

MAGNESIUM COMPOUNDS¹

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

Domestic Production and Use: Seawater and natural brines accounted for about 57% of U.S. magnesium compounds production in 2011. Magnesium oxide and other compounds were recovered from seawater by three companies in California, Delaware, and Florida; from well brines by one company 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 52% of the magnesium compounds consumed in the United States was used for refractories. The remaining 48% was used in agricultural, chemical, construction, environmental, and industrial applications.

Salient Statistics—United States:	2007	2008	2009	2010	2011^e
Production	342	274	239	261	272
Imports for consumption	357	342	173	279	330
Exports	26	25	13	16	20
Consumption, apparent	673	591	399	524	582
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, plant, number ^e	370	370	300	300	300
Net import reliance ² as a percentage of apparent consumption	49	54	40	50	53

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

Import Sources (2007–10): China, 72%; Canada, 5%; Brazil, 5%; Austria, 5%; and other, 13%.

Tariff:³ Item	Number	Normal Trade Relations 12-31-11
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.

Events, Trends, and Issues: A lawsuit against several Chinese magnesite sellers, which was originally filed in 2005 by several U.S. magnesite purchasers alleging price fixing of magnesite since April 2000, was revived. The U.S. Circuit Court of Appeals in Philadelphia reversed a 2009 lower court decision that dismissed the case, and remanded the decision to the lower court for review. In addition, a group of U.S. farmers filed a class action lawsuit against a U.S. magnesia producer and two other firms alleging that the three companies agreed to control the price of magnesia used in animal feed and fertilizers. A similar lawsuit had been filed in 2010.

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As the world economy began to rebound, several magnesia manufacturers were increasing capacity. In Australia, the country's leading magnesite mining company planned to refurbish a mothballed cement plant to produce 100,000 tons per year of caustic-calcined magnesia. The plant, which would increase the company's total magnesia production capacity to 400,000 tons per year, was expected to come onstream by 2013. The leading magnesia producer in Turkey acquired the mine, plant, and reserves of a smaller magnesia producer in western Turkey and planned to expand caustic-calcined and dead-burned magnesia capacity at the facility. The company also planned to double the fused magnesia production capacity to 26,000 tons per year at its Kutahya facility. Another magnesia producer in Turkey doubled its caustic-calcined magnesia production capacity to 30,000 tons per year. In Brazil, the country's sole dead-burned magnesia producer received approval to increase its production capacity by 120,000 tons per year to 440,000 tons per year. In April, a new magnesia plant came onstream in Saudi Arabia with capacities of 39,000 tons per year of caustic-calcined magnesia and 32,000 tons per year of dead-burned magnesia.

An Austria-based refractories manufacturer acquired seawater magnesia producers in Drogheda, County Louth, Ireland, and Porsgrunn, Norway. The plant in Ireland was expected to provide a high-purity source of dead-burned magnesia to the Austrian company, and caustic-calcined magnesia production from the Norwegian plant would supply feedstock for a new 80,000-ton-per-year fused magnesia plant that was to be constructed at Porsgrunn.

The world's leading olivine producer planned to restart production at its 400,000-ton-per-year Raubergvik and 1.9-million-ton-per-year Grubse olivine mines in Norway. Production from the Raubergvik mine was scheduled to be shipped to the United States, mainly for foundry use, for which supplies have become tight.

World Magnesite Mine Production and Reserves: Reserve data for Brazil were revised based on new information from the country's Government.

	Mine production		Reserves ⁴
	2010	2011 ^e	
United States	W	W	10,000
Australia	86	90	95,000
Austria	202	200	15,000
Brazil	115	115	160,000
China	4,040	4,100	550,000
Greece	86	90	30,000
India	95	100	6,000
Korea, North	43	45	450,000
Russia	346	350	650,000
Slovakia	187	190	35,000
Spain	133	130	10,000
Turkey	288	300	49,000
Other countries	141	150	390,000
World total (rounded)	⁵ 5,760	⁵ 5,900	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, 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 resource/reserve definitions and information concerning data sources.

⁵Excludes U.S. production.