GRAFTECH INTERNATIONAL LTD
Form 10-K/A
May 13, 2011
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K/A

Amendment No. 1

(Mark One)

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

for the fiscal year ended December 31, 2010

OR

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

for the transition period from to

Commission file number: 1-13888

GRAFTECH INTERNATIONAL LTD.

(Exact name of registrant as specified in its charter)

Delaware	27-2496053
(State or other jurisdiction of	(I.R.S. Employer

incorporation or organization)	Identification Number)
12900 Snow Road Parma, Ohio	44130
(Address of principal executive offices)	(Zip Code)

Registrant s telephone number, including area code: (216) 676-2000

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 $.01 per share	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 x 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 x

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 x No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x 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. x

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 definitions of large accelerated filer, accelerated filer , non-accelerated filer and smaller reporting company in Rule 12b-2 of th Exchange Act.

Large Accelerated Filer x Accelerated Filer ¨ Non-Accelerated Filer ¨ Smaller reporting company ¨

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

The aggregate market value of our outstanding common stock held by non-affiliates, computed by reference to the closing price of our common stock on June 30, 2010, was approximately $1,756 million. On January 31, 2011, 145,476,226 shares of our common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required under Part III is incorporated by reference from the GrafTech International Ltd. Proxy Statement for the Annual Meeting of Stockholders to be held on May 26, 2011, which was filed on April 14, 2011.

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GrafTech International Ltd. Form 10-K/A

Explanatory Note

GrafTech International Ltd. is filing this Form 10-K/A to reflect in its Annual Report on Form 10-K for the year ended December 31, 2010 the effect of the retrospective application of an election it has made in 2011 to change its method of recognizing actuarial gains and losses for its defined benefit pension plans and other postretirement benefit plans (herein referred to as OPEB) and its method of calculating the expected return on plan assets. For an explanation of the changes in accounting method and a summary of the impacts of all adjustments made to the financial statements see Note 1 Business and Summary of Significant Accounting Policies Changes in Accounting Policy Regarding Pension and Other Postretirement Benefits of the Notes to the Consolidated Financial Statements included in Item 8 of this Report on Form 10-K/A.

We have amended the preliminary Notes and Items 1, 6, 7, and 8 of our Report on Form 10-K to reflect the effects of the retrospective application of our changes in accounting method. We have also updated Part III Executive Officers of our Report on Form 10-K for an event that occurred subsequent to the original filing of the Form 10-K.

This Form 10-K/A has not been updated for other events or information subsequent to the date of filing of the original Form 10-K, except as above. Accordingly, this Form 10-K/A should be read in conjunction with our other filings made with the SEC subsequent to the filing of our original Report on Form 10-K.

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PART I

Preliminary Notes

Important Terms. We use the following terms to identify various matters. These terms help to simplify the presentation of information in this Report.

Common stock means GTI common stock, par value $.01 per share.

Credit Agreement refers to the credit agreement providing for our senior secured credit facilities, as amended, or amended and restated at the relevant time. **Revolving Facility** refers to the revolving credit facility provided under the Credit Agreement, at the relevant time. On April 28, 2010, the Credit Agreement was amended and restated to, among other things, extend the maturity of the Revolving Facility to April 29, 2013, and add provisions to permit establishment of additional credit facilities thereunder.

Debentures means our 1-5/8% convertible senior debentures issued under an Indenture dated January 22, 2004 (as supplemented). During the second quarter of 2008, all Debentures were either redeemed or converted into Common Stock.

GrafTech Finance refers to GrafTech Finance Inc. only. GrafTech Finance is an indirect wholly-owned, special purpose finance subsidiary of GTI and the borrower under the Revolving Facility. GrafTech Finance was the issuer of the Senior Notes and was a guarantor of the Debentures.

GrafTech Global refers to GrafTech Global Enterprises Inc. only. GrafTech Global is an indirect wholly-owned subsidiary of GTI and the direct or indirect holding company for all of our operating subsidiaries. GrafTech Global is a guarantor of the Revolving Facility.

GTI refers to GrafTech International Ltd. only. GTI is our public parent company and the issuer of our publicly traded common stock registered under the Exchange Act and listed on the NYSE. GTI is a guarantor of the Revolving Facility.

