors set forth in Item 1A of this 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 7A. Quantitative and Qualitative Disclosures About Market Risk

PPG is exposed to market risks related to changes in foreign currency exchange rates, interest rates, and natural gas prices

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and to changes in PPG's stock price. The Company may enter into derivative financial instrument transactions in order to manage or reduce these market risks. A detailed description of these exposures and the Company's risk management policies are provided in Note 11, "Derivative Financial Instruments and Hedge Activities," under Item 8 of this Form 10-K.

The following disclosures summarize PPG's exposure to market risks and information regarding the use of and fair value of derivatives employed to manage its exposure to such risks. Quantitative sensitivity analyses have been provided to reflect how reasonably possible, unfavorable changes in market rates can impact PPG's consolidated results of operations, cash flows and financial position.

Foreign currency forward and option contracts outstanding during 2012 and 2011 were used to hedge PPG's exposure to foreign currency transaction risk. The fair value of these contracts as of December 31, 2012 and 2011 were assets of \$3 million and liabilities of \$1 million, respectively. The potential reduction in PPG's earnings 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 currencies and 20% for Asian and South American currencies for the years ended December 31, 2012 and 2011 would have been \$14 million and \$23 million, respectively.

As of January 1, 2012, PPG had nine U.S. dollar to euro cross currency swap contracts with a total notional amount of \$1.16 billion, of which \$600 million were to settle on March 15, 2013 and \$560 million were to settle on March 15, 2018. In June 2012, \$600 million of the swaps, with a settlement date of March 15, 2013, were settled with PPG receiving \$1 million in cash. On settlement of the remaining outstanding contracts, PPG will receive \$560 million U.S. dollars and pay euros to the counterparties to the contracts. During the term of these contracts, PPG will receive semiannual payments in March and September of each year based on U.S. dollar, long-term fixed interest rates, and PPG will make annual payments in March of each year to the counterparties based on euro, long-term fixed interest rates. The Company designated all of the cross currency swaps as hedges of its net investment in the acquired SigmaKalon businesses and, as a result, the mark to fair value adjustments of the swaps outstanding have been and will be recorded as a component of Accumulated Other Comprehensive Loss (Income) ("AOCI"), and the cash flow impact of these swaps has been and will be classified as investing activities in the consolidated statement of cash flows. As of December 31, 2012 and December 31, 2011, the fair value of these contracts was a net liability of \$95 million and \$120 million, 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 and increased the liability by \$84 million and \$153 million at December 31, 2012 and 2011, respectively.

PPG had non-U.S. dollar denominated debt outstanding of \$449 million as of December 31, 2012 and \$441 million as of December 31, 2011. 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 of approximately \$51 million and \$50 million as of December 31, 2012 and 2011, respectively.

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to minimize its interest costs. At December 31, 2011, the notional value of interest rate swaps converted \$445 million of fixed rate debt to variable rate debt. During 2012, PPG settled these swaps, receiving \$29 million from such settlements. The fair value of these swaps was an asset of \$26 million, as of December 31, 2011. The fair value of these swaps would have changed unfavorably by \$1 million as of December 31, 2011, if variable interest rates increased by 10%. 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 affected PPG's variable rate debt obligations by increasing interest expense approximately \$0.1 million and \$1 million for the years ended December 31, 2012 and 2011, respectively. Further, a 10% reduction in interest rates would have increased the present value of the Company's fixed rate debt by approximately \$81 million and \$90 million as of December 31, 2012 and 2011, respectively; however, such changes would not have had an effect on PPG's annual earnings or cash flows.

The Company entered into forward starting swaps in 2009 and in the second quarter of 2010 to effectively lock-in a fixed interest rate for future debt refinancings with an anticipated term of ten years based on the ten year swap rate, to which was added a corporate spread. The notional amount of these swaps was \$400 million. All of the swap contracts were settled on July 30, 2012, resulting in a cash payment of \$121 million. As of December 31, 2011, the fair value of

these swaps was a liability of \$92 million. A 10% decline in interest rates would have unfavorably affected the fair value of these swaps by \$9 million as of December 31, 2011.

The Company used derivative instruments to manage its exposure to fluctuating natural gas prices through the use of natural gas swap contracts. There were no natural gas swap contracts outstanding as of December 31, 2012 as the price of natural gas declined for the past four years and is not expected to be as volatile over the next 12 to 18 months as continued development of shale oil and gas reserves is expected to maintain downward pressure on the price of natural gas. As of December 31, 2011, the fair value of the contracts was a liability of \$9 million. A 10% reduction in the price of natural gas would have had an unfavorable effect on the fair value of these contracts by increasing the liability by \$2 million at December 31, 2011.

An equity forward arrangement was entered into to hedge the Company's exposure to changes in fair value of its future obligation to contribute PPG stock into an asbestos settlement trust (see Note 11 "Derivative Financial Instruments and Hedge Activities" and Note 15, "Commitments and Contingent Liabilities," under Item 8 of this Form 10-K). The fair value of this instrument as of December 31, 2012 and 2011 was an asset of \$130 million and \$56 million, respectively. A 10% decrease in PPG's stock price would have had an unfavorable effect on the fair value of this instrument of \$19 million and \$12 million at December 31, 2012 and 2011, respectively.

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Item 8. Financial Statements and Supplementary Data

Internal Controls – Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of PPG Industries, Inc.

We have audited the internal control over financial reporting of PPG Industries, Inc. and subsidiaries (the “Company”) as of December 31, 2012, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management Report. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company’s internal control over financial reporting is a process designed by, or under the supervision of, the company’s principal executive and principal financial officers, or persons performing similar functions, and effected by the company’s board of directors, management, and other personnel 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. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on the criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2012 of the Company and our report dated February 21, 2013 expressed an unqualified opinion on those financial statements and financial statement schedule.

/s/ Deloitte & Touche LLP

Deloitte & Touche LLP  
Pittsburgh, Pennsylvania  
February 21, 2013

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Management Report

Responsibility for Preparation of the Financial Statements and Establishing and Maintaining Adequate Internal Control Over Financial Reporting

We are responsible for the preparation of the financial statements included in this Annual Report. The financial statements were prepared in accordance with accounting principles generally accepted in the United States of America and include amounts that are based on the best estimates and judgments of management.

We are also responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. All internal control systems, no matter how well designed, have inherent limitations. Therefore, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. In addition, because of changing conditions, there is risk in projecting any evaluation of internal controls to future periods.

We conducted an evaluation of the effectiveness of the Company's internal control over financial reporting as of December 31, 2012. In making this evaluation, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control - Integrated Framework. Our evaluation included reviewing the documentation of our controls, evaluating the design effectiveness of our controls and testing their operating effectiveness. Based on this evaluation we believe that, as of December 31, 2012, the Company's internal controls over financial reporting were effective.

Deloitte & Touche LLP, an independent registered public accounting firm, has issued their report, included on page 32 of this Form 10-K, regarding the Company's internal control over financial reporting.

/s/ Charles E. Bunch  
Charles E. Bunch  
Chairman  
and Chief Executive Officer  
February 21, 2013

/s/ David B. Navikas  
David B. Navikas  
Senior Vice President, Finance and  
Chief Financial Officer  
February 21, 2013

Consolidated Financial Statements – Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of PPG Industries, Inc.

We have audited the accompanying consolidated balance sheets of PPG Industries, Inc. and subsidiaries (the "Company") as of December 31, 2012 and 2011, and the related consolidated statements of income, comprehensive income, shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2012. Our audits also included the financial statement schedule listed in the Index at Item 15(a)(2). These financial statements and the financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on the financial statements and the financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of PPG Industries, Inc. and subsidiaries as of December 31, 2012 and 2011, and the results of their operations and their



cash flows for each of the three years in the period ended December 31, 2012, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, such financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2012, based on the criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 21, 2013 expressed an unqualified opinion on the Company's internal control over financial reporting.

/s/ Deloitte & Touche LLP

Deloitte & Touche LLP  
Pittsburgh, Pennsylvania  
February 21, 2013

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## Consolidated Statement of Income

(Millions, except per share amounts)	For the Year		
	2012	2011	2010
Net sales	\$15,200	\$14,885	\$13,423
Cost of sales, exclusive of depreciation and amortization	9,069	9,081	8,214
Selling, general and administrative	3,335	3,234	2,979
Depreciation	355	346	346
Amortization (See Note 6)	110	121	124
Research and development – net (See Note 22)	455	430	394
Interest expense	210	210	189
Interest income	(39)	(42)	(34)
Asbestos settlement – net (See Notes 11 and 15)	12	12	12
Business restructuring (See Note 7)	208	—	—
Other charges (See Note 15)	232	73	84
Other earnings (See Note 19)	(149)	(177)	(180)
Income before income taxes	1,402	1,597	1,295
Income tax expense (See Note 13)	338	385	415
Net income attributable to the controlling and noncontrolling interests	1,064	1,212	880
Less: net income attributable to noncontrolling interests	123	117	111
Net income (attributable to PPG)	\$941	\$1,095	\$769
Earnings per common share (See Note 12)			
Net income (attributable to PPG)	\$6.13	\$6.96	\$4.67
Earnings per common share – assuming dilution (See Note 12)			
Net Income (attributable to PPG)	\$6.06	\$6.87	\$4.63

## Consolidated Statement of Comprehensive Income

(Millions)	For the Year		
	2012	2011	2010
Net income attributable to the controlling and noncontrolling interests	\$1,064	\$1,212	\$880
Other comprehensive income / (loss), net of tax (See Note 17)			
Unrealized currency translation adjustment	146	(197)	(11)
Defined benefit pension and other postretirement benefit adjustments (See Note 14)	—	(169)	(136)
Unrealized gains on marketable equity securities	—	—	1
Net change – derivatives (See Note 11)	(7)	(32)	(2)
Other comprehensive income / (loss), net of tax	139	(398)	(148)
Total comprehensive income	\$1,203	\$814	\$732
Less: amounts attributable to noncontrolling interests:			
Net income	(123)	(117)	(111)
Unrealized currency translation adjustment	(5)	9	(2)
Comprehensive income attributable to PPG	\$1,075	\$706	\$619

The accompanying notes to the consolidated financial statements are an integral part of these consolidated statements.

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## Consolidated Balance Sheet

(Millions)	December 31	
	2012	2011
Assets		
Current assets		
Cash and cash equivalents	\$1,306	\$1,457
Short-term investments (See Note 9)	1,087	25
Receivables (See Note 3)	2,813	2,830
Inventories (See Note 3)	1,687	1,607
Deferred income taxes (See Note 13)	430	473
Other	392	302
Total current assets	7,715	6,694
Property (See Note 4)	9,030	8,614
Less accumulated depreciation	6,142	5,893
Property – net	2,888	2,721
Investments (See Note 5)	422	387
Goodwill (See Note 6)	2,761	2,660
Identifiable intangible assets – net (See Note 6)	1,085	1,125
Other assets	1,007	795
Total	\$15,878	\$14,382
Liabilities and Shareholders' Equity		
Current liabilities		
Short-term debt and current portion of long-term debt (See Note 8)	\$642	\$108
Asbestos settlement (See Note 15)	683	593
Accounts payable and accrued liabilities (See Note 3)	3,061	2,996
Business restructuring (See Note 7)	75	5
Total current liabilities	4,461	3,702
Long-term debt (See Note 8)	3,368	3,574
Asbestos settlement (See Note 15)	237	241
Deferred income taxes (See Note 13)	231	272
Accrued pensions (See Note 14)	1,057	968
Other postretirement benefits (See Note 14)	1,287	1,307
Other liabilities	915	872
Total liabilities	11,556	10,936
Commitments and contingent liabilities (See Note 15)		
Shareholders' equity (See Note 16)		
Common stock	484	484
Additional paid-in capital	870	783
Retained earnings	9,871	9,288
Treasury stock, at cost	(5,496)	(5,506)
Accumulated other comprehensive loss (See Note 17)	(1,666)	(1,800)
Total PPG shareholders' equity	4,063	3,249
Noncontrolling interests	259	197
Total shareholders' equity	4,322	3,446
Total	\$15,878	\$14,382

Shares outstanding were 153,566,297 and 151,888,780 as of December 31, 2012 and 2011, respectively.

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

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## Consolidated Statement of Shareholders' Equity

(Millions)	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss (See Note 17)	Total PPG	Non- controlling Interests	Total
Balance, January 1, 2010	\$ 484	\$ 609	\$ 8,139	\$(4,218)	\$ (1,261 )	\$ 3,753	\$ 169	\$ 3,922
Net income attributable to the controlling and noncontrolling interests	—	—	769	—	—	769	111	880
Other comprehensive income, net of tax	—	—	—	—	(150 )	(150 )	2	(148 )
Cash dividends	—	—	(360 )	—	—	(360 )	—	(360 )
Purchase of treasury stock	—	—	—	(521 )	—	(521 )	—	(521 )
Issuance of treasury stock	—	77	—	96	—	173	—	173
Stock-based compensation activity	—	12	—	—	—	12	—	12
Equity forward arrangement	—	27	—	(65 )	—	(38 )	—	(38 )
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(87 )	(87 )
Balance, December 31, 2010	\$ 484	\$ 725	\$ 8,548	\$(4,708)	\$ (1,411 )	\$ 3,638	\$ 195	\$ 3,833
Net income attributable to the controlling and noncontrolling interests	—	—	1,095	—	—	1,095	117	1,212
Other comprehensive (loss) income, net of tax	—	—	—	—	(389 )	(389 )	(9 )	(398 )
Cash dividends	—	—	(355 )	—	—	(355 )	—	(355 )
Purchase of treasury stock	—	—	—	(858 )	—	(858 )	—	(858 )
Issuance of treasury stock	—	47	—	60	—	107	—	107
Stock-based compensation activity	—	11	—	—	—	11	—	11
Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(106 )	(106 )
Balance, December 31, 2011	\$ 484	\$ 783	\$ 9,288	\$(5,506)	\$ (1,800 )	\$ 3,249	\$ 197	\$ 3,446
Net income attributable to the controlling and noncontrolling interests	—	—	941	—	—	941	123	1,064
Other comprehensive loss, net of tax	—	—	—	—	134	134	5	139
Cash dividends	—	—	(358 )	—	—	(358 )	—	(358 )
Purchase of treasury stock	—	—	—	(92 )	—	(92 )	—	(92 )
Issuance of treasury stock	—	35	—	102	—	137	—	137
Stock-based compensation activity	—	55	—	—	—	55	—	55

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Dividends paid on subsidiary common stock to noncontrolling interests	—	—	—	—	—	—	(111 )	(111 )
Joint venture formation and consolidation (See Note 5)	—	(3 )	—	—	—	(3 )	45	42
Balance, December 31, 2012	\$ 484	\$ 870	\$ 9,871	\$ (5,496)	\$ (1,666 )	\$ 4,063	\$ 259	\$ 4,322

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

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## Consolidated Statement of Cash Flows

(Millions)	For the Year		
	2012	2011	2010
Operating activities			
Net income attributable to the controlling and noncontrolling interests	\$1,064	\$1,212	\$880
Adjustments to reconcile to cash from operations:			
Depreciation and amortization	465	467	470
Pension expense	159	131	161
Business restructuring (See Note 7)	208	—	—
Environmental remediation charge (See Note 15)	159	—	—
Charge related to change in U.S. tax law (See Note 13)	—	—	85
Equity affiliate (earnings), net of dividends	1	(18)	(39)
Asbestos settlement, net of tax	7	7	7
Cash contributions to pension plans	(81)	(121)	(340)
Restructuring cash spending	(88)	(18)	(103)
Change in certain asset and liability accounts:			
Decrease / (increase) in receivables	90	(129)	(188)
Decrease / (increase) in inventories	29	(73)	(34)
Decrease / (increase) in other current assets	4	(32)	16
(Decrease) / increase in accounts payable and accrued liabilities	(10)	22	306
Increase in noncurrent assets	(30)	(3)	(9)
Decrease in noncurrent liabilities	(45)	(12)	(22)
Change in accrued tax and interest accounts	(158)	39	170
Other	13	(36)	(50)
Cash from operating activities	1,787	1,436	1,310
Investing activities			
Capital spending:			
Additions to property and investments	(411)	(390)	(307)
Business acquisitions, net of cash balances acquired (See Note 2)	(122)	(56)	(34)
Deposit of cash into escrow (See Note 2)	(35)	(16)	(7)
Release of cash held in escrow	19	—	1
Proceeds from maturity of short-term investments	250	749	—
Purchase of short-term investments	(1,332)	(125)	(624)
Payments on cross currency swap contracts (See Note 11)	(23)	(10)	(9)
Proceeds from termination of cross currency swap contracts (See Note 11)	1	—	5
Collection of notes receivable, equity affiliate (See Note 5)	—	90	—
Return of capital, equity affiliate (See Note 5)	—	78	—
Reductions of other property and investments	42	33	26
Cash from/(used for) investing activities	(1,611)	353	(949)
Financing activities			
Debt:			
Net change in borrowings with maturities of three months or less	(1)	9	(23)
Proceeds from long term debt (net of discount and issuance costs) (See Note 8)	397	—	983
Proceeds from other debt	—	7	15
Repayment of long-term debt (See Note 8)	(71)	(400)	—
Repayment of acquired debt (See Note 8)	(119)	—	—
Repayment of other debt	(13)	(7)	(239)
Settlement of forward starting swaps (Note 11)	(121)	—	—
Proceeds from termination of interest rate swaps	29	19	—

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Other financing activities:

Purchase of treasury stock	(92	)	(858	)	(586	)
Issuance of treasury stock	122		81		146	
Dividends paid on subsidiary common stock to noncontrolling interests	(111	)	(106	)	(87	)
Dividends paid on PPG common stock	(358	)	(355	)	(360	)
Other	(13	)	(22	)	47	
Cash used for financing activities	(351	)	(1,632	)	(104	)
Effect of currency exchange rate changes on cash and cash equivalents	24		(41	)	27	
Net (decrease) / increase in cash and cash equivalents	(151	)	116		284	
Cash and cash equivalents, beginning of year	1,457		1,341		1,057	
Cash and cash equivalents, end of year	\$1,306		\$1,457		\$1,341	

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

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### Notes to the Consolidated Financial Statements

#### 1. Summary of Significant Accounting Policies

##### Principles of Consolidation

The accompanying consolidated financial statements include the accounts of PPG Industries, Inc. (“PPG” or the “Company”) and all subsidiaries, both U.S. and non-U.S., that it controls. PPG owns more than 50% of the voting stock of most of the subsidiaries that it controls. For those consolidated subsidiaries in which the Company’s ownership is less than 100%, the outside shareholders’ interests are shown as noncontrolling interests. Investments in companies in which PPG owns 20% to 50% of the voting stock and has the ability to exercise significant influence over operating and financial policies of the investee are accounted for using the equity method of accounting. As a result, PPG’s share of the earnings or losses of such equity affiliates is included in the accompanying consolidated statement of income and PPG’s share of these companies’ shareholders’ equity is included in "Investments" in the accompanying consolidated balance sheet. Transactions between PPG and its subsidiaries are eliminated in consolidation.

##### Use of Estimates in the Preparation of Financial Statements

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of income and expenses during the reporting period. Actual outcomes could differ from those estimates.

##### Revenue Recognition

Revenue from sales is recognized by all operating segments when goods are shipped and title to inventory and risk of loss passes to the customer or when services have been rendered.

##### Shipping and Handling Costs

Amounts billed to customers for shipping and handling are reported in “Net sales” in the accompanying consolidated statement of income. Shipping and handling costs incurred by the Company for the delivery of goods to customers are included in “Cost of sales, exclusive of depreciation and amortization” in the accompanying consolidated statement of income.

##### Selling, General and Administrative Costs

Amounts presented as “Selling, general and administrative” in the accompanying consolidated statement of income are comprised of selling, customer service, distribution and advertising costs, as well as the costs of providing corporate-wide functional support in such areas as finance, law, human resources and planning. Distribution costs pertain to the movement and storage of finished goods inventory at company-owned and leased warehouses, terminals and other distribution facilities. Certain of these costs may be included in cost of sales by other companies, resulting in a lack of comparability with other companies.

##### Legal Costs

Legal costs are expensed as incurred.

##### Foreign Currency Translation

The functional currency of most significant non-U.S. operations is their local currency. Assets and liabilities of those operations are translated into U.S. dollars using year-end exchange rates; income and expenses are translated using the average exchange rates for the reporting period. Unrealized currency translation adjustments are deferred in accumulated other comprehensive loss, a separate component of shareholders’ equity.

#### Cash Equivalents

Cash equivalents are highly liquid investments (valued at cost, which approximates fair value) acquired with an original maturity of three months or less.

#### Short-term Investments

Short-term investments are highly liquid, high credit quality investments (valued at cost plus accrued interest) that have stated maturities of greater than three months to one year. The purchases and sales of these investments are classified as investing activities in the consolidated statement of cash flows.

#### Marketable Equity Securities

The Company's investment in marketable equity securities is recorded at fair market value and reported in "Other current assets" and "Investments" in the accompanying consolidated balance sheet with changes in fair market value recorded in income for those securities designated as trading securities and in other comprehensive income, net of tax, for those designated as available for sale securities.

#### Inventories

Most U.S. inventories are stated at cost, using the last-in, first-out ("LIFO") method of accounting, which does not exceed market. All other inventories are stated at cost, using the first-in, first-out ("FIFO") method of accounting, which does not exceed market. PPG determines cost using either average or standard factory costs, which approximate actual costs, excluding certain fixed costs such as depreciation and property taxes.

#### Property

Property is recorded at cost. PPG computes depreciation by the straight-line method based on the estimated useful lives of depreciable assets. Additional expense is recorded when facilities or equipment are subject to abnormal economic conditions or obsolescence.

Significant improvements that add to productive capacity or extend the lives of properties are capitalized. Costs for repairs and maintenance are charged to expense as incurred. When property is retired or otherwise disposed of, the original cost and related accumulated depreciation balance are removed from the accounts and any related gain or loss is included in income. Amortization of the cost of capitalized leased assets is included in depreciation expense. Property and other long-lived assets are reviewed for impairment whenever events or circumstances indicate that their carrying amounts may not be recoverable.

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### Notes to the Consolidated Financial Statements

#### Goodwill and Identifiable Intangible Assets

Goodwill represents the excess of the cost over the fair value of acquired identifiable tangible and intangible assets less liabilities assumed from acquired businesses. Identifiable intangible assets acquired in business combinations are recorded based upon their fair value at the date of acquisition.

The Company tests goodwill of each reporting unit for impairment at least annually in connection with PPG's strategic planning process. The goodwill impairment test is performed by comparing the estimated fair value of the associated reporting unit as of September 30 to its carrying value. The Company's reporting units are its operating segments. (See Note 24, "Reportable Business Segment Information" for further information concerning the Company's operating segments.) Fair value is estimated using discounted cash flow methodologies.

The Company has determined that certain acquired trademarks have indefinite useful lives. The Company tests the carrying value of these trademarks for impairment at least annually, as of September 30, by comparing the fair value of each trademark to its carrying value. Fair value is estimated by using the relief from royalty method (a discounted cash flow methodology).

Identifiable intangible assets with finite lives are amortized on a straight-line basis over their estimated useful lives (2 to 25 years) and are reviewed for impairment whenever events or circumstances indicate that their carrying amount may not be recoverable.

#### Allowance for Doubtful Accounts

The Company provides an allowance for doubtful accounts to reduce receivables to their estimated net realizable value when it is probable that a loss will be incurred. Those estimates are based on historical collection experience, current economic and market conditions, a review of the aging of accounts receivable and the assessments of current creditworthiness of customers.

#### Product Warranties

The Company accrues for product warranties at the time the associated products are sold based on historical claims experience. As of December 31, 2012 and 2011, the reserve for product warranties was \$14 million and \$11 million, respectively. Pretax charges against income for product warranties in 2012, 2011 and 2010 totaled \$15 million, \$14 million and \$7 million, respectively. Cash outlays related to product warranties were \$12 million, \$10 million; \$7 million in 2012, 2011 and 2010 respectively.

