

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 production capacity was 5.75 million tons, with three Bayer refineries operating throughout the year and one temporarily idled. Domestic bauxite was used in the production of nonmetallurgical products, such as abrasives, chemicals, and refractories.

Salient Statistics—United States:	2005	2006	2007	2008	2009^e
Production, bauxite, mine	NA	NA	NA	NA	NA
Imports of bauxite for consumption ²	13,200	12,900	11,200	12,400	7,300
Imports of alumina ³	1,860	1,860	2,440	2,530	1,800
Exports of bauxite ²	62	43	30	31	29
Exports of alumina ³	1,210	1,540	1,160	1,150	1,100
Shipments of bauxite from Government stockpile excesses ²	—	—	—	—	—
Consumption, apparent, bauxite and alumina (in aluminum equivalents) ⁴	3,540	3,290	3,630	3,410	2,100
Price, bauxite, average value U.S. imports (f.a.s.) dollars per ton	25	28	31	26	28
Stocks, bauxite, industry, yearend ^{2, 5}	W	W	W	W	W
Net import reliance, ⁶ bauxite and alumina, as a percentage of apparent consumption	100	100	100	100	100

Recycling: None.

Import Sources (2005-08):⁷ Bauxite: Jamaica, 32%; Guinea, 22%; Brazil, 18%; Guyana, 12%; and other, 16%. Alumina: Australia, 41%; Suriname, 18%; Jamaica, 16%; Brazil, 12%; and other, 13%. Total: Jamaica, 27%; Brazil, 16%; Guinea, 15%; Australia, 14%; and other, 28%.

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 9 months of 2009 had normal-trade-relations status.

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

Government Stockpile:

Material	Stockpile Status—9-30-09⁸			
	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2009	Disposals FY 2009
Bauxite, metal grade Jamaica-type	—	—	2,030	—

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Events, Trends, and Issues: The price range for metallurgical-grade alumina began the year at \$210 to \$240 per ton, as published by Metal Bulletin. By February, the price range had declined to \$170 to \$200 per ton, where it remained until mid-April. The price range increased to \$200 to \$230 per ton in April until the end of June, when it began to increase more rapidly. The price range was \$300 to \$310 per ton at the end of September.

World production of alumina decreased compared with that of 2008. Based on production data from the International Aluminium Institute, world alumina production during the first two quarters of 2009 decreased by 12% compared with that for the same period in 2008. Reduced output from bauxite mines in Guinea, Guyana, Jamaica, Russia, and Suriname was partially offset by increases in production from new and expanded mines in Australia, Brazil, China, and India and accounted for most of the slight decrease in worldwide production of bauxite in 2009 compared with that of 2008.

World Bauxite Mine Production and Reserves:

	Mine production		Reserves ⁹
	2008	2009 ^e	
United States	NA	NA	20,000
Australia	61,400	63,000	6,200,000
Brazil	22,000	28,000	1,900,000
China	35,000	37,000	750,000
Greece	2,220	2,200	600,000
Guinea	18,500	16,800	7,400,000
Guyana	2,100	1,200	700,000
India	21,200	22,300	770,000
Jamaica	14,000	8,000	2,000,000
Kazakhstan	4,900	4,900	360,000
Russia	6,300	3,300	200,000
Suriname	5,200	4,000	580,000
Venezuela	5,500	4,800	320,000
Vietnam	30	30	2,100,000
Other countries	6,550	5,410	3,200,000
World total (rounded)	205,000	201,000	27,000,000

World Resources: Bauxite resources are estimated to be 55 to 75 billion tons, in Africa (32%), Oceania (23%), South America and the Caribbean (21%), Asia (18%), and elsewhere (6%). 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 alunite, anorthosite, coal wastes, and oil shales, offer additional potential alumina sources. Although it would require new plants using different 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-based refractories. Although more costly, silicon carbide and alumina-zirconia can substitute for bauxite-based abrasives.

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data. — 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.

³Calced equivalent weights.

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

⁵A company acquisition in 2007 resulted in the withholding of data, including revisions to data from 2005.

⁶Defined as imports – exports + adjustments for Government and industry stock changes (all in aluminum equivalents). Treated as separate commodities, the U.S. net import reliance as a percent of apparent consumption equaled 100% for bauxite and 20% for alumina in 2009. For the years 2005–08, the U.S. net import reliance as a percent of apparent consumption was 100% for bauxite and ranged from 5% to 31% for alumina.

⁷Based on aluminum equivalents.

⁸See Appendix B for definitions.

⁹See Appendix C for definitions. Reserve base estimates were discontinued in 2009; see [Introduction](#).