TITANIUM METALS CORP
Form 10-K
February 27, 2009

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

FORM 10-K

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

For the fiscal year ended December 31, 2008

Commission file number 1-14368

Titanium Metals Corporation
(Exact name of registrant as specified in its charter)

Delaware	13-5630895
(State or other jurisdiction of incorporation or organization)	(IRS employer identification no.)

5430 LBJ Freeway, Suite 1700, Dallas, Texas 75240
(Address of principal executive offices, including zip code)

Registrant's telephone number, including area code: (972) 233-1700

Securities registered pursuant to Section 12(b) of the Act:

Common Stock ($.01 par value)	New York Stock Exchange
(Title of each class)	(Name of each exchange on which registered)

Securities registered pursuant to Section 12(g) of the Act:

6¾% Series A Convertible Preferred Stock ($.01 par Value)
(Title of class)

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes þ No o

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 o No þ

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

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 o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company (as defined in Rule 12b-2 of the Act).
Large accelerated filer þ Accelerated filer o Non-accelerated filer o Smaller reporting company o

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

The aggregate market value of the 85.4 million shares of voting stock held by nonaffiliates of Titanium Metals Corporation as of June 30, 2008 approximated $1.2 billion. There are no shares of non-voting common stock outstanding. As of February 19, 2009, 181,086,421 shares of common stock were outstanding.

Documents incorporated by reference:

The information required by Part III is incorporated by reference from the Registrant's definitive proxy statement to be filed with the Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this report.

Forward-Looking Information

The statements contained in this Annual Report on Form 10-K ("Annual Report") that are not historical facts, including, but not limited to, statements found in the Notes to Consolidated Financial Statements and in Item 1 - Business, Item 1A – Risk Factors, Item 2 – Properties, Item 3 - Legal Proceedings and Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A"), are forward-looking statements that represent our beliefs and assumptions based on currently available information. Forward-looking statements can generally be identified by the use of words such as "believes," "intends," "may," "will," "looks," "should," "could," "anticipates," "expects" or c terminology or by discussions of strategies or trends. Although we believe that the expectations reflected in such forward-looking statements are reasonable, we do not know if these expectations will prove to be correct. Such statements by their nature involve substantial risks and uncertainties that could significantly affect expected results. Actual future results could differ materially from those described in such forward-looking statements, and we disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Among the factors that could cause actual results to differ materially are the risks and uncertainties discussed in this Annual Report, including risks and uncertainties in those portions referenced above and those described from time to time in our other filings with the Securities and Exchange Commission ("SEC") which include, but are not limited to:

- the cyclicality of the commercial aerospace industry;
- the performance of aerospace manufacturers and us under our long-term agreements;
- the existence or renewal of certain long-term agreements;
- the difficulty in forecasting demand for titanium products;
- global economic and political conditions;
- global productive capacity for titanium;
- changes in product pricing and costs;
- the impact of long-term contracts with vendors on our ability to reduce or increase supply;
- the possibility of labor disruptions;
- fluctuations in currency exchange rates;
- fluctuations in the market price of marketable securities;
- uncertainties associated with new product or new market development;
- the availability of raw materials and services;
- changes in raw material prices and other operating costs (including energy costs);
- possible disruption of business or increases in the cost of doing business resulting from terrorist activities or global conflicts;
- competitive products and strategies; and
- other risks and uncertainties.

Should one or more of these risks materialize (or the consequences of such a development worsen), or should the underlying assumptions prove incorrect, actual results could differ materially from those forecasted or expected.

PART I

ITEM 1: BUSINESS

General. Titanium Metals Corporation is one of the world's leading producers of titanium melted and mill products. We are the only producer with major titanium production facilities in both the United States and Europe, the world's principal markets for titanium consumption. We are currently the largest U.S. producer of titanium sponge, a key raw material, and a major recycler of titanium scrap. Titanium Metals Corporaton was formed in 1950 and was incorporated in Delaware in 1955. Unless otherwise indicated, references in this report to "we", "us" or "our" refer to TIMET and its subsidiaries, taken as a whole.