#### Asset Retirement Obligations

An asset retirement obligation represents a legal obligation associated with the retirement of a tangible long-lived asset that is incurred upon the acquisition, construction, development or normal operation of that long-lived asset. PPG recognizes asset retirement obligations in the period in which they are incurred, if

a reasonable estimate of fair value can be made. The asset retirement obligation is subsequently adjusted for changes in fair value. The associated estimated asset retirement costs are capitalized as part of the carrying amount of the long-lived asset and depreciated over its useful life. PPG's asset retirement obligations are primarily associated with closure of certain assets used in the chemicals manufacturing process.

The accrued asset retirement obligation was \$13 million and \$12 million as of December 31, 2012 and 2011, respectively.

PPG's only conditional asset retirement obligation relates to the possible future abatement of asbestos contained in certain PPG production facilities. The asbestos in PPG's production facilities arises from the application of normal and customary building practices in the past when the facilities were constructed. This asbestos is encapsulated in place and, as a result, there is no current legal requirement to abate it. Inasmuch as there is no requirement to abate, the Company does not have any current plans or an intention to abate and therefore the timing, method and cost of future abatement, if any, are not known. The Company has not recorded an asset retirement obligation associated with asbestos abatement, given the uncertainty concerning the timing of future abatement, if any.

#### Accounting Standards Adopted in 2012

In May 2011, the Financial Accounting Standards Board ("FASB") issued an amendment to the fair value measurement guidance and disclosure requirements that established common U.S. Generally Accepted Accounting Principles ("GAAP") and International Financial Reporting Standards ("IFRS") measurement and reporting requirements. The new requirements were effective for the first interim or annual period beginning after December 15, 2011 and were to be applied prospectively. PPG adopted the new requirements in the first quarter of 2012; however, the adoption of this guidance did not have a material effect on its consolidated financial position, results of operations or cash flows. In June 2011, the FASB issued an amendment to the requirements for presenting comprehensive income. The new requirements were effective for the first interim or annual period beginning after December 15, 2011 and were to be applied retrospectively. The standard requires other comprehensive income to be presented in a continuous statement of comprehensive income that would combine the components of net income and other comprehensive income, or in a separate, but consecutive, statement following the statement of income. PPG adopted these new requirements in the first quarter of 2012.

#### Accounting Standards to be Adopted in Future Years

On February 5, 2013, the FASB issued an amendment to the disclosure requirements for reporting reclassifications out of accumulated other comprehensive income ("AOCI"). The update is effective for the first interim or annual period beginning after December 15, 2012. The new amendments require presentation, either on the statement of income or in the notes, of the effect on the line items of the statement of income

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of significant amounts reclassified out of AOCI directly to net income in their entirety in the same reporting period. The update also requires the new disclosure to be cross referenced to other financial statement disclosures required for other reclassification items that are not reclassified directly to net income in their entirety in the same reporting period. PPG will adopt the new requirements in the first quarter of 2013; however, the adoption of this guidance will not have an effect on its consolidated financial position, results of operations or cash flows.

## 2. Acquisitions

During 2012, the Company completed four acquisitions related to its coatings businesses. The total cost of acquisitions was \$288 million, including debt assumed of \$122 million. These acquisitions also provide for contingent payments and escrowed holdbacks of a portion of the acquisition cost. Substantially all of the acquisition activity relates to the three acquisitions described below.

In December 2012, the Company completed the acquisition of the business of Spraylat Corp., a privately-owned industrial coatings company based in Pelham, N.Y. Spraylat had annual sales of approximately \$125 million in 2011. The company operates production facilities in the U.S., Europe and China. Spraylat specializes in high-quality industrial liquid and powder coatings with excellent performance characteristics that are applied to metal, glass and plastic substrates.

In early January 2012, PPG completed the purchase of European coatings company Dyrup A/S (“Dyrup”), based in Copenhagen, Denmark, from its owner, Monberg & Thorsen, a public holding company, for \$44 million of which \$26 million is currently being held in escrow, and assumed debt of \$120 million and acquired cash of \$6 million. Dyrup, a producer of architectural coatings and woodcare products, operates six manufacturing facilities throughout Europe, and its products are sold primarily in Denmark, France, Germany, Portugal, Poland, and Spain through professional and do-it-yourself channels.

Also in early January 2012, PPG completed the purchase of the coatings businesses of Colpisa Colombiana de Pinturas and its affiliate, Colpisa Ecuador (“Colpisa”), for \$38 million, of which \$2 million is currently being held back as contingent payments. Colpisa manufactures and distributes coatings for automotive OEM, automotive refinish and industrial customers in Colombia and Ecuador.

The purchase price allocations related to the acquisitions made in 2012 resulted in an excess of purchase price over the fair value of the tangible and identifiable intangible assets acquired and liabilities assumed, which has been recorded as an addition to "Goodwill." The Dyrup and Colpisa acquisitions included an \$8 million flow-through cost of sales, primarily in the first quarter of 2012, of the step up to fair value of inventory acquired.

The following table summarizes the fair value of assets acquired and liabilities assumed as reflected in the purchase

price allocations for the Dyrup and Colpisa acquisitions and the preliminary purchase price allocation for the Spraylat acquisition recorded as of December 31, 2012.

	(Millions)	
Cash	\$6	
Current assets	165	
Property, plant, and equipment	89	
Goodwill	30	
Intangible Assets	60	
Other non-current assets	20	
Total assets	\$370	
Short-term debt	(110)	)
Current liabilities	(72)	)
Long-term debt	(10)	)
Other long-term liabilities	(19)	)
Net assets	\$159	
Total purchase price including cash in escrow and contingent payments	\$159	

The Company spent \$56 million on acquisitions in 2011, including purchase price adjustments related to acquisitions that were completed prior to December 31, 2010. In May 2011, PPG acquired the assets of Equa-Chlor, Inc. for \$28 million, of which \$3 million is held in escrow until May 2013. Equa-Chlor, Inc. is part of the Commodity Chemicals reportable segment. PPG assessed the fair value of the assets acquired and liabilities assumed, which consisted principally of property and operating working capital. PPG recorded a net benefit of \$9 million stemming from a bargain purchase gain of \$10 million reflecting the excess of the fair value of the net assets acquired over the price paid for the business and a \$1 million loss related to the flow-through cost of sales of the step up to fair value of acquired inventory. The gain is reported in "Other earnings" in the accompanying consolidated statement of income for the year-ended December 31, 2011. The remaining amounts spent on acquisitions during the year-ended December 31, 2011 represent other acquisitions in the coatings businesses, including the acquisition of a South African automotive refinish distributor.

The Company spent \$34 million on acquisitions (net of cash acquired of \$6 million) in 2010, including purchase price adjustments related to acquisitions that were completed prior to January 1, 2010.

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## 3. Working Capital Detail

(Millions)	2012	2011
Receivables		
Trade - net <sup>(1)</sup>	\$2,568	\$2,512
Equity affiliates	22	28
Other - net	223	290
Total	\$2,813	\$2,830
Inventories <sup>(2)</sup>		
Finished products	\$980	\$935
Work in process	144	144
Raw materials	443	414
Supplies	120	114
Total	\$1,687	\$1,607
Accounts payable and accrued liabilities		
Trade creditors	\$1,620	\$1,612
Accrued payroll	459	414
Customer rebates	212	201
Other postretirement and pension benefits	103	108
Income taxes	71	51
Other	596	610
Total	\$3,061	\$2,996

(1) Allowance for Doubtful Accounts equaled \$77 million and \$71 million as of December 31, 2012 and 2011, respectively.

Inventories valued using the LIFO method of inventory valuation comprised 36% and 35% of total gross inventory values as of December 31, 2012 and 2011, respectively. If the FIFO method of inventory valuation had been used, inventories would have been \$243 million and \$232 million higher as of December 31, 2012 and 2011,

(2) respectively. During the year ended December 31, 2012 and 2011, certain inventories accounted for on the LIFO method of accounting were reduced, which resulted in the liquidation of certain quantities carried at costs prevailing in prior years. The effect on earnings was income of \$3.0 million and \$0.9 million for the years ended December 31, 2012 and 2011, respectively.

## 4. Property

(Millions)	Useful Lives (years)	2012	2011
Land and land improvements	5-30	\$504	\$482
Buildings	20-40	1,568	1,482
Machinery and equipment	5-25	5,952	5,736
Other	3-20	735	694
Construction in progress		271	220
Total <sup>(1)</sup>		\$9,030	\$8,614

(1) Interest capitalized in 2012, 2011 and 2010 was \$8 million, \$9 million and \$7 million, respectively.

## 5. Investments

(Millions)	2012	2011
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Investments in and advances to equity affiliates	\$262	\$261
Marketable equity securities - Trading (See Note 14)	60	56
Other	100	70
Total	\$422	\$387

The Company's investments in and advances to equity affiliates are comprised principally of 50% ownership interests in a number of joint ventures that manufacture and sell coatings, glass and chemicals products, the most significant of which produce fiber glass products and are located in Asia. The Company's investments in and advances to equity affiliates also include its approximate 40% interest in Pittsburgh Glass Works L.L.C. ("PGW"), which had a carrying value of \$33 million and \$29 million at December 31, 2012 and December 31, 2011, respectively. In April 2011, the Company received \$168 million from PGW, which was comprised of the repayment of \$90 million of notes receivable from PGW and a \$78 million return of capital.

In July 2012, PPG and Asian Paints Ltd. ("Asian Paints"), expanded their coatings operations in India through the creation of a new joint venture and the expansion of the operations of an existing joint venture. PPG gained effective management control of the existing joint venture, with Asian Paints obtaining effective management control of the newly formed joint venture. The accounting for the changes to the existing joint venture resulted in recording assets at their fair values, including "Goodwill" of \$22 million and "Identifiable intangible assets" of \$12 million. Also, as PPG now consolidates the existing joint venture that is under its control, an amount has been recorded within "Noncontrolling interests" of \$49 million for the portion of the net assets of this entity owned by Asian Paints.

In addition, PPG has a 50% ownership interest in RS Cogen, L.L.C., which toll produces electricity and steam primarily for PPG's former Lake Charles, La. commodity chemicals facility and its joint venture partner. The joint venture was formed with a wholly-owned subsidiary of Entergy Corporation in 2000 for the construction and operation of a \$300 million process steam, natural gas-fired cogeneration facility in Lake Charles, La., the majority of which was financed by a syndicate of banks. As of December 31, 2012, PPG's future commitment to purchase electricity and steam from the joint venture approximated \$23 million per year subject to contractually defined inflation adjustments for the next 10 years. The purchases for the years ended December 31, 2012, 2011 and 2010 were \$25 million, \$23 million and \$23 million, respectively. On January 28, 2013, PPG's investment in R.S. Cogen was transferred with the separation of its commodity chemicals business and the merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. Refer to Note 25, "Separation and Merger Transaction."

RS Cogen is a variable interest entity under U.S. accounting guidance. The joint venture's critical operations are overseen by



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## Notes to the Consolidated Financial Statements

a management committee, which had equal representation by PPG and Entergy. With the power to direct the activities of RS Cogen equally shared between RS Cogen's two owners, PPG did not consider itself to be the joint venture's primary beneficiary. Accordingly, PPG accounted for its investment in RS Cogen as an equity method investment. The following table summarizes the Company's maximum exposure to loss associated with RS Cogen as of December 31, 2012:

(Millions)

Investment in and advances to RS Cogen	\$19
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Take-or-pay obligation under power tolling arrangement	234
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Maximum exposure to loss	\$253
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Summarized financial information of PPG's equity affiliates on a 100% basis, in the aggregate, is as follows:

(Millions)	2012		2011	
Working capital	\$286		\$339	
Property, net	1,047		952	
Short-term debt	(162	)	(202	)
Long-term debt	(731	)	(626	)
Other, net	73		61	
Net assets	\$513		\$524	

(Millions)	2012	2011	2010
Revenues	\$1,539	\$1,633	\$1,519
Net earnings	\$28	\$80	\$103

PPG's share of undistributed net earnings of equity affiliates was \$79 million and \$101 million as of December 31, 2012 and 2011, respectively. Dividends received from equity affiliates were \$12 million, \$19 million and \$6 million in 2012, 2011 and 2010, respectively. The decline in 2012 equity earnings compared to 2011 was primarily due to lower results from Asian fiber glass joint ventures.

As of December 31, 2012 and 2011, there were no unrealized pretax gains or losses related to marketable equity securities available for sale. In 2012, there were no pretax gains or losses realized and no cash proceeds from the sale of these investments. PPG sold certain of these investments resulting in recognition of pretax gains of \$3 million and \$2 million in 2011 and 2010, respectively. Cash proceeds of \$9 million, and \$3 million were received in 2011 and 2010, respectively.

## 6. Goodwill and Other Identifiable Intangible Assets

The change in the carrying amount of goodwill attributable to each reportable business segment for the years ended December 31, 2012 and 2011 was as follows:

(Millions)	Perform-ance Coatings	Industrial Coatings	Architectural Coatings— EMEA	Optical and Specialty Materials	Glass	Commodity Chemicals	Total
Balance, Jan. 1, 2011	\$1,151	\$495	\$966	\$49	\$52	\$6	\$2,719
Goodwill from acquisitions	4	—	1	—	—	—	5
	(16	)(11	)(34	)(1	)(2	)—	(64

Currency translation							
Balance, Dec. 31, 2011	\$1,139	\$484	\$933	\$48	\$50	\$6	\$2,660
Goodwill from acquisitions	22	18	18	—	—	—	58
Currency translation	12	10	19	—	2	—	43
Balance, Dec. 31, 2012	\$1,173	\$512	\$970	\$48	\$52	\$6	\$2,761

The carrying amount of acquired trademarks with indefinite lives as of December 31, 2012 and 2011 totaled \$324 million and \$316 million, respectively.

The Company's identifiable intangible assets with finite lives are being amortized over their estimated useful lives and are detailed below.

	Dec. 31, 2012			Dec. 31, 2011		
(Millions)	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
Acquired technology	\$516	\$(342)	\$174	\$511	\$(308)	\$203
Customer-related intangibles	1,010	(491)	519	945	(412)	533
Tradenames	120	(57)	63	116	(50)	66
Other	34	(29)	5	32	(25)	7
Balance	\$1,680	\$(919)	\$761	\$1,604	\$(795)	\$809

Aggregate amortization expense was \$110 million, \$121 million and \$124 million in 2012, 2011 and 2010, respectively. The estimated future amortization expense of identifiable intangible assets per year is approximately \$102 million during 2013, approximately \$100 million during 2014 and 2015, approximately \$80 million in 2016 and approximately \$70 million in 2017.

#### 7. Business Restructuring

In March 2012, the Company finalized a restructuring plan to reduce its cost structure, primarily due to continuing weak economic conditions in Europe and in the commercial and residential construction markets in the U.S. and Europe. As part of this restructuring plan, PPG will close several laboratory, warehouse and distribution facilities and small production units and will reduce staffing. The restructuring will impact a number of businesses globally, primarily the global architectural businesses and general and administrative functions in Europe.

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As a result of this restructuring plan, in March 2012 the Company recorded a charge of \$208 million, including severance and other costs of \$160 million, asset write-offs of \$53 million, and a net pension curtailment gain of \$5 million. The Company expects to incur additional costs of approximately \$5 million directly associated with the restructuring actions for demolition, dismantling, relocation and training that will be charged to expense as incurred. To date, approximately \$4 million of these expenses have been recognized. The Company expects to incur the remainder of these additional expenses in the first half of 2013.

In the fourth quarter of 2012, adjustments of approximately \$12 million were recorded to reduce the restructuring reserve established in the first quarter of 2012 to reflect the current estimate of the costs to complete these actions. Also in the fourth quarter of 2012, some additional restructuring actions were approved and charges of approximately \$12 million for the cost of these actions were recorded. The additional actions increased the number of employees impacted by 273.

The following table summarizes the restructuring plan and the activity in the restructuring reserve during the year ended December 31, 2012:

(Millions, except no. of employees)	Severance and Other Costs	Pension Curtailment (Gains)/Losses	Asset Write-offs	Total Reserve	Employees Impacted
Performance Coatings	\$55	\$1	\$12	\$68	867
Industrial Coatings	38	(1	) 8	45	394
Architectural Coatings - EMEA	61	(5	) 3	59	881
Optical & Specialty Materials	2	—	30	32	50
Glass	3	—	—	3	36
Corporate	1	—	—	1	4
Total	\$160	\$(5	) \$53	\$208	2,232
2012 activity	(83	) \$5	(53	) (131	) (1,631
Currency impact	\$(2	) \$—	\$—	\$(2	) —
Balance as of December 31, 2012	\$75	\$—	\$—	\$75	601

At December 31, 2011, there was a remaining reserve of \$4 million and \$1 million, respectively related to 2009 and 2008 restructuring plans. All accrued amounts have been paid during 2012.

## 8. Debt and Bank Credit Agreements and Leases

(Millions)	2012	2011
6 <sup>7</sup> / <sub>8</sub> % notes, due 2012 <sup>(1)</sup>	\$—	\$71
5.75% notes, due 2013 <sup>(1)</sup>	600	600
3 <sup>7</sup> / <sub>8</sub> % notes, due 2015 (€300)	395	388
1.9 % notes, due 2016 <sup>(1)</sup>	249	248
7 <sup>3</sup> / <sub>8</sub> % notes, due 2016 <sup>(1)</sup>	146	146
6 <sup>7</sup> / <sub>8</sub> % notes, due 2017	74	74
6.65% notes, due 2018	700	700
7.4% notes, due 2019	198	198
3.6% notes, due 2020	495	495
9% non-callable debentures, due 2021	149	149
2.70% notes, due 2022 <sup>(2)</sup>	400	—
7.70% notes, due 2038	249	249
5.5% notes, due 2040	248	248
Impact of derivatives on debt <sup>(1)</sup>	31	42
	5	9

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Various other non-U.S. debt, weighted average 3.4% as of December 31, 2012 and 2.3% of December 31, 2011.

Capital lease obligations	32	32
Total	3,971	3,649
Less payments due within one year	603	75
Long-term debt	\$3,368	\$3,574

PPG entered into several interest rate swaps which as of December 31, 2011 had the effect of converting \$445 million, of these fixed rate notes to variable rates, based on the three-month London Interbank Offered Rate (LIBOR). There were no interest rate swaps outstanding at December 31, 2012. The fair values of these interest rate swaps were based on Level 2 inputs as described in Note 9. The weighted average effective interest rate for these borrowings, including the effects of the swaps, was 2.7% and 3.1% for the years ended December 31, 2012 and 2011, respectively. Refer to Note 11 for additional information.

In 2012, the \$400 million notes were issued at a discount. Concurrently, PPG settled forward starting swaps with a payment of \$121 million. This loss will be amortized to interest expense over the life of the debt. The effective interest rate on the \$400 million notes was 5.8% at December 31, 2012.

Aggregate maturities of long-term debt during the next five years are (in millions) \$603 in 2013, \$9 in 2014, \$405 in 2015, \$400 in 2016, and \$77 in 2017.

In July 2012, PPG entered into a five-year credit agreement with several banks and financial institutions (the "Credit Agreement"). The Credit Agreement provides for a \$1.2 billion unsecured revolving credit facility. In connection with entering into this Credit Agreement, the Company terminated its existing \$1.2 billion revolving credit facility that was scheduled to expire in August 2013. There was no outstanding amount due under this revolving facility at the time of its termination. The Company has the ability to increase the size of the Credit Agreement by up to an additional \$300 million, subject to the receipt of lender commitments and other conditions. The Credit Agreement will terminate and all amounts outstanding thereunder will be due and payable on September 12, 2017, although under circumstances specified in the Credit Agreement and subject to the lenders' approval, the Company may make one request to extend such termination date by one year with respect to the approving lenders. The Company has the right, subject to

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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 at December 31, 2012; however, the available borrowing rate on a one month, U.S. dollar denominated borrowing would have been 0.84%.

Borrowings under the Credit Agreement may be made in U.S. dollars or in euros. The Credit Agreement provides that loans will bear interest at rates based, at the Company's option, on one of two specified base rates plus a margin based on certain formulas defined in the Credit Agreement. Additionally, the Credit Agreement contains a Commitment Fee, as defined in the Credit Agreement, on the amount of unused commitments under the Credit Agreement ranging from 0.080% to 0.225% per annum. The applicable date and the Commitment Fee will be determined with reference to the pricing grid set forth in the Credit Agreement referencing the ratings established by Standard & Poor's Financial Services LLC and Moody's Investor Service Inc. for the Company's non-credit enhanced, long-term, senior, unsecured debt. The average Commitment Fee in 2012 was 0.175% and PPG is committed to pay 0.125% in 2013. There were no amounts outstanding under the Credit Agreement at December 31, 2012.

The Credit Agreement contains 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 Credit Agreement maintains the same restrictive covenant as the prior revolving credit facility whereby the Company must maintain a ratio of Total Indebtedness to Total Capitalization, as defined in the Credit Agreement, of 60% or less.

The Credit Agreement contains customary events of default, including the failure to make timely payments when due under the Credit Agreement or other material indebtedness, the failure to satisfy covenants contained in the Credit Agreement, a change in control of the Company and specified events of bankruptcy and insolvency that would permit the lenders to accelerate the repayment of any loans.

On July 31, 2012, PPG completed a public offering of \$400 million in aggregate principal amount of its 2.70% Notes due 2022 (the "2022 Notes"). The 2022 Notes were offered by the Company pursuant to its existing shelf registration statement and pursuant to an indenture dated as of March 18, 2008 (the "Original Indenture") between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee (the "Trustee"), as supplemented by a first supplemental indenture dated as of March 18, 2008 between the Company and the Trustee (the "First Supplemental Indenture"), a second supplemental indenture dated as of November 12, 2010 between the Company and the Trustee (the "Second Supplemental Indenture") and a third supplemental indenture dated as of

August 3, 2011 between the Company and the Trustee (the "Third Supplemental Indenture" and, together with the Original Indenture, the First Supplemental Indenture and the Second Supplemental Indenture, the "Indenture"). The Company may issue additional debt from time to time pursuant to the Original Indenture. The Indenture governing these notes contains covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all the Company's assets. The terms of these notes also require the Company to make an offer to repurchase the Notes upon a Change of Control Triggering Event (as defined in the Second Supplemental Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest. The proceeds from this offering of \$397 million, net of discount and issuance costs, are expected to be used to repay a portion of the \$600 million of 5.75% notes due in March 2013 (the "2013 Notes"). The discount and issuance costs related to the 2022 Notes, which totaled \$3 million, will be amortized to interest expense over the life of the 2022 Notes. Concurrently with the issuance of the 2022 Notes, PPG settled forward starting swaps with a payment of \$121 million on July 30, 2012. This loss will be amortized to interest expense over the term of the notes, resulting in an effective interest rate of 5.8%. (Refer to Note 11, "Derivative Financial Instruments and Hedge Activities" for additional information).

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In April 2012, the Company reclassified the \$600 million of the 2013 Notes to Short-term debt and current portion of long-term debt in the accompanying consolidated balance sheet as these notes are due to be repaid in March 2013. Also during the year-ended December 31, 2012, the Company assumed \$120 million of debt in the Dyrup acquisition and repaid \$119 million of that debt, and repaid the \$71 million of 6.875% notes upon their maturity. In June 2011, the Company repaid a \$400 million three year, unsecured term loan, which had a scheduled maturity date of June 2012. There was no prepayment penalty. The interest rate was variable based on a spread over LIBOR. This term loan was repaid using a portion of the proceeds from our November 2010 \$1 billion debt issuance.

On November 12, 2010, PPG completed a public offering of \$250 million in aggregate principal amount of its 1.900% Notes due 2016, \$500 million in aggregate principal amount of its 3.600% Notes due 2020 and \$250 million in aggregate principal amount of its 5.500% Notes due 2040. These notes were issued pursuant to the Original Indenture as supplemented by the First Supplemental Indenture and Second Supplemental Indenture. The indentures governing these notes contains covenants substantially similar those in the indentures governing the 2022 Notes. Cash proceeds from the sale of these notes was \$983 million (net of discount and issuance costs). The discount and issuance

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costs related to these notes, which totaled \$17 million, will be amortized to interest expense over the respective terms of the notes.

