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Mineral Industry Surveys

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MAGNESIUM IN THE SECOND QUARTER 2002

Exports of magnesium through May 2002 were about 6% higher than those in the same period of 2001. Magnesium imports through May 2002 were 19% higher than those in the corresponding period of 2001. Russia (42%), Israel (26%), and Canada (22%) were the principal sources of imported metal. Canada (63%), China (22%), and Russia (8%) were the principal sources of imported alloys.

Magnesium prices did not change significantly from the end of the first quarter to the end of the second quarter. The Metal Bulletin European free market and China free market prices rose, and the remaining price quotations either fell slightly or remained the same. Prices are shown in the following table.

	Units	Beginning of quarter	End of quarter
Metals Week U.S. spot Western	Dollars per pound	$1.20-$1.28	$1.20-$1.25
Metals Week U.S. spot dealer import	do.	1.00-1.08	1.00-1.08
Metals Week European free market	Dollars per metric ton	1,700-1,800	1,700-1,800
Metal Bulletin European free market	do.	1,750-1,840	1,780-1,880
Metal Bulletin China free market	do.	1,260-1,290	1,320-1,350

On June 4, a U.S. bankruptcy court gave final approval for the sale of Magnesium Corp. of America (Magcorp) to an affiliate of Renco Group for $24 million. Renco was the owner of the Magcorp plant, and the principal individual owner of Renco is the principal owner of the new company, U.S. Magnesium LLC (Platts Metals Week, 2002e). After the sale was announced, the U.S. Department of Justice attempted to block the sale because the sale allowed U.S. Magnesium to assume the post-bankruptcy petition liabilities of Magcorp rather than paying the purchase price into Magcorp's estate. The sale also would release U.S. Magnesium from tax and successor liabilities. The bankruptcy court dismissed Justice's suit, and Justice did not file an appeal in the allowable timeframe, so the sale became final at the end of June (Mas, 2002).

U.S. Magnesium announced that it would continue the modernization and expansion plan that was begun by Magcorp. The plan involves installing new electrolytic cells that are larger, more energy efficient, and generate fewer emissions. Installation of these cells would increase the plant's capacity to 60,000 metric tons per year (t/yr) from its current level of 45,000 t/yr. No timetable was set for completion of the modernization (Platts Metals Week, 2002f).

The International Trade Administration (ITA) completed its preliminary administrative review of countervailing duties on pure and alloy magnesium from Canada for calendar year 2000. The ITA determined that Norsk Hydro Canada Inc. received certain subsidies in 2000 and assigned a countervailing duty of 1.59% ad valorem to its imports of magnesium into the United States. Based on information submitted by Magnola Metallurgy Inc. to the ITA, the ITA rescinded the review for that company (U.S. Department of Commerce, International Trade Administration, 2002). The final duty was scheduled to be published within 120 days of the preliminary finding.

In France, Pechiney officially closed the primary production portion of its Marignac plant on July 2; the company had not produced any magnesium since June 2001. This closure leaves the European Union with no primary magnesium production and was expected to lead to removal of the European antidumping duty on imports of magnesium from China that was established in 1997 by the European Commission (EC). The EC reportedly had begun a partial interim review on June 13 and gave interested parties until July 24 to provide their views on

retaining or eliminating the duty. Pechiney began converting the Marignac plant into a 5,000-t/yr magnesium recycling operation, which would produce niche products including turnings and granules. Pechiney was expected to source the scrap feedstock from France, Italy, and Spain (Platts Metals Week, 2002c).

Hydro Magnesium, operating as Hydro Magnesium Alloys a.s., planned to continue to operate its casthouse in Porsgrunn, Norway, after the primary magnesium plant closed in April. The casthouse began operating as a remelting plant on March 18 and produced its first metal on March 20. The casthouse has a capacity of 20,000 t/yr and is operating on imported pure metal from China and returned scrap from customers in Europe (Hydro Magnesium, 2002c§[1]). Hydro Magnesium also began operations at its new 10,000-t/yr magnesium alloy plant in Xi'an, China, on November 29, 2001, but there were some problems with the induction furnaces. After furnace modification began in December, the plant began commercial operations in the first quarter of 2002. Hydro Magnesium expected to add a third shift in July and begin 7-day-per-week, 24-hour-per-day operations at the end of August, at which time the plant will be operating at full capacity. Metal produced at the new plant was expected to be shipped to customers in the Pacific rim (Hydro Magnesium, 2002b§).

In June, Rambora Technologies Ltd. announced it would take an option to licence Alcan International Ltd.'s magnesium dehydration technology for its planned Latrobe magnesium project in Australia. The Latrobe project would consist of a 60,000-t/yr plant to produce magnesium from fly ash from the adjacent Hazelwood power station; the fly ash has a magnesium content of up to 12% (Australia Mining, 2002§).

Globex Mining Enterprises Inc. received a conditional offer from the Quebec government to finance part of a feasibility study for its Timmins magnesite-talc project. An initial scoping study by Hatch Associates Ltd. had proposed a $C1.5 billion complex in two locations, with the capacity to produce 90,000 t/yr of magnesium metal. The Quebec government will finance 25% of the C$17.7 million study if the Federal Government finances 25% and Globex finances the remaining 50% (Globex Mining Enterprises Inc., 2002§).

