

FERRO CORP
Form 10-K
March 11, 2009

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

Form 10-K

(Mark One)

- ☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2008
- ☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from to

Commission file number 1-584

FERRO CORPORATION
(Exact name of registrant as specified in its charter)

Ohio
(State of Corporation)
1000 Lakeside Avenue
Cleveland, OH
(Address of principal executive offices)

34-0217820
(IRS Employer Identification No.)
44114
(Zip Code)

Registrant's telephone number, including area code: 216-641-8580

Securities Registered Pursuant to section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value \$1.00	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act:
6.50% Convertible Senior Notes due August 15, 2013
Series A ESOP Convertible Preferred Stock, without Par Value

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

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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 (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☒ NO ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained here, 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 in Rule 12b-2 of the Act). YES ☐ NO ☒

The aggregate market value of Ferro Corporation Common Stock, par value \$1.00, held by non-affiliates and based on the closing sale price as of June 30, 2008, was approximately \$790,430,000.

On February 27, 2009, there were 44,668,093 shares of Ferro Corporation Common Stock, par value \$1.00 outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement for Ferro Corporation's 2009 Annual Meeting of Shareholders are incorporated into Part III of this Annual Report on Form 10-K.

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PART I

Item 1 *Business*

History, Organization and Products

Ferro Corporation was incorporated in Ohio in 1919 as an enameling company. When we use the terms Ferro, we, us or the Company, we are referring to Ferro Corporation and its consolidated subsidiaries unless we indicate otherwise. Today, we are a leading producer of specialty materials and chemicals that are sold to a broad range of manufacturers who, in turn, make products for many end-use markets. In approximately 50 manufacturing sites around the world, we produce the following types of products:

Inorganic specialty products High-quality glazes, frits, enamels, pigments, dinnerware decoration colors and other performance materials;

Organic specialty products Polymer specialty materials, engineered plastic compounds, pigment dispersions, and high-potency pharmaceutical active ingredients; and

Electronic materials High-performance dielectrics, conductive pastes, metal powders and polishing materials.

We refer to our products as performance materials and chemicals because we formulate them to perform specific functions in the manufacturing processes and end products of our customers. The products we develop often are delivered to our customers in combination with customized technical service. The value of our products stems from the benefits they deliver in actual use. We develop and deliver innovative products to our customers through our key strengths in:

Particle Engineering Our ability to design and produce very small particles made of a broad variety of materials, with precisely controlled characteristics of shape, size and size distribution. We understand how to disperse these particles within liquid, paste and gel formulations.

Color and Glass Science Our understanding of the chemistry required to develop and produce pigments that provide color characteristics ideally suited to customers' applications. We have a demonstrated ability to provide glass-based coatings with properties that precisely meet customers' needs in a broad variety of applications.

Surface Chemistry and Surface Application Technology Our understanding of chemicals and materials used to develop products and processes that involve the interface between layers and the surface properties of materials.

Product Formulation Our ability to develop and manufacture combinations of materials that deliver specific performance characteristics designed to work within customers' particular manufacturing processes.

We deliver these key technical strengths to our customers in a way that creates additional value through our integrated applications support. Our applications support personnel are involved in our customers' material specification and evaluation, product design and manufacturing process characterization in order to help customers optimize the efficient and cost-effective application of our products.

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We divide our operations into seven business units, which comprise six reportable business segments. We have grouped these units by their product group below:

Inorganic Specialties	Organic Specialties	Electronic Material Systems
Tile Coating Systems(1)	Polymer Additives	Electronic Materials
Porcelain Enamel(1)	Specialty Plastics	
Color and Glass	Pharmaceuticals	
Performance Materials		

(1) Tile Coating Systems and Porcelain Enamel are combined into one reportable business segment, Performance Coatings, for financial reporting purposes.

In past years, our Other Businesses segment reported the combined results of operations from Ferro's Pharmaceuticals and Fine Chemicals businesses. The Fine Chemicals business was sold during the fourth quarter of 2008, and the financial results from this business are now included in discontinued operations.

Markets and Customers

Ferro's products are used in a variety of product applications in markets including:

- Appliances
- Transportation
- Building and renovation
- Electronics
- Household furnishings
- Industrial products
- Packaging
- Pharmaceuticals

Many of our products are used as coatings on our customers' products, such as glazes and decorations on tile, glass and dinnerware. Other products are applied as films in products such as solar cells and other electronic components. Still other products are added to other ingredients during our customers' manufacturing processes to provide desirable properties to the end product. Often, our products are a small portion of the total cost of our customers' products, but they can be critical to the appearance or functionality of those products.