Senior Notes means our 10.25% senior notes due 2012 issued under an Indenture dated February 15, 2002 (as supplemented, the **Senior Note Indenture**). On September 28, 2009, we redeemed all of the remaining outstanding Senior Notes.

Senior Subordinated Notes means our two senior subordinated promissory notes issued on November 30, 2010, in connection with the Seadrift Coke L.P. (Seadrift) and C/G Electrodes LLC (C/G) acquisitions, for an aggregate total face amount of $200 million. These senior subordinated notes are non-interest bearing and will mature in 2015. Because the Senior Subordinated Notes are non-interest bearing, we were required to record them at their present value (determined using an interest rate of 7.00%).

MTM Adjustment refers to our accounting policy regarding pension and other postretirement benefits whereby we immediately recognize the change in the fair value of plan assets (referred to as mark-to-market) and net actuarial gains and losses annually in the fourth quarter of each year.

Subsidiaries refers to those companies that, at the relevant time, are or were majority owned or wholly-owned directly or indirectly by GTI or its predecessors to the extent that those predecessors activities related to the graphite and carbon business.

GTIH refers to GrafTech International Holdings, Inc. only. GTIH is our wholly-owned subsidiary through which we conduct most of our U.S. operations. GTIH is a guarantor of the Revolving Facility.

We, **us** or **our** refers to GTI and its subsidiaries collectively or, if the context so requires, GTI, GrafTech Global, GrafTech Finance or GTIH, individually. In November 2010, we completed the reorganization of our holding company structure pursuant to which we formed a new parent holding company, GrafTech Holdings Inc., which had been renamed GrafTech International Ltd. (new parent). Our former parent holding company, which had been named GrafTech International Ltd. (former parent) as part of the reorganization, was renamed GrafTech Holdings Inc. and became a direct wholly owned subsidiary of a new parent. Our new parent

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adopted the same certificate of incorporation (except for certain technical matters) and by-laws of our former parent; each share of common stock of our former parent was converted into one share of common stock of our new parent; and our new parent common stock was listed on the NYSE under our former parent s ticker symbol GTI.

Presentation of Financial, Market and Legal Data. References to cost in the context of our low cost advantages and strategies do not include the impact of special charges, expenses or credits, such as those related to investigations, lawsuits, claims, restructurings or impairments, or the impact of changes in accounting principles.

Unless otherwise noted, when we refer to **dollars** , we mean U.S. dollars. Unless otherwise noted, all dollars are presented in thousands.

References to spot prices for graphite electrodes mean prices under individual purchase orders (not part of an annual or other extended purchase arrangement) for near term delivery for standard size graphite electrodes used in large electric arc steel melting furnaces (sometimes called **melters** or **melter** applications) as distinct from, for example, a ladle furnace or a furnace producing non-ferrous metals.

Neither any statement made in this Report nor any charge taken by us relating to any legal proceedings constitutes an admission as to any wrongdoing.

Unless otherwise noted, market and market share data in this Report are our own estimates. Market data relating to the steel, electronics, semiconductor, solar, thermal management, transportation, petrochemical and other metals industries, our general expectations concerning such industries and our market position and market share within such industries, both domestically and internationally, are derived from trade publications relating to those industries and other industry sources as well as assumptions made by us, based on such data and our knowledge of such industries. Market and market share data relating to the graphite and carbon industry as well as information relating to our competitors, our general expectations concerning such industry and our market position and market share within such industry, both domestically and internationally, are derived from the sources described above and public filings, press releases and other public documents of our competitors as well as assumptions made by us, based on such data and our knowledge of such industry. Our estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under Risk Factors-Risks Relating to Us and Risk Factors Forward Looking Statements in this Report. We cannot guarantee the accuracy or completeness of this market and market share data and have not independently verified it. None of the sources mentioned above has consented to the disclosure or use of data in this Report.

Unless otherwise noted, references to **market shares** are based on sales volumes for the relevant year and references to **natural graphite products** do not include mined natural graphite flake.

The GRAFTECH logo, GRAFCELL®, GRAFOAM®, and GRAFIHX are our trademarks and trade names used in this report. This Report also contains trademarks and trade names belonging to other parties.

We make available, free of charge, on or through our web site, copies of our proxy statements, our annual reports on Form 10-K, our quarterly reports on Form 10-Q, our current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file them with, or furnish them to, the U.S. Securities and Exchange Commission (SEC). We maintain our website at http://www.graftech.com. The information contained on our web site is not part of this Report. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers that file electronically. Please see http://www.sec.gov for more information.