Titanium was first manufactured for commercial use in the 1950s. Titanium's unique combination of corrosion resistance, elevated-temperature performance and high strength-to-weight ratio makes it particularly desirable for use in commercial and military aerospace applications where these qualities satisfy essential design requirements for certain critical parts such as wing supports and jet engine components. While aerospace applications have historically accounted for a substantial portion of the worldwide demand for titanium, other end-use applications for titanium in military and industrial markets have continued to develop, including the use of titanium-based alloys in armor plating, structural components, chemical plants, power plants, desalination plants and pollution control equipment. Demand for titanium is also increasing in emerging markets with diverse uses including oil and gas production installations, automotive, geothermal facilities and architectural applications.

Our products include titanium sponge, melted products, mill products and industrial fabrications. The titanium industry is comprised of several manufacturers that, like us, produce a relatively complete range of titanium products and a significant number of producers worldwide that manufacture a limited range of titanium mill products.

Our long-term strategy is to maximize the value of our core aerospace business while expanding our presence in non-aerospace markets and developing new applications and products. Over the past three years, we used our operating cash flow and capital resources to fund completion of the expansion of our productive capacity. The expansion of our existing productive capacity and the availability of our secure third-party conversion capabilities allow us to respond to the industry's demand volatility. As the titanium industry progresses through its demand cycle, we will continue to evaluate opportunities to strategically expand our existing production and conversion capacities through internal expansion and long-term third-party arrangements, as well as potential joint ventures and acquisitions.

Titanium industry. We develop certain industry estimates based on our extensive experience within the titanium industry as well as information obtained from publicly available external resources (e.g., United States Geological Survey, International Titanium Association and Japan Titanium Society). We estimate we accounted for approximately 16% of 2007 and 15% of 2008 worldwide industry shipments of titanium mill products and approximately 6% of worldwide titanium sponge production in each of 2007 and 2008. The following chart illustrates our estimates of aggregate industry mill product shipments over the past ten years:

Industry Mill Product Shipments by Sector
(Volumes Exclude Shipments within China and Russia)

The cyclical nature of the commercial aerospace sector has been the principal driver of the historical fluctuations in titanium mill product shipment volume. Over the past 30 years, the titanium industry has had various cyclical peaks and troughs in mill product shipments. Since 1999, titanium mill product demand in the military, industrial and emerging market sectors has increased, primarily due to the continued development of innovative uses for titanium

products in these industries. Over the last several years we, and the industry as a whole, have experienced significantly increased demand with periods of increased volatility. We estimate that industry shipments approximated 89,000 metric tons in 2007 and 102,000 metric tons in 2008, with each year setting a new industry shipment record. The estimated 15% growth in 2008 was supported by continued strength in the commercial aerospace sector and growth in the industrial sector. However, we currently expect 2009 total industry mill product shipments to decrease by approximately 15% to −−25%, driven by anticipated reductions in the commercial aerospace and industrial sectors.

Commercial aerospace sector - Demand for titanium products within the commercial aerospace sector is derived from both jet engine components (e.g., blades, discs, rings and engine cases) and airframe components (e.g., bulkheads, tail sections, landing gear, wing supports and fasteners). The commercial aerospace sector has a significant influence on titanium companies, particularly mill product producers. While industry shipments increased approximately 15% in 2008 due in part to strength in the commercial aerospace sector, demand from the commercial aerospace sector is expected to be negatively impacted in 2009 by (i) revisions and push-outs of production schedules for the Boeing 787, (ii) adjustments and delays in certain other commercial aircraft build-out schedules and (iii) Boeing's labor dispute, which lasted approximately eight weeks and ended in November 2008. These factors are expected to continue to negatively impact demand until uncertainties within the commercial aerospace production cycle are resolved and demand is stabilized on a longer term basis. Deliveries of titanium generally precede aircraft deliveries by about one year, and our business cycle generally correlates to this timeline, although the actual timeline can vary considerably depending on the titanium product.

Our business is more dependent on commercial aerospace demand than is the overall titanium industry. We shipped approximately 65% of our mill products to the commercial aerospace sector in 2008, whereas we estimate approximately 46% of the overall titanium industry's mill products were shipped to the commercial aerospace sector in 2008.

