

Magnesium

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1996 metal production: \$281 million^e
 World rank: Second
 Exports: \$146 million

Canada	1996	1997 ^e	1998 ^f
	(tonnes)		
Production	52 000	53 000	53 000
Consumption	27 600	33 000	35 000
Exports	31 000	33 000	33 000
Imports	12 100	13 000	15 000

^e Estimated; ^f Forecast.

Magnesium's main application is as an alloying agent for aluminum, which accounted for close to 47% of Western World consumption in 1996. The next most important use for magnesium metal is for die-cast products. Increased interest in magnesium die-cast products by the automotive industry is largely due to weight savings of about 33% 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. PRIMARY INGOT)

1993	1994	1995	1996	1997 ^e
(US\$/lb)				
1.45	1.53	1.80	1.93	1.80

^e Estimated.

CANADIAN OVERVIEW

- Magnola Metallurgy Inc. cast its first magnesium ingot at its pilot plant in Salaberry-de-Valleyfield, Quebec, in March. In November, the company announced it will proceed with construction of a 58 000-t/y commercial plant in 1998. The \$750 million plant is expected to start production by mid-2000 and to create nearly 350 direct jobs near the town of Asbestos, Quebec.
- Norsk Hydro Canada announced it will increase capacity at its Bécancour plant from 43 000 t/y to 68 000 t/y in 2000, with a second-phase expansion to 86 000 t/y once the first phase is operational.
- Gossan Resources Limited confirmed that processing dolomite from its Inwood, Manitoba property can be made into commercial-grade magnesium metal using the Magnetherm process. Gossan's Board of Directors will now consider whether to conduct a full-scale feasibility study to evaluate the possibility of building a 50 000-t/y plant.

WORLD OVERVIEW

- Normandy Mining and Queensland Metals Corp. (QMC) formed a joint venture to develop a plant to produce magnesium alloys at Gladstone, Queensland. The first phase involves the construction of a 1000-t/y pilot plant and a two-year feasibility study for a 90 000-t/y smelter. Funding will be provided by the partners, together with the Australian government and the Ford Motor Co. Ford has entered into a long-term agreement with the joint-venture partners to purchase magnesium alloys.
- A feasibility study by Icelandic Magnesium Co. has confirmed the technical viability of a 50 000-t/y primary magnesium smelter in Iceland. Work on engineering and environmental studies is continuing so that permitting and construction of the plant can begin as soon as a decision to build the plant is made.
- The European Commission initiated anti-dumping proceedings on magnesium imports from China.

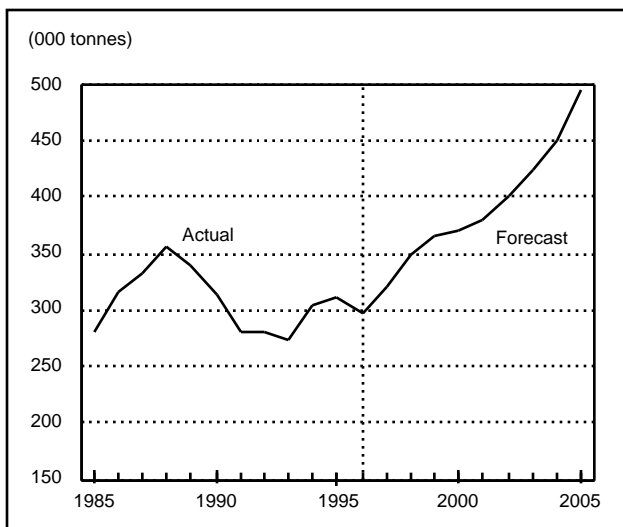
- Congo Minerals Inc. announced plans to build a 50 000-to-100 000-t/y magnesium plant in the Republic of Congo (Brazzaville) sometime early in the next decade pending financing. The company has been granted two exploration permits in the Kouilou region, which contains an estimated 800 billion t of carnallite ore. By-products would include potash, table salt, calcium chloride and chlorine.

CONSUMPTION OUTLOOK

World primary magnesium consumption was 297 500 t in 1996, and is expected to increase to 375 000 t/y by 2000 and to 495 000 t/y by 2005. Western World primary magnesium annual growth in demand for this period is expected to reach 5% in North America, 4% in Western Europe, and 9% in the Far East. This growth will be primarily fed by a strong demand for magnesium in aluminum alloys, die-cast automotive parts, and desulphurization applications in the steel industry. Magnesium continues to face stiff competition from other materials, including aluminum and plastics, in the all-important automotive parts sector. New applications and increased awareness of the advantages of magnesium in certain applications are, however, growing, particularly in the North American automotive industry.

