

MAGNESIUM COMPOUNDS¹

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

Domestic Production and Use: Seawater and natural brines accounted for about 60% of U.S. magnesium compounds production. Magnesium oxide and other compounds were recovered from seawater by two companies in Delaware and Florida, 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, brucite was mined by one company in Nevada and one company in Texas, and olivine was mined by two companies in North Carolina and Washington. About 69% of the magnesium compounds consumed in the United States was used for refractories. The remaining 31% was used in agricultural, chemical, construction, environmental, and industrial applications.

Salient Statistics—United States:	1997	1998	1999	2000	2001^e
Production	402	374	395	370	360
Imports for consumption	259	344	321	395	280
Exports	56	49	52	56	50
Consumption, apparent	605	669	664	709	590
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, plant, number ^e	600	600	550	450	450
Net import reliance ² as a percentage of apparent consumption	34	44	41	48	39

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

Import Sources (1997-2000): China, 65%; Canada, 8%; Australia, 8%; Austria, 4%; and other, 15%.

Tariff:³ Item	Number	Normal Trade Relations 12/31/01
Crude magnesite	2519.10.0000	Free.
Dead-burned and fused magnesia	2519.90.1000	Free.
Caustic-calcined magnesia	2519.90.2000	Free.
Kieserite	2530.20.1000	Free.
Epsom salts	2530.20.2000	Free.
Magnesium hydroxide	2816.10.0000	3.1% ad val.
Magnesium chloride	2827.31.0000	1.5% ad val.
Magnesium sulfate (synthetic)	2833.21.0000	3.7% ad val.

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

Government Stockpile: None.

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Events, Trends, and Issues: Consumption of magnesia in refractory applications declined in 2001, mainly because U.S. steel production declined. Through midyear, U.S. steel production was about 12% lower than that in 2000. Although the total quantity of magnesia imported from China declined, this country remained the largest magnesia supplier to the United States. In February, the Chinese Magnesite Export Association was established with 23 companies as members, who represented the bulk of the country's caustic-calcined, dead-burned, and fused magnesia producers. The association was formed to replace the two separate export groups that were formed in 2000. Its stated goals were to stabilize prices, ensure a supply of quality products, and ensure customer service. The Chinese export license fee for 2001 was \$42 per metric ton of magnesite and was distributed among individual companies based on export records of each company for 1995 to 2000. China's accession into the World Trade Organization, for which negotiations were completed on September 17, may have a significant impact on the structure of its export licensing system.

One magnesia producer in Michigan sold its refractory operations to another U.S. company in the second quarter, but it planned to continue to manufacture refractory products for the buyer for 2 years under the sales agreement. The Michigan firm had been looking for a buyer for this business since mid-2000.

An Australian company advanced its plans to construct a 50,000-ton-per-year seawater magnesia plant in Western Australia with a successful initial public offering of stock in June. Most of the output from the plant, which is expected to be completed by 2004, would be used by the country's lateritic nickel industry where it is used as a neutralizing agent.

World Mine Production, Reserves, and Reserve Base:

	Magnesite production		Magnesite reserves and reserve base ⁴	
	2000	2001 ^e	Reserves	Reserve base
United States	W	W	10,000	15,000
Australia	101	100	NA	NA
Austria	216	210	15,000	20,000
Brazil	89	90	45,000	65,000
China ^e	721	720	37,000	86,000
Greece	187	190	30,000	30,000
India	105	100	14,000	55,000
Korea, North ^e	288	300	450,000	750,000
Russia ^e	288	250	650,000	730,000
Slovakia ^e	245	250	20,000	30,000
Spain	144	150	10,000	30,000
Turkey	576	570	65,000	160,000
Other countries	131	130	430,000	490,000
World total (may be rounded)	⁵ 3,090	⁵ 3,060	1,800,000	2,500,000

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

World Resources: Resources from which magnesium compounds can 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 C for definitions.

⁵Excludes U.S. production.