Our leading customers include manufacturers of tile, major appliances, construction materials, automobile parts, glass, bottles, vinyl flooring and wall coverings, solar cells, multi-layer capacitors, and pharmaceuticals. Many of our

customers, including makers of major appliances and automobile parts, purchase materials from more than one of our business units. Our customer base is well diversified both geographically and by end market.

We generally sell our products directly to our customers. However, a portion of our business uses indirect sales channels, such as agents and distributors, to deliver products to market. In 2008, no single customer or related group of customers represented more than 10% of net sales. In addition, none of our reportable segments is dependent on any single customer or related group of customers.

Backlog of Orders and Seasonality

Generally, there is no significant lead time between customer orders and delivery in any of our business segments. As a result, we do not consider that the dollar amount of backlogged orders believed to be firm is material information for an understanding of our business. We also do not regard any material part of our business to be seasonal. However, customer demand has historically been higher in the second quarter when building and renovation markets are particularly active, and this quarter is normally the strongest for sales and operating profit.

Competition

In most of our markets, we have a substantial number of competitors, none of which is dominant. Due to the diverse nature of our product lines, no single competitor directly matches all of our product offerings. Our competition varies by product and by region, and is based primarily on price, product quality and performance,

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customer service and technical support, and our ability to develop custom products to meet specific customer requirements.

We are a worldwide leader in the production of glass enamels, porcelain enamels and ceramic glaze coatings. There is strong competition in our markets, ranging from large multinational corporations to local producers. While many of our customers purchase custom products and formulations from us, our customers could generally buy from other sources, if necessary.

Raw Materials and Supplier Relations

Raw materials widely used in our operations include:

Metal Oxides:(1)

Zinc oxide
Cobalt oxide
Lead oxide
Aluminum oxide
Nickel oxide

Polymers:(2)

Polypropylene
Unsaturated polyester
Polystyrene

Other Inorganic Materials:

Zircon(1)
Feldspar(1)
Silica(1)
Titanium dioxide(2)
Fiberglass(2)
Boron(3)

Precious and Non-precious Metals:(3)

Gold
Platinum
Palladium
Silver
Titanium
Chromium
Copper
Bismuth
Lithium
Zinc

Other Organic Materials: (4)

Phthalic anhydride
Toluene
Butanol
Tallow
Soybean oil

(1) Primarily used by Color and Glass Performance Materials, Tile Coating Systems and Porcelain Enamel.

(2) Primarily used by Specialty Plastics.

(3) Primarily used by Electronic Materials and Color and Glass Performance Materials.

(4) Primarily used by Polymer Additives.

These raw materials make up a large portion of our product costs in certain of our product lines, and fluctuations in the cost of raw materials may have a significant impact on the financial performance of the related businesses. We attempt to pass through to our customers raw material cost increases, including those related to precious metals.

We have a broad supplier base and, in many instances, multiple sources of essential raw materials are available worldwide if problems arise with a particular supplier. We maintain many comprehensive supplier agreements for

strategic and critical raw materials. We did not encounter raw material shortages in 2008, but we are subject to volatile raw material costs that can affect our results of operations.

Environmental Matters

As part of the production of some of our products, we handle, process, use and store hazardous materials. As a result, we operate manufacturing facilities that are subject to a broad array of environmental laws and regulations in the countries in which they operate, particularly for plant wastes and emissions. In addition, some of our products are subject to restrictions under laws or regulations such as California Proposition 65 or the European Union's

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(EU) hazardous substances directive. The costs to comply with complex environmental laws and regulations are significant and will continue for the industry and us for the foreseeable future. These routine costs are expensed as they are incurred. While these costs may increase in the future, they are not expected to have a material impact on our financial position, liquidity or results of operations. We believe that we are in compliance with the environmental regulations to which our operations are subject and that, to the extent we may not be in compliance with such regulations, non-compliance will not have a materially adverse effect on our financial position, liquidity or results of operations.

Our policy is to operate our plants and facilities in a manner that protects the environment and the health and safety of our employees and the public. We intend to continue to make expenditures for environmental protection and improvements in a timely manner consistent with available technology. Capital expenditures for environmental, health and safety were \$14.7 million in 2008, \$11.6 million in 2007, and \$6.2 million in 2006. Although we cannot precisely predict future environmental, health and safety capital spending, we do not expect the costs to have a material impact on our financial position, liquidity or results of operations.