In August 2010, PPG entered into a three-year credit agreement with several banks and financial institutions (the "2010 Credit Agreement") which was subsequently terminated in July 2012. The 2010 Credit Agreement provided for a \$1.2 billion unsecured revolving credit facility. In connection with entering into the 2010 Credit Agreement, the Company terminated its €650 million and its \$1 billion revolving credit facilities that were each set to expire in 2011. There were no outstanding amounts due under either revolving facility at the times of their termination. The 2010 Credit Agreement was set to terminate on August 5, 2013.

PPG's non-U.S. operations have uncommitted lines of credit totaling \$705 million of which \$34 million was used as of December 31, 2012. These uncommitted lines of credit are subject to cancellation at any time and are generally not subject to any commitment fees.

Short-term debt outstanding as of December 31, 2012 and 2011, was as follows:

(Millions)	2012	2011
Other, weighted average 2.27% as of Dec. 31, 2012 and 3.72% as of December 31, 2011	\$39	\$33
Total	\$39	\$33

PPG is in compliance with the restrictive covenants under its various credit agreements, loan agreements and indentures. The Company's revolving credit agreements include a financial ratio covenant. The covenant requires that the amount of total indebtedness not exceed 60% of the Company's total capitalization excluding the portion of accumulated other comprehensive income (loss) related to pensions and other postretirement benefit adjustments. As of December 31, 2012, total indebtedness was 42% of the Company's total capitalization excluding the portion of accumulated other comprehensive income (loss) related to pensions and other postretirement benefit adjustments. Additionally, substantially all of the Company's debt agreements contain customary cross-default provisions. Those provisions generally provide that a default on a debt service payment of \$10 million or more for longer than the grace period provided (usually 10 days) under one agreement may result in an event of default under other agreements. None of the Company's primary debt obligations are secured or guaranteed by the Company's affiliates. Interest payments in 2012, 2011 and 2010 totaled \$219 million, \$212 million and \$189 million, respectively. In October 2009, the Company entered into an agreement with a counterparty to repurchase up to 1.2 million shares of the Company's stock of which 1.1 million shares were purchased in the open market (465,006 of these shares were purchased as of December 31, 2009 at a weighted average price of \$56.66 per share). The counterparty held the shares until September of 2010

when the Company paid \$65 million and took possession of these shares.

Rental expense for operating leases was \$233 million, \$249 million and \$233 million in 2012, 2011 and 2010, respectively. The primary leased assets include paint stores, transportation equipment, warehouses and other distribution facilities, and office space, including the Company's corporate headquarters located in Pittsburgh, Pa. Minimum lease commitments for operating leases that have initial or remaining lease terms in excess of one year as of December 31, 2012, are (in millions) \$171 in 2013, \$135 in 2014, \$107 in 2015, \$83 in 2016, \$64 in 2017 and \$135 thereafter.

The Company had outstanding letters of credit and surety bonds of \$119 million as of December 31, 2012. The letters of credit secure the Company's performance to third parties under certain self-insurance programs and other commitments made in the ordinary course of business. As of December 31, 2012 and 2011, guarantees outstanding were \$96 million and \$90 million, respectively. The guarantees relate primarily to debt of certain entities in which PPG has an ownership interest and selected customers of certain of the Company's businesses. A portion of such debt is secured by the assets of the related entities. The carrying values of these guarantees were \$11 million and \$13 million as of December 31, 2012 and 2011, respectively, and the fair values were \$11 million and \$21 million, as of

December 31, 2012 and 2011, respectively. The fair value of each guarantee was estimated by comparing the net present value of two hypothetical cash flow streams, one based on PPG's incremental borrowing rate and the other based on the borrower's incremental borrowing rate, as of the effective date of the guarantee. Both streams were discounted at a risk free rate of return. The Company does not believe any loss related to these letters of credit, surety bonds or guarantees is likely.

#### 9. Fair Value Measurement

The accounting guidance on fair value measurements establishes a hierarchy with three levels of inputs used to determine fair value. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets and liabilities, are considered to be the most reliable evidence of fair value, and should be used whenever available. Level 2 inputs are observable prices that are not quoted on active exchanges. Level 3 inputs are unobservable inputs employed for measuring the fair value of assets or liabilities.



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

(Millions)	December 31, 2012			Total
	Level 1	Level 2	Level 3	
Short-term investments:				
Commercial paper and certificates of deposit	\$—	\$455	\$—	\$455
Other current assets:				
Marketable equity securities	5	—	—	5
Foreign currency contracts <sup>(1)</sup>	—	3	—	3
Equity forward arrangement <sup>(1)</sup>	—	130	—	130
Investments:				
Marketable equity securities	60	—	—	60
Accounts payable and accrued liabilities:				
Foreign currency contracts <sup>(1)</sup>	—	1	—	1
Other liabilities:				
Cross currency swaps <sup>(1)</sup>	—	95	—	95

(1) This entire balance is designated as a hedging instrument under GAAP.

(Millions)	December 31, 2011			Total
	Level 1	Level 2	Level 3	
Short-term investments:				
Commercial paper and restricted cash	\$—	\$21	\$—	\$21
Marketable equity securities	4	—	—	4
Other current assets:				
Foreign currency contracts <sup>(1)</sup>	—	1	—	1
Interest rate swaps <sup>(1)</sup>	—	1	—	1
Equity forward arrangement <sup>(1)</sup>	—	56	—	56
Investments:				
Marketable equity securities	56	—	—	56
Other assets:				
Interest rate swaps <sup>(1)</sup>	—	25	—	25
Accounts payable and accrued liabilities:				
Foreign currency contracts <sup>(1)</sup>	—	6	—	6
Forward starting swaps <sup>(1)</sup>	—	92	—	92
Natural gas swap contracts <sup>(1)</sup>	—	9	—	9
Other liabilities:				
Cross currency swaps <sup>(1)</sup>	—	120	—	120
Foreign currency contracts <sup>(1)</sup>	—	1	—	1

(1) This entire balance is designated as a hedging instrument under GAAP.

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

As a result of finalizing a restructuring plan, as discussed in Note 7, "Business Restructuring", long-lived assets with a carrying amount of \$10 million were written-down to their fair value of \$7 million, resulting in a charge of \$3 million, which was included in the business restructuring expense reported in the year-ended December 31, 2012. These long-lived assets were valued using Level 3 inputs.

There were no nonmonetary assets or liabilities written down to fair value on a nonrecurring basis during 2010 or 2011.

## 10. Financial Instruments, Excluding Derivative Financial Instruments

Included in PPG's financial instrument portfolio are cash and cash equivalents, short-term investments, cash held in escrow, marketable equity securities, company-owned life insurance and short and long-term debt instruments. The fair values of these financial instruments approximated their carrying values at December 31, 2012 and 2011, in the aggregate, except for long-term debt.

Long-term debt (excluding capital lease obligations), had carrying and fair values totaling \$3,939 million and \$4,484 million, respectively, as of December 31, 2012. Long-term debt (excluding capital lease obligations), had carrying and fair values totaling \$3,617 million and \$4,154 million, respectively, as of December 31, 2011. The fair values of the debt instruments were based on discounted cash flows and interest rates then currently available to the Company for instruments of the same remaining maturities.

#### 11. Derivative Financial Instruments and Hedge Activities

The Company recognizes all derivative financial instruments as either assets or liabilities at fair value on the balance sheet. The accounting for changes in the fair value of a derivative depends on the use of the instrument. To the extent that a derivative is effective as a hedge of an exposure to future changes in cash flows, the change in fair value of the instrument is deferred in AOCI. Any portion considered to be ineffective is reported in earnings immediately, including changes in value related to credit risk. To the extent that a derivative is effective as a hedge of an exposure to future changes in fair value, the change in the derivative's fair value is offset in the consolidated statement of income by the change in fair value of the item being hedged. To the extent that a derivative or a financial instrument is effective as a hedge of a net investment in a foreign operation, the change in the derivative's fair value is deferred as an unrealized currency translation adjustment in AOCI.

PPG's policies do not permit speculative use of derivative financial instruments. PPG uses forward currency and option contracts as hedges against its exposure to variability in exchange rates on short-term intercompany transactions, unrecognized firm sales commitments and cash flows denominated in foreign currencies. PPG uses foreign denominated debt and cross currency swap contracts to hedge net investments in foreign operations. PPG also uses an equity forward arrangement to hedge the Company's exposure to changes in the fair value of PPG stock that is to be contributed to the asbestos settlement trust as discussed in Note 15, "Commitments and Contingent Liabilities." In 2011 and 2010, interest rate swaps were used to manage the Company's exposure to changing interest rates as such rate changes affected the fair value of fixed rate borrowings. Forward starting swaps

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were used to lock-in a fixed interest rate, to which was added a corporate spread, related to future long-term debt refinancings. PPG also used derivative instruments to manage its exposure to fluctuating natural gas prices through the use of natural gas swap contracts.

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-year period ended December 31, 2012.

PPG centrally manages certain of its foreign currency transaction risks to minimize the volatility in cash flows caused by currency fluctuations. Decisions on whether to use derivative financial instruments to hedge the net transaction exposures related to all regions of the world are made based on the amount of those exposures by currency and, in certain situations, an assessment of the near-term outlook for certain currencies. This net hedging strategy does not qualify for hedge accounting; therefore, the change in the fair value of these instruments is recorded in "Other charges" in the accompanying consolidated statement of income in the period of change. As of December 31, 2012 and 2011, the fair value of these contracts were assets of less than \$0.1 million and \$0.4 million, respectively.

PPG designates forward currency contracts as hedges against the Company's exposure to variability in exchange rates on short-term intercompany borrowings and transactions denominated in foreign currencies. To the extent effective, changes in the fair value of these instruments are deferred in AOCI and subsequently reclassified to "Other charges" in the accompanying consolidated statement of income as foreign exchange gains and losses are recognized on the related intercompany and other transactions. The portion of the change in fair value considered to be ineffective is recognized immediately in "Other charges" in the accompanying consolidated statement of income. All amounts related to these instruments deferred in AOCI as of December 31, 2012 will be reclassified to earnings within the next twelve months. As of December 31, 2012 and 2011, the fair value of these instruments was a net liability of \$1 million and \$5 million, respectively.

PPG designates forward currency contracts as hedges against the Company's exposure to future changes in fair value related to certain firm sales commitments denominated in foreign currencies. These contracts are designated as fair value hedges. As such, they are reported at fair value in the Company's consolidated balance sheet, with changes in the fair value of these contracts and that of the related firm sales commitments reported in net sales. As of December 31, 2012, these contracts converted \$56 million to the South Korean won over the 21 month period ending September 30, 2014. As of December 31, 2011, contracts converted \$91 million to the South Korean won over the 30 month period ending June 30, 2014. As of December 31, 2012 and 2011, the fair value of the contracts was

a net asset of \$3 million and a net liability of \$1 million, respectively.

As of January 1, 2012, PPG had nine U.S. dollar to euro cross currency swap contracts with a total notional amount of \$1.16 billion, of which \$600 million were to settle on March 15, 2013 and \$560 million were to settle on March 15, 2018. In June 2012, \$600 million of swaps, with a settlement date of March 15, 2013, were settled with PPG receiving \$1 million in cash. On settlement of the remaining outstanding contracts, PPG will receive \$560 million U.S. dollars and pay euros to the counterparties to the contracts. During the term of these contracts, PPG will receive semiannual payments in March and September of each year based on U.S. dollar, long-term fixed interest rates, and PPG will make annual payments in March of each year to the counterparties based on euro, long-term fixed interest rates. The Company designated all of the cross currency swaps as hedges of its net investment in the acquired SigmaKalon businesses and, as a result, the mark to market fair value adjustments of the swaps outstanding have been and will be recorded as a component of AOCI, and the cash flow impact of these swaps has been and will be classified as investing activities in the consolidated statement of cash flows. As of December 31, 2012 and December 31, 2011, the

fair value of these contracts was a net liability of \$95 million and \$120 million, respectively.

As of December 31, 2012 and 2011, PPG designated €300 million euro-denominated borrowings as a hedge of a portion of PPG's net investment in the Company's European operations. Also, during 2010, certain portions of PPG's various other euro-denominated borrowings were designated as hedges of PPG's investments in its European operations. As a result, the change in book value from adjusting these foreign-denominated borrowings to current spot rates was deferred in AOCI.

As of December 31, 2012 and December 31, 2011, the Company had accumulated pretax unrealized translation gains in AOCI of \$9 million and \$14 million, respectively, related to both the euro-denominated borrowings and the cross currency swaps that have been designated as hedges of net investments.

Deferrals in AOCI related to hedges of the Company's net investments in European operations would be reclassified and recognized in earnings upon a substantial liquidation, sale or partial sale of such investments or upon impairment of all or a portion of such investments.

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to minimize its interest costs. Generally, the Company maintains variable interest rate debt at a level of approximately 25 percent to 50 percent of total borrowings. PPG principally manages its fixed and variable interest rate risk by retiring and issuing debt from time to time and through the use of interest rate swaps. As of December 31, 2011, interest rate swaps converted \$445 million of fixed rate debt to variable rate debt. During the year

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ended December 31, 2012, PPG settled these swaps and received \$29 million from such settlements. When outstanding, the swaps were designated as fair value hedges. As such, they were carried at fair value. Changes in the fair value of these swaps and that of the related debt were recorded in "Interest expense" in the accompanying consolidated statement of income. As of December 31, 2011, the fair value of these contracts was a net asset of \$26 million.

The Company entered into forward starting swaps in 2009 and in the second quarter of 2010 to effectively lock-in a fixed interest rate for future debt refinancings with an anticipated term of ten years based on the ten year swap rate, to which was added a corporate spread. The notional amount of the swaps outstanding totaled \$400 million. To the extent that the swaps were effective, changes in the fair values of the swap contracts were deferred in AOCI. The portion of the change in fair value considered to be ineffective was recognized immediately in Other charges in the accompanying consolidated statement of income. All of the swap contracts were settled on July 30, 2012, resulting in a cash payment of \$121 million. As of December 31, 2012, the amount of loss recorded in AOCI was \$116 million. The remaining balance will be amortized to interest expense over the remaining term of the ten-year debt that was issued on July 31, 2012. (See Note 8, "Debt and Bank Credit Agreements and Leases" for further discussion regarding this debt issuance.) As of December 31, 2011, the fair value of these swaps was a liability of \$92 million.

Derivative instruments have been used to manage the Company's exposure to fluctuating natural gas prices through the use of natural gas swap contracts. There were no natural gas swap contracts outstanding as of December 31, 2012 as the price of natural gas has declined for the past four years and is not expected to be as volatile over the next 12 to 18 months as continued development of shale oil and gas reserves will maintain downward pressure on the price of natural gas. To the extent that these instruments were effective in hedging PPG's exposure to price changes, changes in the fair values of the hedge contracts were deferred in AOCI and reclassified to "Cost of sales, exclusive of depreciation and amortization" as the natural gas was purchased. The amount of ineffectiveness was reported in "Other charges" in the accompanying consolidated statement of income immediately. As of December 31, 2011, the fair value of these contracts was a liability of \$9 million. There was no balance in AOCI as of December 31, 2012 related to the contracts.

PPG entered into a one-year renewable equity forward arrangement with a bank in 2003 in order to mitigate the impact on PPG earnings of changes in the fair value of 1,388,889 shares of PPG stock that are to be contributed to the asbestos settlement trust as discussed in Note 15, "Commitments and Contingent Liabilities." This instrument, which has been renewed annually, is recorded at fair value as an asset or liability and changes in the fair value of this instrument are reflected in the "Asbestos settlement – net" caption of the accompanying consolidated

statement of income. The total principal amount payable for these shares is \$62 million. PPG will pay to the bank interest based on the principal amount and the bank will pay to PPG an amount equal to the dividends paid on these shares during the period this instrument is outstanding. The difference between the principal amount and any amounts related to unpaid interest or dividends and the current market price for these shares, adjusted for credit risk, represents the fair value of the instrument as well as the amount that PPG would pay or receive if the bank chose to net settle the instrument. Alternatively, the bank may, at its option, require PPG to purchase the shares covered by the arrangement at the principal amount adjusted for unpaid interest and dividends as of the date of settlement. As of December 31, 2012 and 2011, the fair value of this contract was an asset of \$130 million and \$56 million, respectively.

No derivative instrument initially designated as a hedge instrument was undesignated or discontinued as a hedging instrument during 2012 or 2011. Nor were any amounts deferred in AOCI reclassified to earnings during the three-year period ended December 31, 2012 related to hedges of anticipated transactions that were no longer expected to occur.

All of the outstanding derivative instruments are subject to accelerated settlement in the event of PPG's failure to meet its debt obligations or payment obligations under the terms of the instruments' contractual provisions. In addition, should the Company be acquired and its payment obligations under the derivative instruments' contractual arrangements not be assumed by the acquirer, or should PPG enter into bankruptcy, receivership or reorganization proceedings, the instruments would also be subject to accelerated settlement.

For the year ended December 31, 2012, Other comprehensive income included a net pretax loss due to cash flow hedge derivatives of \$11 million (\$7 million, net of tax). This loss was comprised of realized losses of \$27 million and unrealized losses of \$38 million. The realized losses related to the settlement during the period of natural gas swap contracts and interest rate swaps owned by RS Cogen (Refer to Note 5, "Investments" for a discussion regarding this equity method investment.), amortization of a portion of the loss on the forward starting swaps that was deferred in AOCI, and realized losses on foreign currency contracts. The unrealized losses related to the change in fair value of the natural gas swap contracts, forward starting swaps, interest rate swaps owned by RS Cogen, and the change in fair value of the foreign currency contracts.

For the year ended December 31, 2011, Other comprehensive loss included a net pretax loss due to cash flow hedge derivatives of \$51 million (\$32 million, net of tax). This loss was comprised of realized losses of \$28 million and unrealized losses of \$79 million. The realized losses related to the settlement during the period of natural gas swap contracts and interest rate swaps owned by RS Cogen (Refer to Note 5, "Investments" for a discussion regarding this equity method investment.), offset in part by realized gains on foreign currency contracts. The unrealized losses related to the change in fair

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value of the natural gas swap contracts, forward starting swaps and interest rate swaps owned by RS Cogen, offset in part by the change in fair value of the foreign currency contracts.

For the year ended December 31, 2010, Other comprehensive loss included a net pretax loss due to cash flow hedge derivatives of \$3 million (\$2 million, net of tax). This loss was comprised of realized losses of \$93 million and unrealized losses of \$96 million. The realized losses related to the settlement during the period of natural gas swap contracts, interest rate swaps owned by RS Cogen (Refer to Note 5, "Investments" for a discussion regarding this equity method investment.) and foreign currency contracts. The unrealized losses related to the change in fair value of the natural gas swap contracts, forward starting swaps, foreign currency contracts and interest rate swaps owned by RS Cogen.

Refer to Note 9, "Fair Value Measurement," for additional disclosures related to the Company's derivative instruments outstanding as of December 31, 2012 and 2011.

The following tables provide details for the years ended December 31, 2012 and 2011 related to fair value, cash flow and net investment hedges, by type of derivative and financial instrument. All dollar amounts are pretax.

Hedge Type (Millions)	Gain (Loss) Deferred in OCI	Gain (Loss) Recognized	
		Amount	Caption
<b>Fair Value</b>			
Interest rate swaps <sup>(a)</sup>	Not applicable	\$17	Interest expense
Foreign currency contracts <sup>(b)</sup>	Not applicable	1	Sales
Equity forward arrangements <sup>(a)</sup>	Not applicable	74	Asbestos - net
Total Fair Value		\$92	
<b>Cash Flow</b>			
Natural gas swaps <sup>(a)</sup>	\$ (2 )	\$ (11 )	Cost of sales
Interest rate swaps of RS Cogen	(1 )	(2 )	Other earnings
Forward starting swaps <sup>(c)</sup>	(26 )	(5 )	Interest expense
Foreign currency contracts <sup>(d)</sup>	(9 )	(9 )	Other charges
Total Cash Flow	\$ (38 )	\$ (27 )	
<b>Net Investment</b>			
Cross currency swaps <sup>(a)</sup>	\$3	\$—	Other charges
Foreign denominated debt	(7 )		Other charges
Total Net Investment	\$ (4 )	\$—	
<b>Non-Hedge</b>			
Foreign currency contracts	Not applicable	\$1	Other charges
Total Non-Hedge		\$1	

(a) The ineffective portion related to each of the items was less than \$0.1 million of expense.

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(b) The ineffective portion related to this item was \$0.5 million of income.

(c) The ineffective portion related to this item was \$4 million of expense.

(d) The ineffective portion related to this item was \$8 million of expense.

December 31, 2011			
Hedge Type (Millions)	Gain (Loss) Deferred in OCI	Gain (Loss) Recognized	
Fair Value		Amount	Caption
Interest rate swaps <sup>(a)</sup>	Not applicable	\$16	Interest expense
Foreign currency contracts <sup>(b)</sup>	Not applicable	2	Sales
Equity forward arrangements <sup>(a)</sup>	Not applicable	1	Asbestos - net
Total Fair Value		\$19	
<b>Cash Flow</b>			
Natural gas swaps <sup>(a)</sup>	\$(10	)	\$(32
Interest rate swaps of RS Cogen	(2	)	(2
Forward starting swaps <sup>(c)</sup>	(73	)	—
Foreign currency contracts <sup>(d)</sup>	6		6
Total Cash Flow	\$(79	)	\$(28
<b>Net Investment</b>			
Cross currency swaps <sup>(e)</sup>	\$34		\$—
Foreign denominated debt	13		—
Total Net Investment	\$47		\$—
<b>Non-Hedge</b>			
Foreign currency contracts	Not applicable		\$—
Total Non-Hedge			\$—

(a) The ineffective portion related to each of the items was less than \$0.1 million of either income or expense.

(b) The ineffective portion related to this item was \$0.8 million of income.

(c) The ineffective portion related to this item was \$3 million of income.

(d) The ineffective portion related to this item was \$6 million of expense.

(e) The ineffective portion related to this item was \$2 million of expense.



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## 12. Earnings Per Common Share

The earnings per common share calculations for the three years ended December 31, 2012, are as follows:

(Millions, except per share amounts)	2012	2011	2010
Earnings per common share (attributable to PPG)			
Net income (attributable to PPG)	\$941	\$1,095	\$769
Weighted average common shares outstanding	153.4	157.3	164.5
Earnings per common share (attributable to PPG):			
Net income (attributable to PPG)	\$6.13	\$6.96	\$4.67
Earnings per common share - assuming dilution (attributable to PPG)			
Net income (attributable to PPG)	\$941	\$1,095	\$769
Weighted average common shares outstanding	153.4	157.3	164.5
Effect of dilutive securities:			
Stock options	0.8	1.1	0.8
Other stock compensation plans	0.9	0.9	0.6
Potentially dilutive common shares	1.7	2.0	1.4
Adjusted weighted average common shares outstanding	155.1	159.3	165.9
Earnings per common share - assuming dilution (attributable to PPG)			
Net income (attributable to PPG)	\$6.06	\$6.87	\$4.63

There were no outstanding stock options excluded in 2012 and 0.6 million and 1.2 million outstanding stock options excluded in 2011 and 2010, respectively, from the computation of diluted earnings per common share due to their anti-dilutive effect.

## 13. Income Taxes

The following table presents a reconciliation of the statutory U.S. corporate federal income tax rate to the Company's effective income tax rate:

	2012		2011		2010	
U.S. federal income tax rate	35.00	%	35.00	%	35.00	%
Changes in rate due to:						
U.S. State and local taxes	1.04		1.03		1.31	
U.S. tax benefit on foreign dividends	(1.43)	)	(1.04)	)	0.05	
Taxes on non-U.S. earnings	(7.99)	)	(8.03)	)	(8.11)	)
PPG dividends paid to the ESOP	(0.44)	)	(0.43)	)	(0.67)	)
U.S. tax incentives	(2.08)	)	(1.67)	)	(1.83)	)
Significant audit settlements	—		(1.09)	)	—	
Other	0.03		0.34		(0.28)	)
One-time charge, tax law change	—		—		6.57	
Effective income tax rate	24.13	%	24.11	%	32.04	%

The effective tax rate for 2012 includes tax benefits of \$60 million, or 37.7%, on the \$159 million charge for environmental remediation costs, \$45 million, or 21.4%, on the \$208 million business restructuring charge, \$2 million, or 28.6%, on the acquisition-related expenses of \$6 million, \$3 million, or 11.0%, on the commodity chemicals separation and merger and acquisition-related costs of \$26 million. The separation of PPG's commodity chemicals business and subsequent merger of the subsidiary holding that business with a subsidiary of Georgia

Gulf (Refer to Note 25, "Separation and Merger Transaction") is expected to be generally tax free to PPG, as a result of this, the deductibility for U.S. federal tax purposes of the costs associated with the transaction is expected to be limited. We currently estimate that approximately 20% of the separation and merger costs incurred to date will be tax deductible.

