MAGNESIUM METAL[1]

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: Three companies in Texas, Utah, and Washington produced primary magnesium in 1996 valued at approximately $514 million. An electrolytic process was used at plants in Texas and Utah to recover magnesium from seawater and lake brines, respectively. A thermic process was used to recover magnesium from dolomite in Washington. The aluminum industry remained the largest consumer of magnesium, accounting for 55% of domestic primary metal use. Magnesium was a constituent in aluminum-base alloys that were used for packaging, transportation, and other applications. Castings and wrought magnesium products accounted for 22% of U.S. consumption of primary metal; desulfurization of iron and steel, 12%; cathodic protection, 5%; reducing agent in nonferrous metals production, 2%; and other uses, 4%.

Salient Statistics—United States:	1992	1993	1994	1995	1996[e]
Production: Primary	137	132	128	142	143
Secondary	57	59	62	65	65
Imports for consumption	12	37	29	35	43
Exports	52	39	45	38	41
Consumption: Reported, primary	94	101	112	109	110
Apparent	142	148	149	171	171
Price, yearend:					
Metals Week, U.S. spot Western, dollars per pound, average	1.50	1.46	1.63	2.09	1.75
Metal Bulletin, free market, dollars per metric ton, average	2,625	2,260	3,125	4,138	2,700
Stocks, producer and consumer, yearend	13	26	19	21	25
Employment[e], number	1,450	1,400	1,400	1,400	1,400
Net import reliance[2] as a percent of apparent consumption	E	E	E	E	E

Recycling: In 1996, about 30,000 tons of the secondary production was recovered from old scrap.

Import Sources (1992-95): Canada, 40%; Russia, 34%; Mexico, 6%; Ukraine, 5%; and other, 15%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Canada 12/31/96	Mexico 12/31/96	Non-MFN[3] 12/31/96
Unwrought metal	8104.11.0000	8.0% ad val.	1.6% ad val.	Free	100% ad val.
Unwrought alloys	8104.19.0000	6.5% ad val.	1.3% ad val.	2.6% ad val.	60.5% ad val.
Wrought metal	8104.90.0000	14.8¢/kg on Mg content + 3.5% ad val.	2.9¢/kg on Mg content + 0.7% ad val.	Free	88¢/kg on Mg content + 20.0% ad val.

Depletion Allowance: Dolomite, 14% (Domestic and Foreign); magnesium chloride, 5% (Domestic and Foreign).

Government Stockpile: None.

Events, Trends, and Issues: In contrast with 1995, free-market magnesium prices fell dramatically in 1996 and averaged $2,700 per ton by the end of October, a 56% decline from prices at the beginning of the year. Despite antidumping duties, Russia continued to supply most of the U.S. imports of primary magnesium because of the exempted relationship between certain producers and exporters.

As a result of an administrative review, the International Trade Administration (ITA) amended its antidumping order on imports of pure magnesium from Canada. For the period August 1, 1994, to July 31, 1995, the ITA determined that the weighted average dumping margin for magnesium imports from the largest Canadian magnesium producer was 0%. This deposit rate will be effective for all pure magnesium imported into the United States from this company after August 12, 1996, the publication date of the final result.

The European Commission (EC) also established antidumping duties on Russian and Ukrainian magnesium imports. The minimum import price for Russian magnesium was established at 2,602 ECU per ton, and the minimum import price on Ukrainian magnesium was 2,568 ECU per ton. Under terms of an undertaking agreement, however, these duties will be suspended for some imports. Under a clause in the undertaking agreement between the EC, Russia, and Ukraine, specified small quantities of magnesium that are invoiced to a EC-approved importer will not be subject to the duties, even though they are brought in below the minimum value.

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U.S. auto manufacturers continued to replace aluminum and steel in some applications with magnesium. One firm planned to use a urethane-covered magnesium armature for the steering wheels of some of its redesigned pickup trucks, standard-size sports-utility vehicles, and vans at a savings of one-half of the weight of the steel components that it replaces. Another manufacturer chose magnesium alloy components for two new applications—seats in some 1997 model minivans and battery cases for the company's new electric vehicles. Although only 2,000 to 3,000 of the electric vehicles will be made annually, magnesium will be used in a number of other components, such as seat frames. Another auto manufacturer planned to use magnesium die-cast support brackets in its 1997 sports-utility vehicles. Each vehicle will use one 2.3- to 2.7-kilogram bracket, replacing an assembly of steel stampings that weighs about 6.4 kilograms. The total annual requirement was expected to be between 800 and 900 tons of magnesium alloy AM60.

Magnesium recycling capacity is planned in the United States and Canada to handle additional scrap that is expected to be generated by automotive component production. One U.S. firm planned to double recycling capacity at its Madison, IL, plant to 18,000 tons per year by the end of 1998 and to build a 17,000-ton-per-year nonferrous metal recycling facility in Foley, AL. The new plant will also have the capability to produce 4,500 tons of magnesium alloy anodes annually. Another magnesium recycler announced that it would build a new magnesium recycling facility in Bellvue, OH, with a total annual capacity of 13,600 tons, which was scheduled to be in operation by the second quarter of 1997. A Norwegian firm planned to construct a 15,000-ton-per-year alloy casting line and establish technology to recycle and reprocess some residues at its Becancour, Canada, magnesium production plant. Both projects were expected to be completed by yearend 1997.

After completing a feasibility study, regional officials said that they would go forward with the planned primary magnesium production project in Iceland. A 50,000-ton-per-year plant, using new technology that does not produce commercial byproduct chlorine, was to be completed in Reykjanes by the second half of 1999. A Jordanian potash producer announced plans to construct a new plant to produce magnesium from brines from the Dead Sea. The company signed a memorandum of understanding with the Russian Government to construct a 50,000-ton-per-year plant on the Jordanian shore of the Dead Sea. No completion date for the project was scheduled. In addition to its new primary magnesium plant, Israel had plans to construct a $40 million magnesium diecasting plant. The project, a 50-50 joint venture between two firms, will produce 4,000 tons per year of magnesium diecastings at a plant at kibbutz Neve Ur. Completion of the plant is scheduled for 1998.

World Primary Production, Reserves, and Reserve Base:

	Primary production	
	1995	1996[e]
United States	142	143
Brazil	10	11
Canada	48	50
China[e]	40	40
France	12	13
Kazakstan[e]	—	5
Norway	35	38
Russia[e]	38	35
Serbia and Montenegro	2	2
Ukraine[e]	13	10
World total	339	347

Reserves and reserve base[4]

Domestic magnesium metal production is derived from natural brines and dolomite, and the reserves and reserve base for this metal are sufficient to supply current and future requirements. To a limited degree, the existing natural brines may be considered a renewable resource wherein any magnesium removed by humans may be renewed by nature in a short span of time.

World Resources: Resources from which magnesium may be recovered range from large to virtually unlimited and are globally widespread. Resources of dolomite and magnesium-bearing evaporite minerals are enormous. Magnesium-bearing brines are estimated to constitute a resource in billions of tons, and magnesium can be recovered from seawater at places along world coastlines where salinity is high.

Substitutes: Aluminum and zinc may substitute for magnesium castings and wrought products. For iron and steel desulfurization, calcium carbide may be used instead of magnesium.

[e]Estimated. E Net exporter.

[1]See also Magnesium Compounds.

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

[3]See Appendix B.

[4]See Appendix C for definitions.