In Canada, consumption increased from a reported consumption of 27 100 t in 1995 to 27 600 t in 1996. Strong growth in Canada for magnesium continues to come from demand for the production of aluminum alloys and for castings and wrought products.

Figure 1
World Magnesium Consumption, 1985-2005



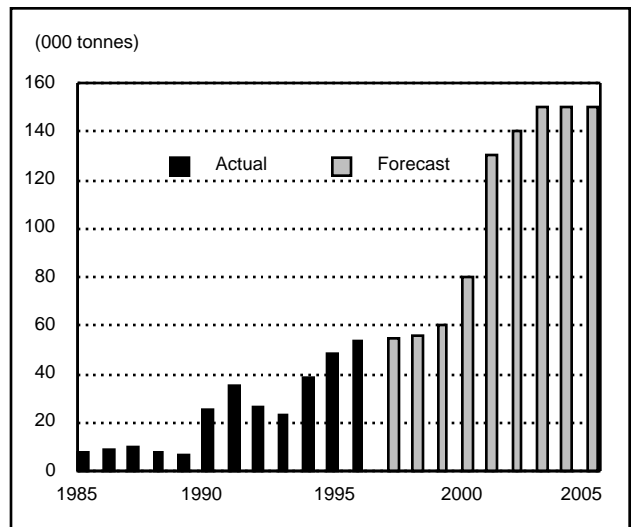
Source: Natural Resources Canada.

CANADIAN AND WORLD PRODUCTION OUTLOOK

Canadian production increased dramatically with the opening of Norsk Hydro's 43 000-t/y plant at Bécancour in 1990. Installed capacity has since remained stable, but it is set to rise again with the expansion of Norsk Hydro's Bécancour plant and the addition of Magnola Metallurgy's 58 000-t/y plant at Asbestos, Quebec. Once completed, Canadian primary magnesium production capacity will rise to about 150 000 t/y. Canada was the second largest producer of primary magnesium in the world in 1996 after the United States.

World primary magnesium production is expected to rise from 313 800 t in 1996 to 360 000 t/y by 2000 and to 500 000 t/y by 2005.

Figure 2
Canadian Magnesium Production, 1985-2005



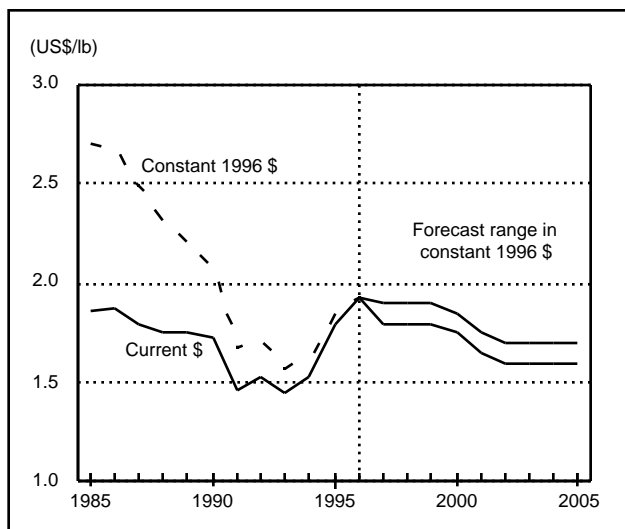
Source: Natural Resources Canada.

PRICE OUTLOOK

Prices for primary magnesium remained fairly stable for most of the year as the markets continued to be balanced. Prices for U.S. die-cast alloy and primary ingot remained stable at US\$1.65/lb and \$1.80/lb respectively, while spot prices eased somewhat after starting the year in the US\$1.70-\$1.80/lb range, only to rise again in the third quarter to \$1.62-\$1.68/lb. In January, Norsk Hydro cut its European producer price for pure magnesium to DM5.40/kg from DM5.95/kg set in November 1996, only to increase it again to DM5.75/kg in June. Imports from China were seen as the significant influencing factor on European prices in 1997; however, as supplies of both Russian and Chinese magnesium have tightened, prices have

strengthened. Continued strength is forecast in the short term, with prices expected to average between US\$1.70 and \$1.80/lb. A major factor that will influence magnesium prices in the longer term will be the change in supply over the next decade as the result of expansions or the opening of new capacity in Canada, the Middle East, Australia, and possibly China. The availability of this newer, low-cost supply will eventually cause prices to decline slightly, in constant dollar terms, over the next decade. Prices are expected to remain in the \$1.50-\$1.60/lb range, in constant 1996 dollars, over the longer term.

Figure 3
Magnesium Prices, 1985-2005



Source: Natural Resources Canada.