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# Mineral Industry Surveys

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## MAGNESIUM IN THE THIRD QUARTER 2002

Exports of magnesium through August 2002 were about 23% higher than those in the same period of 2001. Magnesium imports through August 2002 were 26% higher than those in the corresponding period of 2001. Russia (48%), Canada (23%), and Israel (20%) were the principal sources of imported metal. Canada (61%), China (26%), and Russia (6%) were the principal sources of imported alloys.

After a significant period of decline, magnesium free market prices increased in the third quarter. The Metal Bulletin and Metals Week European free market prices rose by at least $1,000 per metric ton. The China free market price increased by about $50 per metric ton, but U.S. prices continued to drop. 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-$1.25 | $1.14-$1.23 |
| Metals Week U.S. spot dealer import | do. | 1.00-1.08 | 1.00-1.07 |
| Metals Week European free market | Dollars per metric ton | 1,700-1,800 | 1,830-1,900 |
| Metal Bulletin European free market | do. | 1,780-1,880 | 1,880-1,980 |
| Metal Bulletin China free market | do. | 1,320-1,350 | 1,370-1,390 |

The International Trade Administration (ITA) published the final results of its countervailing duty review for pure and alloy magnesium from Canada. For calendar year 2000, the countervailing duty for Norsk Hydro Canada Inc. was determined to be 1.59% ad valorem (U.S. Department of Commerce, International Trade Administration, 2002b). The ITA also extended the time limit for countervailing duty review for alloy magnesium for Magnola Metallurgy Inc. This review was requested in February, and at the beginning of August, U.S. Magnesium LLC requested that the ITA include an alleged labor subsidy that was not originally included in the investigation. Magnola Metallurgy objected to the reconsideration, and because of the inclusion of this subsidy allegation, the ITA extended the lime limit for review until no later than January 21, 2003 (U.S. Department of Commerce, International Trade Administration, 2002a).

The ITA also established a 0% preliminary antidumping duty for magnesium from Norsk Hydro Canada for August 1, 2000, to July 31, 2001. The ITA also found that because no sales were made in commercial quantities during at least one of the 3 years cited by Norsk Hydro Canada in its request for revocation, the company does not qualify for revocation of the duty (U.S. Department of Commerce, International Trade Administration, 2002c). The ITA began investigations of countervailing and antidumping duties for alloy magnesium from Magnola Metallurgy for calendar year 2001 and August 1, 2001, to July 31, 2002, respectively. In addition, the ITA initiated countervailing and antidumping duty investigations for pure and alloy magnesium from Norsk Hydro Canada for the same periods.

The International Trade Commission (ITC) confirmed its sunset review affirmative determinations to retain the countervailing and antidumping duties on pure and alloy magnesium from Canada in connection with the remand of the cases from the NAFTA Binational Panel. The panel remanded the case to the ITC in July, and the ITC had previously made its determinations in July 2000. The ITC determined that revoking these orders likely would lead to continuation or recurrence of materials injury in the foreseeable future (U.S. International Trade Commission, 2002§[1]).

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

A notice concerning the review of the antidumping measures on Chinese magnesium was finally published by the European Commission on September 27. The notice gives interested parties 40 days to appeal against the removal of the duties. The duty review has been expected since Pechiney officially closed its primary magnesium plant in France in June. Reviews are scheduled to be completed by January 2003, with the duty expected to be removed (Nordic Magnesium Cluster, 2002).

Progress continued on several of the magnesium projects proposed in Australia. Australian Magnesium Corp. Ltd. (AMC) signed an engineering, procurement and construction contract with Leighton Contractors Pty. Ltd. for an estimated $1 billion. AMC began site clearing in June and expects to begin magnesium production by the end of 2004 and reach its full production capacity of 97,000 metric tons per year (t/yr) by the end of 2005 (Australian Magnesium Corp. Ltd., 2002a§).

Pima Mining N.L., which changed its name to Magnesium International Ltd. in July, completed its feasibility study on the SAMAG magnesium project in August. The feasibility study recommended a 71,000-t/yr plant, with a capital cost of A$761 million and an operating cost of $A1.06 per pound (US$0.59 per pound). Construction of the proposed plant, based on Dow magnesium technology, would be completed in 28 months. Based on the result of the feasibility study, the company plans a project financing in the range of A$250 to A$300 million. Magnesium International also intends to fund a substantial portion of the equity requirement through joint venture partners, and discussions with potential partners were expected to begin in September and October (Magnesium International Ltd., 2002b§). Magnesium International also signed a 15-year power supply contract with NRG Flinders in October that allows for a 2% power interruptibility at NRG's request. The Dow process that will be used to produce magnesium allows for instantaneous power interruptibility, which will be useful for the power company to maintain supplies in peak summer electricity demand periods. Magnesium International had originally planned to build its own power station for the SAMAG plant and retains the right to develop a power station in the future, if the magnesium plant's capacity is expanded (Magnesium International Ltd., 2002a§).