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U.S. tax incentives include the R&D credit, the U.S. manufacturing deduction and the tax free Medicare Part D subsidy. The increase of the impact of U.S. tax incentives in 2012 can be explained by an increase in the manufacturing deduction which more than offset the absence of the R&D credit in 2012.

The 2012 and 2011 increase in the U.S. tax benefit on foreign dividends was mainly due to the tax efficient repatriation of high taxed foreign earnings resulting from tax planning.

The 2010 effective tax rate was increased because PPG recorded a one-time, aftertax charge in the first quarter of 2010 of \$85 million, or 51 cents per share, as a result of a change in U.S. tax law included in the U.S. Patient Protection and Affordable Care Act enacted in March 2010. Under the prior tax law, the total amount paid for prescription drug costs for retirees over the age of 65 was tax deductible. Beginning in 2013, however, these costs will only be deductible to the extent they exceed the amount of the annual subsidy PPG receives from the U.S. government under Medicare Part D. As a result of this change, the Company's deferred tax asset, which reflects the future tax deductibility of these post retirement costs, had to be reduced in the first quarter of 2010, the period that the change in the tax law was enacted, as required by the accounting guidance for income taxes.

Income before income taxes of the Company's non-U.S. operations for 2012, 2011 and 2010 was \$793 million, \$896 million and \$793 million, respectively.

The following table gives details of income tax expense reported in the accompanying consolidated statement of income.

(Millions)	2012	2011	2010
Current income tax expense			
U.S. federal	\$ 332	\$ 193	\$ 62
Non-U.S.	203	176	170
U.S. State and local	28	20	15
Total current income tax	563	389	247
Deferred income tax expense			
U.S. federal	(162	) 11	70
Non-U.S.	(48	) (17	) 2
U.S. State and local	(15	) 2	11
One-time charge, tax law change	—	—	85
Total deferred income tax	(225	) (4	) 168
Total	\$ 338	\$ 385	\$ 415

Income tax payments in 2012, 2011 and 2010 totaled \$503 million, \$353 million and \$198 million, respectively.

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Net deferred income tax assets and liabilities as of December 31, 2012 and 2011, were as follows:

(Millions)	2012	2011
Deferred income tax assets related to		
Employee benefits	\$1,000	\$963
Contingent and accrued liabilities	598	524
Operating loss and other carry-forwards	223	183
Inventories	21	29
Property	5	3
Derivatives	38	95
Other	41	97
Valuation allowance	(138)	(134)
Total	1,788	1,760
Deferred income tax liabilities related to		
Property	405	500
Intangibles	452	460
Employee benefits	69	64
Other	3	63
Total	929	1,087
Deferred income tax assets – net	\$859	\$673

As of December 31, 2012, subsidiaries of the Company had available net operating loss carryforwards of approximately \$611 million for income tax purposes, of which approximately \$529 million has an indefinite expiration. The remaining \$82 million expires between the years 2013 and 2027. The tax effected amount of the net operating loss carryforwards is \$177 million. A valuation allowance has been established for carry-forwards at December 31, 2012, when the ability to utilize them is not likely.

The Company has \$3,476 million and \$2,920 million of undistributed earnings of non-U.S. subsidiaries as of December 31, 2012 and December 31, 2011, respectively. These amounts relate to approximately 300 subsidiaries in more than 70 taxable jurisdictions. No deferred U.S. income taxes have been provided on these earnings as they are considered to be reinvested for an indefinite period of time or will be repatriated when it is tax effective to do so. The Company estimates that of these amounts, \$2,865 million as of December 31, 2012 and \$2,454 million as of December 31, 2011 of the undistributed earnings, could be repatriated at little to no U.S. tax cost due in part to the benefit of U.S. foreign tax credits that would be available if these earnings were repatriated. The repatriation of undistributed earnings of non-U.S. subsidiaries of approximately \$611 million as of December 31, 2012 and \$466 million as of December 31, 2011 would have resulted in a U.S. tax cost of approximately \$110 million and \$85 million, respectively.

The Company files federal, state and local income tax returns in numerous domestic and foreign jurisdictions. In most tax jurisdictions, returns are subject to examination by the relevant tax authorities for a number of years after the returns have been filed. The Company is no longer subject to examinations by tax authorities in any major tax jurisdiction for years before 2003. Additionally, the Internal Revenue Service

has completed its examination of the Company's U.S. federal income tax returns filed for years through 2009. The examination of the Company's U.S. federal income tax return for 2010 is currently underway and is expected to be finalized during 2013.

The activity in the accrued liability for unrecognized tax benefits for the three years ended December 31, 2012 is as follows:

(Millions)	2012	2011	2010
Balance at January 1	\$107	\$111	\$108

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Additions based on tax positions related to the current year	12		15		7	
Additions for tax positions of prior years	2		17		15	
Reductions for tax positions of prior years	(12	)	(19	)	(5	)
Pre-acquisition unrecognized tax benefits	2		—		—	
Reductions for expiration of the applicable statute of limitations	(6	)	(7	)	(6	)
Settlements	(23	)	(8	)	(2	)
Currency	—		(2	)	(6	)
Balance at December 31	\$82		\$107		\$111	

The amount of unrecognized tax benefits was \$82 million, \$107 million and \$111 million as of December 31, 2012, 2011 and 2010, respectively. If recognized, \$79 million, \$100 million and \$103 million would impact the effective rate as of December 31, 2012, 2011 and 2010, respectively. The Company recognizes accrued interest and penalties related to unrecognized tax benefits in income tax expense. The Company had accrued as of December 31, 2012, 2011 and 2010, \$10 million, \$15 million and \$15 million, respectively, for estimated interest and penalties on unrecognized tax benefits. The Company recognized \$5 million of income in 2012 related to the reduction of estimated interest and penalties. The Company recognized no expense and \$2 million of expense for estimated interest and penalties during the years ended December 31, 2011 and 2010, respectively.

While it is expected that the amount of unrecognized tax benefits will change in the next 12 months, quantification of an estimated range cannot be made at this time. The Company does not expect this change to have a significant impact on the results of operations or financial position of the Company, however, actual settlements may differ from amounts accrued.

#### 14. Pensions and Other Postretirement Benefits

##### Defined Benefit Plans

PPG has defined benefit pension plans that cover certain employees worldwide. The principal defined benefit pension plans are those in the U.S., Canada, the Netherlands and the U.K. which, in the aggregate, represent 99% of the market value of plan assets at December 31, 2012. PPG also sponsors welfare benefit plans that provide postretirement medical and life insurance benefits for certain U.S. and Canadian employees and their dependents. These programs require retiree contributions based on retiree-selected coverage levels for certain retirees and

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their dependents and provide for sharing of future benefit cost increases between PPG and participants based on management discretion. The Company has the right to modify or terminate certain of these benefit plans in the future. Salaried and certain hourly employees hired on or after October 1, 2004, are not eligible for postretirement medical benefits. Salaried employees hired, rehired or transferred to salaried status on or after January 1, 2006, and certain hourly employees hired in 2006 or thereafter are eligible to participate in a defined contribution retirement plan. These employees are not eligible for defined benefit pension plan benefits.

## Plan Design Changes

In January 2011, the Company approved an amendment to one of its U.S. defined benefit pension plans that represents about 77% of the total U.S. projected benefit obligation at December 31, 2012, 2011 and 2010. Depending upon the affected employee's combined age and years of service to PPG, this change resulted in certain employees no longer accruing benefits under this plan as of December 31, 2011, while the remaining employees will no longer accrue benefits under this plan as of December 31, 2020. The affected employees will participate in the Company's defined contribution retirement plan from the date their benefit under the defined benefit plan is frozen. The Company remeasured the projected benefit obligation of this amended plan, which resulted in an approximate \$65 million reduction in the liability and lowered 2011 pension expense by approximately \$12 million. The Company made similar changes to certain other U.S. defined benefit pension plans in 2011. The Company recognized a curtailment loss and special termination benefits associated with these plan amendments of \$5 million in 2011. During 2010, PPG made changes to certain of its defined benefit pension plans to shift benefits for future service to defined contribution plans. The Company plans to continue reviewing and potentially changing other PPG defined benefit plans in the future.

## Separation and Merger of Commodity Chemicals Business

On January 28, 2013, PPG completed the separation of its commodity chemicals business and the merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf, as discussed in Note 25, "Separation and Merger Transaction". PPG transferred the defined benefit pension plan and other postretirement benefit liabilities for the affected employees in the U.S., Canada, and Taiwan in the separation resulting in net settlement and curtailment charges of approximately \$30 million that will be recorded in the first quarter of 2013. This transaction will lower the projected benefit obligation of PPG's defined benefit pension plans by approximately \$550 million and the accumulated benefit obligation of the other postretirement benefit plans by approximately \$165 million. PPG will also transfer pension assets of approximately \$480 million. Pension and other postretirement benefit expense of approximately \$25 million was incurred by the Commodity Chemicals business in 2012.

## Postretirement medical

Beginning in 2004, PPG's other postretirement benefit plan provided a retiree prescription drug benefit which was at least actuarially equivalent to Medicare Part D. Therefore, PPG received the federal subsidy provided for under the Medicare Act of 2003. The federal subsidy is not subject to U.S. federal income tax and is recorded as a reduction in annual net periodic benefit cost of other postretirement benefits. Since 2004, PPG has made periodic amendments to its U.S. other postretirement benefit plan; however, from January 1, 2010 to December 31, 2012 the Company has provided a self-insured plan for certain retirees and their dependents that was at least actuarially equivalent to Medicare Part D and has received the subsidy under the Medicare Act of 2003 for those retirees and their dependents. In October 2012, the Company decided, effective January 1, 2013, to move to an Employee Group Waiver Plan ("EGWP") for certain Medicare-eligible retirees and their dependents. The EGWP includes a fully-insured Medicare Part D prescription drug plan. As such, beginning in 2013 PPG is no longer eligible to receive the federal subsidy provided under the Medicare Act of 2003 for these retirees and their dependents.



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The following table sets forth the changes in projected benefit obligations (“PBO”) (as calculated as of December 31), plan assets, the funded status and the amounts recognized in the accompanying consolidated balance sheet for the Company’s defined benefit pension and other postretirement benefit plans:

(Millions)	Pensions		Other Postretirement Benefits	
	2012	2011	2012	2011
Projected benefit obligation, January 1	\$5,333	\$4,952	\$1,394	\$1,235
Service cost	61	63	22	19
Interest cost	239	254	57	63
Plan amendments	(2 )	—	(19 )	22
Actuarial losses / (gains) - net	443	444	(33 )	126
Benefits paid	(347 )	(281 )	(62 )	(64 )
Foreign currency translation adjustments	59	(37 )	3	(3 )
Curtailment and special termination benefits	(6 )	(58 )	—	—
Other	4	(4 )	—	(4 )
Projected benefit obligation, December 31	\$5,784	\$5,333	\$1,362	\$1,394
Market value of plan assets, January 1	\$4,382	\$4,127		
Actual return on plan assets	571	426		
Company contributions	81	121		
Participant contributions	2	2		
Benefits paid	(335 )	(262 )		
Plan expenses and other-net	(1 )	(2 )		
Foreign currency translation adjustments	50	(30 )		
Market value of plan assets, December 31	\$4,750	\$4,382		
Funded Status	\$(1,034 )	\$(951 )	\$(1,362 )	\$(1,394 )
Amounts recognized in the Consolidated Balance Sheet:				
Other assets (long-term)	27	23	—	—
Accounts payable and accrued liabilities	(20 )	(13 )	(75 )	(87 )
Accrued pensions	(1,041 )	(961 )	—	—
Other postretirement benefits	—	—	(1,287 )	(1,307 )
Net liability recognized	\$(1,034 )	\$(951 )	\$(1,362 )	\$(1,394 )

The PBO is the actuarial present value of benefits attributable to employee service rendered to date, including the effects of estimated future pay increases. The accumulated benefit obligation (“ABO”) is the actuarial present value of benefits attributable to employee service rendered to date, but does not include the effects of estimated future pay increases. The ABO for all defined benefit pension plans as of December 31, 2012 and 2011 was \$5,517 million and \$5,117 million, respectively.

The aggregate PBO and fair value of plan assets (in millions) for the pension plans with PBO in excess of plan assets were \$5,588 and \$4,534, respectively, as of December 31, 2012, and \$5,164 and \$4,196, respectively, as of December 31, 2011. The aggregate ABO and fair value of plan assets (in millions) for

the pension plans with ABO in excess of plan assets were \$5,186 and \$4,352, respectively, as of December 31, 2012, and \$4,771 and \$3,992, respectively, as of December 31, 2011.

Amounts (pretax) not yet reflected in net periodic benefit cost and included in accumulated other comprehensive loss include the following:

(Millions)	Pensions		Other Postretirement Benefits	
	2012	2011	2012	2011
Accumulated net actuarial losses	\$2,097	\$2,052	\$505	\$571
Accumulated prior service credit	(3 )	(2 )	(45 )	(37 )
Total	\$2,094	\$2,050	\$460	\$534

The accumulated net actuarial losses for pensions relate primarily to the actual return on plan assets being less than the expected return on plan assets in 2000-2002, and 2008 and a decline in the discount rate since 1999. The accumulated net actuarial losses for other postretirement benefits relate primarily to actual healthcare costs increasing at a higher rate than assumed during the 2001-2003 period and the decline in the discount rate. Since the accumulated net actuarial losses exceed 10% of the higher of the market value of plan assets or the PBO at the beginning of the year, amortization of such excess over the average remaining service period of active employees expected to receive benefits has been included in net periodic benefit costs for pension and other postretirement benefits in each of the last three years. The decrease in 2012 of the accumulated prior service credit for other postretirement benefits relates to several amendments to these plans approved by the Company during 2011. Accumulated prior service cost (credit) is amortized over the future service periods of those employees who are active at the dates of the plan amendments and who are expected to receive benefits.

The decrease in accumulated other comprehensive loss (pretax) in 2012 relating to defined benefit pension and other postretirement benefits consists of:

(Millions)	Pensions	Other Postretirement Benefits
Net actuarial loss (gain) arising during the year	\$177	\$(33 )
New prior service credit	(1 )	(19 )
Amortization of actuarial loss	(150 )	(34 )
Amortization of prior service cost	—	12
Foreign currency translation adjustments and other	18	—
Net change	\$44	\$(74 )

The net actuarial loss arising during 2012 related to the Company's pension plans was primarily due to a decrease in the discount rate, partially offset by actual plan asset returns greater than expected plan asset returns. The net actuarial gain arising during 2012 related to the Company's other postretirement benefit plans was primarily due to demographic changes and



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updated claim costs, partially offset by a decrease in the discount rate.

The estimated amounts of accumulated net actuarial loss and prior service cost for the defined benefit pension plans that will be amortized from accumulated other comprehensive income into net periodic benefit cost in 2013 are \$139 million and \$(1) million, respectively. The estimated amounts of accumulated net actuarial loss and prior service (credit) for the other postretirement benefit plans that will be amortized from accumulated other comprehensive (loss) income into net periodic benefit cost in 2013 are \$34 million and \$(11) million, respectively.

Net periodic benefit cost for the three years ended December 31, 2012, included the following:

(Millions)	Pensions			Other Postretirement Benefits		
	2012	2011	2010	2012	2011	2010
Service cost	\$61	\$63	\$64	\$22	\$19	\$19
Interest cost	239	254	249	57	63	64
Expected return on plan assets	(292 )	(312 )	(278 )	—	—	—
Amortization of prior service cost (credit)	—	1	5	(12 )	(12 )	(5 )
Amortization of actuarial losses	151	120	121	34	30	19
Curtailments and special termination benefits	—	5	—	—	—	—
Net periodic benefit cost	\$159	\$131	\$161	\$101	\$100	\$97

Net periodic benefit cost is included in Cost of sales, exclusive of depreciation and amortization, Selling, general and administrative and Research and development in the accompanying consolidated statement of income.

**Assumptions**

The following weighted average assumptions were used to determine the benefit obligation for the Company's defined benefit pension and other postretirement plans as of December 31, 2012 and 2011:

	2012		2011	
Discount rate	4.1	%	4.6	%
Rate of compensation increase	4.0	%	3.9	%

The following weighted average assumptions were used to determine the net periodic benefit cost for the Company's defined benefit pension and other postretirement benefit plans for the three years in the period ended December 31, 2012:

	2012		2011		2010	
Discount rate	4.6	%	5.3	%	5.7	%
Expected return on assets	7.0	%	7.6	%	7.8	%
Rate of compensation increase	3.9	%	3.8	%	3.9	%

These assumptions for each plan are reviewed on an annual basis. In determining the expected return on plan asset assumption, the Company evaluates the mix of investments that comprise each plan's assets and external forecasts of future long-term investment returns. The Company compares the expected return on plan assets assumption to actual historic returns to ensure reasonability. The expected return on plan assets assumption to be used in determining 2013 net periodic pension expense will be 6.8% (7.3% for the U.S. plans).

At December 31, 2010, the Company updated the mortality table used to calculate its U.S. defined benefit pension and other postretirement benefit liabilities. Previously, the Company had used the mortality table known as RP 2000, projected to 2006 and now uses the RP 2000 table projected to 2017. This updated table reflects improvements in

mortality rates.

The weighted-average healthcare cost trend rate (inflation) used for 2012 was 6.3% declining to 4.5% in the year 2024. For 2013, the assumed weighted-average healthcare cost trend rate used will be 6.4% declining to 4.5% in the year 2024. These assumptions are reviewed on an annual basis. In selecting rates for current and long-term health care cost assumptions, the Company takes into consideration a number of factors including the Company's actual health care cost increases, the design of the Company's benefit programs, the demographics of the Company's active and retiree populations and external expectations of future medical cost inflation rates. If these 2013 health care cost trend rates were increased or decreased by one percentage point per year, such increase or decrease would have the following effects:

(Millions)	One-Percentage Point	
	Increase	Decrease
Increase (decrease) in the aggregate of service and interest cost components of annual expense	\$10	\$(8 )
Increase (decrease) in the benefit obligation Contributions	\$155	\$(91 )

On August 17, 2006, the Pension Protection Act of 2006 ("PPA") was signed into law, changing the funding requirements for the Company's U.S. defined benefit pension plans beginning in 2008. In July 2012, the Moving Ahead for Progress in the 21<sup>st</sup> Century Act ("MAP-21") was signed into law. MAP-21 included discount-rate stabilization rules that reduce the funding targets required on an ERISA basis for the U.S. defined benefit pension plans. As a result, PPG did not have to make a mandatory contribution to these plans in 2012 and does not expect to have to make a mandatory contribution in 2013. PPG did not make a voluntary contribution to these plans in 2012. PPG made a voluntary contribution to its U.S. defined benefit plans of \$50 million and \$250 million in 2011 and 2010, respectively. PPG made contributions to its non-U.S. defined benefit pension plans of \$81 million in 2012, \$71 million in 2011 and approximately \$85 million in 2010, some of which were required by local funding requirements. PPG expects to make no voluntary contributions to its U.S. plans and

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mandatory contributions to its non-U.S. plans of approximately \$77 million in 2013.

**Benefit Payments**

The estimated pension benefits to be paid under the Company's defined benefit pension plans during the next five years are (in millions) \$360 in 2013, \$333 in 2014, \$306 in 2015, \$314 in 2016 and \$291 in 2017 and are expected to aggregate \$1,550 million for the five years thereafter. The estimated other postretirement benefits to be paid during the next five years are (in millions) \$75 in 2013, \$75 in 2014, \$76 in 2015, \$76 in 2016 and \$77 in 2017 and are expected to aggregate \$389 million for the five years thereafter.

During 2012, the Company initiated a lump sum payout program that gave certain terminated vested participants in certain U.S. defined benefit pension plans the option to take a one-time lump sum cash payment in lieu of receiving a future monthly annuity. PPG paid \$70 million in 2012 in lump sum benefits to terminated vested participants who elected to participate in the program.

Under the Medicare Act of 2003, in 2012 the amount of subsidy received was \$6 million as of December 31, 2012.

**Plan Assets**

Each PPG sponsored defined benefit pension plan is managed in accordance with the requirements of local laws and regulations governing defined benefit pension plans for the exclusive purpose of providing pension benefits to participants and their beneficiaries. Investment committees comprised of PPG managers have fiduciary responsibility to oversee the management of pension plan assets by third party asset managers. Pension plan assets are held in trust by financial institutions and managed on a day-to-day basis by the asset managers. The asset managers receive a mandate from each investment committee that is aligned with the asset allocation targets established by each investment committee to achieve the plan's investment strategies. The performance of the asset managers is monitored and evaluated by the investment committees throughout the year.

Pension plan assets are invested to generate investment earnings over an extended time horizon to help fund the cost of benefits promised under the plans while mitigating investment risk. The asset allocation targets established for each pension plan are intended to diversify the investments among a variety of asset categories and among a variety of individual securities within each asset category to mitigate investment risk and provide each plan with sufficient liquidity to fund the payment of pension benefits to retirees.

The following summarizes the weighted average target pension plan asset allocation as of December 31, 2012 and 2011 for all PPG defined benefit plans:

Asset Category	Dec. 31, 2012	Dec. 31, 2011
Equity securities	35-70%	40-75%
Debt securities	30-65%	25-60%
Real estate	0-10%	0-10%
Other	0-10%	0-10%

The fair values of the Company's pension plan assets at December 31, 2012, by asset category, are as follows:

(Millions)	Level 1 <sup>(1)</sup>	Level 2 <sup>(1)</sup>	Level 3 <sup>(1)</sup>	Total
<b>Asset Category</b>				
<b>Equity securities:</b>				
U.S.				
Large cap	\$1	\$172	\$—	\$173
Small cap	—	146	—	146
PPG common stock	244	—	—	244
Non-U.S.				
Developed and emerging markets <sup>(2)</sup>	—	578	—	578
<b>Debt securities:</b>				
Cash and cash equivalents	—	499	—	499

Corporate <sup>(3)</sup>				
U.S. <sup>(4)</sup>	—	922	76	998
Developed and emerging markets <sup>(2)</sup>	—	185	—	185
Diversified <sup>(5)</sup>	—	635	4	639
Government				
U.S. <sup>(4)</sup>	196	69	—	265
Developed markets	—	301	—	301
Other <sup>(6)</sup>	—	155	27	182
Real estate, hedge funds, and other	—	128	412	540
Total	\$441	\$3,790	\$519	\$4,750

(1) These levels refer to the accounting guidance on fair value measurement described in Note 9, “Fair Value Measurement.”

(2) These amounts represent holdings in investment grade debt or equity securities of issuers in both developed markets and emerging economies.

(3) This category represents investment grade debt securities from a diverse set of industry issuers.

(4) These investments are primarily long duration fixed income securities.

(5) This category represents commingled funds invested in diverse portfolios of debt securities.

(6) This category includes mortgage-backed and asset backed debt securities, municipal bonds and other debt securities including derivatives.

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The fair values of the Company's pension plan assets at December 31, 2011, by asset category, are as follows:

(Millions)	Level 1 <sup>(1)</sup>	Level 2 <sup>(1)</sup>	Level 3 <sup>(1)</sup>	Total
Asset Category				
Equity securities:				
U.S.				
Large cap	\$—	\$342	\$—	\$342
Small cap	125	80	—	205
PPG common stock	151	—	—	151
Non-U.S.				
Developed and emerging markets <sup>(2)</sup>	—	640	—	640
Debt securities:				
Cash and cash equivalents				
Cash and cash equivalents	—	270	—	270
Corporate <sup>(3)</sup>				
U.S. <sup>(4)</sup>	—	672	68	740
Developed and emerging markets <sup>(2)</sup>	—	338	—	338
Diversified <sup>(5)</sup>	—	339	—	339
Government				
U.S. <sup>(4)</sup>	397	113	—	510
Developed markets	—	267	—	267
Other <sup>(6)</sup>	5	188	28	221
Real estate, hedge funds, and other	41	73	245	359
Total	\$719	\$3,322	\$341	\$4,382

(1) These levels refer to the accounting guidance on fair value measurement described in Note 9, "Fair Value Measurement."