We have a code of ethics (which we call our Code of Conduct and Ethics) that applies to our principal executive officer, principal financial officer, principal accounting officers and controller, and persons performing similar functions, as well as our other employees, and which is intended to comply, at a minimum, with the listing standards of the New York Stock Exchange (NYSE) as well as the Sarbanes-Oxley

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Act of 2002 and the SEC rules adopted thereunder. A copy of our Code of Conduct and Ethics is available on our web site at http://www.graftech.com/getdoc/fd25921b-07b1-429f-86fa-397f0d0cb30d/Code-of -Conduct-and-Ethics.aspx. We intend to report timely on our website any disclosures concerning amendments or waivers of our Code of Conduct and Ethics that would otherwise require the filing of a Form 8-K with the SEC.

We also have corporate governance guidelines (which we call the Charter of the Board of Directors) which is available on our website at http://www.graftech.com/getdoc/6b8a3b4d-967c-4bdd-ab04-ea0011de0c91/GRAFTECH-INTERNATIONAL- LTD-Corp-Gov-Guide.aspx as required by the NYSE.

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Item 1. Business

INTRODUCTION

Our vision is to enable customer leadership, better and faster than our competition, through the creation, innovation and manufacture of graphite and carbon material science-based solutions. We have 125 years of experience in the research and development of graphite and carbon-based solutions and our intellectual property portfolio is extensive. Our business was founded in 1886 by the National Carbon Company.

We are one of the world s largest manufacturers of the broadest range of high quality graphite electrodes, products essential to the production of electric arc furnace (**EAF**) steel and various other ferrous and nonferrous metals. We also manufacture carbon, graphite and semi-graphite refractory products, which protect the walls of blast furnaces and submerged arc furnaces. We are one of the largest manufacturers of high quality natural graphite products enabling thermal management solutions for the electronics industry and fuel cell solutions for the transportation and power generation industries. We are one of the world s largest manufacturers and providers of advanced graphite and carbon materials for the transportation, solar, and oil and gas exploration industries. We service customers in about 65 countries, including industry leaders such as Arcelor Mittal, BaoSteel, Gerdau S.A. and ThyssenKrupp Steel in steel, Samsung in electronics, Elkem Solar in the solar industry and Griffin Wheel in the transportation industry.

On November 30, 2010, we announced the acquisition from the equity holders of Seadrift Coke L.P. (Seadrift) of 81.1% of the equity interests of Seadrift that we did not already own and from the equity holders of C/G Electrodes LLC (C/G) of 100% of the equity interests of C/G.

Seadrift is one of the largest producers of petroleum-based needle coke in the world and owns the world s only known stand-alone petroleum-based needle coke plant. Needle coke is the key raw material used to make graphite electrodes, including premium UHP graphite electrodes, which are critical consumables in EAF steel production. The acquisition of Seadrift helps to assure us of a stable supply for a majority of the primary raw material in the production of graphite electrodes and should allow us to reduce the relative cost of a significant portion of our supply of needle coke.

C/G is a U.S.-based producer of large diameter premium UHP graphite electrodes used in the EAF steel making process. C/G also sells various other graphite-related products, including specialty graphite blocks, granular graphite and partially processed electrodes. The acquisition of C/G provides us with a large diameter graphite electrode manufacturing facility in the U.S. which will allow us to respond to customer orders more quickly and reduce freight cost and transit time for North American shipments.

We currently manufacture our products in 14 manufacturing facilities strategically located on four continents. We believe our Industrial Materials network has the largest manufacturing capacity and the lowest manufacturing cost structures of all of our major competitors and delivers the highest-level quality products. We currently have the operating capability, depending on product mix, to manufacture approximately 255,000 metric tons of graphite electrodes sellable capacity. We believe that our global manufacturing network provides us with competitive advantages in product quality, proximity to customers, timely and reliable product delivery, and product costs. Given our global network, we are well positioned to serve the growing number of consolidated, global, multi-plant steel customers as well as certain smaller, regional customers and segments.

We operate one of the premier research, development and testing facilities in the graphite and carbon industry, and we believe we are an industry leader in graphite and carbon material science and high temperature processing know-how. We believe our technological capabilities for developing products with superior thermal, electrical and physical characteristics provide us with a competitive advantage. These capabilities have enabled us to accelerate development and commercialization of our technologies to exploit markets with high growth potential.