The Airline Monitor, a leading aerospace publication, traditionally issues worldwide forecasts each January and July for commercial aircraft deliveries, approximately one-third of which are expected to be required by the U.S. over the next 20 years. The Airline Monitor's most recently issued forecast (January 2009) estimates deliveries of large commercial aircraft (aircraft with over 100 seats) totaled 944 (including 172 twin aisle aircraft which require more titanium) in 2008, and the following table summarizes the forecasted deliveries of large commercial aircraft over the next five years:

	Forecasted deliveries		% increase (decrease) over previous year	
Year	Total	Twin aisle	Total	Twin aisle
2009	1,002	187	6%	9%
2010	828	243	(17%)	30%
2011	885	285	7%	17%
2012	1,005	310	14%	9%
2013	1,105	365	10%	18%

The latest forecast from The Airline Monitor reflects a 16% decrease in forecasted deliveries over the next five years compared to the July 2008 forecast, mainly due to The Airline Monitor's expectation that airlines will delay or cancel existing orders due to general economic conditions and revisions of production schedules for the Boeing 787. Boeing and Airbus booked orders for 1,561 planes in 2008, a decrease from the record bookings in 2005 through 2007, and The Airline Monitor forecasts that aggregate new orders in 2009 will be lower than 2008. The strong bookings in 2005 through 2008 have increased the order backlog for both Boeing and Airbus, which will be delivered over the next several years.

Changes in the economic environment and the financial condition of airlines can result in rescheduling or cancellation of orders. Accordingly, aircraft manufacturer backlogs are not necessarily a reliable indicator of near-term business activity, but may be indicative of potential business levels over a longer-term horizon. The latest forecast from The Airline Monitor estimates increases for firm order backlog for both Airbus and Boeing. Airbus' firm order backlog is estimated at 1,117 twin aisle planes and 2,598 single aisle planes, and Boeing's firm order backlog is estimated at 1,375 twin aisle planes and 2,304 single aisle planes. Boeing does not plan to increase their build rates to make up for aircraft not delivered due to the strike, and Boeing has announced that the most recent delay of the 787 will postpone

the first customer aircraft delivery until 2010.

At year-end 2008, a total of 198 firm orders had been placed for the Airbus A380, a program officially launched in 2000 with its first delivery in October 2007. Additionally, at year-end 2008, a total of 910 firm orders have been placed for the Boeing 787, a program officially launched in April 2004, with anticipated first deliveries in 2010. The 787 will contain more composite materials than other Boeing aircraft. In early years of the manufacturing cycle for the Boeing 787, and any aircraft model, we believe additional titanium will be required to produce each aircraft, and as the program reaches maturity, less titanium will be required for each aircraft manufactured. During 2006, Airbus officially launched the A350 XWB program, which is a major derivative of the Airbus A330, with first deliveries scheduled for 2012/2013. As of December 31, 2008, a total of 483 firm orders had been placed for the A350 XWB. These A350 XWBs will use composite materials and new engines similar to those used on the Boeing 787 and are expected to require significantly more titanium as compared with earlier Airbus models. However, the final titanium buy weight may change as the A350 XWB is still in the design phase.

Twin aisle planes (e.g., Boeing 747, 767, 777 and 787 and Airbus A330, A340, A350 and A380) tend to use a higher percentage of titanium in their airframes, engines and parts than single aisle planes (e.g., Boeing 737 and 757 and Airbus A318, A319 and A320), and new generation models require a significantly higher percentage of titanium. Additionally, Boeing generally uses a higher percentage of titanium in its airframes than Airbus. Based on information we receive from airframe and engine manufacturers and other industry sources, we estimate approximately 18 metric tons of titanium products are required to manufacture each Boeing 737, approximately 76 metric tons are required to manufacture each Boeing 747, approximately 59 metric tons are required to manufacture each Boeing 777 and approximately 134 metric tons will be required to manufacture each Boeing 787, including both the airframes and engines. Additionally, based on these same sources, we estimate approximately 12 metric tons of titanium products are required to manufacture each Airbus A320, approximately 18 metric tons are required to manufacture each Airbus A330, approximately 32 metric tons are required to manufacture each Airbus A340, approximately 74 metric tons will be required to manufacture each Airbus A350 XWB and approximately 146 metric tons are required to manufacture each Airbus A380, including both the airframes and engines.

