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Metal Powders

Industry Study with Forecasts for **2015 & 2020**

Study #2811 | December 2011 | \$4900 | 316 pages



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US demand for metal powder will be driven by rising output in several key industries, as well as better cost-to-performance ratios for parts, lower waste and closer tolerance components.

US demand to grow 6.2% annually through 2015

Demand for metal powder in the US is projected to grow 6.2 percent annually to 1.4 billion pounds in 2015, valued at \$4.8 billion. Increased output in several key industries -- including motor vehicles, batteries and electrical equipment, and machinery manufacturing -- will be the primary drivers of growth. In addition, improved cost-to-performance ratios for parts, along with lower waste and closer tolerance components, will continue to entice manufacturers to switch production of many parts to press and sinter techniques. In additive and catalyst applications, metal powders also offer a variety of performance enhancements.

Ferrous powders to outpace nonferrous in volume terms

Ferrous powders accounted for 62 percent of the metal powder market total by volume in 2010, and demand is projected to rise 6.6 percent per year to 914 million pounds in 2015. Iron and steel, and stainless steel powders are used in a variety of applications, including automotive parts, chemical additives and components in machinery. Nonferrous powders encompass a much wider variety of metals, including base metals such as aluminum, zinc, cobalt, tungsten and tantalum, as well as silver, gold and platinum group metals. Nonferrous powder sales are expected to climb 5.6 percent annually to 531 million pounds in 2015, slower than demand for ferrous



powders. While nonferrous metals held only 38 percent of the 2010 market by volume, they accounted for 80 percent of total market value.

Motor vehicles to remain dominant market by volume

In 2010, an average of 53 pounds of metal powders were used in every motor vehicle made in the US. Metal powders are used in every major system in automobiles, and as vehicle production in the US rebounds, metal powder usage will increase as well. US machinery manufacturing relies on high quality and technological superiority over foreign competition, meaning parts used in production are complex and difficult to make. Metal powders allow the cost-

effective production of many of these parts. Computers and electronics manufacturers use the smallest amount of metal powders by volume, but are the largest dollar value market. Producers use high value metal powders (such as tantalum and precious metals) manufactured to tight tolerances, which elevates the value of the powders. Electrical equipment made with metal powders includes primary batteries, electric motor brushes and appliance parts. Battery sales will see the strongest growth, as the US ramps up production to feed growing world demand. A number of other markets -- including chemicals, and aerospace and other transportation equipment -- also depend on metal powders for complex components with very specific materials properties.

Sample Text, Table & Chart

MARKETS

Metal Powder Volume Demand

Sales of metal powder in volume terms to be stimulated by strong demand is increasing its use and medical market. However, below-average market, and further declines in computer and electronic product metal powder use will dampen aggregate sales growth, as will competition from composites, plastics and advanced ceramic

Motor vehicle manufacturing will account for over 40 percent of the metal powder consumed in the US in 2015. Several factors influence automotive manufacturers' already heavy use of metal powder. The largest influence will be the market-wide transition from four- to six-speed transmissions, which began in 2009 model year and will most likely be completed by the 2014 model year. These transmissions, which offer increased fuel economy, will use 10 to 15 percent more metal powder. Increasing numbers of safety features in vehicles will also boost metal powder component use in vehicles. For example, seatbelt, airbag deployment and rain sensor systems all use metal powder parts. As transplant manufacturers -- particularly those based in Japan and South Korea -- which have traditionally utilized less metal powders in their vehicles, begin to emulate their North American counterparts, demand for metal powders will increase further. Limits on growth will come from competition with other materials, especially plastics, as polymer engineers continue to develop stronger, lighter and more synthetic materials.

Batteries and electrical equipment will post the second largest gains of any major metal powder market in volume terms through 2020.

**SAMPLE
TEXT**

TABLE V-3

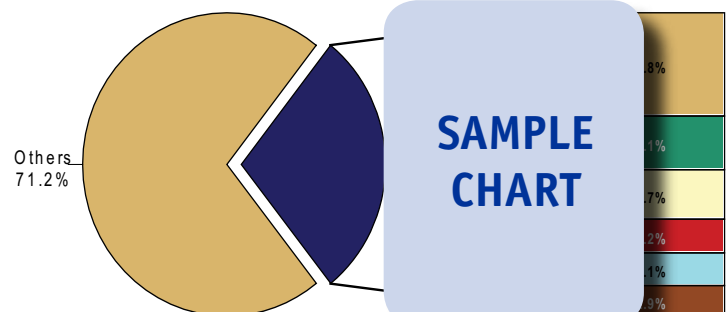
METAL POWDER DEMAND IN COMPONENTS
(million dollars)

Item	2000	2005	2010	2015	2020
Metal Powder Demand (mil lbs)	10,000	11,000	12,000	13,000	14,000
% components					
Components Metal Powder (mil lbs)					
Iron & Steel	6,000	6,500	7,000	7,500	8,000
Zinc	800	850	900	950	1,000
Copper & Copper-Based Metals	2,000	2,100	2,200	2,300	2,400
Other Metals	4,000	4,100	4,200	4,300	4,400
\$/lb	7	7	7	7	7
Components Metal Powder Demand By Material:					
Iron & Steel	6,000	6,500	7,000	7,500	8,000
Zinc	800	850	900	950	1,000
Copper & Copper-Based Metals	2,000	2,100	2,200	2,300	2,400
Other Metals	4,000	4,100	4,200	4,300	4,400
Tungsten	0	0	0	0	0
Tantalum	0	0	0	0	0
All Other	0	0	0	0	0
By Application:					
Powdered Metal Components	5,000	5,500	6,000	6,500	7,000
Alloy Elements/Carbide Products	5,000	5,500	6,000	6,500	7,000