Products. We have five major product categories: graphite electrodes, refractory products, needle coke products, advanced graphite materials and natural graphite products.

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Reportable Segments. Our businesses are reported in the following reportable segments: Industrial Materials, which include graphite electrodes, refractory products and needle coke products; and Engineered Solutions, which include advanced graphite materials and natural graphite products. We discuss our reportable segments and geographic areas in more detail in Note 3, Segment Reporting of the Notes to the Consolidated Financial Statements.

Industrial Materials. Our Industrial Materials segment manufactures and delivers high quality graphite electrodes, refractory products and needle coke products.

We are one of the world s largest manufacturers of the broadest range of high quality graphite electrodes, refractory products, and needle coke products. Electrodes are key components of the conductive power systems used to produce steel and other non-ferrous metals. Approximately 70% of our graphite electrodes sold is consumed in the EAF steel melting process, the steel making technology used by all mini-mills, typically at a rate of one graphite electrode every eight to ten operating hours. We believe that mini-mills constitute the higher long-term growth sector of the steel industry and that there is currently no commercially viable substitute for graphite electrodes in EAF steel making. Therefore, graphite electrodes are essential to EAF steel production. The remaining approximately 30% of our graphite electrodes sold is primarily used in various other ferrous and non-ferrous melting applications, including steel refining (that is, ladle furnace operations for both EAF and basic oxygen furnace steel production), fused materials, chemical processing, and alloy metals. We are a producer of petroleum needle coke. Needle coke is a key raw material in the manufacture of the graphite electrodes used in the EAF steel production process.

GrafTech is also a leading global supplier of carbon, semigraphite and graphite refractory hearth linings for blast and submerged arc furnaces used to produce iron and ferroalloys. Refractory products are used to protect the walls of blast furnaces and submerged arc furnaces due to their high thermal conductivity and the ease with which they can be machined to large or complex shapes. Among the major refractory product suppliers, GrafTech has one of the most complete offerings, including a full range of brick, block, ramming paste, cement and grout products.

Engineered Solutions. Engineered Solutions include advanced graphite materials and natural graphite products. Advanced graphite materials are highly engineered synthetic graphite products used in many industrial areas due to their unique properties and the ability to tailor them to specific solutions. These products are used in the transportation, solar, metallurgical, chemical, oil and gas exploration, and various other industries as further described below. Our natural graphite products consist of thermal management solutions, fuel cell components, and sealing materials.

INDUSTRIAL MATERIALS SEGMENT

Our Industrial Materials segment, which had net sales of $1,008.8 million in 2008, $538.1 million in 2009, and $833.9 million in 2010, manufactures and delivers high quality graphite electrodes, refractory products and needle coke products, as well as provides customer technical services. Industrial Materials sales represented approximately 85%, 82% and 83% of consolidated net sales for 2008, 2009, and 2010, respectively. We estimate that the worldwide demand for our industrial materials products was approximately $3.8 billion in 2009 (excluding needle coke products) and approximately $6.6 billion in 2010 (including needle coke products). On a comparable basis, the total worldwide demand change for Industrial Materials is an increase of 32% primarily due to improving global economic conditions. Customers for these products are located in all major geographic regions.

Graphite Electrode Products. Graphite electrodes are consumed primarily in EAF steel production, the steel making technology used by all mini-mills. Graphite electrodes are also consumed in the refining of steel in ladle furnaces and in other smelting processes such as production of titanium dioxide.

Electrodes act as conductors of electricity in the furnace, generating sufficient heat to melt scrap metal, iron ore or other raw materials used to produce steel or other metals. The electrodes are consumed in the course of that production.

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Electric arc furnaces operate using either alternating electric current or direct electric current. The vast majority of electric arc furnaces use alternating current. Each of these alternating current furnaces typically uses nine electrodes (in three columns of three electrodes each) at one time. The other electric arc furnaces, which use direct current, typically use one column of three electrodes. The size of the electrodes varies depending on the size of the furnace, the size of the furnace s electric transformer and the planned productivity of the furnace. In a typical furnace using alternating current and operating at a typical number of production cycles per day, one of the nine electrodes is fully consumed (requiring the addition of a new electrode), on average, every eight to ten operating hours. The actual rate of consumption and addition of electrodes for a particular furnace depends primarily on the efficiency and productivity of the furnace. Therefore, demand for graphite electrodes is directly related to the amount and efficiency of electric arc furnace steel production.