Military sector - Titanium shipments into the military sector are largely driven by government defense spending in North America and Europe. Military aerospace programs were the first to utilize titanium's unique properties on a large scale, beginning in the 1950s. Titanium shipments to military aerospace markets reached a peak in the 1980s before falling to historical lows in the early 1990s after the end of the Cold War. Since 2001, titanium shipments to military aerospace have increased, as discussed below. Based on its physical and performance properties, titanium has become widely accepted for use in applications for ground combat vehicles as well as in naval vessels. The importance of military markets to the titanium industry is expected to continue to rise in coming years as defense spending budgets increase in reaction to terrorist activities and global conflicts and to replace aging conventional armaments. Defense spending for most systems is expected to remain strong until at least 2010. Current and anticipated future military strategy leading to light armament and mobility favor the use of titanium due to light weight and improved ballistic performance.

As the strategic military environment demands greater global lift and mobility, the U.S. military needs more airlift capacity and capability. Airframe programs are expected to drive the military market demand for titanium through 2015. Several of today's active U.S. military programs, including the C-17 and F-15, are currently expected to continue in production through the middle of the next decade, while other programs, such as the F/A 18 and F-16, are expected to continue into the middle of the next decade. European military programs also have active aerospace programs offering the possibility for increased titanium consumption. Production levels for the Saab Gripen, Eurofighter Typhoon, Dassault Rafale and Dassault Mirage 2000 are all forecasted to remain steady through the middle or end of the next decade.

In addition to the established programs, newer U.S. programs offer growth opportunities for increased titanium consumption. The F/A-22 Raptor was given full-rate production approval in April 2005. Additionally, the F-35 Joint

Strike Fighter, now known as the Lightning II, has begun low-rate initial production and assembly with delivery of the first production aircraft planned in 2010. Although no specific delivery schedules have been announced, according to The Teal Group, a leading aerospace publication, procurement is expected to extend over the next 30 to 40 years and may include production of as many as approximately 4,000 planes, including sales to foreign nations.

Utilization of titanium on military ground combat vehicles for armor appliqué and integrated armor or structural components continues to gain acceptance within the military market segment. Titanium armor components provide the necessary ballistic performance while achieving a mission critical vehicle performance objective of reduced weight in new generation vehicles. In order to counteract increased threat levels globally, titanium is being utilized on vehicle upgrade programs in addition to new builds. Based on active programs, as well as programs currently under evaluation, we believe there will be additional usage of titanium on ground combat vehicles that will provide continued growth in the military market sector. In armor and armament, we sell plate and sheet products for fabrication into appliqué plate and reactive armor for protection of the entire ground combat vehicle as well as the vehicle’s primary structure.

Industrial and emerging markets sectors - The number of end-use markets for titanium has continued to expand significantly. Established industrial uses for titanium include chemical plants, power plants, desalination plants and pollution control equipment. Rapid growth of the Chinese and other Southeast Asian economies has brought unprecedented demand for titanium-intensive industrial equipment. In November 2005, we entered into a joint venture with XI'AN BAOTIMET VALINOX TUBES CO. LTD. ("BAOTIMET") to produce welded titanium tubing in the Peoples Republic of China. BAOTIMET's production facilities are located in Xi'an, China, and production began in January 2007.

Titanium continues to gain acceptance in many emerging market applications, including transportation, energy (including oil and gas) and architecture. Although titanium is often more expensive than other competing metals, over the entire life cycle of the application, we believe titanium is a less expensive alternative due to its durability, longevity and overall environmental impact. In many cases customers also find the physical properties of titanium to be attractive from the standpoint of weight, performance, design alternatives and other factors. The oil and gas market, a relatively new, potentially large growth area, utilizes titanium in down-hole casing, critical riser components, tapered stress joints, fire water systems and saltwater-cooling systems. Additionally, as offshore development of new oil and gas fields moves into the ultra deep-water depths and as geothermal energy production expands, market demand for titanium's light-weight, high-strength and corrosion-resistance properties is creating new growth opportunities. We have focused additional resources on development of alloys and production processes to promote the expansion of titanium use in this market and in other non-aerospace applications.