We also accrue for environmental remediation costs when it is probable that a liability has been incurred and we can reasonably estimate the amount. We determine the timing and amount of any liability based upon assumptions regarding future events, and inherent uncertainties exist in such evaluations primarily due to unknown conditions, changing governmental regulations and legal standards regarding liability, and evolving technologies. We adjust these liabilities periodically as remediation efforts progress, the nature and extent of contamination becomes more certain, or as additional technical or legal information becomes available.

Research and Development

We are involved worldwide in research and development activities relating to new and existing products, services and technologies required by our customers continually changing markets. Our research and development resources are organized into centers of excellence that support our regional and worldwide major business units. We also conduct research and development activities at our Posnick Center for Innovative Technology in Independence, Ohio. These centers are augmented by local laboratories, which provide technical service and support to meet customer and market needs of particular geographic areas.

Expenditures for research and development activities for continuing operations were approximately \$33.6 million in 2008, \$36.9 million in 2007, and \$42.6 million in 2006. Expenditures for individual customer requests for research and development were not material.

Patents, Trademarks and Licenses

We own a substantial number of patents and patent applications relating to our various products and their uses. While these patents are of importance to us, we do not believe that the invalidity or expiration of any single patent or group of patents would have a material adverse effect on our businesses. Our patents will expire at various dates through the year 2028. We also use a number of trademarks that are important to our businesses as a whole or to a particular segment. We believe that these trademarks are adequately protected.

Employees

At December 31, 2008, we employed 5,638 full-time employees, including 3,863 employees in our foreign consolidated subsidiaries and 1,775 in the United States (U.S.). Total employment decreased 365 in our foreign subsidiaries and 272 in the U.S. from the prior year end due to the sale of our Fine Chemicals business and our various restructuring and cost reduction programs, including the closure of plants in Rotterdam, Netherlands, and Toccoa,

Georgia.

Collective bargaining agreements cover approximately 18% of our U.S. workforce. Approximately 2% of the U.S. employees are affected by labor agreements that expire in 2009, and we expect to complete renewals of these agreements with no significant disruption to the related businesses. We consider our relations with our employees, including those covered by collective bargaining agreements, to be good.

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Our employees in Europe have protections afforded them by local laws and regulations through unions and works councils. Some of these laws and regulations may affect the timing, amount and nature of restructuring and cost reduction programs in that region.

Domestic and Foreign Operations

Financial information about our domestic and foreign operations by segment is included herein in Note 17 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K. More than 50% of our net sales are outside of the U.S. Our customers represent more than 30 industries and operate in approximately 100 countries.

We began international operations in 1927. Our products are produced and distributed through our consolidated subsidiaries and unconsolidated affiliates in the following countries:

Consolidated subsidiaries:

Argentina	France	Mexico	Thailand
Australia	Germany	Netherlands	United Kingdom
Belgium	Indonesia	Portugal	Venezuela
Brazil	Italy	Spain	
China	Japan	Taiwan	

Unconsolidated affiliates:

Italy	Spain	South Korea	Thailand
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Our U.S. parent company receives technical service fees and/or royalties from many of its foreign subsidiaries. As a matter of corporate policy, the foreign subsidiaries have historically been expected to remit a portion of their annual earnings to the U.S. parent company as dividends. To the extent earnings of foreign subsidiaries are not remitted to the U.S. parent company, those earnings are indefinitely re-invested in those subsidiaries.

Available Information

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments, will be made available free of charge on our Web site, www.ferro.com, as soon as reasonably practical, following the filing of the reports with the U.S. Securities and Exchange Commission (SEC). Our Corporate Governance Principles, Legal and Ethical Policies, Guidelines for Determining Director Independence, and charters for our Audit Committee, Compensation Committee, Finance Committee, and Governance and Nomination Committee are available free of charge on our Web site or to any shareholder who requests them from the Ferro Corporation Investor Relations Department located at 1000 Lakeside Avenue, Cleveland, Ohio, 44114-1147.

Forward-looking Statements

Certain statements contained here and in future filings with the SEC reflect our expectations with respect to future performance and constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements are subject to a variety of uncertainties, unknown risks and other factors concerning our operations and the business environment, which are difficult to predict and are beyond our control.