Electric arc furnace steel production requires significant heat (as high as 5,000° F) to melt the raw materials in the furnace, primarily scrap metal. Heat is generated as electricity (as much as 150,000 amps) passes through the electrodes and creates an electric arc between the electrodes and the raw materials.

Graphite electrodes are currently the only known commercially available products that have the high levels of electrical conductivity and the capability of sustaining the high levels of heat generated in an electric arc furnace producing steel. Therefore, graphite electrodes are essential to the production of steel in electric arc furnaces. We believe there is currently no commercially viable substitute for graphite electrodes in electric arc furnace steel making. We estimate that, on average, the cost of graphite electrodes represents about 2 3% of the cost of producing steel in a typical electric arc furnace.

Electric arc furnace steel production was estimated to be approximately 390 million metric tons in 2010, representing approximately 28% of the world s steel production. As global economic conditions continue to improve, we expect EAF production to increase approximately 6% in 2011. We are aware of approximately 43 million metric tons of new EAF capacity start ups and projects that we expect will be added over the next two-three years. We believe the EAF utilization rate in 2010 was approximately 71%, compared to approximately 65% in 2009.

Relationship Between Graphite Electrode Demand and EAF Steel Production. The improved efficiency of electric arc furnaces has resulted in a decrease in the average rate of consumption of graphite electrodes per metric ton of steel produced in electric arc furnaces (called specific consumption). We estimate that the average EAF melter specific consumption has declined in the last five years by an average of approximately 1.8% per year from slightly above 1.8 kilograms of graphite electrodes per metric ton produced in 2006 and we estimate that the rate of improvement in specific consumption will decline to less than one percent per year over the long term.

Over the long term, specific consumption will continue to decrease at a more gradual pace, as the EAF steel makers investment cost (relative to the benefits) increases to achieve further efficiencies in specific consumption. Another contributing factor is the ongoing electrode quality improvements of graphite electrode manufacturers.

We further believe that the rate of decline in the future will be impacted by the addition of modern EAF steel making capacity which tends to have lower specific consumption than the average. To the extent that this new capacity replaces old capacity, it has the accelerated effect of reducing industry wide specific consumption due to the efficiency of new electric arc furnaces relative to the old. However, to the extent that this new capacity increases industry wide EAF steel production capacity and that capacity is utilized, it creates additional demand for graphite electrodes. As an example, the approximately 43 million metric tons of new EAF capacity start ups and projects that we expect will be added over the next 2-3 years will result in approximately 74,000 metric tons of new graphite electrode demand, depending on steel industry utilization rates.

Increases in EAF steel production, offset by declines in specific consumption, resulted in corresponding changes in demand for graphite electrodes. Graphite electrode demand is expected to increase in 2011 due to production increases in the EAF

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steel industry, which are forecasted to increase over 5%. We estimate that graphite electrode demand will also grow at over 5% (net of specific consumption).

Over the long term, graphite electrode demand is estimated to grow at an average annual net growth rate of approximately 2%, based on the anticipated growth of EAF steel production (average historical growth rate of 3%), partially offset by the decline in future specific consumption.

Production Capacity. We believe that the worldwide total graphite electrode manufacturing capacity was approximately 1.6 million metric tons for 2008 and 2009 and approximately 1.7 million metric tons for 2010. We believe that the graphite electrode industry manufacturing capacity utilization rate worldwide was less than 90% for 2008, approximately 60% for 2009, and approximately 80% for 2010.

As a result of the recent acquisition and other actions, as well as our proprietary process and technological improvements, we have the capability, depending on product demand and mix, to manufacture approximately 255,000 metric tons of graphite electrodes annually from our existing assets.

Industrial Materials Demand. We estimate that the worldwide demand for graphite electrodes, needle coke, refractories and other products was approximately $6.6 billion in 2010 and we estimate that we supplied approximately 14% of the worldwide demand for these products.

Refractory Products. We manufacture carbon, semi-graphitic, and graphite refractory bricks which are used primarily for their high thermal conductivity. Common applications in blast furnace and submerged arc furnaces include cooling courses in the hearth bottoms for heat distribution and removal, backup linings in hearth walls for improved heat transfer and safety, and lintels over copper cooling plates where a single brick cannot span the cooling plate.