Although we estimate emerging market demand presently represents only about 5% of the 2008 total industry demand for titanium mill products, we believe emerging market demand, in the aggregate, could grow at double-digit rates over the next several years. We have ongoing initiatives to actively pursue and expand our presence in these markets.

Products and operations. We are a vertically integrated titanium manufacturer whose products include:

(i) titanium sponge, the basic form of titanium metal used in titanium products;

(ii) melted products (ingot, electrodes and slab), the result of melting titanium sponge and titanium scrap, either alone or with various alloys;

(iii) mill products that are forged and rolled from ingot or slab, including long products (billet and bar), flat products (plate, sheet and strip) and pipe; and

(iv) fabrications (spools, pipe fittings, manifolds, vessels, etc.) that are cut, formed, welded and assembled from titanium mill products.

All of our net sales were generated by our integrated titanium operations (our "Titanium melted and mill products" segment), which is our only business segment. Business and geographic financial information is included in Note 17 to the Consolidated Financial Statements.

Titanium sponge is the commercially pure, elemental form of titanium metal with a porous and sponge-like appearance. The first step in our sponge production involves the combination of titanium-containing rutile ores (derived from beach sand) with chlorine and petroleum coke to produce titanium tetrachloride. Titanium tetrachloride is purified and then reacted with magnesium in a closed system, producing titanium sponge and magnesium chloride as co-products. Our titanium sponge production facility in Henderson, Nevada uses vacuum distillation process ("VDP") technology, which removes the magnesium and magnesium chloride residues by applying heat to the sponge mass while maintaining a vacuum in a chamber. The combination of heat and vacuum boils the residues from the sponge mass, and then the sponge mass is mechanically pushed out of the distillation vessel, sheared and crushed to prepare the sponge for incorporation into one of our melted products. We electrolytically separate and recycle the residual magnesium chloride, a by-product of the VDP process, to improve cost efficiency and reduce environmental

impact.

Melted products (ingot, electrodes and slab) are produced by melting sponge and titanium scrap, either alone or with alloys, to produce various grades of titanium products suited to the ultimate application of the product. By introducing other alloys such as vanadium, aluminum, molybdenum, tin and zirconium, the melted titanium product is engineered to produce quality grades with varying combinations of certain physical attributes such as strength-to-weight ratio, corrosion-resistance and milling compatibility. Titanium ingot is a cylindrical solid shape that, in our case, weighs up to 8 metric tons. Titanium slab is a rectangular solid shape that, in our case, weighs up to 16 metric tons. The melting process for ingot and slab is closely controlled and monitored utilizing computer control systems to maintain product quality and consistency and to meet customer specifications. In most cases, we use our ingot and slab as the intermediate material for further processing into mill products. However, we also sell melted products to our customers.

Mill products are forged or rolled from our melted products (ingot or slab). Mill products include long products (billet and bar), flat products (plate, sheet and strip) and pipe. Our mill products can be further machined to meet customer specifications with respect to size and finish.

We send certain products to outside vendors for further processing (e.g., certain rolling, forging, finishing and other processing steps in the U.S., and certain melting and forging steps in France) before being shipped to customers. In France, our primary processor is also a partner in our 70%-owned subsidiary, TIMET Savoie, S.A. During 2006, we entered into a 20-year conversion services agreement with a supplier, whereby they will provide an annual output capacity of 4,500 metric tons of titanium mill rolling services until 2026, with our option to increase the output capacity to 9,000 metric tons. Additionally, during 2007, we entered into a long-term agreement with another supplier whereby they will provide us dedicated annual forging capacity of 3,000 metric tons beginning in 2008 and increasing to 8,900 metric tons for 2011 through at least 2019. These agreements provide us with long-term secure sources for processing round and flat products, resulting in a significant increase in our existing mill product conversion capabilities, which allows us to assure our customers of our long-term ability to meet their needs.

During the production process and following the completion of manufacturing, we perform extensive testing on our products. Sonic inspection as well as chemical and mechanical testing procedures are critical to ensuring that our products meet our customers' high quality requirements, particularly in aerospace component production. We certify that our products meet customer specification at the time of shipment for substantially all customer orders.