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Item 1A. Risk Factors

Many factors could cause our actual results to differ materially from those suggested by statements contained in this filing and could adversely affect our future financial performance. Such factors include the following:

We sell our products into industries where demand has been unpredictable, cyclical or heavily influenced by consumer spending, and such demand and our results of operations may be further impacted by the recent macro-economic circumstances and uncertainty in credit markets.

We sell our products to a wide variety of customers who supply many different market segments. Many of these market segments, such as building and renovation, major appliances, transportation, and electronics, are cyclical or closely tied to consumer demand, which is difficult to predict. Incorrect forecasts of demand or unforeseen reductions in demand can adversely affect costs and profitability due to factors such as underused manufacturing capacity, excess inventory, or working capital needs. These factors can result in lower profitability.

Our results of operations are materially affected by conditions in the global capital markets and the economy generally, both in the U.S. and elsewhere around the world. The stress experienced by global capital markets that began in the second half of 2008 has substantially increased. Recently, concerns over fluctuating prices, energy costs, geopolitical issues, the availability and cost of credit, the U.S. mortgage market and a declining real estate market have contributed to increased volatility and diminished expectations for the global economy and the markets going forward. These factors, combined with declining business and consumer confidence, increased unemployment, and volatile raw materials costs, have precipitated an economic slowdown and recession in a number of markets around the world. As a result of these conditions, our customers may experience cash flow problems and may modify, delay or cancel plans to purchase our products. Additionally, if customers are not successful in generating sufficient revenue or are precluded from securing financing, they may not be able to pay, or may delay payment of, accounts receivable that are owed to us. Any reduction in demand or inability of our current and/or potential customers to pay us for our products may adversely affect our earnings and cash flow.

We are subject to a number of restrictive covenants under our credit facilities, which could affect our flexibility to fund ongoing operations and strategic initiatives, and, if we are unable to maintain compliance with such covenants, could lead to significant challenges in meeting our liquidity requirements.

Our credit facilities contain a number of restrictive covenants, including those described in more detail in Note 5 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K. These covenants include customary operating restrictions that limit our ability to engage in certain activities, including additional loans and investments; prepayments, redemptions and repurchases of debt; and mergers, acquisitions and asset sales. We are also subject to customary financial covenants, including a leverage ratio and a fixed charge coverage ratio and certain creditworthiness tests. These covenants restrict the amount of our borrowings, reducing our flexibility to fund ongoing operations and strategic initiatives. These facilities are described in more detail in Capital Resources and Liquidity under Item 7 and in Note 5 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K.

Breaches of these covenants could become defaults under our credit facilities and cause the acceleration of debt payments beyond our ability to pay. Compliance with some of these covenants is based on financial measures derived from our operating results. If economic conditions in key markets deteriorate, we may experience material adverse impacts to our business and operating results, such as through reduced customer demand and inflation. A decline in our business could make us unable to maintain compliance with these financial covenants, in which case, our lenders could demand immediate payment of outstanding amounts and we would need to seek alternate financing sources to pay off such debts and to fund our ongoing operations. Such financing may not be available on favorable terms, if at all.

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We depend on external financial resources, and the current economic environment and credit market uncertainty could interrupt our access to capital markets, borrowings, or financial transactions to hedge certain risks, which could adversely affect our financial condition.

As of December 31, 2008, we had approximately \$589.5 million of short-term and long-term debt with varying maturities and approximately \$134.8 million of off balance sheet arrangements, including consignment and customer arrangements for precious metals, international receivables sales programs, bank guarantees, and standby letters of credit. These arrangements have allowed us to make investments in growth opportunities and fund working capital requirements. In addition, we enter into financial transactions to hedge certain risks, including foreign exchange, commodity pricing, and sourcing of certain raw materials. Our continued access to capital markets, the stability of our lenders, customers and financial partners and their willingness to support our needs are essential to our liquidity and our ability to meet our current obligations, fund operations, and fund our strategic initiatives. An interruption in our access to external financing or financial transactions to hedge risk could adversely affect our business prospects and financial condition. See further information regarding our liquidity in Capital Resources and Liquidity under Item 7 and in Note 5 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K.

Interest rates on some of our borrowings are variable, and our borrowing costs could be affected adversely by interest rate increases.