(2) These amounts represent holdings in investment grade debt or equity securities of issuers in both developed markets and emerging economies.

(3) This category represents investment grade debt securities from a diverse set of industry issuers.

(4) These investments are primarily long duration fixed income securities.

(5) This category represents commingled funds invested in diverse portfolios of debt securities.

(6) This category includes mortgage-backed and asset backed debt securities, municipal bonds and other debt securities.

During 2012, the Company determined that certain pension assets at December 31, 2011 were previously presented in the Level 1 category and should have been presented in the Level 2 category and certain pension assets presented in Level 2 should have been presented in the Level 3 category based on the inputs used to value the securities.

Accordingly, the 2011 presentation of pension assets has been revised in the table above and in the Level 3 table below. This revision had no impact on the Company's consolidated balance sheet, statement of income or statement of cash flows.

The change in the fair value of the Company's Level 3 pension assets for the years ended December 31, 2012 and 2011 was as follows:

(Millions)	Real Estate	Other Debt Securities	Hedge Funds & Other assets	Total
Balance, January 1, 2011	\$117	\$39	\$22	\$178
Realized gain/(loss)	(1 )	—	(9 )	(10 )

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Unrealized gain/(loss) for positions still held	15	—	6	21
Transfers in/(out)	25	(11	) 138	152
Currency	—	—	—	—
Balance, December 31, 2011	\$156	\$28	\$157	\$341
Realized gain/(loss)	8	—	13	21
Unrealized gain/(loss) for positions still held	8	—	(1	) 7
Transfers in/(out)	4	(1	) 148	151
Currency	—	—	(1	) (1
Balance, December 31, 2012	\$176	\$27	\$316	\$519

Real Estate properties are externally appraised at least annually by reputable, independent appraisal firms. Property valuations are also reviewed on a regular basis and are adjusted if there has been a significant change in circumstances related to the property since the last valuation.

Other debt securities consist of insurance contracts, which are externally valued by insurance companies based on the present value of the expected future cash flows. Hedge funds consist of a wide range of investments which target a relatively stable investment return. The underlying funds are valued at different frequencies, some monthly and some quarterly, based on the value of the underlying investments. Other assets consist primarily of small investments in private equity funds and senior secured debt obligations of non-investment grade borrowers.

#### Other Plans

PPG has retained certain liabilities for pension and post-employment benefits earned for service up to the 2008 date of sale of its former automotive glass and service business, totaling approximately \$1,047 million and \$1,011 million at December 31, 2012 and 2011, respectively, for employees who were active as of the divestiture date and for individuals who were retirees of the business as of the divestiture date. PPG recognized expense of approximately \$35 million and \$35 million related to these obligations in 2012 and 2011, respectively.

Pittsburgh Glass Works LLC ceased production at its Oshawa, Canada plant in 2009 and closed its Hawkesbury, Canada plant in 2010. Under Canadian pension regulations, these plant closures will result in partial wind-ups of the pension plans for former employees at these plants, the liability for which was retained by PPG. Each of these partial windups will result in settlement charges against PPG earnings and require cash contributions to the plans. The final settlement charge and

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cash amounts will be determined following the required review of the partial wind-ups by the Canadian pension authorities. The amount of each pretax charge and the cash contribution is currently estimated to be in the range of \$20-30 million and \$10-15 million, respectively. The proposed effective dates of the partial windups related to the Oshawa and Hawkesbury plant closures are February 27, 2009 and August 31, 2010, respectively. Cash contributions are currently being made to the plans based on estimated cash requirements and must be completed by the end of the five year period following the proposed effective dates of the partial windups. The settlement charges will be recorded following the approval of the partial windups by the Canadian pension authorities and when the related cash contributions are completed.

The Company recognized expense for defined contribution pension plans in 2012, 2011 and 2010 of \$42 million, \$38 million and \$31 million, respectively. As of December 31, 2012 and 2011, the Company's liability for contributions to be made to the defined contribution pension plans was \$13 million and \$13 million, respectively.

The Company has a deferred compensation plan for certain key managers which allows them to defer a portion of their compensation in a phantom PPG stock account or other phantom investment accounts. The amount deferred earns a return based on the investment options selected by the participant. The amount owed to participants is an unfunded and unsecured general obligation of the Company. Upon retirement, death, disability, termination of employment, scheduled payment or unforeseen emergency, the compensation deferred and related accumulated earnings are distributed in accordance with the participant's election in cash or in PPG stock, based on the accounts selected by the participant.

The plan provides participants with investment alternatives and the ability to transfer amounts between the phantom non-PPG stock investment accounts. To mitigate the impact on compensation expense of changes in the market value of the liability, the Company has purchased a portfolio of marketable securities that mirror the phantom non-PPG stock investment accounts selected by the participants, except the money market accounts. These investments are carried by PPG at fair market value, and the changes in market value of these securities are also included in earnings. Trading occurs in this portfolio to align the securities held with the participant's phantom non-PPG stock investment accounts, except the money market accounts.

The cost of the deferred compensation plan, comprised of dividend equivalents accrued on the phantom PPG stock account, investment income and the change in market value of the liability, was expense in 2012, 2011 and 2010 of \$10 million, \$2 million and \$10 million, respectively. These amounts are included in "Selling, general and administrative" in the accompanying consolidated statement of income. The change in market value of the investment portfolio was income of \$8 million, \$1 million, and \$9 million in 2012, 2011 and 2010, respectively, of which \$0.9 million, \$0.8 million and \$0.4

million was realized gains, and is also included in "Selling, general and administrative."

The Company's obligations under this plan, which are included in "Accounts payable and accrued liabilities" and "Other liabilities" in the accompanying consolidated balance sheet, totaled \$102 million and \$95 million as of December 31, 2012 and 2011, respectively, and the investments in marketable securities, which are included in "Investments" and "Other current assets" in the accompanying consolidated balance sheet, were \$64 million and \$59 million as of December 31, 2012 and 2011, respectively.

#### 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, the most significant of which are described below, relate to contract, patent, environmental, product liability, antitrust and other matters arising out of the conduct of PPG's current and past business activities. To the extent that these lawsuits and claims involve personal injury and property damage, PPG believes it has adequate insurance; however, certain of PPG's insurers are contesting coverage with respect to some of these claims, and other insurers, as they had prior to the asbestos settlement described below, may contest coverage with respect to some of the asbestos claims if the

settlement is not implemented. 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 future litigation and the above lawsuits and claims are inherently unpredictable. However, management believes that, in the aggregate, the outcome of all lawsuits and claims involving PPG, including asbestos-related claims in the event the settlement described below does not become effective, 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.

#### Antitrust Matters

As previously disclosed, in 2010 PPG reached agreements to resolve flat glass antitrust matters in which PPG was a defendant, for approximately \$6 million. The court approved the settlements and distribution of the funds occurred in the first quarter 2012.

In 2010, Transitions Optical, Inc. ("TOI"), a consolidated subsidiary of the Company, entered into a settlement agreement, without admitting liability, with the Federal Trade Commission, which had alleged that TOI violated Section 5 of the Federal Trade Commission Act. Following the announcement of the settlement with the Federal Trade Commission, 30 private putative class cases were filed against TOI, alleging that it has monopolized and/or conspired to monopolize the market for photochromic lenses. All of the federal actions have been transferred and centralized in the Middle District of Florida (the "MDL Action"). Amended complaints in the MDL Action were



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filed in November and December 2010. In late 2011, the court ruled on TOI's motion to dismiss and allowed the plaintiffs to file new or further amended complaints. Plaintiffs in the MDL Action include Insight Equity A.P. X, LP, d/b/a Vision-Ease Lens Worldwide, Inc., which has sued on its own behalf, and putative classes of "direct purchasers," including laboratories and retailers (the "Lab/Retailer Plaintiffs"), and "indirect purchasers," consisting of end-user consumers. Plaintiffs in the MDL Action generally allege that TOI's exclusive dealing arrangements resulted in higher prices and seek lost profits and damages determined by the price premium attributable to wrongful exclusive deals. The damages sought are subject to trebling. The Lab/Retailer Plaintiffs also allege that TOI and certain affiliates of Essilor International SA conspired with respect to the wrongful exclusive dealing arrangements. Briefing with respect to class certification is expected to be completed in 2013. TOI believes it has meritorious defenses and continues to defend all of the above-described actions vigorously.

Asbestos Matters

For over 30 years, PPG has been a defendant in lawsuits involving claims alleging personal injury from exposure to asbestos. Most of PPG's potential exposure relates to allegations by plaintiffs that PPG should be liable for injuries involving asbestos-containing thermal insulation products, known as Unibestos, manufactured and distributed by Pittsburgh Corning Corporation ("PC"). PPG and Corning Incorporated are each 50% shareholders of PC. PPG has denied responsibility for, and has defended, all claims for any injuries caused by PC products. As of the April 16, 2000 order which stayed and enjoined asbestos claims against PPG (as discussed below), PPG was one of many defendants in numerous asbestos-related lawsuits involving approximately 114,000 claims served on PPG. During the period of the stay, PPG generally has not been aware of the dispositions, if any, of these asbestos claims.

Background of PC Bankruptcy Plan of Reorganization

On April 16, 2000, PC filed for Chapter 11 Bankruptcy in the U.S. Bankruptcy Court for the Western District of Pennsylvania located in Pittsburgh, Pa. Accordingly, in the first quarter of 2000, PPG recorded an after-tax charge of \$35 million for the write-off of all of its investment in PC. As a consequence of the bankruptcy filing and various motions and orders in that proceeding, the asbestos litigation against PPG (as well as against PC) has been stayed and the filing of additional asbestos suits against them has been enjoined, until 30 days after the effective date of a confirmed plan of reorganization for PC substantially in accordance with the settlement arrangement among PPG and several other parties discussed below. The stay may be terminated if the Bankruptcy Court determines that such a plan will not be confirmed, or the settlement arrangement set forth below is not likely to be consummated.

On May 14, 2002, PPG announced that it had agreed with several other parties, including certain of its insurance carriers, the official committee representing asbestos claimants in the PC bankruptcy, and the legal representatives of future asbestos

claimants appointed in the PC bankruptcy, on the terms of a settlement arrangement relating to certain asbestos claims against PPG and PC (the "2002 PPG Settlement Arrangement").

On March 28, 2003, Corning Incorporated announced that it had separately reached its own arrangement with the representatives of asbestos claimants for the settlement of certain asbestos claims against Corning Incorporated and PC (the "2003 Corning Settlement Arrangement").

The terms of the 2002 PPG Settlement Arrangement and the 2003 Corning Settlement Arrangement were incorporated into a bankruptcy reorganization plan for PC along with a disclosure statement describing the plan, which PC filed with the Bankruptcy Court on April 30, 2003. Amendments to the plan and disclosure statement were subsequently filed. On November 26, 2003, after considering objections to the second amended disclosure statement and plan of reorganization, the Bankruptcy Court entered an order approving such disclosure statement and directing that it be sent to creditors, including asbestos claimants, for voting. In March 2004, the second amended PC plan of reorganization (the "second amended PC plan of reorganization") received the required votes to approve the plan with a channeling injunction for present and future asbestos claimants under §524(g) of the Bankruptcy Code. After voting results for the second amended PC plan of reorganization were received, the Bankruptcy Court judge conducted a

hearing regarding the fairness of the settlement, including whether the plan would be fair with respect to present and future claimants, whether such claimants would be treated in substantially the same manner, and whether the protection provided to PPG and its participating insurers would be fair in view of the assets they would convey to the asbestos settlement trust (the "Trust") to be established as part of the second amended PC plan of reorganization. At that hearing, creditors and other parties in interest raised objections to the second amended PC plan of reorganization. Following that hearing, the Bankruptcy Court scheduled oral arguments for the contested items.

The Bankruptcy Court heard oral arguments on the contested items on November 17-18, 2004. At the conclusion of the hearing, the Bankruptcy Court agreed to consider certain post-hearing written submissions. In a further development, on February 2, 2005, the Bankruptcy Court established a briefing schedule to address whether certain aspects of a decision of the U.S. Third Circuit Court of Appeals in an unrelated case had any applicability to the second amended PC plan of reorganization. Oral arguments on these matters were subsequently held in March 2005. During an omnibus hearing on February 28, 2006, the Bankruptcy Court judge stated that she was prepared to rule on the PC plan of reorganization in the near future, provided certain amendments were made to the plan. Those amendments were filed, as directed, on March 17, 2006. After further conferences and supplemental briefings, in December 2006, the court denied confirmation of the second amended PC plan of reorganization, on the basis that the plan was too broad in the treatment of allegedly independent asbestos claims not associated with PC.

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Terms of 2002 PPG Settlement Arrangement

PPG had no obligation to pay any amounts under the 2002 PPG Settlement Arrangement until 30 days after the second amended PC plan of reorganization was finally approved by an appropriate court order that was no longer subject to appellate review (the “Effective Date”). If the second amended PC plan of reorganization had been approved as proposed, PPG and certain of its insurers (along with PC) would have made payments on the Effective Date to the Trust, which would have provided the sole source of payment for all present and future asbestos bodily injury claims against PPG, its subsidiaries or PC alleged to be caused by the manufacture, distribution or sale of asbestos products by these companies. PPG would have conveyed the following assets to the Trust: (i) the stock it owns in PC and Pittsburgh Corning Europe, (ii) 1,388,889 shares of PPG’s common stock and (iii) aggregate cash payments to the Trust of approximately \$998 million, payable according to a fixed payment schedule over 21 years, beginning on June 30, 2003, or, if later, the Effective Date. PPG would have had the right, in its sole discretion, to prepay these cash payments to the Trust at any time at a discount rate of 5.5% per annum as of the prepayment date. In addition to the conveyance of these assets, PPG would have paid \$30 million in legal fees and expenses on behalf of the Trust to recover proceeds from certain historical insurance assets, including policies issued by certain insurance carriers that were not participating in the settlement, the rights to which would have been assigned to the Trust by PPG.

Under the proposed 2002 PPG Settlement Arrangement, PPG’s participating historical insurance carriers would have made cash payments to the Trust of approximately \$1.7 billion between the Effective Date and 2023. These payments could also have been prepaid to the Trust at any time at a discount rate of 5.5% per annum as of the prepayment date. In addition, as referenced above, PPG would have assigned to the Trust its rights, insofar as they related to the asbestos claims to have been resolved by the Trust, to the proceeds of policies issued by certain insurance carriers that were not participating in the 2002 PPG Settlement Arrangement and from the estates of insolvent insurers and state insurance guaranty funds.

Under the proposed 2002 PPG Settlement Arrangement, PPG would have granted asbestos releases to all participating insurers, subject to a coverage-in-place agreement with certain insurers for the continuing coverage of premises claims (discussed below). PPG would have granted certain participating insurers full policy releases on primary policies and full product liability releases on excess coverage policies. PPG would have also granted certain other participating excess insurers credit against their product liability coverage limits.

If the second amended PC plan of reorganization incorporating the terms of the 2002 PPG Settlement Arrangement and the 2003 Corning Settlement Arrangement had been approved by the Bankruptcy Court, the Court would have entered a channeling injunction under §524(g) and other provisions of the Bankruptcy Code, prohibiting present and future claimants from asserting bodily injury claims after the Effective Date against PPG or its subsidiaries or PC relating to the manufacture, distribution or sale of asbestos-containing products by PC or PPG or its subsidiaries. The injunction would have also prohibited codefendants in those cases from asserting claims against PPG for contribution, indemnification or other recovery. All such claims would have been filed with the Trust and only paid from the assets of the Trust.

Modified Third Amended PC Plan of Reorganization

To address the issues raised by the Bankruptcy Court in its December 2006 ruling, the interested parties engaged in extensive negotiations regarding the terms of a third amended PC plan of reorganization, including modifications to the 2002 PPG Settlement Arrangement. A modified third amended PC plan of reorganization (the “third amended PC plan of reorganization”), including a modified PPG settlement arrangement (the “2009 PPG Settlement Arrangement”), was filed with the Bankruptcy Court on January 29, 2009. The parties also filed a disclosure statement describing the third amended PC plan of reorganization with the court. The third amended PC plan of reorganization also includes a modified settlement arrangement of Corning Incorporated.

Several creditors and other interested parties filed objections to the disclosure statement. Those objections were overruled by the Bankruptcy Court by order dated July 6, 2009 approving the disclosure statement. The third amended PC plan of reorganization and disclosure statement were then sent to creditors, including asbestos claimants, for

voting. The report of the voting agent, filed on February 18, 2010, revealed that all voting classes, including asbestos claimants, voted overwhelmingly in favor of the third amended PC plan of reorganization, which included the 2009 PPG Settlement Arrangement. In light of the favorable vote on the third amended PC plan of reorganization, the Bankruptcy Court conducted a hearing regarding the fairness of the proposed plan, including whether (i) the plan would be fair with respect to present and future claimants, (ii) such claimants would be treated in substantially the same manner, and (iii) the protection provided to PPG and its participating insurers would be fair in view of the assets they would convey to the Trust to be established as part of the third amended PC plan of reorganization. The hearing was held in June of 2010. The remaining objecting parties (a number of objections were resolved through plan amendments and stipulations filed before the hearing) appeared at the hearing and presented their cases. At the conclusion of the hearing, the Bankruptcy Court established a briefing schedule for its consideration of confirmation of the plan and the objections to confirmation. That briefing was completed and final oral arguments held in October 2010. On June 16, 2011 the Bankruptcy Court issued a decision denying confirmation of the

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third amended PC plan of reorganization. Although denying confirmation, PPG believes that the decision viewed favorably many features of that plan.

Since the June 16, 2011 ruling, the third amended plan of reorganization has been the subject of negotiations among the parties in interest, amendments, proposed amendments and hearings. On April 20, 2012, PC filed plan materials with proposed amendments to the third amended PC plan of reorganization, which PPG believed would, upon adoption as a final amended plan, resolve all of the issues raised by the Bankruptcy Court in its June 16, 2011 ruling. On June 21, 2012, the Bankruptcy Court heard argument regarding whether the remaining insurer objectors had standing to continue to prosecute their objections to the plan materials. The Bankruptcy Court did not rule at that time on the question of the remaining insurer objectors' standing, but took the matter under advisement. On July 17, 2012, the Bankruptcy Court issued an order setting forth the schedule for finalizing an amended plan and moving the PC bankruptcy reorganization proceedings forward. Specifically, the Bankruptcy Court ordered that an amended plan of reorganization be filed on or before August 20, 2012. Consistent with that order, PC filed an amended PC plan of reorganization on August 17, 2012, along with a certification advising the Bankruptcy Court that the August 17, 2012 amended PC plan of reorganization was identical to the plan materials filed on April 20, 2012. The July 17 order contemplated further proceedings in connection with potential objections to that plan and set a hearing for October 10, 2012 for arguments on any objections. Objections were filed by three entities on or before the deadline prescribed by the Bankruptcy Court. One set of objections was resolved by PC and another set merely restated for appellate purposes objections filed by a party that the Bankruptcy Court previously overruled. The Bankruptcy Court heard oral argument on the one remaining set of objections filed by the remaining insurer objectors on October 10, 2012. At the conclusion of that argument, the Bankruptcy Court set forth a schedule for negotiating and filing language that would resolve some, but not all, of the objections to confirmation advanced by the insurer objectors. On October 25, 2012, PC filed a notice regarding proposed confirmation order language that resolved those specific objections. The Bankruptcy Court has taken the remaining objections under advisement.

If the Bankruptcy Court ultimately finds the amended PC plan of reorganization to be acceptable, the Bankruptcy Court will enter a confirmation order if all requirements to confirm a plan of reorganization under the Bankruptcy Code have been satisfied. Such an order could be appealed to the U.S. District Court for the Western District of Pennsylvania by any remaining insurer or other objectors to the amended and confirmed PC plan of reorganization. Assuming that the District Court approves a confirmation order, any remaining insurer or other objectors could appeal the order to the U.S. Third Circuit Court of Appeals and subsequently could seek review by the U.S. Supreme Court. The 2009 PPG Settlement Arrangement will not become effective until an amended PC plan of reorganization is finally

approved by an appropriate court order that is no longer subject to appellate review, and PPG's initial contributions will not be due until 30 business days thereafter (the "Funding Effective Date").

**Asbestos Claims Subject to Bankruptcy Court's Channeling Injunction**

If an amended PC plan of reorganization is approved by the Bankruptcy Court and becomes effective, a channeling injunction will be entered under §524(g) of the Bankruptcy Code prohibiting present and future claimants from asserting asbestos claims against PC. With regard to PPG, the channeling injunction by its terms will prohibit present and future claimants from asserting claims against PPG that arise, in whole or in part, out of exposure to Unibestos, or any other asbestos or asbestos-containing products manufactured, sold and/or distributed by PC, or asbestos on or emanating from any PC premises. The injunction by its terms will also prohibit codefendants in these cases that are subject to the channeling injunction from asserting claims against PPG for contribution, indemnification or other recovery. Such injunction will also preclude the prosecution of claims against PPG arising from alleged exposure to asbestos or asbestos-containing products to the extent that a claimant is alleging or seeking to impose liability, directly or indirectly, for the conduct of, claims against or demands on PC by reason of PPG's: (i) ownership of a financial interest in PC; (ii) involvement in the management of PC, or service as an officer, director or employee of PC or a related party; (iii) provision of insurance to PC or a related party; or (iv) involvement in a financial transaction

affecting the financial condition of PC or a related party. The foregoing PC related claims are referred to as “PC Relationship Claims” and constitute, in PPG management’s opinion, the vast majority of the pending asbestos personal injury claims against PPG. All claims channeled to the Trust will be paid only from the assets of the Trust.

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## Asbestos Claims Retained by PPG

The channeling injunction provided for under the third amended PC plan of reorganization, as amended, will not extend to any claim against PPG that arises out of exposure to any asbestos or asbestos-containing products manufactured, sold and/or distributed by PPG or its subsidiaries that is not a PC Relationship Claim, and in this respect differs from the channeling injunction contemplated by the second amended PC plan of reorganization filed in 2003. While management believes that the vast majority of the approximately 114,000 claims against PPG alleging personal injury from exposure to asbestos relate to products manufactured, distributed or sold by PC, the potential liability for any non-PC Relationship Claims will be retained by PPG. Because a determination of whether an asbestos claim is a non-PC Relationship Claim would typically not be known until shortly before trial and because the filing and prosecution of asbestos claims (other than certain premises claims) against PPG has been enjoined since April 2000, the actual number of non-PC Relationship Claims that may be pending at the expiration of the stay or the number of additional claims that may be filed against PPG in the future cannot be determined at this time. PPG does not expect the Bankruptcy Court to lift the stay until after confirmation or rejection of the third amended PC plan of reorganization, as amended, although the bankruptcy court may entertain motions to lift the stay as to specific claims. PPG intends to defend against all such claims vigorously and their ultimate resolution in the court system is expected to occur over a period of years.

In addition, similar to what was contemplated by the second amended PC plan of reorganization, the channeling injunction will not extend to claims against PPG alleging personal injury caused by asbestos on premises owned, leased or occupied by PPG (so called “premises claims”), which generally have been subject to the stay imposed by the Bankruptcy Court. Historically, a small proportion of the claims against PPG and its subsidiaries have been premises claims, and based upon review and analysis, PPG believes that the number of premises claims currently comprises less than 2% of the total asbestos related claims against PPG. Beginning in late 2006, the Bankruptcy Court lifted the stay with respect to certain premises claims against PPG. As a result, PPG and its primary insurers have settled approximately 500 premises claims. PPG’s insurers agreed to provide insurance coverage for a major portion of the payments made in connection with the settled claims, and PPG accrued the portion of the settlement amounts not covered by insurance. PPG, in conjunction with its primary insurers as appropriate, evaluates the factual, medical, and other relevant information pertaining to additional claims as they are being considered for potential settlement. The number of such claims under consideration for potential settlement, currently approximately 380, varies from time to time. Premises claims remain subject to the stay, as outlined above, although certain claimants have requested the Court to lift the stay with respect to these claims and the stay has been lifted as to some claims. PPG believes that any financial exposure resulting from such premises claims, taking into account available insurance

coverage, will not have a material adverse effect on PPG’s consolidated financial position, liquidity or results of operations.

