

# Mineral Industry Surveys

**For information, contact:**

Deborah A. Kramer, Magnesium Commodity Specialist  
 U.S. Geological Survey  
 989 National Center  
 Reston, VA 20192  
 Telephone: (703) 648-7719, Fax: (703) 648-7757  
 E-mail: dkramer@usgs.gov

Paula R. Neely (Data)  
 Telephone: (703) 648-7949  
 Fax: (703) 648-7975  
 E-mail: pneely@usgs.gov

**Internet:** <http://minerals.usgs.gov/minerals>

## MAGNESIUM IN THE FIRST QUARTER 2010

Magnesium exports for the first quarter of 2010 were 16% higher than exports in the first quarter of 2009. Magnesium imports for consumption in the first quarter of 2010 were about 22% less than those in the same period of 2009. Israel (92%) was the principal source of imported magnesium metal, and at 22% of the total, was the principal source of imported alloys.

Quoted magnesium prices are shown in the table below. Prices increased during the first quarter. U.S. prices increased as a result of slightly higher demand from the diecasting and aluminum alloying sectors, coupled with short supplies. Diecasting demand had increased as a result of increased North American automobile production.

In April, the U.S. Department of Commerce, International Trade Administration (ITA), made a preliminary determination of antidumping duties for magnesium alloy imports for Tianjin Magnesium International Co. Ltd. (TMI) of China into the United States for April 1, 2008, through March 31, 2009. The ITA determined that TMI did not make sales into the United States at less than fair value, so it set the duty rate at 0% ad valorem. Final results were scheduled to be published within 120 days of the preliminary determination. This rate applies to magnesium that is commonly imported under the Harmonized Tariff Schedule codes of 8104.19.00 and 8104.30.00 (U.S. Department of Commerce, International Trade Administration, 2010a). Pure magnesium metal imports into the United States from TMI have a duty of 111.73% ad valorem, which was established in December 2009 for the 2007–08 timeframe. That review is under appeal in U.S. court, and the 2008–09 review for pure magnesium was scheduled to be completed in June.

Russian magnesium producer VSMPO-Avisma Corp. requested that the International Trade Commission conduct a 5-

year sunset review of antidumping duties for pure magnesium imported from Russia into the United States. In August 2009, the ITA had set an antidumping duty rate of 43.58% ad valorem on magnesium metal from VSMPO-Avisma for April 1, 2007, through March 31, 2008, and a rate of 21.71% ad valorem for metal from Russian company JSC Solikamsk Magnesium Works (SMW). VSMPO-Avisma said that imports from Russia would not increase significantly if the antidumping duty order was revoked (Jennemann, 2010). In its preliminary review of primary magnesium shipments to the United States from Russia from April 1, 2008, through March 31, 2009, the ITA determined that the dumping rate for VSPMO-Avisma was 0% ad valorem. For SMW, even though the company did not sell material into the United States during the period of review, the ITA determined that if any material from SMW had entered the United States through another company, it would be subject to the “all others” rate of duty established at the time that it was imported into the United States. Normally, if a company had not made any sales into the U.S. market, the antidumping duty would be rescinded (U.S. Department of Commerce, International Trade Administration, 2010b).

Federal authorities charged six people and three companies with importing substandard magnesium powder from China into the United States, where it was used to make 1.8 million countermeasure flares that are used by military aircraft to divert heat-seeking missiles. Officials said that none made it onto aircraft before being quarantined, and that all would be destroyed. The Chinese magnesium was mixed with aluminum nuggets and mislabeled when it entered the country in sealed drums, so that it would not be subject to a nearly 306% antidumping duty (Thompson, 2010).

|  | Units                  | Beginning of quarter | End of quarter |
|--|------------------------|----------------------|----------------|
| Platts Metals Week U.S. spot Western       | Dollars per pound      | \$2.20-\$2.40        | \$2.55-\$2.80  |
| Platts Metals Week U.S. spot dealer import | do.                    | 2.25-2.40            | 2.30-2.50      |
| Platts Metals Week European free market    | Dollars per metric ton | 2,700-2,800          | 2,800-2,900    |
| Platts Metals Week China                   | do.                    | 2,630-2,700          | 2,730-2,750    |
| do. Ditto.                                 |                        |                      |                |

Gossan Resources Ltd. (Winnipeg, Manitoba, Canada) reported that recently completed phase III bench-scale results confirmed that the Zuliani process produces magnesium metal under atmospheric conditions at high raw material efficiencies. Compared to a magnesium metal plant using the Pidgeon process in China, the Zuliani process uses 33% less ferrosilicon and 23% less dolomite to produce an equivalent quantity of magnesium. As a result of the successful tests, Gossan planned phase IV testing of the Zuliani process, which will increase the experimental scale by more than 100 times compared to the Phase III bench scale tests. The preliminary schedule, which remained dependent on the availability of equipment, called for initial phase IV testing to begin as early as June 2010. Gossan planned to recover magnesium from a dolomite deposit in south-central Manitoba (Gossan Resources Ltd., 2010).