Portions of our debt obligations have variable interest rates. Generally, when interest rates rise, our cost of borrowings increases. We estimate, based on the debt obligations outstanding at December 31, 2008, that a one percent increase in interest rates would cause interest expense to increase by approximately \$2.7 million annually. Continued interest rate increases could raise the cost of borrowings and adversely affect our financial performance. See further information regarding our interest rates on our debt obligations in Quantitative and Qualitative Disclosures about Market Risk under Item 7A and in Note 5 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K.

Many of our assets are encumbered by liens that have been granted to lenders, and those liens affect our flexibility to dispose of property and businesses.

Our debt obligations are secured by substantially all of our assets. These liens could reduce our ability and/or extend the time to dispose of property and businesses, as these liens must be cleared or waived by the lenders prior to any disposition. These security interests are described in more detail in Note 5 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K.

We have significant deferred tax assets, and our ability to utilize these assets will depend on our future performance.

To fully realize the carrying value of our net deferred tax assets, we will have to generate adequate taxable profits in various tax jurisdictions. As of December 31, 2008, we had \$147.3 million of net deferred tax assets, after valuation allowances. If we do not generate adequate profits within the time periods required by applicable tax statutes, the carrying value of the tax assets will not be realized. If it becomes unlikely that the carrying value of our net deferred tax assets will be realized, the valuation allowances may need to be increased in our consolidated financial statements, adversely affecting results of operations. Further information on our deferred tax assets is presented in Note 7 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K.

Noncompliance with NYSE rules could result in the delisting of our common stock from the NYSE.

If we cannot meet the New York Stock Exchange (NYSE) continued listing requirements, the NYSE may delist our common stock, which could have an adverse impact on us and the liquidity and market price of our stock.

Our business has been and may continue to be affected by worldwide macroeconomic factors, which include uncertainties in the credit and capital markets. External factors that affect our stock price, such as liquidity requirements of our investors, as well as our performance, could impact our market capitalization, revenue and operating results, which, in turn, affect our ability to comply with the NYSE s listing standards. These listing

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standards include: (1) the average closing price of our common stock over a 30 trading-day period must not fall below \$1.00 (although this requirement has been temporarily suspended by the NYSE until June 30, 2009), (2) our market capitalization must not fall below \$75 million if at the same time our shareholders' equity is less than \$75 million, and (3) irrespective of our level of shareholders' equity, our market capitalization must not fall below \$25 million (this standard was temporarily lowered by the NYSE from \$25 million to \$15 million until June 30, 2009).

Our closing stock price on February 27, 2009, was \$1.47 and our market capitalization was approximately \$66 million. As of December 31, 2008, our shareholders' equity was approximately \$324 million. If our stock price declines to the point where our compliance with the listing standards is in jeopardy, we will consider taking such actions as we deem appropriate under the circumstances to regain compliance. If we were to fail to meet the continued listing requirements, NYSE rules provide a six-month period, with respect to the minimum stock price standard, and an 18-month period, with respect to the market capitalization and shareholders' equity standard, to regain compliance. If we are unable to satisfy the NYSE criteria for continued listing and unable to regain compliance during the specified periods, our common stock would be subject to delisting. A delisting of our common stock could negatively impact us by, among other things, reducing the liquidity and market price of our common stock and reducing the number of investors willing to hold or acquire our common stock, which could negatively impact our ability to raise equity financing. In addition, delisting from the NYSE might negatively impact our reputation and, as a consequence, our business.

We depend on reliable sources of energy and raw materials, including petroleum-based materials and other supplies, at a reasonable cost, but the availability of these materials and supplies could be interrupted and/or their prices could escalate and adversely affect our sales and profitability.

We purchase energy and many raw materials, including petroleum-based materials and other supplies, which we use to manufacture our products. Changes in their availability or price could affect our ability to manufacture enough products to meet customers' demands or to manufacture products profitably. We try to maintain multiple sources of raw materials and supplies where practical, but this may not prevent unanticipated changes in their availability or cost. We may not be able to pass cost increases through to our customers. Significant disruptions in availability or cost increases could adversely affect our manufacturing volume or costs, which could negatively affect product sales or profitability of our operations.

The markets for our products are highly competitive and subject to intense price competition, and that could adversely affect our sales and earnings performance.

Our customers typically have multiple suppliers from which to choose. If we are unwilling or unable to provide products at competitive prices, and if other factors, such as product performance and value-added services do not provide an offsetting competitive advantage, customers may reduce, discontinue, or decide not to purchase our products. If we could not secure alternate customers for lost business, our sales and earnings performance could be adversely affected.