GrafTech has one of the most unique carbon making processes in the world, called the hot-press process. By using various carbon and other sources and utilizing electricity, a baked refractory brick can be created in minutes as opposed to a month for the traditional block process. After cooling, the bricks are sent to an automated grinder and machined to the required size and shape to fill a customer s order.

Needle Coke Products. We are currently producing petroleum needle coke. Needle coke is the key raw material in the manufacture of graphite electrodes which are consumed in EAF steel production. Petroleum needle coke, a crystalline form of carbon derived from decant oil is used primarily in the production of graphite electrodes. Graphite electrode producers combine petroleum or pitch needle coke with pitch adhesives and other ingredients to form graphite electrodes.

Petroleum and pitch needle coke, relative to other varieties of coke, is distinguished by its needle-like structure and its quality, which is measured by the presence of impurities, principally sulfur, nitrogen and ash. The needle-like structure of petroleum and pitch needle coke encourages expansion along the length of the electrode, rather than the width, which reduces the likelihood of fractures. Impurities reduce quality because they increase the coefficient of thermal expansion and electrical resistivity of the graphite electrode, which can lead to uneven expansion and a build-up of heat and cause the graphite electrode to oxidize rapidly and break. Petroleum and pitch needle coke is typically low in these impurities. In order to minimize fractures caused by disproportionate expansion over the width of an electrode, and minimize the effect of impurities, large-diameter graphite electrodes (18 inches to 32 inches) employed in high-intensity electric arc furnace applications are comprised almost exclusively of petroleum and pitch needle coke.

ENGINEERED SOLUTIONS SEGMENT

Demand for products in our engineered solutions segment recovered to near 2008 levels during 2010 as the global economy recovery process progressed. The electronic thermal management demand continued to grow and the business also benefited from increased activity in solar and other energy products.

Our Engineered Solutions segment had sales of $181.5 million in 2008, $120.9 million in 2009, and $173.1 million in 2010. Engineered Solutions represented approximately 15% of consolidated net sales for 2008, approximately 18% for 2009 and approximately 17% for

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2010. We estimate that our addressable worldwide demand for engineered solutions was $1,027 million in 2008, $716 million in 2009, and $1,100 million in 2010.

Advanced Graphite Materials. Our advanced graphite materials include products in a variety of shapes and grades, weighing up to ten metric tons, for diverse applications. Our products are used in many applications including fused refractory products and semiconductor components. In addition, certain of our materials, when combined with advanced flexible graphite, provide superior heat management solutions for insulation packages, induction furnaces, high temperature vacuum furnaces and direct solidification furnaces and other industrial thermal management applications.

Natural Graphite Products. We manufacture natural graphite products, consisting of flexible graphite. Applications include thermal management solutions used for the electronics, automotive, petrochemical, and transportation industries. We are one of the world s largest manufacturers of natural graphite products for these uses and applications.

BUSINESS STRATEGIES

We believe that, by growing our revenues and operating income, successfully implementing LEAN initiatives, and maximizing our cash flows, we will deliver enhanced financial performance and return on shareholder value, and also position us to capitalize on growth opportunities that may arise. We have transformed our operations, building competitive advantages to enable us to compete successfully in our major product lines, to realize enhanced performance as economic conditions improve and to exploit growth opportunities from our intellectual property portfolio. Our business strategies are designed to expand upon our competitive advantages by:

Leveraging Our Unique Global Manufacturing Network. We believe that our global manufacturing network provides us with competitive advantages in product quality, product costs, timely and reliable delivery, and operational flexibility to adjust product mix to meet the diverse needs of a wide range of segments and customers.

We continue to leverage our network to seek to achieve significant increases in throughput generated from our existing assets, through productivity improvements, capital expenditures, and other efficiency initiatives. We believe we can further exploit our network by focusing our technical and customer service capabilities on:

- the increasing number of large global customers created by the consolidation trend within the steel industry, to whom we believe we are well positioned to offer products that meet their volume, product quality, product mix, delivery reliability and service needs at competitive prices; and

- customers in targeted segments where we have competitive advantages to meet identified customer needs due to the range and quality of our products, the utilization of our capacity, the value of our customer technical service and our low cost supplier advantage.

