

MAGNESIUM COMPOUNDS¹

(Data in thousand metric tons of magnesium content, unless noted)

Domestic Production and Use: Seawater and natural brines accounted for about 72% of U.S. magnesium compounds production. Magnesium oxide and other compounds were recovered from seawater by four companies in California, Delaware, Florida, and Texas; from well brines by three companies in Michigan; and from lake brines by two companies in Utah. Magnesite was mined by one company in Nevada, and olivine was mined by two companies in North Carolina and Washington. About 67% of the magnesium compounds consumed in the United States was used for refractories. The remainder was consumed in agricultural, chemical, construction, environmental, and industrial applications.

Salient Statistics—United States:	1991	1992	1993	1994	1995^e
Production	442	418	386	345	300
Imports for consumption	156	179	256	287	350
Exports	57	49	52	46	50
Consumption, apparent	541	548	590	586	600
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, plant ^e	650	650	650	600	600
Net import reliance ² as a percent of apparent consumption	18	24	35	41	50

Recycling: Some magnesia-base refractories are recycled, either for reuse as refractory material or for use as construction aggregate.

Import Sources (1991-94): China, 62%; Canada, 13%; Mexico, 5%; Greece, 5%; and other, 15%.

Tariff:³ Item	Number	Most favored nation (MFN) 12/31/95	Canada 12/31/95	Non-MFN⁴ 12/31/95
Crude magnesite	2519.10.0000	Free	Free	\$10.33/t.
Dead-burned and fused magnesia	2519.90.1000	0.3¢/kg.	Free	1.7¢/kg.
Caustic-calcined magnesia	2519.90.2000	\$1.66/t	Free	\$20.70/t.

Depletion Allowance: Brucite, 10% (Domestic and Foreign); dolomite and magnesium carbonate, 14% (Domestic and Foreign); magnesium chloride, 5% (Domestic and Foreign); and olivine, 22% (Domestic) and 14% (Foreign).

Government Stockpile: None.

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Events, Trends, and Issues: Magnesia imports, primarily from China, continued to affect the U.S. magnesium compounds industry. In addition to these imports supplying a greater share of demand, higher prices for Chinese magnesia led to increased refractory magnesia prices. Export licenses for Chinese magnesite that were instituted in 1994 and continued throughout 1995 had the effect of increasing prices for exported material. As a result, U.S. firms that were using Chinese magnesite as a raw material source passed the price increases to their customers. At the same time, the largest magnesite producer in China announced that it was curtailing production, particularly on lower grade products, and was concentrating on high-grade magnesia.

One of the two U.S. magnesium chloride producers in Utah, with operations in Ogden, announced that it was purchasing the other producer, which has facilities in Wendover. The Ogden firm also announced that it had completed an expansion of its facilities, nearly tripling its annual magnesium chloride hexahydrate production capacity from 11,000 tons to 32,000 tons. A further expansion to 91,000 tons is planned for the end of 1996. Along with the expansion, the company will introduce a new magnesium chloride deicing agent. The largest domestic magnesium sulfate producer planned to add 25,000 tons per year of magnesium sulfate solution capacity in Utica, IL, by the end of 1995. Many Midwest customers were converting the magnesium sulfate crystal that the company already produces at the Utica site into solution, and the company was increasing capacity to meet this need.

As part of framework agreement reached in 1994 to loosen sanctions, the President signed an Executive Order allowing the importation of magnesite from North Korea. One U.S. company has signed a supply agreement with a North Korean firm to import some magnesia into the United States. Shipments were expected to begin in the summer. With the increased prices for Chinese magnesia, magnesite from North Korea could become a growing source of U.S. supply in the future, depending on the quality.

World Mine Production, Reserves, and Reserve Base:

	Magnesite production		Magnesite reserves and reserve base ⁵	
	1994	1995 ^e	Reserves	Reserve base
United States	W	W	10,000	15,000
Australia	79	100	NA	NA
Austria	173	170	15,000	20,000
Brazil	72	70	45,000	65,000
China ^e	432	400	750,000	1,000,000
Greece	58	60	30,000	30,000
India	144	140	30,000	45,000
Korea, North ^e	461	460	450,000	750,000
Russia ^e	173	160	650,000	730,000
Serbia and Montenegro	20	20	5,000	10,000
Slovakia ^e	346	350	20,000	30,000
Spain	115	120	10,000	30,000
Turkey	288	280	65,000	160,000
Other countries	95	100	420,000	480,000
World total (may be rounded)	⁶ 2,460	⁶ 2,430	2,500,000	3,400,000

In addition to magnesite, there are vast reserves of well and lake brines and seawater from which magnesium compounds may be recovered.

World Resources: Resources from which magnesium compounds may be recovered range from large to virtually unlimited and are globally widespread. Identified world resources of magnesite total 12 billion tons, and of brucite, several million tons. Resources of dolomite, forsterite, and magnesium-bearing evaporite minerals are enormous, and magnesia-bearing brines are estimated to constitute a resource in billions of tons. Magnesium hydroxide can be recovered from seawater.

Substitutes: Alumina, silica, and chromite substitute for magnesia in some refractory applications.

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

¹See also Magnesium Metal.

²Defined as imports - exports + adjustments for Government and industry stock changes.

³Tariffs are based on gross weight.

⁴See Appendix B.

⁵See Appendix C for definitions.

⁶Excludes the United States.