We strive to improve operating margins through sales growth, price increases, productivity gains, improved purchasing techniques and restructuring activities, but we may not achieve the desired improvements.

We work to improve operating profit margins through activities such as growing sales to achieve increased economies of scale, increasing prices, improving manufacturing processes, adopting purchasing techniques that lower costs or provide increased cost predictability, and restructuring businesses to realize cost savings. However, these activities depend on a combination of improved product design and engineering, effective manufacturing process control initiatives, cost-effective redistribution of production, and other efforts that may not be as successful as anticipated. The success of sales growth and price increases depends not only on our actions but also the strength of customer

demand and competitors' pricing responses, which are not fully predictable. Failure to successfully implement actions to improve operating margins could adversely affect our financial performance.

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The global scope of our operations exposes us to risks related to currency conversion rates and changing economic, social and political conditions around the world.

More than 50% of our net sales during 2008 were outside of the U.S. In order to support global customers, access regional markets and compete effectively, our operations are located around the world. As a result, our operations have additional complexity from changing economic, social and political conditions in multiple locations and we are subject to risks relating to currency conversion rates. Other risks inherent in international operations include the following:

New and different legal and regulatory requirements and enforcement mechanisms in local jurisdictions;

U.S. export licenses may be difficult to obtain and we may be subject to export duties or import quotas or other trade barriers;

Increased costs of, and decreased availability of, transportation or shipping;

Credit risk and financial conditions of local customers and distributors;

Risk of nationalization of private enterprises by foreign governments or restrictions on investments;

Potentially adverse tax consequences, including imposition or increase of withholding and other taxes on remittances and other payments by subsidiaries; and

Local political, economic and social conditions, including the possibility of hyperinflationary conditions and political instability in certain countries.

While we attempt to anticipate these changes and manage our business appropriately in each location where we do business, these changes are often beyond our control and difficult to forecast. The consequences of these risks may have significant adverse effects on our results of operations or financial position.

We have a growing presence in the Asia-Pacific region where it can be difficult for a U.S.-based company, such as Ferro, to compete lawfully with local competitors.

Many of our most promising growth opportunities are in the Asia-Pacific region, especially the People's Republic of China. Although we have been able to compete successfully in those markets to date, local laws and customs can make it difficult for a U.S.-based company to compete on a level playing field with local competitors without engaging in conduct that would be illegal under U.S. law. Our strict policy of observing the highest standards of legal and ethical conduct may cause us to lose some otherwise attractive business opportunities to local competition in the region.

Regulatory authorities in the U.S., European Union and elsewhere are taking a much more aggressive approach to regulating hazardous materials, and those regulations could affect sales of our products.

Hazardous material legislation and regulations can restrict the sale of products and/or increase the cost of producing them. Some of our products are subject to restrictions under laws or regulations such as California Proposition 65 or the European Union's (EU) hazardous substances directive. The EU REACH registration system became effective June 1, 2007, and requires us to perform toxicity studies of the components of some of our products and to register the information in a central database, increasing the cost of these products. As a result of these hazardous material regulations, customers may avoid purchasing some products in favor of perceived greener, less hazardous or less

costly alternatives. This factor could adversely affect our sales and operating profits.

Our operations are subject to operating hazards and, as a result, to stringent environmental, health and safety regulations, and compliance with those regulations could require us to make significant investments.

Our production facilities are subject to hazards associated with the manufacture, handling, storage and transportation of chemical materials and products. These hazards can cause personal injury and loss of life, severe

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damage to, or destruction of, property and equipment and environmental contamination and other environmental damage and could have an adverse effect on our business, financial condition or results of operations.

We strive to conduct our manufacturing operations in a manner that is safe and in compliance with all applicable environmental, health and safety regulations. Compliance with changing regulations may require us to make significant capital investments, incur training costs, make changes in manufacturing processes or product formulations, or incur costs that could adversely affect our profitability, and violations of these laws could lead to substantial fines and penalties. These costs may not affect competitors in the same way due to differences in product formulations, manufacturing locations or other factors, and we could be at a competitive disadvantage, which might adversely affect financial performance.

We are a defendant in several lawsuits that could have an adverse effect on our financial condition and/or financial performance, unless they are successfully resolved.

We are routinely involved in litigation brought by suppliers, customers, employees, governmental agencies and others. Litigation is an inherently unpredictable process and unanticipated negative outcomes are possible. The most significant pending litigation is described in Item 3 Legal Proceedings of this Annual Report on Form 10-K.