## PPG’s Funding Obligations

PPG has no obligation to pay any amounts under the third amended PC plan of reorganization, as amended, until the Funding Effective Date. If the third amended PC plan of reorganization, as amended, is approved, PPG and certain of its insurers will make the following contributions to the Trust. On the Funding Effective Date, PPG will relinquish any claim to its equity interest in PC, convey the stock it owns in Pittsburgh Corning Europe and transfer 1,388,889 shares of PPG’s common stock or cash equal to the fair value of such shares as defined in the 2009 PPG Settlement Arrangement. PPG will make aggregate cash payments to the Trust of approximately \$825 million, payable according to a fixed payment schedule over a period ending in 2023. The first payment is due on the Funding Effective Date. PPG would have the right, in its sole discretion, to prepay these cash payments to the Trust at any time at a discount rate of 5.5% per annum as of the prepayment date. PPG’s historical insurance carriers participating in the third amended PC plan of reorganization will also make cash payments to the Trust of approximately \$1.7 billion between the Funding Effective Date and 2027. These payments could also be prepaid to the Trust at any time at a discount rate of 5.5% per annum as of the prepayment date. PPG will grant asbestos releases and indemnifications to all

participating insurers, subject to amended coverage-in-place arrangements with certain insurers for remaining coverage of premises claims. PPG will grant certain participating insurers full policy releases on primary policies and full product liability releases on excess coverage policies. PPG will also grant certain other participating excess insurers credit against their product liability coverage limits.

PPG's obligation under the 2009 PPG Settlement Arrangement at December 31, 2008 was \$162 million less than the amount that would have been due under the 2002 PPG Settlement Arrangement. This reduction is attributable to a number of negotiated provisions in the 2009 PPG Settlement Arrangement, including the provisions relating to the channeling injunction under which PPG retains liability for any non-PC Relationship Claims. PPG will retain such amount as a reserve for asbestos-related claims that will not be channeled to the Trust, as this amount represents PPG's best estimate of its liability for these claims. PPG does not have sufficient current claim information or settlement history on which to base a better estimate of this liability, in light of the fact that the Bankruptcy Court's stay has been in effect since 2000. As a result, PPG's reserve at December 31, 2012 and December 31, 2011 for asbestos-related claims that will not be channeled to the Trust is \$162 million. This amount is included within "Other liabilities" on the accompanying consolidated balance sheets. In addition, under the 2009 PPG Settlement Arrangement, PPG will retain for its own account rights to recover proceeds from certain historical insurance assets, including policies issued by non-participating insurers. Rights to recover these proceeds would



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have been assigned to the Trust by PPG under the 2002 PPG Settlement Arrangement.

Following the effective date of the third amended PC plan of reorganization, as amended, and the lifting of the Bankruptcy Court stay, PPG will monitor the activity associated with asbestos claims which are not channeled to the Trust pursuant to the third amended PC plan of reorganization, and evaluate its estimated liability for such claims and related insurance assets then available to the Company as well as underlying assumptions on a periodic basis to determine whether any adjustment to its reserve for these claims is required.

Of the total obligation of \$920 million and \$834 million under the 2009 PPG Settlement Arrangement at December 31, 2012 and 2011, respectively, \$683 million and \$593 million are reported as a current liabilities and the present value of the payments due in the years 2014 to 2023 totaling \$237 million and 2013 to 2023 totaling \$241 million are reported as a non-current liability in the accompanying consolidated balance sheet as of December 31, 2012 and 2011. The future accretion of the non-current portion of the liability totals \$109 million at December 31, 2012, and will be reported as expense in the consolidated statement of income over the period through 2023, as follows (in millions):

2013	\$14
2014	14
2015 – 2023	81
Total	\$109

The following table summarizes the impact on PPG's financial statements for the three years ended December 31, 2012 resulting from the 2009 PPG Settlement Arrangement including the change in fair value of the stock to be transferred to the Trust and the related equity forward instrument (see Note 11, "Derivative Financial Instruments and Hedge Activities") and the increase in the net present value of the future payments to be made to the Trust.

(Millions)	Consolidated Balance Sheet		Equity Forward (Asset) Liability	Pretax Charge
	Asbestos Settlement Liability Current	Long-term		
Balance as of January 1, 2010	\$534	\$238	\$(18)	) \$13
Change in fair value:				
PPG stock	35	—	—	35
Equity forward instrument	—	—	(37)	) (37)
Accretion of asbestos liability	—	14	—	14
Reclassification	9	(9)	) —	—
Balance as of and Activity for the year ended December 31, 2010	\$578	\$243	\$(55)	) \$12
Change in fair value:				
PPG stock	(1)	) —	—	(1)
Equity forward instrument	—	—	(1)	) (1)
Accretion of asbestos liability	—	14	—	14
Reclassification	16	(16)	) —	—
Balance as of and Activity for the year ended December 31, 2011	\$593	\$241	\$(56)	) \$12
Change in fair value:				
PPG stock	72	—	—	72
Equity forward instrument	—	—	(74)	) (74)
Accretion of asbestos liability	—	14	—	14

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Reclassification	18	(18	)	—	—
Balance as of and Activity for the year ended December 31, 2012	\$683	\$237		\$(130	) \$12

The fair value of the equity forward instrument is included as an "Other current asset" as of December 31, 2012 and 2011 in the accompanying consolidated balance sheet. Payments under the fixed payment schedule require annual payments that are due each June. The current portion of the asbestos settlement liability included in the accompanying consolidated balance sheet as of December 31, 2012, consists of all such payments required through June 2013, the fair value of PPG's common stock and the value of PPG's investment in Pittsburgh Corning Europe. The amount due June 30, 2014 of \$5 million and the net present value of the remaining payments is included in the long-term asbestos settlement liability in the accompanying consolidated balance sheet as of December 31, 2012.

Enjoined Claims

If the 2009 PPG Settlement Arrangement is not implemented, for any reason, and the Bankruptcy Court stay expires, PPG intends to defend vigorously the pending and any future asbestos claims, including PC Relationship Claims,

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asserted against it and its subsidiaries. PPG continues to assert that it is not responsible for any injuries caused by PC products, which it believes account for the vast majority of the pending claims against PPG. Prior to 2000, PPG had never been found liable for any PC-related claims. In numerous cases, PPG was dismissed on motions prior to trial, and in others PPG was released as part of settlements by PC. PPG was found not responsible for PC-related claims at trial in two cases. In January 2000, one jury found PPG, for the first time, partly responsible for injuries to five plaintiffs alleged to be caused by PC products. The plaintiffs holding the judgment on that verdict moved to lift the injunction as applied to their claims. Before the hearing on that motion, PPG entered into a settlement with those claimants in the second quarter of 2010 to avoid the costs and risks associated with the possible lifting of the stay and appeal of the adverse 2000 verdict. The settlement resolved both the motion to lift the injunction and the judgment against PPG. The cost of this settlement was not significant to PPG's results of operations for the second quarter of 2010 and was fully offset by prior insurance recoveries. Although PPG has successfully defended asbestos claims brought against it in the past, in view of the number of claims, and the significant verdicts that other companies have experienced in asbestos litigation, the result of any future litigation of such claims is inherently unpredictable.

Environmental Matters

It is PPG's policy to accrue expenses for environmental contingencies when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Reserves for environmental contingencies are exclusive of claims against third parties and are generally not discounted. In management's opinion, the Company operates in an environmentally sound manner and the outcome of the Company's environmental contingencies will not have a material effect on PPG's financial position or liquidity; however, any such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized. Management anticipates that the resolution of the Company's environmental contingencies will occur over an extended period of time.

As of December 31, 2012 and 2011, PPG had reserves for environmental contingencies totaling \$332 million and \$226 million, respectively, of which \$101 million and \$59 million, respectively, were classified as current liabilities. The reserve at December 31, 2012 included \$221 million for environmental contingencies associated with PPG's former chromium manufacturing plant in Jersey City, N.J. ("New Jersey Chrome"), \$80 million for other environmental contingencies, including National Priority List sites and legacy glass and chemical manufacturing sites, and \$31 million for environmental contingencies associated with the Calcasieu River estuary located near the Lake Charles, La. chlor-alkali plant and two operating plant sites in PPG's former commodity chemicals business. The reserve at December 31, 2011 included \$129 million for environmental contingencies associated with the former chromium manufacturing plant in Jersey City, \$63

million for other environmental contingencies, including National Priority List sites and legacy glass and chemical manufacturing sites, and \$34 million for environmental contingencies associated with the Calcasieu River Estuary and two operating plant sites in PPG's former commodity chemicals business. Pretax charges against income for environmental remediation costs in 2012, 2011 and 2010 totaled \$167 million, \$16 million and \$21 million, respectively, and are included in "Other charges" in the accompanying consolidated statement of income. Cash outlays related to such environmental remediation aggregated \$66 million, \$59 million, and \$34 million in 2012, 2011 and 2010, respectively. The impact of foreign currency increased the liability by \$2 million in 2012 and decreased the liability by \$3 million in 2011. As a result of the allocation of the purchase price of acquisitions to assets acquired and liabilities assumed, the liability for environmental contingencies was increased by \$3 million during 2012.

The Company continues to analyze, assess and remediate the environmental issues associated with New Jersey Chrome. In connection with the preparation of a final draft soil remedial action work plan and cost estimate that was originally required to be submitted to the NJDEP in May 2012, which has been delayed while PPG is working with NJDEP and the City of Jersey City to address issues related to PPG's proposed approach to obtaining use limitations for the properties that will be remediated, the Company compiled updated information about the sites that was used to develop a new estimate of the cost to remediate these sites which resulted in a charge against earnings of \$145 million in the first quarter of 2012. A pretax charge of \$165 million for the estimated costs of remediating these sites was

recorded in the third quarter of 2006. These charges for estimated environmental remediation costs in 2006 and 2012 were significantly higher than PPG's historical range. Excluding 2006 and 2012, pre-tax charges against income for environmental remediation have ranged between \$10 million and \$35 million per year for the past 16 years. Charges in 2013 are expected to again be within this historical range.

Management expects cash outlays for environmental remediation costs to be approximately \$100 million annually through 2015 and to range from \$10 million to \$30 million annually in 2016 and 2017. It is possible that technological, regulatory and enforcement developments, the results of environmental studies and other factors could alter the Company's expectations with respect to future charges against income and future cash outlays. Specifically, the level of expected future remediation costs and cash outlays is highly dependent upon activity related to New Jersey Chrome as discussed below.

**Remediation: New Jersey Chrome**

Since 1990, PPG has remediated 47 of 61 residential and nonresidential sites under the 1990 Administrative Consent Order ("ACO") with the New Jersey Department of Environmental Protection ("NJDEP"). The most significant of the 14 remaining sites is the former chromium manufacturing location in Jersey City, New Jersey. The principal contaminant of

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concern is hexavalent chromium. The Company submitted a feasibility study work plan to the NJDEP in October 2006 that included a review of the available remediation technology alternatives for the former chromium manufacturing location. As a result of the extensive analysis undertaken in connection with the preparation and submission of that feasibility study work plan, the Company recorded a pretax charge of \$165 million in the third quarter of 2006. This charge included estimated costs for remediation at the 14 remaining ACO sites, including the former manufacturing site, and for the resolution of litigation filed by NJDEP in May 2005 as discussed below. The principal estimated cost elements of the third quarter 2006 charge were based on competitively derived or readily available remediation industry cost data. The major cost components of this charge were (i) transportation and disposal of excavated soil and in place soil treatment and (ii) construction services (related to soil excavation, groundwater management and site security).

In May 2005, the NJDEP filed a complaint against PPG and two other former chromium producers seeking to hold the parties responsible for a further 53 sites where the source of chromium contamination is not known and to recover costs incurred by the agency in connection with its response activities at certain of those sites. During the third quarter of 2008, the parties reached an agreement in principle on all claims relating to these 53 sites (the "Orphan Sites Settlement"). Under the terms of this Orphan Sites Settlement, PPG accepted responsibility for remediation of 6 of the 53 sites, one half of the cost for remediating ten sites where chrome ore processing residue was used as fill in connection with the installation or repair of sewer lines owned by Jersey City, reimburse the NJDEP for a portion of past costs in the amount of \$5 million and be responsible for the NJDEP's oversight costs associated with the sites for which PPG is wholly or partially responsible. This settlement was finalized and issued for public comment in June 2011. After the close of the public comment period, NJDEP determined that no changes to the settlement were necessary and a motion was filed with the court to enter the settlement as a final order. In September 2011, the court entered the Orphan Sites Settlement as a final order. PPG paid its share of past costs in October 2011. This Orphan Sites Settlement did not affect PPG's responsibilities for the 14 remaining unremediated sites covered by PPG's ACO. The investigation and remediation of the soils and sources of contamination of the ten sewer sites will occur over an extended period of time to allow for investigation and determination of impacts associated with these sites, and coordination of remediation with the maintenance and repair of the sewers by Jersey City.

A settlement agreement among PPG, NJDEP and Jersey City (which had asserted claims against PPG for lost tax revenue) has been reached and memorialized in the form of a Judicial Consent Order (the "JCO") that was entered by the court on June 26, 2009. PPG's remedial obligations under the ACO with NJDEP have been incorporated into the JCO. Pursuant to the JCO, a new process has been established for the review of the technical reports PPG must submit for the investigation and remedy selection for the 14 ACO sites and the six sites for which

PPG has accepted sole responsibility under the terms of the Orphan Sites Settlement ("20 PPG sites"). 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. The JCO established a goal, based on currently applicable remedial provisions, to remediate soils and sources of contamination at the 20 PPG sites as expeditiously as possible for completion at the end of 2014 in accordance with the master schedule developed by the Site Administrator. On July 6, 2009, former United States Environmental Protection Agency Deputy Administrator, Michael McCabe, was appointed as Site Administrator under the JCO. The JCO also resolved the claims for reparations for lost tax revenues by Jersey City with the payment of \$1.5 million over a five year time period. The JCO did not otherwise affect PPG's responsibility for the remediation of the 14 ACO sites. PPG's estimated costs under the JCO, including amounts related to site administration, are included in the December 31, 2012 reserve for New Jersey Chrome environmental remediation matters.

In the first quarter of 2012, an additional site was identified for which PPG has assumed responsibility for hexavalent chromium contamination. PPG learned that chromate waste from its former plant site was transported and used as construction fill at this location. PPG is working cooperatively with the property owner to support his cleanup of the site. A preliminary estimate of the cost to investigate and remediate hexavalent chromium contamination has been

included in the accrued liability balance at December 31, 2012.

Since October 2006, activities contained in the feasibility study work plan have been undertaken and remedial alternatives were assessed which included, but were not limited to, soil excavation and offsite disposal in a licensed disposal facility, in situ chemical stabilization of soil and groundwater, and in situ solidification of soils. The feasibility study work plan for the former chromium manufacturing site previously submitted in 2006 was incorporated into a remedial action work plan. PPG submitted a preliminary draft soil remedial action work plan for the former chromium manufacturing and adjacent sites to NJDEP in June 2011. PPG received commentary from the NJDEP in connection with their review. The work plans for interim remedial measures at the chromium manufacturing site, which consisted of the removal and off-site disposal of approximately 70,000 tons of chromium impacted soil and concrete foundations, was approved by NJDEP and the associated work was completed in the third quarter 2011. The submission of a final draft soil remedial action work plan for the former chromium manufacturing and adjacent sites was initially required to be submitted to NJDEP in May 2012. However, this submission has been delayed while PPG is working with NJDEP and Jersey City to address issues related to PPG's proposed approach to obtaining use limitations for the properties that will be remediated. Property owners must accept use limitations before NJDEP may approve a remedial action work plan. In the meantime, NJDEP has completed a review of the technical aspects of PPG's proposed soil remedial action work plan and

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has expressed their support of the remediation activities identified therein which PPG continues to perform while the issues related to use limitations for these properties are being addressed. PPG has submitted a final draft remedial action work plan for one other remaining site under the ACO which has been conditionally approved by the NJDEP. Remedial activities are expected to begin at this site in early 2013. In addition, during 2012 PPG completed remedial activities at three sites for which PPG has accepted sole responsibility under the terms of the Orphan Sites Settlement and has received "No Further Action" determination from the NJDEP for these sites. Soil investigation activities for all remaining sites covered by the ACO are also expected to be completed in 2013, and PPG believes the results of the work performed in connection with the preparation of the plan, as described above provides the Company with relevant information concerning remediation alternatives and estimated costs at these sites.

As work continued at all of the New Jersey Chrome sites and the final draft soil remedial action work plan for the former chromium manufacturing and adjacent sites was being developed, the estimated remediation costs were refined for all New Jersey Chrome sites and the updated information was used to compile a new estimate of the remediation costs, which resulted in a charge of \$145 million in the first quarter of 2012. The liability for remediation of the New Jersey Chrome sites totals \$221 million at December 31, 2012. The major cost components of this liability continue to be related to transportation and disposal of impacted soil as well as construction services. These components account for approximately 55% and 30% of the accrued amount, respectively, as of December 31, 2012. The accrued liability also includes estimated costs for water treatment, engineering and project management. The final draft soil remedial action work plan is based upon plans for PPG to obtain use limitations for the properties that will be remediated by various means including the purchase of certain sites. Based on our recently completed and on going investigations, approximately one million tons of soil may be potentially impacted for all New Jersey Chrome sites. The most significant assumptions underlying the current cost estimate are those related to the extent and concentration of chromium impacts in the soil, as these determine the quantity of soil that must be treated in place, the quantity that will have to be excavated and transported for offsite disposal, and the nature of disposal required. The charges taken for the estimated cost to remediate the New Jersey Chrome sites are exclusive of any third party indemnification, as the recovery of any such amounts is uncertain. Information will continue to be generated from the ongoing groundwater remedial investigation activities related to New Jersey Chrome and will be incorporated into a final draft remedial action work plan for groundwater expected to be submitted to NJDEP in the second quarter of 2014. As described above, there are multiple future events yet to occur, including further remedy selection and design, remedy implementation and execution, the obtaining of required approvals from applicable governmental agencies or community organizations and the final draft remedial action work plan for

groundwater to be submitted to NJDEP in 2014. Considerable uncertainty exists regarding the timing of these future events for the New Jersey Chrome sites. Final resolution of these events is expected to occur over the next two to three 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 will be adjusted.

**Remediation: Calcasieu River Estuary**

In Lake Charles, La. the U.S. Environmental Protection Agency ("USEPA") completed an investigation of contamination levels in the Calcasieu River Estuary and issued a final remedial investigation report in September 2003, which incorporates the Human Health and Ecological Risk Assessments, indicating that elevated levels of risk exist in the estuary. PPG and other potentially responsible parties have completed a feasibility study under the authority of the Louisiana Department of Environmental Quality ("LDEQ"). PPG's exposure with respect to the Calcasieu Estuary is focused on the lower few miles of Bayou d'Inde, a small tributary to the Calcasieu Estuary near PPG's Lake Charles facility, and about 150 to 200 acres of adjacent marshes. The Company and three other potentially responsible parties submitted a draft remediation feasibility study report to the LDEQ in October 2006. The proposed remedial alternatives include sediment dredging, sediment capping, and biomonitoring of fish and shellfish. Principal contaminants of concern which may require remediation include various metals, dioxins and furans, and polychlorinated biphenyls. In response to agency comments on the draft study, the companies conducted additional

investigations and submitted a revised feasibility report to the agencies in the third quarter of 2008. Government officials have indicated that a U.S. Army Corps of Engineers' study has concluded that the proposed remedy will not adversely affect drainage in communities adjacent to Bayou d'Inde. In response to the revised feasibility study, LDEQ issued a draft decision document for the Bayou d'Inde area in February 2010. The decision document includes LDEQ's selection of remedial alternatives for the Bayou d'Inde area and is in accordance with those recommended in the revised feasibility study. LDEQ held a public hearing on March 23, 2010 and subsequently issued its final decision document in March 2011. As in its draft document, LDEQ's selection of remedial approaches is in accordance with those proposed in the feasibility study.

In June 2011, the agency proposed entering into a new Cooperative Agreement with the four companies to implement the remedy for Bayou d'Inde based on the final decision document, and transmitted a draft document for the companies' consideration. At the same time, the companies initiated discussions among themselves on allocation of costs associated with remedy implementation. In October 2011, one of the three other potentially responsible parties that had participated in funding the feasibility study withdrew from further discussions with LDEQ regarding implementation of the remedy. The withdrawal of this party did not have an effect on the cost to PPG to complete this remedy implementation. On November 5, 2012, PPG and the two remaining parties submitted a revised



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Cooperative Agreement to LDEQ and are awaiting LDEQ's response. The estimated costs associated with PPG's responsibility with respect to this Cooperative Agreement are consistent with the amounts currently reserved by PPG for this project.

Multiple future events, such as remedy design and remedy implementation involving agency action or approvals related to the Calcasieu River Estuary will be required and considerable uncertainty exists regarding the timing of these future events. Final resolution of these events is expected to occur over an extended period of time. However, LDEQ approved the remedial design submittal in late 2012, and the remedy implementation could occur during 2013 to 2015, with some period of long-term monitoring for remedy effectiveness to follow.

**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 \$275 million. This range is less than the comparable amount reported at the end of 2011 as a result of the additional environmental remediation charge recorded in the first quarter 2012. Such unreserved losses are reasonably possible but are not currently considered to be probable of occurrence. This range of reasonably possible unreserved loss relates to environmental matters at a number of sites including each of the following; i) additional costs at New Jersey Chrome, which represents about one third of this potential range, ii) a number of other sites, including legacy glass and chemical manufacturing sites and iii) the Calcasieu River Estuary and two operating plant sites in the Company's former commodity chemicals business. 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 status of the remediation activity at New Jersey Chrome and at the Calcasieu River Estuary and the factors that could result in the need for additional environmental remediation reserves at those sites are described above. Certain remedial actions are occurring at a legacy chemical site in Barberton, Ohio and the two operating plant sites in the former commodity chemicals business. The operating plant sites are in Lake Charles, Louisiana and Natrium, West Virginia. At Barberton, PPG has completed a Facility Investigation and Corrective Measure Study ("CMS") under USEPA's Resource Conservation and Recycling Act ("RCRA") Corrective Action Program. PPG has been implementing the remediation alternatives recommended in the CMS using a performance-based approach with USEPA Region V oversight. However, USEPA Region V transferred its oversight authority to the Ohio Environmental Protection Agency ("OEPA") in 2010. The Barberton Corrective Action Permit was issued by OEPA on September 24, 2010. As part of this permit, PPG is responsible for filing engineering remedies for various issues at this site. Several of these remedies have not yet been filed with the OEPA. Similarly, the Company

has completed a Facility Investigation and CMS for the Lake Charles facility under the oversight of the LDEQ. The LDEQ has accepted the proposed remedial alternatives. PPG received notice of LDEQ issuance of the final Hazardous Waste Post-Closure/HSWA Permit on June 28, 2010. The Permit was issued in final form on September 23, 2010. Planning for or implementation of these proposed alternatives is in progress. At Natrium, a facility investigation has been completed and initial interim remedial measures have been implemented to mitigate soil impacts. There is additional investigation of groundwater contamination ongoing, including Ohio River sediment and sediment pore-water sampling. If it is found that contamination from the plant site is contaminating the river, this may indicate the need for further onsite remedial actions to address specific areas of the facility. Installation of a groundwater treatment system has been completed. PPG has been addressing impacts from a legacy plate glass manufacturing site in Kokomo, Indiana under the Voluntary Remediation Program of the Indiana Department of Environmental Management. PPG is currently performing additional investigation activities.

With respect to certain waste sites, the financial condition of any 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.

The impact of evolving programs, such as natural resource damage claims, industrial site reuse initiatives and state 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.