Titanium scrap is a by-product of the forging, rolling and machining operations, and significant quantities of scrap are generated in the production process for finished titanium products and components. Scrap by-products from our mill production processes, as well as the scrap purchased from our customers or on the open metals market, is typically recycled and introduced into the melting process once the scrap is sorted and cleaned. We have the capacity to recycle 14,000 to 16,000 metric tons of titanium scrap annually at our facility in Morgantown, Pennsylvania depending on the scrap and end-use product mix. We believe our capability and expertise in recycling titanium scrap provides a competitive advantage.

Distribution. We sell our products through our own sales force based in the U.S. and Europe and through independent agents and distributors worldwide. We also own eight service centers (five in the U.S. and three in Europe), which we use to sell our products on a just-in-time basis. The service centers primarily sell value-added and customized mill products, including bar, sheet, plate, tubing and strip. We believe our service centers provide a competitive advantage because of our ability to foster customer relationships, customize products to suit specific customer requirements and respond quickly to customer needs.

Raw materials. The principal raw materials used in the production of titanium ingot, slab and mill products are titanium sponge, titanium scrap and alloys. The following table summarizes our 2008 raw material usage requirements in the production of our melted and mill products:

	Percentage of total raw material requirements
Internally produced sponge	24%
Purchased sponge	31%
Titanium scrap	39%
Alloys	6%
Total	100%

Sponge - The primary raw materials used in the production of titanium sponge are titanium-containing rutile ore, chlorine, magnesium and petroleum coke. Rutile ore is currently available from a limited number of suppliers around the world, principally located in Australia, South Africa and Sri Lanka. We purchase the majority of our supply of rutile ore from Australia and South Africa. We believe the availability of rutile ore will be adequate for the foreseeable future and do not anticipate any interruptions of our rutile supplies.

We currently obtain chlorine from a single supplier near our sponge plant in Henderson, Nevada. While we do not anticipate any chlorine supply problems, we have taken steps to mitigate this risk in the event of supply disruption, including establishing the feasibility of certain equipment modifications to enable us to utilize material from alternative chlorine suppliers or to purchase and utilize an intermediate product which will allow us to eliminate the purchase of chlorine if needed. Magnesium and petroleum coke are generally available from a number of suppliers.

We are currently the largest U.S. producer of titanium sponge. In 2007, we completed an expansion of our existing premium-grade titanium sponge facility at our Henderson plant. This expansion increased our annual productive sponge capacity to approximately 12,600 metric tons, and we supplement our produced sponge with purchases from third parties. From 2006 through 2008, other sponge producers have also undertaken additional capacity expansion projects. However, we do not know the degree to which quality and cost of the sponge produced by our competitors will be comparable to the premium-grade sponge we produce in our Henderson facility.

We are party to long-term sponge supply agreements that require us to make minimum annual purchases. These long-term supply agreements, together with our current sponge production capacity in Henderson, should provide us with a total annual available sponge supply at levels ranging from 18,000 metric tons up to 26,000 metric tons through 2024, which we expect to meet our sponge supply requirements. Titanium melted and mill products require varying grades of sponge and/or scrap depending on the customers' specifications and expected end use. We will continue to purchase sponge from a variety of sources in 2009, including those sources under existing supply agreements. Due to anticipated reductions in demand in 2009 for titanium products, we continue to evaluate alternatives to balance our internal and external sources for titanium sponge.

Scrap - We recycle titanium scrap into melted products that will be sold to our customers or used as intermediate feedstock for our mill production process. Our titanium scrap is generated from our melted and mill product production processes, purchased from certain of our customers under contractual agreements or acquired in the open metals market. Such scrap consists of alloyed and commercially pure solids and turnings. Scrap obtained through customer arrangements provides a "closed-loop" arrangement resulting in certainty of supply and cost stability. Externally purchased scrap comes from a wide range of sources, including customers, collectors, processors and brokers. Due to our successful efforts to increase the volume of scrap obtained through "closed-loop" arrangements, we only purchased 27% of our scrap requirement from the open metals market in 2008, and we expect our scrap purchases to remain at the same rate during 2009. We expect our scrap consumption to remain at high levels as we continue to emphasize the utilization of scrap for our electron beam cold hearth ("EB") melting activity. We also occasionally sell scrap, usually in a form or grade we cannot economically recycle for use in our production operations.