Our businesses depend on a continuous stream of new products, and failure to introduce new products could affect our sales and profitability.

One way that we remain competitive in our markets is by developing and introducing new and improved products on an ongoing basis. Customers continually evaluate our products in comparison to those offered by our competitors. A failure to introduce new products at the right time that are price competitive and that provide the features and performance required by customers could adversely affect our sales, or could require us to compensate by lowering prices. The result could be lower sales and/or lower profitability.

We are subject to stringent labor and employment laws in certain jurisdictions in which we operate, we are party to various collective bargaining arrangements, and our relationship with our employees could deteriorate, which could adversely impact our operations.

A majority of our full-time employees are employed outside the United States. In certain jurisdictions where we operate, labor and employment laws are relatively stringent and, in many cases, grant significant job protection to certain employees, including rights on termination of employment. In addition, in certain countries where we operate, our employees are members of unions or are represented by a works council as required by law. We are often required to consult and seek the consent or advice of these unions and/or respective works councils. These regulations and laws, coupled with the requirement to consult with the relevant unions or works councils, could have a significant impact on our flexibility in managing costs and responding to market changes.

Furthermore, with respect to our employees who are subject to collective bargaining arrangements or similar arrangements (approximately 18% of our U.S. workforce as of December 31, 2008), there can be no assurance that we will be able to negotiate labor agreements on satisfactory terms or that actions by our employees will not disrupt our business. If these workers were to engage in a strike, work stoppage or other slowdown or if other employees were to become unionized, we could experience a significant disruption of our operations and/or higher ongoing labor costs, which could adversely affect our business, financial condition and results of operations.

Employee benefit costs, especially postretirement costs, constitute a significant element of our annual expenses, and funding these costs could adversely affect our financial condition.

Employee benefit costs are a significant element of our cost structure. Certain expenses, particularly postretirement costs under defined benefit pension plans and healthcare costs for employees and retirees, may increase significantly at a rate that is difficult to forecast and may adversely affect our financial results, financial condition or cash flows. The recent declines in global capital markets have caused a reduction in the value of our pension plan assets. This reduction could have an adverse effect on future pension expense and funding

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requirements. Further information regarding our retirement benefits is presented in Note 9 to the consolidated financial statements under Item 8 of this Annual Report on Form 10-K.

Our restructuring initiatives may not provide sufficient cost savings to justify their expense.

We have undertaken and may continue to undertake productivity initiatives, including organizational restructurings, to improve performance and generate cost savings. We developed, initiated, and continue to implement several restructuring programs across a number of our business segments with the objectives of leveraging our global scale, realigning and lowering our cost structure, and optimizing capacity utilization. The programs are primarily focused on North America and Europe. We can make no assurances that these restructuring initiatives will be completed or beneficial to us. Also, we cannot assure you that any estimated cost savings from such activities will be realized.

We are exposed to intangible asset risk.

We have recorded intangible assets, including goodwill, in connection with business acquisitions. We are required to perform goodwill impairment tests at least on an annual basis and whenever events or circumstances indicate that the carrying value may not be recoverable from estimated future cash flows. As a result of our annual and other periodic evaluations, we may determine that the intangible asset values need to be written down to their fair values, which could result in material charges that could be adverse to our operating results and financial position.

We have in the past identified material weaknesses in our internal controls, and the identification of any material weaknesses in the future could affect our ability to ensure timely and reliable financial reports.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, which is a process designed by our management to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

We conducted an assessment of our internal controls over financial reporting as of December 31, 2008 and concluded that the internal controls over financial reporting were effective as of December 31, 2008. Previously, we had concluded that we had material weaknesses in our internal controls as of December 31, 2004, 2005, 2006 and 2007. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that, there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis.

Accordingly, while we have taken actions to address the past material weaknesses and continued activities that materially improved, or are reasonably likely to materially improve, our internal control over financial reporting, these measures may not be sufficient to ensure that our internal controls are effective in the future. If we are unable to correct future weaknesses in internal controls in a timely manner, our ability to record, process, summarize and report reliable financial information within the time periods specified in the rules and forms of the SEC will be adversely affected. This failure could materially and adversely impact our business, our financial condition and the market value of our securities.

We are exposed to risks associated with acts of God, terrorists and others, as well as fires, explosions, wars, riots, accidents, embargoes, natural disasters, strikes and other work stoppages, quarantines and other governmental actions, and other events or circumstances that are beyond