#### Separation and Merger of the Commodity Chemicals Business

All known and currently reserved environmental liabilities associated with the commodity chemicals business were transferred with the separation of this business from PPG and subsequent merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. The newly merged company, Axiall, will assume responsibility for these liabilities. As a result of this transaction, PPG will retain responsibility for potential environmental liabilities that may result from future Natural Resource Damage claims and any potential tort claims at the Calcasieu River Estuary associated with activities and historical operations of the Lake Charles, La. facility. PPG will additionally retain responsibility for all liabilities relating to, arising out of or resulting from sediment contamination in the Ohio River resulting from historical activities and operations at the Natrium, W.Va. facility.

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## Other Matters

PPG is a defendant in a matter in the California State Court in San Francisco in which the City of Modesto and its Redevelopment Authority claim that PPG and other defendants manufactured a defective product, the dry cleaning solvent perchloroethylene (“PCE”), and failed to provide adequate warnings regarding the environmental risks associated with the use of PCE. The plaintiffs claimed the defendants are responsible for remediation of soil and groundwater contamination at numerous dry cleaner sites in Modesto, California. In 2006, a Phase 1 trial was conducted as to four sites. The jury returned a verdict in the amount of \$3.1 million against PPG, The Dow Chemical Company, Vulcan, Oxy, and R.R. Street. The verdict was not apportioned.

Subsequent to the Phase 1 verdict, Vulcan and Oxy settled. In 2008, trial commenced on 18 Phase 2 Sites. Prior to submission of the case to the jury, the Court granted motions that limited PPG’s potential liability to one of the 18 sites. The damages sought at this one site totaled \$27 million. A jury verdict in the amount of \$18 million was returned against PPG and The Dow Chemical Company on May 18, 2009. The verdict was not apportioned. The jury was not able to reach a verdict on the statute of limitations issue on the site in question. However, on August 24, 2009, the trial court issued an opinion finding that the City’s claims were barred by the statute of limitations. The effect of the ruling was to nullify the jury’s Phase 2 damage award. In October 2009, the trial court held a non-jury trial of the Redevelopment Authority’s damage claims under the “Polanco Act”. On November 11, 2011, the court entered a final judgment consistent with all of the above results finding that prior settlements offset the \$3.1 million verdict against PPG and others. Requests for costs and fees based on whether the City or defendants were “prevailing parties” have been resolved in PPG’s favor. On September 24, 2012, the Court ordered the City to pay PPG \$0.3 million. Appeals are expected. On January 28, 2013, the responsibility for this pending legal matter was transferred as part of separation of its commodity chemicals business and the merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. See Note 25, "Separation and Merger Transaction" for financial information relating to this transaction.

## 16. Shareholders’ Equity

A class of 10 million shares of preferred stock, without par value, is authorized but unissued. Common stock has a par value of \$1.66 <sup>2</sup>/<sub>3</sub> per share; 600 million shares are authorized.

The following table summarizes the shares outstanding for the three years ended December 31, 2012:

	Common Stock	Treasury Stock	Shares Outstanding
Balance, Jan. 1, 2010	290,573,068	(124,905,409	) 165,667,659
Purchases	—	(8,124,621	) (8,124,621
Issuances	—	2,838,777	2,838,777
Balance, Dec. 31, 2010	290,573,068	(130,191,253	) 160,381,815
Purchases	—	(10,236,694	) (10,236,694
Issuances	—	1,743,659	1,743,659
Balance, Dec. 31, 2011	290,573,068	(138,684,288	) 151,888,780
Purchases	—	(1,000,000	) (1,000,000
Issuances	—	2,677,517	2,677,517
Balance, Dec. 31, 2012	290,573,068	(137,006,771	) 153,566,297

Per share cash dividends paid were \$2.34 in 2012, \$2.26 in 2011 and \$2.18 in 2010.

## 17. Accumulated Other Comprehensive Loss

(Millions)	Unrealized Currency Translation Adjustments	Pension and Other Post	Unrealized Gain (Loss) on Marketable	Unrealized Gain (Loss) on Derivatives	Accum- ulated Other Comp-rehensive
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		retire- ment Benefit Adjust-ments	Securities		(Loss) Income	
Balance, January 1, 2010	\$66	\$(1,292	) \$(1	) \$(34	) \$(1,261	)
Net change	(13	) (136	) 1	(2	) (150	)
Balance, December 31, 2010	\$53	\$(1,428	) \$—	\$(36	) \$(1,411	)
Net change	(188	) (169	) —	(32	) (389	)
Balance, December 31, 2011	\$(135	) \$(1,597	) \$—	\$(68	) \$(1,800	)
Net change	141	—	—	(7	) 134	
Balance, December 31, 2012	\$6	\$(1,597	) \$—	\$(75	) \$(1,666	)

With the exception of unrealized currency translation adjustments, all other components of accumulated other comprehensive loss are reported net of tax.

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

The tax (cost) benefit related to unrealized currency translation adjustments other than translation of foreign denominated balance sheets, for the years ended December 31, 2012, 2011 and 2010 was \$(1) million, \$(7) million and \$8 million, respectively.

The tax (cost) benefit related to the adjustment for pension and other postretirement benefits for the years ended

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December 31, 2012, 2011 and 2010 was \$(30) million, \$98 million and \$65 million, respectively. The cumulative tax benefit related to the adjustment for pension and other postretirement benefits at December 31, 2012 and 2011 was approximately \$960 million and \$990 million, respectively. There was no tax (cost) benefit related to the change in the unrealized gain (loss) on marketable securities for the year ended December 31, 2012. The tax (cost) benefit related to the change in the unrealized gain (loss) on marketable securities for the years ended December 31, 2011 and 2010 was \$(0.2) million and \$0.6 million, respectively. The tax benefit related to the change in the unrealized gain (loss) on derivatives for the years ended December 31, 2012, 2011 and 2010 was \$4 million, \$19 million and \$1 million, respectively.

## 18. Employee Savings Plan

PPG's Employee Savings Plan ("Savings Plan") covers substantially all U.S. employees. The Company makes matching contributions to the Savings Plan, at management's discretion, based upon participants' savings, subject to certain limitations. For most participants not covered by a collective bargaining agreement, Company-matching contributions are established each year at the discretion of the Company and are applied to participant savings up to a maximum of 6% of eligible participant compensation. For those participants whose employment is covered by a collective bargaining agreement, the level of Company-matching contribution, if any, is determined by the relevant collective bargaining agreement.

The Company-matching contribution was suspended from March 2009 through June 2010 as a cost savings measure in recognition of the adverse impact of the global recession. Effective July 1, 2010, the Company match was reinstated at 50% on the first 6% of compensation contributed for most employees eligible for the Company-matching contribution feature. This included the union represented employees in accordance with their collective bargaining agreements. On January 1, 2011, the Company match was increased to 75% on the first 6% of compensation contributed by these eligible employees and this level was maintained throughout 2012.

Compensation expense and cash contributions related to the Company match of participant contributions to the Savings Plan for 2012, 2011 and 2010 totaled \$28 million, \$26 million and \$9 million, respectively. A portion of the Savings Plan qualifies under the Internal Revenue Code as an Employee Stock Ownership Plan. As a result, the dividends on PPG shares held by that portion of the Savings Plan totaling \$18 million, \$20 million and \$24 million for 2012, 2011 and 2010, respectively, were tax deductible to the Company for U.S. Federal tax purposes.

## 19. Other Earnings

(Millions)	2012	2011	2010
Royalty income	\$51	\$55	\$58
Share of net earnings of equity affiliates (See Note 5)	11	37	45
Gain on sale of assets	4	12	8
Other	83	73	69
Total	\$149	\$177	\$180

## 20. 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 ("PPG Amended Omnibus Plan"), which was amended and restated effective April 21, 2011. Shares available for future grants under the PPG Amended Omnibus Plan were 8.5 million as of December 31, 2012.

Total stock-based compensation cost was \$73 million, \$36 million and \$52 million in 2012, 2011 and 2010, respectively. Stock-based compensation expense increased year over year due to the increase in the expected payout percentage of the 2010 performance-based RSU grants and PPG's total shareholder return performance in 2012 in comparison with the Standard & Poors (S&P) 500 index, which has increased the expense related to outstanding grants of contingent shares. The total income tax benefit recognized in the accompanying consolidated statement of income related to the stock-based compensation was \$25 million, \$13 million and \$18 million in 2012, 2011 and 2010, respectively.

### Stock Options

PPG has outstanding stock option awards that have been granted under two stock option plans: the PPG Industries, Inc. Stock Plan (“PPG Stock Plan”) and the PPG Amended Omnibus Plan. Under the PPG Amended Omnibus Plan and the PPG Stock Plan, certain employees of the Company have been granted options to purchase shares of common stock at prices equal to the fair market value of the shares on the date the options were granted. The options are generally exercisable beginning from six to 48 months after being granted and have a maximum term of 10 years. Upon exercise of a stock option, shares of Company stock are issued from treasury stock. The PPG Stock Plan includes a restored option provision for options originally granted prior to January 1, 2003 that allows an optionee to exercise options and satisfy the option cost by certifying ownership of mature shares of PPG common stock with a market value equal to the option cost.

The fair value of stock options issued to employees is measured on the date of grant and is recognized as expense over the requisite service period. PPG estimates the fair value of stock options using the Black-Scholes option pricing model. The risk-free interest rate is determined by using the U.S. Treasury yield

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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. This method is used as the vesting term of stock options was changed to three years in 2004 and, as a result, the historical exercise data does not provide a reasonable basis upon which to estimate the expected life of options. 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.

The following weighted average assumptions were used to calculate the fair values of stock option grants in each year:

	2012		2011		2010	
Risk free interest rate	1.3	%	2.9	%	2.8	%
Expected life of option in years	6.5		6.4		5.9	
Expected dividend yield	3.3	%	3.3	%	3.4	%
Expected volatility	29.4	%	28.0	%	28.5	%

The weighted average fair value of options granted was \$17.97 per share, \$19.00 per share and \$13.45 per share for the years ended December 31, 2012, 2011, and 2010, respectively.

A summary of stock options outstanding and exercisable and activity for the year ended December 31, 2012 is presented below:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Intrinsic Value (in millions)
Outstanding, January 1, 2012	4,907,885	\$60.52	5.6	\$116
Granted	792,957	\$90.28		
Exercised	(2,251,975)	\$54.10		
Forfeited/Expired	(40,168)	\$88.94		
Outstanding, December 31, 2012	3,408,699	\$71.34	6.6	\$218
Vested or expected to vest, December 31, 2012	3,341,323	\$71.05	6.6	\$215
Exercisable, December 31, 2012	1,271,875	\$57.78	4.0	\$99

At December 31, 2012, unrecognized compensation cost related to outstanding stock options that have not yet vested totaled \$7 million. This cost is expected to be recognized as expense over a weighted average period of 1.5 years.

The following table presents stock option activity for the years ended December 31, 2012, 2011 and 2010:

(Millions)	2012	2011	2010
Total intrinsic value of stock options exercised	\$110	\$40	\$37
Cash received from stock option exercises	122	81	146
Income tax benefit from the exercise of stock options	35	9	9
Total fair value of stock options vested	6	10	13

## Restricted Stock Units ("RSUs")

Long-term incentive value is delivered to selected key management employees by granting RSUs, which have either time or performance-based vesting features. The fair value of an RSU is equal to the market value of a share of PPG

stock on the date of grant. Time-based RSUs 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 three year 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 for performance-based awards may range from 0% to 180% of the original grant, based upon the frequency with which the annual earnings per share growth and cash flow return on capital performance targets are met over the three calendar year periods comprising the vesting period. For the purposes of expense recognition, PPG has assumed that performance-based RSUs granted in 2010 will vest at the 180% level and those granted in 2011 and 2012 will vest at the 100% level. As of December 31, 2012, four of the four possible performance targets had been met for the 2011 grant and two of the two possible performance targets had been met for the 2012 grant.

The following table summarizes RSU activity for the year ended December 31, 2012:

	Number of Shares	Weighted Average Fair Value	Intrinsic Value (in millions)
Outstanding, January 1, 2012	1,005,757	\$46.98	\$84
Granted	248,732	\$83.48	
Additional shares vested	208,228	\$55.30	
Released from restrictions	(465,879)	) \$28.37	
Forfeited	(42,902)	) \$53.68	
Outstanding, December 31, 2012	953,936	\$67.11	\$129
Vested or expected to vest, December 31, 2012	945,429	\$66.97	\$128

There was \$11 million of total unrecognized compensation cost related to unvested RSUs outstanding as of December 31, 2012. This cost is expected to be recognized as expense over a weighted average period of 1.5 years.



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## Contingent Share Grants

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 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 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. The payment of awards following the three-year award period will be based on performance achieved in accordance with the scale set forth in the plan agreement and may range from 0% to 220% of the initial grant. A payout of 100% is earned if the target performance is achieved. Contingent share awards for the 2010-2012, 2011-2013, and 2012-2014 periods earn dividend equivalents for the award period, which will be paid to participants 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.

As of December 31, 2012, there was \$10.2 million of total unrecognized compensation cost related to outstanding TSR awards based on the current estimate of fair value. This cost is expected to be recognized as expense over a weighted average period of 1.4 years.

## 21. Advertising Costs

Advertising costs are expensed in the year incurred and totaled \$288 million, \$245 million and \$288 million in 2012, 2011 and 2010, respectively.

## 22. Research and Development

(Millions)	2012	2011	2010
Research and development – total	\$470	\$445	\$408
Less depreciation on research facilities	15	15	14
Research and development – net	\$455	\$430	\$394

## 23. Quarterly Financial Information (unaudited)

Millions (except per share amounts)	2012 Quarter Ended				Total
	March 31	June 30	Sept. 30	Dec. 31	
Net sales	\$3,752	\$3,955	\$3,845	\$3,648	\$15,200
Cost of Sales <sup>(1)</sup>	2,229	2,352	2,288	2,200	9,069
Net income (attributable to PPG) <sup>(2)</sup>	13	362	339	227	941
Earnings per common share	0.08	2.37	2.21	1.47	6.13
Earnings per common share – assuming dilution <sup>(2)</sup>	\$0.08	\$2.34	\$2.18	\$1.46	\$6.06
	2011 Quarter Ended				
	March 31	June 30	Sept. 30	Dec. 31	Total
Net sales	\$3,533	\$3,986	\$3,849	\$3,517	\$14,885
Cost of Sales <sup>(1)</sup>	2,127	2,417	2,353	2,184	9,081
	228	340	311	216	1,095

Net income (attributable to PPG)

Earnings per common share	1.42	2.15	1.98	1.41	6.96
Earnings per common share – assuming dilution	\$1.40	\$2.12	\$1.96	\$1.39	\$6.87

(1) Exclusive of depreciation and amortization.

First quarter 2012 includes charge of \$163 million or \$1.06 per diluted share related to restructuring (See Note 7, (2) "Business Restructuring") and charge of \$99 million or \$0.64 per diluted share related to environmental remediation (See Note 15, "Commitments and Contingent Liabilities").

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24. Reportable Business Segment Information

Segment Organization and Products

PPG is a multinational manufacturer with 13 operating segments that are organized based on the Company's major products lines. These operating segments are also the Company's reporting units for purposes of testing goodwill for impairment (see Note 1, "Summary of Significant Accounting Policies"). The operating segments have been aggregated based on economic similarities, the nature of their products, production processes, end-use markets and methods of distribution into six reportable business segments.

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

The Industrial Coatings reportable segment is comprised of the automotive OEM, industrial coatings and packaging coatings operating segments. This reportable segment primarily supplies a variety of protective and decorative coatings and finishes along with adhesives, sealants, inks and metal pretreatment products.

The Architectural Coatings – EMEA reportable segment is comprised of the architectural coatings – EMEA operating segment. This reportable segment primarily supplies a variety of coatings under a number of brands and purchased sundries to painting contractors and consumers in Europe, the Middle East and Africa.

The Optical and Specialty Materials reportable segment is comprised of the optical products and silicas businesses. The primary Optical and Specialty Materials products are Transitions® lenses, optical lens materials and high performance sunlenses; amorphous precipitated silicas for tire, battery separator and other end-use markets; and Teslin® substrate used in such applications as radio frequency identification (RFID) tags and labels, e-passports, drivers' licenses and identification cards. Transition® lenses are processed and distributed by PPG's 51 percent-owned joint venture with Essilor International.

The Commodity Chemicals reportable segment is comprised of the chlor-alkali and derivatives operating segment. The primary chlor-alkali and derivative products are chlorine, caustic soda, vinyl chloride monomer, chlorinated solvents, calcium hypochlorite, ethylene dichloride, hydrochloric acid and phosgene derivatives. On January 28, 2013, PPG completed the separation of its commodity chemicals business and merger of the subsidiary holding the PPG commodity chemicals business with a subsidiary of Georgia Gulf. Refer to Note 25, "Separation and Merger Transaction" for financial information relating to this transaction.

The Glass reportable segment is comprised of the flat glass and fiber glass operating segments. This reportable segment

primarily supplies flat glass and continuous-strand fiber glass products.

Production facilities and markets for Performance Coatings, Industrial Coatings, Architectural Coatings – EMEA, Optical and Specialty Materials, Commodity Chemicals and Glass are global. PPG's reportable segments continue to pursue opportunities to further develop their global markets, including efforts in Asia, Eastern Europe and Latin America. Each of the reportable segments in which PPG is engaged is highly competitive. The diversification of our product lines and the worldwide markets served tend to minimize the impact on PPG's total sales and earnings of changes in demand in a particular market or in a particular geographic area.

The accounting policies of the operating segments are the same as those described in the summary of significant accounting policies (See Note 1, "Summary of Significant Accounting Policies"). The Company allocates resources to operating segments and evaluates the performance of operating segments based upon segment income, which is earnings before interest expense – net, income taxes and noncontrolling interests and excludes certain charges which are considered to be unusual or non-recurring. The Company also evaluates performance of operating segments based on working capital reduction, margin growth and sales volume growth. Legacy items include current costs related to former operations of the Company, including certain environmental remediation, pension and other postretirement benefit costs, and certain charges for legal and other matters which are considered to be unusual or non-recurring.

These legacy costs are excluded from the segment income that is used to evaluate the performance of the operating segments. Legacy items also include equity earnings from PPG's approximate 40% investment in its former automotive glass and services business and \$35 million, \$35 million and \$30 million of costs in 2012, 2011 and 2010, respectively, related to the pension and other postemployment benefit liabilities of the divested business retained by PPG. Corporate unallocated costs include the costs of corporate staff functions not directly associated with the operating segments, the cost of corporate legal cases, net of related insurance recoveries, and the cost of certain insurance, variable pay, stock-based compensation and employee benefit programs. Net periodic pension expense is allocated to the operating segments and the portion of net periodic pension expense related to the corporate staff functions is included in the Corporate unallocated costs.

For Optical and Specialty Materials, Commodity Chemicals and Glass, intersegment sales and transfers are recorded at selling prices that approximate market prices. Product movement between Performance Coatings, Industrial Coatings and Architectural Coatings – EMEA is limited, is accounted for as an inventory transfer and is recorded at cost plus a mark-up, the impact of which is not significant to the segment income of the three coatings reportable segments.

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## Notes to the Consolidated Financial Statements

(Millions) Reportable Business Segments	Performance Coatings	Industrial Coatings	Architectural Coatings – EMEA	Optical and Specialty Materials	Commodity Chemicals	Glass	Corporate / Eliminations / Non- Segment Items <sup>(1)</sup>	Consolidated Totals
2012								
Net sales to external customers	\$ 4,752	\$4,379	\$ 2,147	\$1,202	\$ 1,688	\$1,032	\$ —	\$ 15,200
Intersegment net sales	—	—	—	3	12	—	(15 )	—
Total net sales	\$ 4,752	\$4,379	\$ 2,147	\$1,205	\$ 1,700	\$1,032	\$ (15 )	\$ 15,200
Segment income	\$ 744	\$590	\$ 145	\$348	\$ 372	\$63	\$ —	\$ 2,262
Legacy items <sup>(2)</sup>								(219 )
Business restructuring (See Note 7)								(208 )
Business separation and certain acquisition-related costs <sup>(5)</sup> (See Note 25)								(26 )
Charges related to acquisition of Dyrup and Colpisa (See Note 2)								(6 )
Interest expense, net of interest income								(171 )
Corporate unallocated <sup>(1)</sup>								(230 )
Income before income taxes								\$ 1,402
Depreciation and amortization (See Note 1)	\$ 112	\$87	\$ 115	\$32	\$ 43	\$53	\$ 23	\$ 465
Share of net earnings (loss) of equity affiliates	1	(1 )	2	—	2	4	3	11
Segment assets <sup>(3)</sup>	3,993	2,886	2,727	646	738	914	3,974	15,878
Investment in equity affiliates	10	15	19	—	1	166	51	262
Expenditures for property	103	184	52	65	48	46	22	520
2011								
Net sales to external customers	\$4,626	\$4,158	\$2,104	\$1,204	\$1,732	\$1,061	\$—	\$14,885
Intersegment net sales	—	—	—	3	9	—	(12 )	—
Total net sales	\$4,626	\$4,158	\$2,104	\$1,207	\$1,741	\$1,061	\$ (12 )	\$14,885
Segment income	\$673	\$438	\$123	\$326	\$370	\$97	\$—	\$2,027
Legacy items <sup>(2)</sup>								(66 )
Interest expense, net of interest income								(168 )
Acquisition-related gain, net (See Note 2)								9
Corporate unallocated <sup>(1)</sup>								(205 )
Income before income taxes								\$1,597
Depreciation and amortization (See Note 1)	\$115	\$90	\$113	\$36	\$41	\$52	\$20	\$467
	2	1	2	—	1	24	7	37

Share of net earnings of equity  
affiliates

Segment assets <sup>(3)</sup>	4,017	2,614	2,626	610	690	919	2,906	14,382
Investment in equity affiliates	12	12	20	—	—	170	47	261
Expenditures for property	79	73	48	54	89	56	41	440

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## Notes to the Consolidated Financial Statements

(Millions) Reportable Business Segments	Performance Coatings	Industrial Coatings	Architectural Coatings – EMEA	Optical and Specialty Materials	Commodity Chemicals	Glass	Corporate / Eliminations / Non- Segment Items <sup>(1)</sup>	Consolidated Totals
2010								—
Net sales to external customers	4,281	3,708	1,874	1,141	1,434	985	—	13,423
Intersegment net sales	—	(1 )	1	3	7	—	(10 )	—
Total net sales	4,281	3,707	1,875	1,144	1,441	985	(10 )	13,423
Segment income	661	378	113	307	189	74	—	1,722
Legacy items <sup>(2)</sup>								(67 )
Interest expense, net of interest income								(155 )
Corporate unallocated <sup>(1)</sup>								(205 )
Income before income taxes								1,295
Depreciation and amortization (See Note 1)	117	95	107	36	39	56	20	470
Share of net earnings (loss) of equity affiliates	2	2	1	—	(1 )	26	15	45
Segment assets <sup>(3)</sup>	4,027	2,620	2,759	597	587	893	3,492	14,975
Investment in equity affiliates	13	13	18	—	1	156	215	416
Expenditures for property	89	68	51	39	40	32	20	339
(Millions)								
Geographic Information					2012	2011	2010	
Net sales <sup>(4)</sup>								
The Americas								
United States					\$6,575	\$6,203	\$5,623	
Other Americas					1,166	1,121	1,040	
Europe, Middle East and Africa (“EMEA”)					4,839	5,043	4,536	
Asia Pacific					2,620	2,518	2,224	
Total					\$15,200	\$14,885	\$13,423	
Segment income								
The Americas								
United States					\$1,285	\$1,116	\$893	
Other Americas					121	97	99	
EMEA					475	454	387	
Asia Pacific					381	360	343	
Total					\$2,262	\$2,027	\$1,722	
Property—net								
The Americas								
United States					\$1,379	\$1,345	\$1,274	
Other Americas					100	98	106	
EMEA					903	841	897	
Asia Pacific					506	437	409	

Total	\$2,888	\$2,721	\$2,686
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Corporate intersegment net sales represent intersegment net sales eliminations. Corporate unallocated costs include (1) the costs of corporate staff functions not directly associated with the operating segments and certain legal, variable pay, stock-based compensation and benefit costs.

