

Mineral Industry Surveys

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MAGNESIUM IN THE SECOND QUARTER 2000

Domestic production of primary magnesium in the second quarter of 2000 declined by 7% from that in the first quarter, according to the U.S. Geological Survey. Producers' stocks decreased slightly and shipments were slightly lower than those in the first quarter.

Exports of magnesium through May 2000 were 25% less than those in the same period of 1999. Magnesium imports through

May 2000 were about 5% higher than those in the corresponding period of 1999. Russia (45%), Israel (28%), and Canada (17%) were the principal sources of imported metal. Canada (56%) and China (30%) were the principal sources of imported alloys.

Quoted prices of primary magnesium continued to decline. Prices are shown in the following table.

	Units	Beginning of quarter	End of quarter
Metals Week U.S. spot Western	Dollars per pound	\$1.38-\$1.44	\$1.32-\$1.44
Metals Week U.S. spot dealer import	do.	1.18-1.25	1.12-1.15
Metals Week European free market	Dollars per metric ton	2,200-2,300	2,000-2,200
Metal Bulletin free market	do.	2,270-2,350	2,040-2,100
Metal Bulletin China free market	do.	1,520-1,570	1,450-1,500

In May, the International Trade Administration (ITA) completed preliminary reviews on antidumping and countervailing duties on magnesium from Norsk Hydro Canada Inc. In the preliminary countervailing duty review, the ITA determined that the subsidy for pure and alloy magnesium for calendar year 1998 was 1.38% ad valorem; the final results were to be completed within 120 days of publication of the preliminary results (U.S. Department of Commerce, 2000a). The antidumping duty for pure magnesium for August 1, 1998, to July 31, 1999, was established at 0% ad valorem. The ITA also determined that Norsk Hydro Canada had not sold commercial quantities of magnesium into the United States in a 3-consecutive-year period, so the company did not qualify for revocation of the antidumping duty (U.S. Department of Commerce, 2000d).

The ITA also conducted 5-year sunset reviews of the countervailing and antidumping duties for magnesium from Canada, as is required by the Uruguay Round of Agreements Act. Final determinations in these investigations were that revocation of the order would most likely lead to continuation or recurrence of the duties. For the countervailing duty for pure and alloy

magnesium, the likely subsidy was 1.84% ad valorem for Norsk Hydro Canada and 4.48% for all others. The ITA determined that the dumping margin for pure magnesium would be 21.00% ad valorem for Norsk Hydro Canada and all others, the amount at which the duty was originally set (U.S. Department of Commerce, 2000b, c). These sunset decisions may have an adverse effect on Magnola Metallurgy Inc. The company plans to complete construction of its 63,000-metric-ton-per-year primary magnesium plant in Quebec in the third quarter of 2000 and sell the magnesium in the United States. Until the company can get a new shipper review from the ITA, if it requests one, Magnola will be required to pay the antidumping and countervailing duties established for "all others" in these sunset reviews. The company could not participate in the July sunset review process because it was not shipping commercial quantities of magnesium to the United States at that time.

The International Trade Commission revoked the antidumping duty order established in 1995 on magnesium imported from Russia because no interested party responded to the April 2000 request (U.S. International Trade Commission, 2000).

The ITA received what it considered an inadequate response from the Chinese magnesium producers to its request for a 5-year sunset review of antidumping duties on magnesium from China, so it conducted an expedited sunset review. Based on its findings, the ITA determined that revocation of the order would likely lead to a continuation or recurrence of dumping, so it retained the country-wide antidumping rate of 108.26% ad valorem on pure magnesium from China (U.S. Department of Commerce, 2000e).

After an investigation that began in June 1999, the European Commission recommended an antidumping duty of 63.4% on imports of magnesium from China. This is a significant increase from the 31.7% that is currently in effect (Platt's Metals Week, 2000c). The Chinese producers are expected to appeal this duty, although several producers reportedly sold magnesium at prices lower than the Chinese Magnesium Association's minimum reference price of \$1,500 per ton (Platt's Metals Week, 2000a).

Also in China, press reports indicate that several magnesium producers in the Shanxi Province have closed because of pollution problems. Beginning in July, about 20 plants were expected to be closed for 20 to 30 days for installation of pollution-control equipment, which would reduce the country's magnesium output by 4,000 to 6,000 tons during the closure (Platt's Metals Week, 2000b). Chinese magnesium producers, however, are continuing to expand production at some plants. Yinguang Magnesium Industry Group's new 5,000-ton-per-year expansion is expected to be completed in December; this would bring the plant's total capacity to 20,000 tons per year of magnesium and magnesium alloy. Shanxi Top Magnesium Co. plans to increase its annual capacity from 7,200 tons to about 10,000 tons by yearend 2000 (Platt's Metals Week, 2000d).

In addition to plans to construct a magnesium alloy facility, which it announced earlier, Norsk Hydro Magnesiumgesellschaft mbH plans to build a magnesium anode facility in China at the same site where its alloy plant will be. Initial production capacity is expected to be 400 tons per year, perhaps expanding to 800 tons per year. The principal market for the anodes is hot-water heaters in China and southeast Asia. No timetable was given for plant startup (Norsk Hydro A/S, April 25, 2000, Magnesium in China—Step two, accessed July 7, 2000, via URL <http://www.hydro.com>).