We sell our products in every major geographic region. Sales of our products to buyers outside the U.S. accounted for about 83% of net sales in 2008, 82% of net sales in 2009, and about 80% of net sales in 2010. No single customer or group of affiliated customers accounted for more than 10% of our total net sales in 2008, 2009 or 2010.

Driving Continuous Improvement with LEAN and Six Sigma. We believe a consistent focus on our customers and diligence towards aligning our processes to satisfy these customers is essential in today s global market. We have undertaken a comprehensive launch of LEAN and Six Sigma with dedicated resources at all of our key manufacturing plants intended to create a common language and tool set centering around LEAN and Six Sigma.

Our focus on waste reduction using a team approach creates knowledge at all levels of the organization. Concentrating on creating flow within processes enables us to capitalize on lower inventories while still maintaining high on-time-delivery. Our metric driven behavior and instituting solid corrective actions to anomalies drives us towards customer centric solutions.

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We believe we will be able to continue to leverage our stream-lined processes as a sustainable competitive advantage with shorter lead times, lower costs, higher quality products, and exceptional service. We are applying these methodologies and tools to not only our manufacturing processes; but also to our transactional and business processes such as Accounts Receivable, New Product Introduction, and Cash Forecasting in order to develop a high-performing value stream.

Accelerating Commercialization of Advantaged Technologies. We believe that our technological capabilities for developing products with superior thermal, electrical and physical characteristics provide us with a potential growth opportunity as well as a competitive advantage. We seek to exploit these capabilities and our intellectual property portfolio to accelerate development and commercialization of these technologies across all of our businesses, to improve existing products, and to develop and commercialize new products for higher growth rate areas such as electronic thermal management technologies. We received *R&D Magazine s* prestigious R&D 100 Award in six of the past eight years. The R&D 100 Award honors the 100 most technologically significant products introduced into the marketplace each year. We received this award in 2003 and 2004 for our achievements in electronic thermal management products, in 2005 for our large-diameter pinless graphite electrodes, in 2006 for GRAFOAM® carbon foam, a unique high strength, light weight carbon foam, in 2007 for GrafCell® flow field plates, a key component to the commercialization of fuel cells, and in 2009 for our GRAFIHX Flexible Heat Exchangers, a graphite solution uniquely suited for radiant floor heating systems.

Delivering Exceptional and Consistent Quality. We believe that our products are among the highest quality products available in our industry. We have been recognized as a preferred or certified supplier by many major steel companies and have received numerous technological innovation and other awards by industry groups, customers and others. Using our technological capabilities, we continually seek to improve the consistent overall quality of our products and services, including the performance characteristics of each product, the uniformity of the same product manufactured at different facilities and the expansion of the range of our products. We believe that improvements in overall quality create significant efficiencies and opportunities for us, provide us the opportunity to increase sales volumes and potential demand share, and create production efficiencies for our customers.

Providing Superior Technical Service. We believe that we are recognized as one of the industry leaders in providing value added technical services to customers for our major product lines. We believe that we have one of the largest customer technical service and related supporting engineering and scientific organizations in our industry, with more than 200 engineers, scientists and specialists around the world. A portion of these employees assist key steel and other metals customers in furnace applications, operations and upgrades to reduce energy consumption, improve raw material costs and increase output.

Maintaining Liquidity and Building Stockholder Value. We believe that our business strategies support our goal of growing revenues and operating income and maximizing the cash generated from operations. Maintaining liquidity remains a priority for us. At December 31, 2010, we had outstanding borrowings under our Revolving Facility of $130.0 million, $143.4 million outstanding related to Senior Subordinated Notes, and cash and cash equivalents of $13.1 million. We had no borrowings under our Revolving Facility at December 31, 2009 and our cash and cash equivalents exceeded $50 million.

We continually review our assets, product lines and businesses to seek out opportunities to maximize value, through re-deployment, merger, acquisition, divestiture or other means, which could include taking on more debt or issuing more equity. We may at any time buy or sell assets, product lines or businesses.

PRODUCTION PLANNING

We plan and source production of our products globally. We have evaluated virtually every aspect of our global supply chain, and we have redesigned and implemented changes to our global manufacturing, marketing and sales processes to leverage the strengths of our repositioned manufacturing network. Among other

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things, we have reduced manufacturing bottlenecks, improved product and service quality and delivery reliability, expanded our range of products, and improved our global sourcing for our customers.

