Magnesium

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2001 Primary metal production capacity: $255 million[e]
World rank: Second
Exports: $176 million

	1999	2000	2001	2002 (f)
		(tonnes)		
Primary metal production capacity (1,e)	49 000	50 500	59 500	70 000
Exports (HS 8401)	49 747	47 181	43 292	38 000
Imports (HS 8401)	38 377	34 588	33 507	30 000

(e) Estimated; (f) Forecast.
(1) Canadian magnesium production data are confidential due to the limited number of companies reporting. This number is based on published capacity for primary metal. Note that other published estimates of Canadian magnesium productions include significant quantities of recycled material.

Magnesium's main application is as an alloying agent for aluminum, which accounts for close to 45% of magnesium shipments. The next most important use for magnesium metal is for die-cast products. Growth in magnesium die-cast products used in automotive and consumer goods is largely due to weight savings of about 30% compared to aluminum. The third largest market for magnesium is as a deoxidizing and desulphurizing agent in the ferrous industry. Chemical applications include pharmaceutical products, perfumes and pyrotechnics.

ANNUAL AVERAGE PRICES, METALS WEEK (U.S. SPOT WESTERN MEAN)

1998	1999	2000	2001	2002 (e)
		(US$/lb)		
1.59	1.55	1.37	1.25	1.22

(e) Estimated.

CANADIAN OVERVIEW

- Construction of Magnola Metallurgy Inc.'s 58 000-t/y magnesium metal plant at Danville, Quebec, is finished and commissioning of the electrolytic cells is nearing completion. Progress on solving start-up problems is well under way and the plant was operating 23 of 24 cells in October. The company planned to reach commercial production in late 2002 or early 2003. It subsequently announced the impending interim closure of the plant. Further information can be found on Noranda Magnesium's web site at www.norandamagnesium.com.

- Primary production at Norsk Hydro ASA's Magnesium Division Bécancour facility was to be increased in 2002 to 48 000 t/y from 45 000 t/y through debottlenecking. The plant also has a recycling facility with a capacity of 10 000 t/y, but that facility was reported as operating at 75% of capacity due to a shortage of scrap. Future capacity increases at Bécancour will be evaluated based upon market needs and profitable returns. Hydro Magnesium does not expect any large-scale increases to be initiated in the short term. Further information is available on the Internet at www.magnesium.hydro.com.

- Timminco Limited expected to complete work to develop dual casting capability in the third quarter of 2002.

- Canada's two largest magnesium producers have developed new magnesium alloys for use in higher temperature applications. Further information can be obtained from the Noranda Magnesium web site at www.norandamagnesium.com and from Hydro Magnesium's web site at www.magnesium.hydro.com.

- Globex Mining Enterprises Inc. has continued work on its Timmins area magnesium-talc deposit 13 km south of Timmins, Ontario. Hatch Associates of Canada completed a scoping study in October 2001, which indicated good economic potential for a proposed $1.5 billion project with a smelter located west of Rouyn-Noranda, Quebec. The company has worked to raise funds to conduct the recommended full bankable

feasibility study with an expected cost of US$12 million. Further details are available on the Internet at www.globexmining.com.

- Leader Mining International Inc. continued studies for a smelter based on the Cogburn ultramafic intrusive near Hope, British Columbia. Work has included: diamond drilling, initial environmental permitting, infrastructure studies, and bench-scale testing on composite samples. The company has signed a technology transfer agreement with the State Research and Design Titanium Institute of Zaprozhye, Ukraine (STI), and the Russian National Aluminium-Magnesium Institute (VAMI). Further details are available on the Internet at www.leadermining.com.

WORLD OVERVIEW

- The major factor in magnesium markets remains the increased production and export of magnesium from China. Production and export levels in 2002 are expected to be similar to those in 2001. Pressure on markets from this production has resulted in a general decrease in the price of magnesium over the last several years.