China Direct Industries, Inc. announced that it began the process to restart production of primary magnesium at two facilities in China—Baotou Changxin Magnesium Co., Ltd. (Inner Mongolia), with a capacity of 20,000 metric tons per year (t/yr) and Taiyuan Changxin Magnesium Co. Ltd. (Shanxi Province), with a capacity of 10,000 t/yr. The company scheduled production at the facilities to begin in July or August 2010 after the plants had been idle throughout 2009 because of weak demand. China Direct also operated Shanxi Gu County Golden Magnesium Co. Ltd. (Shanxi Province) with a production capacity of 12,000 t/yr; this plant reportedly reached its full capacity in May (China Direct Industries, Inc., 2010).

FuGu Xintian Magnesium Alloy Co. Ltd. (Shaanxi Province, China) planned to expand its magnesium ingot production capacity to 20,000 t/yr from 10,000 t/yr. The company planned to invest \$8.8 million to set up a new production line with a capacity of 10,000 t/yr of pure magnesium and 10,000 t/yr of magnesium alloy to be completed by yearend 2010. The company also produced 40,000 t/yr of coal tar at its plant, which served as the fuel supply for magnesium ingot production and reduced the plant's production cost (Metal-Pages, 2010).

China's Ministry of Technology and Industry proposed new rules for the country's magnesium industry. Under the proposed rules, new primary magnesium plants would need to have a minimum capacity of 15,000 t/yr in order to be approved. Expansion or renovation projects would require a minimum

capacity of 20,000 t/yr, and new magnesium alloy projects would require a minimum capacity of 50,000 t/yr for approval. No date for implementation was scheduled (Leung, 2010).

Metal-Oxygen Separation Technologies Inc. (Natick, MA) received a \$260,000 grant from the U.S. Department of Energy (DOE) to develop an efficient one-step electrolytic process to recycle low-grade and post-consumer magnesium scrap. The company was developing an electrolytic process to recover magnesium from magnesium oxide, unlike traditional electrolytic processes that use magnesium chloride as a feed material. The National Science Foundation provided startup funding of \$100,000 to the company in June 2009, and the company received \$1.1 million in grants in 2010 from the DOE, including the \$260,000 grant noted above (Alspach, 2010).

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TABLE 1  
U.S. IMPORTS FOR CONSUMPTION AND EXPORTS OF MAGNESIUM<sup>1</sup>

(Metric tons)

|   | 2010          |              |              |              |                   |
|---|---------------|--------------|--------------|--------------|-------------------|
|   | 2009          | January      | February     | March        | January-<br>March |
| <b>Imports:</b>   |               |              |              |              |                   |
| Metal   | 21,400        | 1,690        | 1,280        | 1,320        | 4,290             |
| Waste and scrap   | 20,900        | 1,800        | 1,250        | 1,810        | 4,870             |
| Alloys (magnesium content)  | 4,790         | 462          | 512          | 862          | 1,840             |
| Sheet, tubing, ribbons, wire, powder, and other (magnesium content) | 204           | 9            | 29           | 65           | 103               |
| Total   | <u>47,300</u> | <u>3,970</u> | <u>3,070</u> | <u>4,060</u> | <u>11,100</u>     |
| <b>Exports:</b>   |               |              |              |              |                   |
| Metal   | 6,120         | 639          | 461          | 605          | 1,710             |
| Waste and scrap   | 2,280         | 1            | 20           | 41           | 62                |
| Alloys (gross weight)   | 9,190         | 965          | 594          | 1,190        | 2,750             |
| Sheet, tubing, ribbons, wire, powder, and other (gross weight)      | 2,050         | 185          | 121          | 194          | 500               |
| Total   | <u>19,600</u> | <u>1,790</u> | <u>1,200</u> | <u>2,030</u> | <u>5,020</u>      |

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.