Overall market forces can significantly impact the supply or cost of externally produced scrap, as the amount of scrap generated in the supply chain varies during titanium business cycles. Early in the titanium cycle, the demand for titanium melted and mill products begins to increase the scrap requirements for titanium manufacturers. This demand precedes the increase in scrap generation by downstream customers and the supply chain. The pressure on scrap generation and the supply chain at this stage of the cycle places upward pressure on the market price of scrap. The opposite situation occurs when demand for titanium melted and mill products begins to decline, resulting in greater availability of scrap supply and downward pressure on the market price of scrap. During the middle of the cycle, scrap generation and consumption are in relative equilibrium, minimizing disruptions in supply or significant changes in the available supply and market prices for scrap. Increasing or decreasing cycles tend to cause significant changes in both the supply and market price of scrap. These supply chain dynamics result in selling prices for melted and mill products which generally tend to correspond with the changes in raw material costs.

All of our major competitors utilize scrap as a raw material in their titanium melt operations, and steel manufacturers also use titanium scrap as an alloy to produce interstitial-free steels, stainless steels and high-strength-low-alloy steels. Prices for all forms and grades of titanium scrap declined steadily during the first half of 2008 due to increased availability and reduced demand. The global recession reduced demand for titanium scrap in the second half of 2008, which resulted in sharp declines in scrap prices late in 2008. As a result of the market forces described above, general economic conditions are expected to continue to affect the prices of titanium scrap in 2009.

Other - Various alloy additions used in the production of titanium products, such as vanadium and molybdenum, are also available from a number of suppliers. The decline in demand from steel manufacturers for vanadium and molybdenum also resulted in dramatic drops in cost for these alloys, and we expect alloy costs will continue to fluctuate in the future.

Customer agreements. We have long-term agreements ("LTAs") with certain major customers, including, among others, The Boeing Company ("Boeing"), Rolls-Royce plc and its German and U.S. affiliates ("Rolls-Royce"), United Technologies Corporation ("UTC," Pratt & Whitney and related companies), the Safran companies ("Safran," Snecma and related companies), Wyman-Gordon Company ("Wyman-Gordon," a unit of Precision Castparts Corporation ("PCC")) and VALTIMET SAS. These agreements expire at various times through 2017, are subject to certain conditions and generally provide for (i) minimum market shares of the customers' titanium requirements or firm annual volume commitments, (ii) formula-determined prices (including some elements based on market pricing) and (iii) price adjustments for certain raw material, labor and energy cost fluctuations. Generally, the LTAs require our service and product performance to meet specified criteria and contain a number of other terms and conditions customary in transactions of these types. Certain provisions of these LTAs have been amended in the past and may be amended in the future to meet changing business conditions. Our 2008 sales revenues to customers under LTAs were 56% of our total sales revenues.

In certain events of nonperformance by us or the customer, an LTA may be terminated early. Although it is possible that some portion of the business would continue on a non-LTA basis, the termination or expiration of one or more of the LTAs could result in a material adverse effect on our business, results of operations, financial position or liquidity. The LTAs were designed to limit selling price volatility to the customer and to us, while providing us with a committed volume base throughout the titanium industry business cycles and certain mechanisms to adjust pricing for changes in certain cost elements.

Markets and customer base. As discussed previously, we produce a wide range of melted and mill titanium products for our customers, and selling prices generally reflect raw material and other productions costs as well as reasonable profit margins. Selling prices are generally influenced by industry and global economic conditions. For instance, since early 2007, increases in global capacity and manufacturing activity for titanium products throughout the supply chain have increased the availability of titanium scrap, which has resulted in declining costs for this raw material. This decline in raw material costs has, in turn, contributed to lower selling prices for certain products under LTAs, due in part to raw material indexed pricing adjustments included in certain of these agreements, as well as for our non-contract sales volume.

The demand for our titanium products is global, and our global productive capabilities allow us to respond to our customers' needs. The following table summarizes our sales revenue by geographical location:

	Year ended December 31,		
	2006	2007	2008
	(Percentage of total sales revenue)		
Sales revenue to customers within:			
North America	59%	58%	56%
Europe	32%	33%	33%
Other	9%	9%	11%