

BAUXITE AND ALUMINA¹

(Data in thousand metric dry tons unless otherwise noted)

Domestic Production and Use: Nearly all bauxite consumed in the United States was imported; of the total, more than 90% was converted to alumina. Of the total alumina used, about 90% went to primary aluminum smelters and the remainder went to nonmetallurgical uses. Annual alumina capacity was 5.75 million tons, with all four Bayer refineries operating during the year. Domestic bauxite was used in the production of nonmetallurgical products, such as abrasives, chemicals, and refractories.

Salient Statistics—United States:	2002	2003	2004	2005	2006^e
Production, bauxite, mine	NA	NA	NA	NA	NA
Imports of bauxite for consumption ²	7,710	8,860	10,500	10,400	9,500
Imports of alumina ³	3,010	2,310	1,650	1,860	1,700
Exports of bauxite ²	52	89	75	62	45
Exports of alumina ³	1,270	1,090	1,230	1,200	1,500
Shipments of bauxite from Government stockpile excesses ²	297	1,710	66	—	—
Consumption, apparent, bauxite and alumina (in aluminum equivalents) ⁴	2,860	2,580	2,810	2,940	2,500
Price, bauxite, average value U.S. imports (f.a.s.) dollars per ton	20	19	22	26	28
Stocks, bauxite, industry, yearend ²	1,280	3,830	3,120	2,730	2,000
Net import reliance, ⁵ bauxite and alumina, as a percentage of apparent consumption	100	100	100	100	100

Recycling: None.

Import Sources (2002-05):⁶ Bauxite: Jamaica, 31%; Guinea, 30%; Brazil, 17%; Guyana, 12%; and other, 10%. Alumina: Australia, 50%; Suriname, 29%; Jamaica, 9%; and other, 12%. Total: Jamaica, 23%; Guinea, 19%; Australia, 19%; Brazil, 12%; and other, 27%.

Tariff: Import duties on bauxite and alumina were abolished in 1971 by Public Law 92-151. Duties can be levied only on such imports from nations with nonnormal trade relations. However, all countries that supplied commercial quantities of bauxite or alumina to the United States during the first 8 months of 2006 had normal-trade-relations status.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile:

Stockpile Status—9-30-06⁷

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2006	Disposals FY 2006
Bauxite, metal grade:					
Jamaica-type	—	4,040	—	2,030	—
Suriname-type	—	—	—	406	—
Bauxite, refractory-grade	—	—	—	68	—

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Events, Trends, and Issues: Increased supply caused spot prices for metallurgical-grade alumina, as published by Metal Bulletin, to decrease dramatically by the end of the third quarter. The published price range began the year at \$580 to \$590 per ton of alumina. By the end of April, the price range had peaked at \$620 to \$635 per ton. The price range then began a dramatic downward slide that lasted through mid-October to a range of \$240 to \$290 per ton.

World production of bauxite and alumina increased compared with that of 2005. Based on production data from the International Aluminium Institute, world alumina production during the first 2 quarters of 2006 increased 9% compared with that for the same period in 2005.

World Bauxite Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁸	Reserve base ⁸
	2005	2006 ^e		
United States	NA	NA	20,000	40,000
Australia	60,000	61,400	5,800,000	7,900,000
Brazil	19,800	21,000	1,900,000	2,500,000
China	18,000	20,000	700,000	2,300,000
Greece	2,450	2,000	600,000	650,000
Guinea	15,000	15,200	7,400,000	8,600,000
Guyana	1,500	1,500	700,000	900,000
India	12,000	13,000	770,000	1,400,000
Jamaica	14,100	14,900	2,000,000	2,500,000
Kazakhstan	4,800	4,900	350,000	360,000
Russia	6,400	7,200	200,000	250,000
Suriname	4,580	4,800	580,000	600,000
Venezuela	5,900	6,000	320,000	350,000
Other countries	<u>4,620</u>	<u>4,820</u>	<u>3,400,000</u>	<u>4,000,000</u>
World total (rounded)	169,000	177,000	25,000,000	32,000,000

World Resources: Bauxite resources are estimated to be 55 to 75 billion tons, located in South America (33%), Africa (27%), Asia (17%), Oceania (13%), and elsewhere (10%). Domestic resources of bauxite are inadequate to meet long-term U.S. demand, but the United States and most other major aluminum-producing countries have essentially inexhaustible subeconomic resources of aluminum in materials other than bauxite.

Substitutes: Bauxite is the only raw material used in the production of alumina on a commercial scale in the United States. However, the vast U.S. resources of clay are technically feasible sources of alumina. Other domestic raw materials, such as anorthosite, alunite, coal wastes, and oil shales, offer additional potential alumina sources. Although it would require new plants using new technology, alumina from these nonbauxitic materials could satisfy the demand for primary metal, refractories, aluminum chemicals, and abrasives. Synthetic mullite, produced from kyanite and sillimanite, substitutes for bauxite-base refractories. Although more costly, silicon carbide and alumina-zirconia substitute for bauxite-base abrasives.

^eEstimated. NA Not available. — Zero.

¹See also Aluminum. As a general rule, 4 tons of dried bauxite is required to produce 2 tons of alumina, which, in turn, provides 1 ton of primary aluminum metal.

²Includes all forms of bauxite, expressed as dry equivalent weights.

³Calcined equivalent weights.

⁴The sum of U.S. bauxite production and net import reliance.

⁵Defined as imports – exports + adjustments for Government and industry stock changes (all in aluminum equivalents). Treated as separate commodities, the net import reliance equaled 100% for bauxite and 6% for alumina in 2006. For the years 2002-05, the net import reliance was 100% for bauxite and ranged from 7% to 29% for alumina.

⁶Aluminum equivalents.

⁷See Appendix B for definitions.

⁸See Appendix C for definitions.