Samag, the 80%-owned subsidiary of Pima Mining NL, began trial mining of its magnesite deposit in South Australia. The company plans to mine about 2,000 tons of ore for trial leaching tests. The company also selected Port Pirie as the site for its proposed 52,500-ton-per magnesium plant. This site was chosen because of its existing infrastructure (the Pasminco zinc smelter is located at the same site) and rail link between Port Pirie and the location of the magnesite raw material near Leigh Creek. Initial investment in the plant is expected to begin in 2001, with commercial production scheduled for 2004. The company has licensed Dow Chemical Co.'s electrolytic technology to use for magnesium production (Metal Bulletin, 2000).

A preliminary feasibility study on the Antheus Magnesium Development Programme Delfzijl proposed magnesium plant in the Netherlands was completed. The study was for a combined magnesium smelter, diecasting plant, and recycling plant, all at the same location. Projected capacity of the magnesium smelter would be 15,000 tons per year, with potential expansion to 30,000 tons per year. With the projected sale of excess chlorine generated at the plant, operating costs for the plant are estimated to be about 60

cents per pound. A feasibility study is expected to be completed by early 2001, and a decision on plant construction is expected by the end of 2001 (Brooks, 2000).

The European Bank for Reconstruction and Development plans to grant \$95 million to Russian magnesium producer Solikamsk Magnesium Plant by the end of 2000. The grant is targeted toward increasing magnesium production by 100% in 2001. In 1999, Solikamsk produced 9,000 tons of primary magnesium and 9,200 tons of magnesium alloys (Interfax Mining & Metals Report, 2000).

For the new 2001 models, North American auto manufacturers are expecting to average between 3.9 and 4.1 kilograms (8.5 and 9 pounds) of magnesium components per vehicle, a 12.5% increase from the 2000 average. Most of the increase will result from the use of existing part applications in new models. All of the "Big Three" U.S. auto manufacturers (General Motors Corp. [GM], Ford Motor Co., and DaimlerChrysler Corp.) are using magnesium alloy diecastings in some of their automobiles, trucks, and sport utility vehicles (SUV's). The principal magnesium components are instrument panel support beams, engine cam covers, four-wheel-drive transfer cases, steering column and pedal bracket supports, and steering wheel armatures (Wrigley, 2000a).

Lunt Manufacturing Co. entered into a multiyear agreement with GM to manufacture one-piece magnesium alloy instrument panel support beams for the automaker. GM will replace the 25-kilogram (55-pound) steel beams in its 2002 model medium-duty trucks with the magnesium alloy ones, which weigh between 10 and 11 kilograms (22 and 25 pounds) each. This application is expected to consume 500 to 570 tons of alloy AM60 annually. Lunt Manufacturing is only the fourth company in North America that can produce these one-piece beams and will manufacture the components at its Hampshire, IL, facility (Wrigley, 2000d).

GM also announced that it would be using about 12 kilograms (27 pounds) of magnesium alloy diecastings on its new crossover vehicle, the Chevrolet Avalanche, beginning with the 2001 model. The Avalanche is a new type of vehicle that combines the passenger cabin of the Chevrolet Suburban SUV with the cargo box common to pickup trucks. Magnesium components in the new vehicle include four-wheel-drive transfer cases, instrument panel beams, pedal bracket supports, alternator brackets and covers, and the steering wheel armatures (Wrigley, 2000c).

Ford Motor Co. announced that it would convert the valve covers on its Triton truck engines to magnesium from plastic, beginning in the 2003 or 2004 model year. The valve covers, which will be made out of AZ91D, will weigh about 3.2 kilograms (7 pounds). The main reasons for substituting magnesium for plastic are to reduce oil leaks and to improve noise, vibration, and harshness. Ford estimates that about 800,000 engines per year will be used in its pickup trucks, SUV's, and vans, which would consume about 2,500 tons of magnesium alloy annually (Wrigley, 2000b).

Meridian Technologies Inc. is planning to construct its second magnesium diecasting facility in Strathroy, Ontario, Canada, which would bring the total number of the company's facilities to four. In addition to the two plants in Ontario, Meridian operates plants in Eaton Rapids, MI, and Verres, Italy. Capacity at the new facility is estimated to be 5,000 tons per year of AZ91D and the AM series of alloys (Wrigley, 2000e).

TAC Manufacturing Inc., a subsidiary of the Japanese firm

Tokai Rika Co., announced that it would install magnesium casting equipment at its existing facility in Jackson, MI, to produce magnesium steering wheel locks. Cost of the new equipment is estimated to be about \$10 million. The company already supplies steel and zinc automotive parts to Toyota Motor Corp.'s auto manufacturing plants in the United States; the company plans to sell the magnesium parts to Toyota as well as other U.S. manufacturing firms (Furukawa, 2000).

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

(Metric tons)

	2000					
	1999	January- February	March	April	May	January- May
Imports:						
Metal	26,900	3,770	1,510	1,690	2,390	9,360
Waste and scrap	6,780	1,430	795	676	775	3,680
Alloys (magnesium content)	56,500	9,600	4,650	4,650	5,370	24,300
Sheet, tubing, ribbons, wire, powder, and other (magnesium content)	593	151	37	26	32	246
Total	90,700	15,000	6,990	7,040	8,570	37,500
Exports:						
Metal	4,790	646	402	744	524	2,320
Waste and scrap	16,500	637	598	471	373	2,080
Alloys (gross weight)	2,760	931	534	617	693	2,780
Sheet, tubing, ribbons, wire, powder, and other (gross weight)	4,990	955	393	425	283	2,060
Total	29,000	3,170	1,930	2,260	1,870	9,230

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

Source: U.S. Census Bureau.