

MAGNESIUM COMPOUNDS¹

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

Domestic Production and Use: Seawater and natural brines accounted for about 51% of U.S. magnesium compounds production in 2004. Magnesium oxide and other compounds were recovered from seawater by two companies in Delaware and Florida, from well brines by two 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 56% of the magnesium compounds consumed in the United States was used for refractories. The remaining 44% was used in agricultural, chemical, construction, environmental, and industrial applications.

Salient Statistics—United States:	2000	2001	2002	2003	2004^e
Production	370	388	312	329	280
Imports for consumption	395	307	337	332	310
Exports	56	62	66	53	50
Consumption, apparent	709	634	583	608	540
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, plant, number ^e	450	450	450	370	370
Net import reliance ² as a percentage of apparent consumption	48	39	46	46	48

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

Import Sources (2000-03): China, 68%; Australia, 9%; Canada, 9%; Austria, 2%; and other, 12%.

Tariff:³ Item	Number	Normal Trade Relations 12-31-04
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: The leading magnesia producer in the United States announced that it would increase capacity at its Manistee, MI, plant for high-surface-area magnesia that is used as a scorch retarder in the rubber and plastics industries. The company developed a lower cost production method for this magnesia, which has resulted in increased sales. The production capacity increase was estimated to be about 1,100 tons per year.

A new magnesia plant opened in Jordan that recovers magnesia from the Dead Sea. The plant's principal product is dead-burned magnesia, with a 50,000-ton-per-year capacity, and it has additional capacity to produce 10,000 tons per year of caustic-calcined magnesia and magnesium hydroxide.

After a failed attempt to build a magnesium metal plant, the magnesia producer in Rockhampton, Queensland, Australia, announced that it would sell its magnesia business to a consortium of two firms—one based in Australia, and the other, in the United States. The plant has the capacity to produce 65,000 tons per year of caustic-calcined magnesia, 110,000 tons per year of dead-burned magnesia, and 25,000 tons per year of fused magnesia.

World Mine Production, Reserves, and Reserve Base:

	Magnesite production		Magnesite reserves and reserve base ⁴	
	2003	2004 ^e	Reserves	Reserve base
United States	W	W	10,000	15,000
Australia	136	136	100,000	120,000
Austria	202	200	15,000	20,000
Brazil	78	80	45,000	65,000
China	1,070	1,100	380,000	860,000
Greece	144	150	30,000	30,000
India	110	110	14,000	55,000
Korea, North	288	300	450,000	750,000
Russia	346	350	650,000	730,000
Slovakia	274	250	45,000	324,000
Spain	72	80	10,000	30,000
Turkey	576	600	65,000	160,000
Other countries	163	170	390,000	440,000
World total (rounded)	⁵ 3,460	⁵ 3,500	2,200,000	3,600,000

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, magnesium-bearing evaporite minerals, and magnesia-bearing brines are estimated to constitute a resource in billions of tons. Magnesium hydroxide can be recovered from seawater.

Substitutes: Alumina, chromite, and silica 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 the United States.