Hydro Magnesium increased production capacity at its Becancour, Quebec, Canada, plant to 45,000 t/yr from 40,000 t/yr through debottlenecking. During the maintenance shutdown in April, the plant's capacity was increased further to 48,000 t/yr by increasing the quantity of energy available to the dehydration trains (Hydro Magnesium, 2002a§).

In China, magnesium producer, Dongfang Metallurgy Enterprises Co. Ltd. planned to form a joint venture with a foreign partner by the third quarter of 2002 to increase its magnesium production capacity to 30,000 t/yr from its current level of 11,000 t/yr. The company was negotiating with potential partners in Germany, Japan, and the United Kingdom (Platts Metals Week, 2002b). Jishan Huayu Enterprises Group planned to complete a 20,000-t/yr expansion to its primary magnesium plant by yearend 2002 to bring the plant's total capacity to 32,000 t/yr (Platts Metals Week, 2002d). Shanxi Wenxi Baiyu Magnesium Industry Co. Ltd. planned to double its magnesium ingot capacity to 9,600 t/yr by August 2002 (Platts Metals Week, 2002a). Many of the planned expansions in China are in response to the expectation that the EC antidumping duty on magnesium imported from China would be revoked.

Production at Magnesium Elektron's new 10,000-t/yr magnesium recycling plant in the Czech Republic began in May. The plant recycles magnesium from the die-casting industry to produce high-quality alloys. Most of the plant's customers are within 350 kilometers of the plant's location (Cooper, 2002).

General Motors Corp. (GM) is considering using magnesium alloys for floor-mounted shift towers and console covers in its light- and medium-duty pickup trucks, vans and sport-utility vehicles (SUVs). The company had begun using an AZ91 magnesium alloy shift tower in the 2002 model of its Saturn Vue SUV, and engineers need to investigate its floor adherence and service life. The shift tower took several years to develop partially because it was difficult to find an economical way to attach the magnesium tower to the steel floor of the vehicle and have the tower remain in place for the vehicle's service life. A new thread-forming fastening system was designed that compresses the threads into the magnesium while the fasteners are being installed. This eliminates the need to drill and tap the threads after the magnesium parts were cast. If the shift towers prove to be suitable, production could number in the hundreds of thousands to millions of components annually, according to GM. The manufacturer for the current shift tower component is Lunt Manufacturing Co. Inc., Hampshire, IL. The magnesium shift towers weigh between 0.9 and 2.3 kilograms (kg) (2 to 5 pounds), and the one-piece component replaces a multipiece steel assembly (Wrigley, 2002a).

GM also chose Intermet Corp., Troy, MI, to supply the magnesium alloy instrument panel support beam for its new Cadillac SRX crossover vehicle for which production is beginning in 2003. The beams, which weigh from 6.4 to 13.6 kg (14 to 30 pounds) each, will be cast in two pieces, then joined with adhesive bonding. Casting the part in two pieces allows the use of conventional medium-size die-casting machines rather than requiring the large costlier machines if the beams were to be cast in one piece (Wrigley, 2002c).

Ford Motor Co. announced that it would use single-piece magnesium alloy die-casting front-end supports in its redesigned F-150 pickup trucks beginning in the 2004 model year. The 1-piece AM50 die-castings will replace a 15-piece steel assembly and are expected to be produced by Magnesium Products of America Inc. at its Eaton Rapids, MI, die-casting facility. This represents the first use of this particular component in a North-American-produced vehicle (Wrigley, 2002b). In addition to the pickup truck application, Ford subsidiaries Jaguar Plc and Volvo Car Corp. were working to develop more than 40 magnesium alloy components for its European luxury cars.

Sumitomo Electric Industries Ltd. announced that it

[1]References that include a section twist (§) are shown in the Internet References Cited section.

developed a magnesium alloy wire that is 20% stronger than extruded magnesium alloy bar and can be bent and coiled at room temperature. Because of the alloy's flexibility, strength, and light weight, its potential applications include electronic devices, leisure and sporting goods, and automotive parts. In addition, the alloy can shield against electromagnetic interference and can be easily recycled, making it ideal for use in portable electronic equipment such as cellular phones, notebook computers, and portable disc players. Sumitomo Electric also expects that the alloy could be used as a substitute for resins and aluminum alloys (Sumitomo Electric Industries Ltd., 2002§).

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

(Metric tons)

		2002				
	2001	January-February	March	April	May	January-May
Imports:						
Metal	20,100	3,660	2,820	2,440	2,940	11,900
Waste and scrap	11,000	2,290	1,100	1,150	1,300	5,840
Alloys (magnesium content)	35,100	5,350	4,570	3,440	4,300	17,600
Sheet, tubing, ribbons, wire, powder, other (magnesium content)	2,870	365	184	196	179	924
Total	69,100	11,700	8,670	7,220	8,730	36,300
Exports:						
Metal	4,870	744	680	971	1,150	3,540
Waste and scrap	6,950	1,090	559	521	528	2,700
Alloys (gross weight)	3,860	779	379	479	215	1,850
Sheet, tubing, ribbons, wire, powder, other (gross weight)	3,890	471	138	225	329	1,160
Total	19,600	3,090	1,760	2,200	2,220	9,260

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

Source: U.S. Census Bureau.