- The recent closures of the 42 000-t/y Porsgrunn magnesium smelter in Norway, the 18 000-t/y Marignac magnesium smelter in France, and the 38 000-t/y Northwest Alloys magnesium smelter in Addy, Washington, have taken almost 100 000 t/y of capacity out of production. Markets are now starting to react to these closures as the price of Chinese magnesium appears to be firming up, perhaps signalling a bottom (www.alcoa.com, www.magnesium.hydro.com and www.pechiney.com).

- Magnesium Corporation of America (Magcorp), after filing in 2001 for protection from its creditors under Chapter 11 of the Bankruptcy Code, was sold in 2002 to U.S. Magnesium LLC, another subsidiary of Renco Group. The company is modernizing equipment at its 43 000-t/y smelter in Rowley, Utah, after considerable pressure to clean up its site and to reduce emissions. Work was expected to be completed in early 2003. Modernization of the plant is expected to eventually increase its capacity to 56 000 t/y (www.magnesiumcorp.com).

- Australian Magnesium Corporation (AMC) started construction of a 90 000-t/y plant at Stanwell, Queensland, in August. The company has accelerated the ramp-up in metal production. It is now expected to start in late 2004 to reach full capacity in 2006. AMC has decided to use newer Alcan Ex2 cell technology for the plant. These cells have a higher capacity for production of magnesium than the older versions of this technology. For further information, see the company's web site at www.austmg.com and Australian government sites at www.minister.industry.gov.au and www.qld.gov.au.

- Mt. Grace Resources NL continued work on its Northern Territory Batchelor magnesium project 85 km south of Darwin. Although tests of the Mintek demonstration plant were reported as being a success, a lack of energy availability in the Darwin region may result in a change in location for the project. Further information is available on the Internet at www.mtgrace.com.

- Magnesium International Limited (formerly Pima Mining NL - Samag project) completed its bankable feasibility study and continues work on a proposed metal plant based on magnesite deposits located near Leigh Creek in the Willouran Ranges region of South Australia. The company continued work on financing and contracting options (www.mgil.com.au).

- Magnesium Alloy Corporation continued work on its Kouilou project in the Republic of the Congo (Brazzaville) and has signed a Memorandum of Understanding with Eskom Enterprises (Pty) Limited, the state energy commission in South Africa. The agreement defines the steps to establish a power contract and includes studies on the power infrastructure requirements. The company also signed an agreement with Stinnes Metall GmbH on the purchase of metal produced by the project (www.magnesiumalloy.ca).

DEMAND OUTLOOK

Magnesium use is expected to increase to over 550 000 t/y in the last half of this decade. Growth will result from demand for magnesium in aluminum alloys and die-cast automotive parts, although the rate of growth will be dependent on the general economy, prices, and price stability. Magnesium continues to face stiff competition from other materials, including aluminum, steel and plastics, in the all-important automotive parts sector. New applications and increased awareness of the advantages of magnesium in certain applications are growing, particularly in the automotive industry.

In Canada, the reported use of magnesium increased from a revised 40 154 t in 2000 to 44 925 t in 2001, due in part to an increased number of companies reporting. It should be noted that previously published figures on use have included some run-around scrap, which have been removed from data for 1999 through to 2001. Work is nearing completion on confirming and removing these amounts from data.

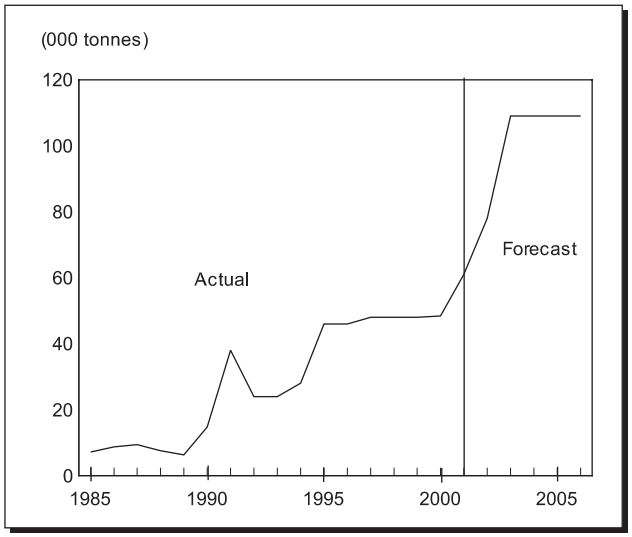
CANADIAN AND WORLD PRODUCTION OUTLOOK

In 2002, Canada was the second largest producer of primary magnesium in the world after China.

