BAUXITE AND ALUMINA[1]

(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 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:	2004	2005	2006	2007	2008[e]
Production, bauxite, mine	NA	NA	NA	NA	NA
Imports of bauxite for consumption[2]	10,600	13,200	12,900	11,200	11,600
Imports of alumina[3]	1,650	1,860	1,860	2,440	2,600
Exports of bauxite[2]	75	62	43	30	17
Exports of alumina[3]	1,230	1,210	1,540	1,160	1,300
Shipments of bauxite from Government stockpile excesses[2]	66	—	—	—	—
Consumption, apparent, bauxite and alumina (in aluminum equivalents)[4]	2,830	3,540	3,290	3,630	3,600
Price, bauxite, average value U.S. imports (f.a.s.) dollars per ton	23	25	28	31	31
Stocks, bauxite, industry, yearend[2, 5]	3,120	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 (2004-07):[7] Bauxite: Jamaica, 31%; Guinea, 22%; Brazil, 19%; Guyana, 12%; and other, 16%. Alumina: Australia, 45%; Suriname, 23%; Jamaica, 12%; Brazil, 7%; and other, 13%. Total: Jamaica, 26%; Guinea, 16%; Brazil, 16%; Australia, 15%; 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 2008 had normal-trade-relations status.

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

Government Stockpile:

Stockpile Status—9-30-08[8]

Material	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2008	Disposals FY 2008
Bauxite, metal grade Jamaica-type	—	—	2,030	—

Prepared by **E. Lee Bray [(703) 648-4979, lbray@usgs.gov, fax: (703) 648-7757]**

BAUXITE AND ALUMINA

Events, Trends, and Issues: The published price range for metallurgical-grade alumina began the year at $350 to $370 per ton, as published by Metal Bulletin. By the end of February, the price range had reached $390 to $420 per ton, where it remained until the end of June. The price range increased to $420 to $450 per ton at the beginning of July until mid-August, when it began to decline. The price range was $360 to $390 per ton at the end of September.

World production of alumina increased slightly compared with that of 2007. Based on production data from the International Aluminium Institute, world alumina production during the first 2 quarters of 2008 increased by 4% compared with that for the same period in 2007. Expansions of bauxite mines in Australia, Brazil, China, and India accounted for most of the slight increase in worldwide production of bauxite in 2008 compared with that of 2007.

World Bauxite Mine Production, Reserves, and Reserve Base: Estimates of reserves and the reserve base for Vietnam were added based on new information from the state mining company.

	Mine production		Reserves[9]	Reserve base[9]
	2007	2008[e]		
United States	NA	NA	20,000	40,000
Australia	62,400	63,000	5,800,000	7,900,000
Brazil	24,800	25,000	1,900,000	2,500,000
China	30,000	32,000	700,000	2,300,000
Greece	2,220	2,200	600,000	650,000
Guinea	18,000	18,000	7,400,000	8,600,000
Guyana	1,600	1,600	700,000	900,000
India	19,200	20,000	770,000	1,400,000
Jamaica	14,600	15,000	2,000,000	2,500,000
Kazakhstan	4,800	4,800	360,000	450,000
Russia	6,400	6,400	200,000	250,000
Suriname	4,900	4,500	580,000	600,000
Venezuela	5,900	5,900	320,000	350,000
Vietnam	30	30	2,100,000	5,400,000
Other countries	7,150	6,800	3,200,000	3,800,000
World total (rounded)	202,000	205,000	27,000,000	38,000,000

World Resources: Bauxite resources are estimated to be 55 to 75 billion tons, located in Africa (33%), Oceania (24%), South America and the Caribbean (22%), Asia (15%), 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.

[e]Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data. — Zero.

[1]See 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.

[2]Includes all forms of bauxite, expressed as dry equivalent weights. Data revised based on new information from the Jamaica Bauxite Institute.

[3]Calcined equivalent weights.

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

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

[6]Defined 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 26% for alumina in 2008. For the years 2004-07, the net import reliance was 100% for bauxite and ranged from 5% to 31% for alumina.

[7]Based on aluminum equivalents.

[8]See Appendix B for definitions.

[9]See Appendix C for definitions.