**SAMPLE
TABLE**

CHART VII-1

US METAL POWDER MARKET SHARE
(\$3.4 billion, 2010)

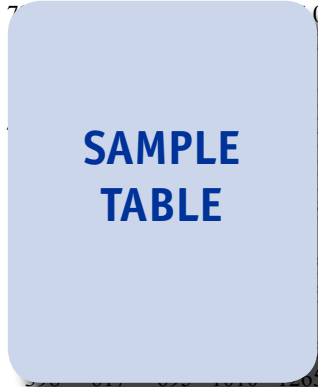


**SAMPLE
CHART**

Sample Profile, Table & Forecast

TABLE IV-3
IRON & STEEL POWDER DEMAND BY MARKET
 (million pounds)

Item	2000	2005	2010	2015	2020
Ferrous Metal Powder Demand % iron & steel					
Iron & Steel Powder Demand					
Motor Vehicles					
Machinery					
Aerospace					
Other Markets					
\$/lb					
Iron & Steel Powder (mil \$)					
% iron & steel					
Ferrous Powder Demand (mil \$)					



COMPANY PROFILES

Carpenter Technology Corporation

Two Meridian Boulevard
 Wyomissing, PA 19610
 610-208-2000
 http://www.carpenterpowder.com

Sales: \$1.1 billion
 US Sales: \$0.8 billion
 Employees: 1,000

Key Products: metal alloys, stainless steel



Carpenter Technology manufactures, fabricates and distributes specialty alloys, titanium, carpenter powder products and engineered products. It operates through three segments: Advanced Metals Operations, Premium Alloys Operations and Emerging Ventures.

The Company competes in the US metal powder industry via the Advanced Metals Operations segment, which reported sales of \$1.1 billion in FY 2011. The segment manufactures and distributes high-temperature and high-strength metal alloys, stainless steel and titanium in multiple types, including powders. Powder products are produced by the segment's Carpenter Powder Products subsidiary (Bridgeville, Pennsylvania), a leading global supplier of gas atomized powders. The company's powders, which are primarily marketed under the MICRO-MELT brand name, are designed to be corrosion and temperature resistant, and are produced through air, vacuum or pressurized melting with argon or nitrogen atomization processes. Products manufactured by the company include stainless steel; cobalt and nickel alloy powders for thermal spraying and laser hardfacing applications; fine stainless steel alloy powders for metal injection molding end uses; and various

"The market for iron and steel powders (including powders made from or used in alloys) is projected to grow at a 6.5 percent annual pace to 895 million pounds in 2015, which is a slightly faster pace than the market overall. Gains will be driven by a rebound in automotive output and the increasing use of metal powders therein. However, a growing share of car production in the US comes from transplant manufacturers, those that are based in other countries but make some of their products in the US. These producers tend to use less metal powder and produce smaller cars, which will slow growth."
 --Section IV, pg. 74

OTHER STUDIES

Welding Equipment & Consumables

US demand for welding equipment and consumables will rise 6.4 percent annually through 2015. Arc and resistance welding systems will remain the dominant welding techniques. Welding electrodes and filler metal will remain the dominant consumables, while emergent products like flux-and metal-cored electrodes grow the fastest. This study analyzes the \$5.2 billion US welding equipment and consumables industry, with forecasts for 2015 and 2020 by technology, product and market. The study also evaluates company market share and profiles industry players.
 #2785 October 2011 \$4900

Advanced Ceramics

Demand for advanced ceramics in the US is forecast to increase 6.0 percent annually through 2015. Transportation and electrical equipment will be the fastest growing markets, while electronic components remain the largest market. Monolithic ceramics will remain the dominant product while ceramic matrix composites grow the fastest. This study analyzes the \$10.5 billion US advanced ceramics industry, with forecasts for 2015 and 2020 by type, product, process and market. The study also evaluates company market share and profiles industry players.
 #2794 September 2011..... \$4900

World Rare Earths

World rare earths demand will rise 7.1 percent annually through 2015, driven by gains in key markets such as battery alloys and permanent magnets. Neodymium and dysprosium will grow the fastest, while cerium will remain the most widely used. China will continue to dominate overall rare earths production. This study analyzes the 128 thousand metric ton world rare earths industry, with forecasts for 2015 and 2020 by product, market, world region and for 13 countries. The study also evaluates company market share and profiles industry players.
 #2775 July 2011..... \$6100

World Refractories

Global demand for refractories is projected to rise 5.3 percent annually through 2014. China will remain the largest national market and continue to comprise the majority of global demand. Above-average growth will also occur in India. Demand gains for bricks and shapes will lag those of monolithics. This study analyzes the 31.5 million metric ton world refractory industry, with forecasts for 2014 and 2019 by market, form, material, world region and for 23 countries. The study also evaluates company market share and profiles 47 industry players.
 #2734 March 2011..... \$5900

Abrasives

Demand for abrasives in the US will rise four percent annually through 2014. Durable goods manufacturing will remain the dominant market, with the motor vehicle segment growing the fastest. Nonmetallic coated and bonded abrasives and loose grains and powders will outperform metallic abrasives. This study analyzes the \$4.7 billion US abrasives industry, with forecasts for 2014 and 2019 by raw material, product and market. It also evaluates company market share and profiles industry players.
 #2696 October 2010 \$4800

About The Freedonia Group

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