Metal Powders

Industry Study with Forecasts for 2015 & 2020

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Metal Powders
Industry Study with Forecasts for 2015 & 2020

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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.
MARKETS

Metal Powder Volume Demand
Sales of metal powders are forecast to expand 6.2 percent per year in volume terms to 1.4 billion pounds in 2015, a notable improvement from the declines recorded between 2005 and 2010. Demand will be stimulated by strong growth in output of the automotive industry, which is increasing its use of metal powders in the manufacture of transmission and medical markets. However, below-average demand increases in the chemical and related market, and further declines in computer and electronic products will dampen aggregate sales growth, as will increasing competition from composites, plastics and advanced ceramics.

Motor vehicle manufacturing will account for over 40 percent of the metal powder consumed in the US in 2015. Several factors will influence automotive manufacturers’ already heavy use of sintered parts. The largest influence will be the market-wide transition from four-speed to six-speed transmissions, which began in 2009 model year cars 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 sintered 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 durable synthetic materials.

Batteries and electrical equipment will post the second fastest sales gains of any major metal powder market in volume terms through 2015. 154

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### TABLE V-3

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<td>Other Metals</td>
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<td>Tungsten</td>
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<td>By Application:</td>
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<td>Powdered Metal Components</td>
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<td>Alloy Elements/Carbide Products</td>
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### CHART VII-1

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

<table>
<thead>
<tr>
<th>Market</th>
<th>Market Share</th>
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<tbody>
<tr>
<td>Iron &amp; Steel</td>
<td>34.2%</td>
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<tr>
<td>Zinc</td>
<td>15.8%</td>
</tr>
<tr>
<td>Copper &amp; Copper-Based Metals</td>
<td>13.9%</td>
</tr>
<tr>
<td>Other Metals</td>
<td>27.1%</td>
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</table>
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
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