Canadian primary magnesium production increased dramatically with the opening of Hydro Magnesium's 40 000-t/y primary magnesium plant at Bécancour in 1990. Installed Canadian primary nameplate capacity has since remained stable, but has now increased due to the ramping up of Magnola Metallurgy's 58 000-t/y plant at Danville, Quebec, and a debottlenecking of Hydro Magnesium's Bécancour plant, which was expected to reach a capacity of 48 000 t/y in 2002. Canadian primary magnesium production capacity is expected to have risen to approximately 70 000 t/y in 2002.

A number of projects around the world, primarily focussed in Australia, could, if all constructed, significantly increase magnesium production. World primary magnesium production is expected to rise from an estimated 460 000 t in 2000 to more than 550 000 t/y by 2006.

Figure 1
Canadian Primary Production Capacity of Magnesium, 1985-2006



Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metals Statistics.

PRICE OUTLOOK

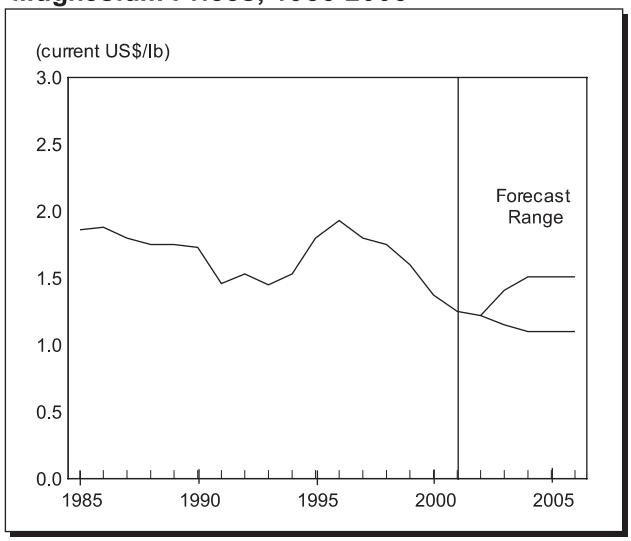
Prices for primary magnesium remained relatively weak for the early part of the year as markets did not react to closures in Western plants. Prices for magnesium, as published by *Metals Week*, again trended downward through the year. The U.S. Spot Western Mean price started the year at US$1.25/lb and decreased to below $1.20/lb late in the year, while the mean U.S. dealer import price decreased from US$1.08/lb to $1.03/lb.

Norsk Hydro Magnesium reduced its European producer price for magnesium alloy to €2.50/kg from €2.62/kg early in 2002. The company also announced that it would not continue to issue a European producer price for pure magnesium.

Sales of Chinese magnesium on a spot basis, f.o.b. China, at the beginning of the year were reported at US$1200-$1300/t. Sales were reported in late 2002 as taking place at US$1400/t for pure magnesium with prices for alloy above US$1600/t.

Reductions in the capacity of Western smelters, unless countered by an increase in production in China, may result in an increase in price for pure magnesium metal over the near term. On a longer-term basis, should many project proposals be successful at raising financing, increases in capacity may result in the availability of newer, possibly lower-cost, supply of metal. Prices are expected to remain near their current levels and will remain historically weak, likely in the bottom-to-mid part of a US$1.10-$1.50/lb range over the medium term until use catches up with production rates and stockpiles.

Figure 2
Magnesium Prices, 1985-2005



Source: *Metals Week* (U.S. Spot Western Mean).

Note: Information in this article was current as of November 1, 2002.

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