Legacy items include current costs related to former operations of the Company, including certain environmental remediation, pension and other postretirement benefit costs, legal costs and certain charges which are considered to be non-recurring, including a charge related to flat glass antitrust matters in the third quarter of 2010. The Legacy (2) items for 2012 include an environmental remediation pretax charge of \$159 million. The charge relates to continued environmental remediation activities at legacy chemicals sites, primarily at PPG's former Jersey City, N.J. chromium manufacturing plant and associated sites (See Note 15). Legacy items also include equity earnings from PPG's approximate 40% investment in the former automotive glass and services business.

Segment assets are the total assets used in the operation of each segment. Corporate assets are principally cash and (3) cash equivalents, cash held in escrow, short term investments, deferred tax assets and the approximate 40% investment in the former automotive glass and services business.

(4) Net sales to external customers are attributed to geographic regions based upon the location of the operating unit shipping the product.

(5) Acquisition-related costs include advisory, legal, accounting, valuation, and other professional or consulting fees incurred to effect significant acquisitions. PPG expects to incur additional acquisition-related costs in 2013.



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## Notes to the Consolidated Financial Statements

## 25. Separation and Merger Transaction

On January, 28, 2013, the Company completed the previously announced separation of its commodity chemicals business and merger of its wholly-owned subsidiary, Eagle Spinco Inc., with a subsidiary of Georgia Gulf Corporation in a tax efficient Reverse Morris Trust transaction (the "Transaction"). Pursuant to the merger, Eagle Spinco, the entity holding PPG's former commodity chemicals business, is now a wholly-owned subsidiary of Georgia Gulf. The closing of the merger followed the expiration of the related exchange offer and the satisfaction of certain other conditions. The combined company formed by uniting Georgia Gulf with PPG's former commodity chemicals business is named Axiall Corporation ("Axiall"). PPG holds no ownership interest in Axiall. PPG received the necessary ruling from the Internal Revenue Service and as a result this Transaction was generally tax free to PPG and its shareholders.

Under the terms of the exchange offer, 35,249,104 shares of Eagle Spinco common stock were available for distribution in exchange for shares of PPG common stock accepted in the offer. Following the merger, each share of Eagle Spinco common stock automatically converted into the right to receive one share of Axiall Corporation common stock. Accordingly, PPG shareholders who tendered their shares of PPG common stock as part of this offer received 3.2562 shares of Axiall common stock for each share of PPG common stock accepted for exchange. PPG was able to accept the maximum of 10,825,227 shares of PPG common stock for exchange in the offer, and thereby, reduced its outstanding shares by approximately 7%.

Under the terms of the Transaction, PPG received \$900 million of cash and 35.2 million shares of Axiall common stock (market value of \$1.8 billion on January 25, 2013) which was distributed to PPG shareholders by the exchange offer as described above. The cash consideration is subject to customary post-closing adjustment, including a working capital adjustment. In the Transaction, PPG transferred environmental remediation liabilities, defined benefit pension plan assets and liabilities and other post-employment benefit liabilities related to the commodity chemicals business to Axiall. PPG will report a gain on the Transaction reflecting the excess of the sum of the cash proceeds received and the cost (closing stock price on January 25, 2013) of the PPG shares tendered and accepted in the exchange for the 35.2 million shares of Axiall common stock over the net book value of the net assets of PPG's former commodity chemicals business. The Transaction will also result in a net partial settlement loss associated with the spin out and termination of defined benefit pension liabilities and the transfer of other post-retirement benefit liabilities under the terms of the Transaction. During 2012, the Company incurred \$21 million of pretax expense, primarily for professional services, related to the Transaction. Additional Transaction-related expenses will be incurred in 2013. PPG will report the results of its commodity chemicals business for January 2013 and a net gain on the Transaction as results from discontinued operations when it reports its results

for the quarter ending March 31, 2013. In the PPG results for prior periods, presented for comparative purposes beginning with the first quarter 2013, the results of its former commodity chemicals business will be reclassified from continuing operations and presented as the results from discontinued operations. The net sales and income before income taxes of the commodity chemicals business that will be reclassified and reported as discontinued operations are presented in the table below for the years ended December 31, 2012, 2011 and 2010:

Millions	Year-ended		
	2012	2011	2010
Net sales	\$1,700	\$1,741	\$1,441
Income before income taxes	\$368	\$376	\$187

Income before income taxes for the year ended December 31, 2012, 2011 and 2010 is \$4 million lower, \$6 million higher and \$2 million lower, respectively, than segment earnings for the PPG Commodity Chemicals segment reported for these periods. These differences are due to the inclusion of certain gains, losses and expenses associated with the chlor-alkali and derivatives business that were not reported in the PPG Commodity Chemicals segment earnings in accordance with the accounting guidance on segment reporting.

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Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. 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-K, 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.

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.

See Management Report on page 33 for management's annual report on internal control over financial reporting. See Report of Independent Registered Public Accounting Firm on page 32 for Deloitte & Touche LLP's attestation report on the Company's internal control over financial reporting.

Item 9B. Other Information

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information about the Company's directors required by Item 10 and not otherwise set forth below is contained under the caption "Proposal 1: Election of Directors" in PPG's definitive Proxy Statement for the 2012 Annual Meeting of Shareholders (the "Proxy Statement") which the Company anticipates filing with the Securities and Exchange Commission, pursuant to Regulation 14A, not later than 120 days after the end of the Company's fiscal year, and is incorporated herein by reference.

The executive officers of the Company are elected by the Board of Directors. The information required by this item concerning the Company's executive officers is incorporated by reference herein from Part I of this report under the caption "Executive Officers of the Company."

Information regarding the Company's Audit Committee is included in the Proxy Statement under the caption "Corporate Governance – Audit Committee" and is incorporated herein by reference.

Information regarding the Company's codes of ethics is included in the Proxy Statement under the caption "Corporate Governance – Codes of Ethics" and is incorporated herein by reference.

Information about compliance with Section 16(a) of the Exchange Act is included in the Proxy Statement under the caption "Beneficial Ownership – Section 16(a) Beneficial Ownership Reporting Compliance" and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by Item 11 is contained in the Proxy Statement under the captions "Compensation of Directors," "Compensation Discussion and Analysis," "Compensation of Executive Officers," "Potential Payments upon Termination or Change in Control," "Corporate Governance – Compensation Committee Interlocks and Insider Participation," and "Corporate Governance – Officers-Directors Compensation Committee Report to Shareholders" and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

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The information required by Item 12 is contained in the Proxy Statement under the captions “Beneficial Ownership” and “Equity Compensation Plan Information” and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by Item 13 is contained in the Proxy Statement under the captions “Corporate Governance – Director Independence,” “Corporate Governance – Review and Approval or Ratification of Transactions with Related Persons”

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and “Corporate Governance – Certain Relationships and Related Transactions” and is incorporated herein by reference.

## Item 14. Principal Accounting Fees and Services

The information required by Item 14 is contained in the Proxy Statement under the caption “Independent Registered Public Accounting Firm” and is incorporated herein by reference.

## Part IV

## Item 15. Exhibits, Financial Statement Schedules

(a)(1) Consolidated Financial Statements and Reports of Independent Registered Public Accounting Firm (see Part II, Item 8 of this Form 10-K).

The following information is filed as part of this Form 10-K:

	Page
<u>Internal Controls – Report of Independent Registered Public Accounting Firm</u>	<u>32</u>
<u>Management Report</u>	<u>33</u>
<u>Consolidated Financial Statements – Report of Independent Registered Public Accounting Firm</u>	<u>33</u>
<u>Consolidated Statement of Income for the Years Ended December 31, 2012, 2011 and 2010</u>	<u>34</u>
<u>Consolidated Statement of Comprehensive Income for the Years Ended December 31, 2012, 2011 and 2010</u>	<u>34</u>
<u>Consolidated Balance Sheet as of December 31, 2012 and 2011</u>	<u>35</u>
<u>Consolidated Statement of Shareholders’ Equity for the Years Ended December 31, 2012, 2011 and 2010</u>	<u>36</u>
<u>Consolidated Statement of Cash Flows for the Years Ended December 31, 2012, 2011 and 2010</u>	<u>37</u>
<u>Notes to the Consolidated Financial Statements</u>	<u>38</u>

(a)(2) Consolidated Financial Statement Schedule for years ended December 31, 2012, 2011 and 2010.

The following Consolidated Financial Statement Schedule should be read in conjunction with the previously referenced financial statements:

## Schedule II – Valuation and Qualifying Accounts

## Allowance for Doubtful Accounts for the Years Ended December 31, 2012, 2011 and 2010

(Millions)	Balance at Beginning of Year	Charged to Costs and Expenses	Deductions <sup>(1)</sup>	Balance at End of Year
2012	\$71	\$24	\$(18)	\$77
2011	\$91	\$31	\$(51)	\$71
2010	\$122	\$18	\$(49)	\$91

(1) Notes and accounts receivable written off as uncollectible, net of recoveries, amounts attributable to divestitures and changes attributable to foreign currency translation.

(2) Expenses and deductions during 2011 were elevated by \$9 million due to a U.K. based retail do-it-yourself customer who filed for bankruptcy during the second quarter of 2011.

All other schedules are omitted because they are not applicable.

(a)(3) Exhibits. The following exhibits are filed as a part of, or incorporated by reference into, this Form 10-K.

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- 2.1 Agreement and Plan of Merger, dated as of July 18, 2012, by and among PPG Industries, Inc., Eagle Spinco Inc., Georgia Gulf Corporation and Grizzly Acquisition Sub, Inc., was filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on July 19, 2012.
- 2.2 Amendment No. 1 to the Agreement and Plan of Merger, dated as of August 31, 2012, by and PPG Industries, Inc., Eagle Spinco Inc., Georgia Gulf Corporation and Grizzly Acquisition Sub, Inc., was filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on September 5, 2012.
- † 2.3 Sale and Purchase Agreement, dated December 13, 2012, between Akzo Nobel N.V. and PPG Industries, Inc. PPG Industries, Inc., Restated Articles of Incorporation, as amended, were filed as Exhibit 3 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2012.
- 3 PPG Industries, Inc., Bylaws, as amended and restated on April 19, 2007, were filed as Exhibit 3.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2007.
- 3.1 Indenture, dated as of Aug. 1, 1982, was filed as Exhibit 4.1 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
- 4 First Supplemental Indenture, dated as of April 1, 1986, was filed as Exhibit 4.2 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
- 4.1 Second Supplemental Indenture, dated as of October 1, 1989, was filed as Exhibit 4.3 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
- 4.2 Third Supplemental Indenture, dated as of November 1, 1995, was filed as Exhibit 4.4 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
- 4.3 Indenture, dated as of June 24, 2005, was filed as Exhibit 4.1 to the Registrant's Current
- 4.4

Report on Form 8-K dated June 20, 2005.

- 4.5 Indenture, dated as of March 18, 2008, was filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on March 18, 2008.
- 4.6 Supplemental Indenture, dated as of March 18, 2008, was filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed on March 18, 2008.
- 4.7 Second Supplemental Indenture, dated as of November 12, 2010, was filed as Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed on November 12, 2010.
  
- 4.8 Third Supplemental Indenture, dated as of August 3, 2011, was filed as Exhibit 4.4 to the Registrant's Current Report on Form 8-K filed on August 3, 2012.
- \* 10 PPG Industries, Inc. Nonqualified Retirement Plan, as amended and restated September 24, 2008, was filed as Exhibit 10 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2011.
- \* 10.1 Form of Change in Control Employment Agreement entered into with executives prior to January 1, 2008, as amended, was filed as Exhibit 10.2 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2007.
- \* 10.2 Form of Change in Control Employment Agreement entered into with executives on or after January 1, 2008 through December 31, 2009, was filed as Exhibit 10.24 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2007.
- \* 10.3 Form of Change in Control Employment Agreement entered into with executives on or after January 1, 2010, was filed as Exhibit 10.3 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2009.
- †\* 10.4 Form of Change in Control Employment Agreement entered into with executives on or after June 30, 2012.
  
- \* 10.5 PPG Industries, Inc. Deferred Compensation Plan for Directors related to compensation deferred prior to January 1, 2005, was filed as Exhibit 10.3 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 1997.
- \* 10.6



PPG Industries, Inc. Deferred Compensation Plan for Directors related to compensation deferred on or after January 1, 2005, as amended February 15, 2006, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2006.

\* 10.7 PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred prior to January 1, 2005, as amended effective July 14, 2004, was filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2004.

\* 10.8 PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred on or after January 1, 2005, as amended and restated September 24, 2008, was filed as Exhibit 10.6 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.9 PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred on or prior to January 1, 2005, as amended and restated effective January 1, 2011, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.

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- PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred on or after to January 1, 2005, as amended and restated effective January 1, 2011, was filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.

\* 10.10
- PPG Industries, Inc. Executive Officers' Long Term Incentive Plan was filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated February 16, 2005.

\* 10.11
- PPG Industries, Inc. Incentive Compensation Plan for Key Employees, as amended April 20, 2006, was filed as Exhibit 10.8 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.12
- PPG Industries, Inc. Management Award Plan, as amended April 20, 2006, was filed as Exhibit 10.9 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.13
- PPG Industries, Inc. Stock Plan, dated as of April 17, 1997, as amended July 20, 2005, was filed as Exhibit 10.13 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2005.

\* 10.14
- PPG Industries, Inc. Omnibus Incentive Plan was filed as Exhibit 10.18 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2006.

\* 10.15
- PPG Industries, Inc. Amended and Restated Omnibus Incentive Plan, was filed as Annex A to the Registrant's Definitive Proxy Statement for its 2011 Annual Meeting of Shareholders filed on March 10, 2011.

\* 10.16
- Form of Non-Qualified Option Agreement for Directors was filed as Exhibit 10.4 to the Registrant's Current Report on Form 8-K dated February 15, 2005.

\* 10.17
- Form of Time-Vested Restricted Stock Unit Award Agreement, was filed as Exhibit 10.13 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.18
- Form of Time-Vested Restricted Stock Unit Award Agreement for Directors, was filed as Exhibit 10.8 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.

\* 10.19

\* 10.20 Form of Non-Qualified Stock Option Award Agreement, was filed as Exhibit 10.14 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.21 Form of Non-Qualified Stock Option Award Agreement, was filed as Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.

\* 10.22 Form of Non-Qualified Stock Option Award Agreement, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.

\* 10.23 Form of TSR Share Award Agreement, was filed as Exhibit 10.15 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.24 Form of TSR Share Award Agreement, was filed as Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.

\* 10.25 Form of TSR Share Award Agreement, was filed as Exhibit 10.9 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.

\* 10.26 Form of TSR Share Award Agreement, was filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.

\* 10.27 Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees, was filed as Exhibit 10.16 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.28 Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.

\* 10.29 Form of Performance-Based Restricted Stock Unit Award Agreement, was filed as Exhibit 10.17 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.

\* 10.30 Form of Performance-Based Restricted Stock Unit Award Agreement, was filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.

\* 10.31 Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees,

was filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.

- \* 10.32 Form of Performance-Based Restricted Stock Unit Award Agreement, was filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.

- \* 10.33 Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees, was filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.

- \* 10.34 Form of Time-Vested Restricted Stock Unit Award Agreement, was filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.

- \* 10.35 Form of Time-Vested Restricted Stock Unit Award Agreement, was filed as Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.

- \* 10.36 Form of letter to certain executives regarding 2008 deferred compensation plan elections, was filed as Exhibit 10.20 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2007.

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- 10.37 Three-Year Credit Agreement, dated August 2, 2010, among PPG Industries, Inc.; the several banks and financial institutions party thereto; JPMorgan Chase Bank, N.A., as administrative agent; J.P. Morgan Securities, Inc., The Bank of Tokyo-Mitsubishi UFJ, Ltd. and BNP Paribas Securities Corp., as co-lead arrangers and co-bookrunners; and The Bank of Tokyo-Mitsubishi UFJ, Ltd. and BNP Paribas, as co-syndication agents was filed Exhibit 10 to the Registrant's Current Report on Form 8-K filed on August 6, 2010.
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- \* 10.39 Employment Agreement between PPG Industries Europe Sàrl, Rolle and Pierre-Marie DeLeener, was filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.
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- \* 10.42

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Separation Agreement, dated August 22, 2012, between PPG Industries, Inc. and Pierre-Marie De Leener, was filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2012.

- \* 10.43 Letter Agreement with David B. Navikas, was filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.
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- † 23 Consent of Independent Registered Public Accounting Firm.
- † 24 Powers of Attorney.
- † 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.
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† Filed herewith.

\* Management contracts, compensatory plans or arrangements required to be filed as an exhibit hereto pursuant to Item 601 of Regulation S-K.

\*\* Attached as Exhibit 101 to this report are the following documents formatted in XBRL (Extensible Business Reporting Language) as of and for the year ended December 31, 2012: (i) the Consolidated Statement of Income, (ii) the Consolidated Balance Sheet, (iii) the Consolidated Statement of Shareholders' Equity, (iv) the Consolidated Statement of Comprehensive Income (Loss), (v) the Consolidated Statement of Cash Flows, (vi) Notes to Consolidated Financial Statements and (vii) Financial Schedule of Valuation and Qualifying Accounts.

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Signatures

Pursuant to the requirements of Section 13 or 15(d) 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 on February 21, 2013.

PPG INDUSTRIES, INC.  
(Registrant)

By /s/ David B. Navikas  
David B. Navikas, Senior Vice President, Finance  
and Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the Registrant and in the capacities indicated on February 21, 2013.

Signature.	Capacity
/s/ Charles E. Bunch Charles E. Bunch	Director, Chairman and Chief Executive Officer
/s/ David B. Navikas David B. Navikas	Senior Vice President, Finance and Chief Financial Officer (Principal Financial and Accounting Officer)
S. F. Angel	Director
J. G. Berges	Director
J. V. Faraci	Director
H. Grant	Director
V. F. Haynes	Director
M. J. Hooper	Director
R. Mehrabian	Director
M. H. Richenhagen	Director
R. Ripp	Director
T. J. Usher	Director
D. R. Whitwam	Director

By /s/ David B. Navikas  
David B.  
Navikas, Attorney-in-Fact



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PPG Industries Inc. and Consolidated Subsidiaries

Index to Exhibits

2.1	Agreement and Plan of Merger, dated as of July 18, 2012, by and among PPG Industries, Inc., Eagle Spinco Inc., Georgia Gulf Corporation and Grizzly Acquisition Sub, Inc., was filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on July 19, 2012.
2.2	Amendment No. 1 to the Agreement and Plan of Merger, dated as of August 31, 2012, by and PPG Industries, Inc., Eagle Spinco Inc., Georgia Gulf Corporation and Grizzly Acquisition Sub, Inc., was filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on September 5, 2012.
† 2.3	Sale and Purchase Agreement, dated December 13, 2012, between Akzo Nobel N.V. and PPG Industries, Inc.
3	PPG Industries, Inc., Restated Articles of Incorporation, as amended, were filed as Exhibit 3 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2012.
3.1	PPG Industries, Inc., Bylaws, as amended and restated on April 19, 2007, were filed as Exhibit 3.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2007.
4	Indenture, dated as of Aug. 1, 1982, was filed as Exhibit 4.1 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
4.1	First Supplemental Indenture, dated as of April 1, 1986, was filed as Exhibit 4.2 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
4.2	Second Supplemental Indenture, dated as of October 1, 1989, was filed as Exhibit 4.3 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
4.3	Third Supplemental Indenture, dated as of November 1, 1995, was filed as Exhibit 4.4 to the Registrant's Registration Statement on Form S-3 (No. 333-44397) dated January 16, 1998.
4.4	Indenture, dated as of June 24, 2005, was filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K dated June 20, 2005.
4.5	Indenture, dated as of March 18, 2008, was filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on March 18, 2008.
4.6	Supplemental Indenture, dated as of March 18, 2008, was filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed on March 18, 2008.
4.7	Second Supplemental Indenture, dated as of November 12, 2010, was filed as Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed on November 12, 2010.
4.8	Third Supplemental Indenture, dated as of August 3, 2011, was filed as Exhibit 4.4 to the Registrant's Current Report on Form 8-K filed on August 3, 2012.
* 10	PPG Industries, Inc. Nonqualified Retirement Plan, as amended and restated September 24, 2008, was filed as Exhibit 10 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2011.
* 10.1	Form of Change in Control Employment Agreement entered into with executives prior to January 1, 2008, as amended, was filed as Exhibit 10.2 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2007.
* 10.2	Form of Change in Control Employment Agreement entered into with executives on or after January 1, 2008 through December 31, 2009, was filed as Exhibit 10.24 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2007.
* 10.3	Form of Change in Control Employment Agreement entered into with executives on or after January 1, 2010, was filed as Exhibit 10.3 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2009.
†* 10.4	Form of Change in Control Employment Agreement entered into with executives on or after June 30, 2012.
* 10.5	PPG Industries, Inc. Deferred Compensation Plan for Directors related to compensation deferred prior to January 1, 2005, was filed as Exhibit 10.3 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 1997.

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- \* 10.6 PPG Industries, Inc. Deferred Compensation Plan for Directors related to compensation deferred on or after January 1, 2005, as amended February 15, 2006, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2006.
  - \* 10.7 PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred prior to January 1, 2005, as amended effective July 14, 2004, was filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2004.
  - \* 10.8 PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred on or after January 1, 2005, as amended and restated September 24, 2008, was filed as Exhibit 10.6 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
  - \* 10.9 PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred on or prior to January 1, 2005, as amended and restated effective January 1, 2011, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.
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*	10.10	PPG Industries, Inc. Deferred Compensation Plan related to compensation deferred on or after to January 1, 2005, as amended and restated effective January 1, 2011, was filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.
*	10.11	PPG Industries, Inc. Executive Officers' Long Term Incentive Plan was filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K dated February 16, 2005.
*	10.12	PPG Industries, Inc. Incentive Compensation Plan for Key Employees, as amended April 20, 2006, was filed as Exhibit 10.8 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.13	PPG Industries, Inc. Management Award Plan, as amended April 20, 2006, was filed as Exhibit 10.9 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.14	PPG Industries, Inc. Stock Plan, dated as of April 17, 1997, as amended July 20, 2005, was filed as Exhibit 10.13 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2005.
*	10.15	PPG Industries, Inc. Omnibus Incentive Plan was filed as Exhibit 10.18 to the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2006.
*	10.16	PPG Industries, Inc. Amended and Restated Omnibus Incentive Plan, was filed as Annex A to the Registrant's Definitive Proxy Statement for its 2011 Annual Meeting of Shareholders filed on March 10, 2011.
*	10.17	Form of Non-Qualified Option Agreement for Directors was filed as Exhibit 10.4 to the Registrant's Current Report on Form 8-K dated February 15, 2005.
*	10.18	Form of Time-Vested Restricted Stock Unit Award Agreement, was filed as Exhibit 10.13 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.19	Form of Time-Vested Restricted Stock Unit Award Agreement for Directors, was filed as Exhibit 10.8 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.
*	10.20	Form of Non-Qualified Stock Option Award Agreement, was filed as Exhibit 10.14 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.21	Form of Non-Qualified Stock Option Award Agreement, was filed as Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.
*	10.22	Form of Non-Qualified Stock Option Award Agreement, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.
*	10.23	Form of TSR Share Award Agreement, was filed as Exhibit 10.15 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.24	Form of TSR Share Award Agreement, was filed as Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.
*	10.25	Form of TSR Share Award Agreement, was filed as Exhibit 10.9 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.
*	10.26	Form of TSR Share Award Agreement, was filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.
*	10.27	Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees, was filed as Exhibit 10.16 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.28	Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees, was filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.
*	10.29	Form of Performance-Based Restricted Stock Unit Award Agreement, was filed as Exhibit 10.17 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2008.
*	10.30	Form of Performance-Based Restricted Stock Unit Award Agreement, was filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.
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- \* 10.32 Form of Performance-Based Restricted Stock Unit Award Agreement, was filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.
  - \* 10.33 Form of Performance-Based Restricted Stock Unit Award Agreement for Key Employees, was filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2012.
  - \* 10.34 Form of Time-Vested Restricted Stock Unit Award Agreement, was filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2009.
  - \* 10.35 Form of Time-Vested Restricted Stock Unit Award Agreement, was filed as Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2011.
  - \* 10.36 Form of letter to certain executives regarding 2008 deferred compensation plan elections, was filed as Exhibit 10.20 to the Registrant's Annual Report on Form 10-K for the period ended December 31, 2007.
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