Rambora Technologies Ltd., which changed its name to Latrobe Magnesium Ltd. in June, released the results of its feasibility study to construct a 100,000-t/yr plant to recover magnesium from coal fly ash. Capital cost of the plant was estimated to be A$857 million, and the direct operating cost would be A$0.705 per pound. This project is estimated to have a lower operating cost than some others because the raw material does not need to be mined. The Latrobe project also would use dehydration technology from Alcan International Ltd. that operates at ambient temperature and pressure compared to other dehydration technologies (MineBox, 2002§).

In China, Ningxia Zhongning Aluminium began operating its 12,000-t/yr magnesium plant at the end of September. About 80% of the plant's output of magnesium ingot will be targeted to U.S. and Japanese markets, with the remaining 20% to be used in the company's aluminum alloying plant (Platts Metals Week, 2002).

In Congo (Brazzaville), Magnesium Alloy Corp. (MagAlloy) signed a memorandum of understanding with Eskom Enterprises (Pty) Ltd. of Johannesburg, South Africa. This agreement would establish a long-term power contract for the delivery of low-cost electrical energy to MagAlloy's planned 60,000-t/yr Kouilou magnesium project. Under the first phase of the agreement, existing transmission and production facilities would be rehabilitated, if necessary, and new routes that link Congo (Brazzaville) to the Southern Africa Power Pool would be built (Magnesium Alloy Corp., 2002a§). MagAlloy also signed an off-take agreement with Stinnes Metall GmbH whereby Stinnes Metall will market up to 100% of the magnesium and magnesium alloys produced at the plant (Magnesium Alloy Corp., 2002b§).

Because investors have shown no interest in financing the project, a proposal to construct a plant to recover magnesium from asbestos tailings in Russia has been indefinitely postponed. Plans to construct a 50,000-t/yr magnesium plant were originally proposed in 2000 (Metal Bulletin, 2002b).

Magnesium production is expected to restart by the end of 2002 at the Kalush plant in Ukraine. Esko-Pivnich, the plant's holding company plans to produce 500 metric tons (t) of magnesium in December and 10,000 t in 2003. The plant has been closed since 1999 (Metal Bulletin, 2002a).

Remag Alloys BV plans to construct a $255 million, 10,000-t/yr magnesium recycling plant in Delfzijl, Netherlands, in the fourth quarter of 2002, with production to start about October 2003. Raw material for the plant will be sourced mainly from European die casters.. The recycling plant is slated to be the forerunner of a project proposed by Antheus Magnesium, which is planning to build a primary magnesium plant producing 50,000 t/yr of magnesium using magnesium chloride as a raw material; the primary plant is not expected until 2006 (American Metal Market, 2002).

Because of its cost-cutting program, Ford Motor Co. is considering switching some magnesium components in its lower priced vehicles from magnesium to aluminum or steel. Ford already has decided not to use magnesium cam covers on its new V-6 truck engine that will be introduced in 2004. It also canceled plans to use instrument panel beams in another new vehicle planned for the future. According to Ford, 3 years ago the company was projecting that by 2004 the total quantity of magnesium that would be used in North American-produced vehicles would be 100,000 metric tons (t) annually; based on current information, this projection has dropped to 35,000 t (Wrigley, 2002a).

Conversely, General Motors Corp. announced plans to use magnesium alloys for the retractable hardtop roofs for its Cadillac XLR sports cars and for its Pontiac Grand Am models. The Cadillac model will debut in 2004, and the Grand Am, in 2006. The retractable hardtop, which is nearly nonexistent in currently produced automobiles in the United States, is expected to become popular because of its durability and perceived safety advantages over soft tops (Wrigley, 2002b, c).

AMC announced that it had developed a new patented magnesium alloy that was featured in a prototype 3-cylinder engine in a Volkswagen at a trade exhibition in Europe. The engine block, sand-cast out of alloy AMC-SC1, weighs 14 kilograms, about 25% less than an aluminum engine block currently in use (Australian Magnesium Corp. Ltd., 2002b§).

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

(Metric tons)

| | | 2002 | | | | |
|---|---|---|---|---|---|---|
| | 2001 | January-May | June | July | August | January-August |
| Imports: | | | | | | |
| Metal | 20,100 | 11,900 | 2,870 | 2,670 | 2,230 | 19,600 |
| Waste and scrap | 11,000 | 5,840 | 1,330 | 1,150 | 1,420 | 9,730 |
| Alloys (magnesium content) | 35,100 | 17,700 | 3,540 | 2,810 | 3,370 | 27,400 |
| Sheet, tubing, ribbons, wire, powder, other (magnesium content) | 2,870 | 924 | 200 | 126 | 108 | 1,360 |
| Total | 69,100 | 36,300 | 7,930 | 6,750 | 7,130 | 58,100 |
| Exports: | | | | | | |
| Metal | 4,870 | 3,540 | 1,080 | 1,250 | 1,000 | 6,880 |
| Waste and scrap | 6,950 | 2,700 | 487 | 206 | 504 | 3,900 |
| Alloys (gross weight) | 3,860 | 1,850 | 242 | 225 | 358 | 2,680 |
| Sheet, tubing, ribbons, wire, powder, other (gross weight) | 3,890 | 1,160 | 410 | 335 | 390 | 2,300 |
| Total | 19,600 | 9,260 | 2,220 | 2,010 | 2,250 | 15,700 |

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

Source: U.S. Census Bureau.