We deploy synchronous work processes at most of our manufacturing facilities. We have also installed and continue to install and upgrade proprietary process technologies at our manufacturing facilities, use statistical process controls in our manufacturing processes for all products, and employ LEAN processing improvement techniques.

Our global manufacturing network also helps us to minimize risks associated with dependence on any single economic region.

MANUFACTURING

Graphite Electrode. The manufacture of a graphite electrode takes, on average, about two months. We manufacture graphite electrodes ranging in size up to 30 inches in diameter and over 11 feet in length, and weighing as much as 5,900 pounds (2.6 metric tons). The manufacture of graphite electrodes includes six main processes: forming the electrode, baking the electrode, impregnating the electrode with a special pitch that improves the strength, rebaking the electrode, graphitizing the electrode using electric resistance furnaces, and machining.

We generally warrant to our customers that our electrodes will meet our specifications. Electrode returns and replacements have been immaterial in the aggregate to net sales in each of the last three years.

We manufacture graphite electrodes in the United States, Mexico, Brazil, South Africa, France and Spain. We have an electrode machining center in Russia.

Refractory Products. Refractory bricks are manufactured in the United States, using a proprietary hot press process. We have two primary grades of refractory products. The manufacture of a refractory block begins with the mixing and blending of the raw materials. The raw materials are fed into molds and pressed into shape. Intense heat and pressure are then applied. The bricks are then cooled and then cut into the desired shapes. Our bricks are generally smaller than our competitors products. We believe our smaller brick size creates an easier installation process compared to larger bricks. We manufacture refractory bricks into sizes up to 18 inches, although we can manufacture bricks into a multitude of sizes and shapes to meet the needs of our customers.

Petroleum Needle and Pitch Coke Products. Petroleum needle coke is produced through a manufacturing process very similar to a refinery. The production process converts decant oil into petroleum needle coke shaped in a needle-like structure. Pitch coke is produced using coal-tar pitch. We produce petroleum needle coke at one manufacturing facility in the U.S.

Advanced Graphite Materials. Advanced graphite materials are manufactured using processes and technologies similar to those of graphite electrodes. Manufacturing lead times range between four to six months for most products and depend on the specific material properties that are needed to be imparted in the final billet. After the forming, baking, impregnation, rebaking and graphitization steps, the billets are either dressed and sold as raw stock or are machined into custom parts against proprietary specifications supplied by our customers. We produce advanced graphite materials in the United States, South Africa, Brazil, France and Italy.

Natural Graphite Products. We use a proprietary process to convert mined natural graphite flake into expandable graphite, an intermediate product. We manufacture flexible graphite by subjecting expandable graphite to additional proprietary processing. Our natural graphite business operates two manufacturing facilities in the U.S. We believe that we operate one of the world s most technologically sophisticated advanced natural graphite production lines.

Quality Standards and Maintenance. Most of our global manufacturing facilities are certified and registered to ISO 9001-2008 international quality standards and some are certified to QS 9001-2008. Natural graphite has a quality assurance system designed to meet the most stringent requirements of its customers and is ISO TS 16949:2009 certified. Maintenance at our facilities is conducted on an ongoing basis.

Raw Materials and Suppliers. The primary raw materials for electrodes are engineered by-products and

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residues of the petroleum and coal industries. We use these raw materials because of their high carbon content. The primary raw materials for graphite electrodes are calcined needle coke and pitch. We purchase raw materials from a variety of sources and believe that the quality and cost of our raw materials on the whole is competitive with those available to our competitors.

We were parties to long-term contracts with ConocoPhillips for the supply of petroleum coke, our primary raw material. These supply agreements contained customary terms and conditions including annual price negotiations, dispute resolution and termination provisions, including, upon a termination, a three-year supply arrangement with reducing volume commitments. During 2010, these termination provisions were exercised, and the contracts were formally terminated as of December 31, 2010. In accordance with the termination provisions, we have negotiated three-year supply arrangements with ConocoPhillips, for quantities of needle coke which we believe are sufficient for our raw material requirements as currently forecast.

We have firm price contracts for the bulk of our 2011 needle coke requirements. We expect to purchase approximately 35% of our 2011 needle coke requirements from Seadrift.

Raw materials for refractory products are primarily sourced internally and from a variety of third parties. The primary raw material used in refractory produc