BAUXITE AND ALUMINA¹

(Data in thousand metric dry tons, unless otherwise noted)

Domestic Production and Use: Domestic ore, which for many years has accounted for less than 1% of the U.S. requirement for bauxite, was mined by one company from surface mines in Alabama and Georgia; virtually all of it was used in the production of nonmetallurgical products, such as abrasives, chemicals, and refractories. Thus, nearly all bauxite consumed in the United States was imported; of the total, about 95% was converted to alumina. Also, the United States imported more than one-half of the alumina it required. Of the total alumina used, about 90% went to primary aluminum smelters and the remainder went to nonmetallurgical uses. Annual alumina capacity was 6.35 million tons, with four Bayer refineries in operation at midyear.

Salient Statistics—United States: ²	<u>1997</u>	1998	<u>1999</u>	2000	<u>2001°</u>
Production, bauxite, mine	NA	NA	NA	NA	NA
Imports of bauxite for consumption ³	11,300	11,600	10,400	9,030	9,500
Imports of alumina ⁴	3,830	4,050	3,810	3,820	3,000
Exports of bauxite ³	97	108	168	147	100
Exports of alumina ⁴	1,270	1,280	1,230	1,090	1,200
Shipments of bauxite from Government					
stockpile excesses ³	1,430	3,300	4,180	1,100	200
Consumption, apparent, bauxite and alumina					
(in aluminum equivalents) ⁵	4,210	5,000	4,870	3,870	3,200
Price, bauxite, average value U.S. imports (f.a.s.)					
dollars per ton	25	23	22	23	24
Stocks, bauxite, industry, yearend ³	2,260	1,860	1,440	1,300	1,200
Net import reliance, ⁶ bauxite and alumina,					
as a percentage of apparent consumption	100	100	100	100	100

Recycling: None.

Import Sources (1997-2000):⁷ Bauxite: Guinea, 40%; Jamaica, 26%; Brazil, 16%; Guyana, 10%; and other, 8%. Alumina: Australia, 67%; Suriname, 12%; Jamaica, 8%; and other, 13%. Total: Australia, 31%; Guinea, 22%; Jamaica, 18%; Brazil, 10%; and other, 19%.

Tariff: Import duties on bauxite and alumina were abolished in 1971 by Public Law 92-151. Only imports from nonnormal-trade-relations nations were dutiable. Countries that supplied commercial quantities of bauxite or alumina to the United States during the first 8 months of 2001 had normal-trade-relations status.

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

Government Stockpile:

Stockpile Status—9-30-01⁸

Material Bauxite, metal grade:	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2001	Disposals FY 2001
Jamaica-type Suriname-type	5,390 130	2,790 2,090	5,390 130	2,030 1,020	1,190 689
Bauxite, refractory- grade, calcined	43	7	2	5	_

BAUXITE AND ALUMINA

Events, Trends, and Issues: World production of bauxite increased slightly from that of 2000. Based on production data from the International Aluminium Institute, world alumina production increased slightly during the first half of 2001 compared with that for the same period in 2000.

The 2002 fiscal year Annual Materials Plan submitted by the Defense National Stockpile Center proposed the sale of 2.03 million dry metric tons of metallurgical-grade, Jamaica-type bauxite and 5,080 calcined metric tons of refractory-grade bauxite from the National Defense Stockpile during the period October 1, 2001, to September 30, 2002.⁹

Spot prices for metallurgical-grade alumina, as published by Metal Bulletin, continued a decline that began in May 2000. The decline can be attributed to an oversupply of alumina in the world market; the result of weak metal demand and increased alumina production. The published price range began the year at \$165 to \$175 per ton. By the end of August, the price range had declined to \$145 to \$150 per ton, its lowest level since April 1999.

World Bauxite Mine Production, Reserves, and Reserve Base: Mine production Reserves ¹⁰ Reserve base ¹⁰								
	Mine pr	Mine production		Reserve base ¹⁰				
	<u>2000</u>	<u>2001°</u>						
United States	NA	NA	20,000	40,000				
Australia	53,800	53,500	3,800,000	7,400,000				
Brazil	14,000	14,000	3,900,000	4,900,000				
China	9,000	9,200	720,000	2,000,000				
Guinea	15,000	15,000	7,400,000	8,600,000				
Guyana	2,400	2,000	700,000	900,000				
India	7,370	8,000	770,000	1,400,000				
Jamaica	11,100	13,000	2,000,000	2,500,000				
Russia	4,200	4,000	200,000	250,000				
Suriname	3,610	4,000	580,000	600,000				
Venezuela	4,200	4,400	320,000	350,000				
Other countries	<u> 10,800 </u>	10,200	4,100,000	4,700,000				
World total (rounded)	135,000	137,000	24,000,000	34,000,000				

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 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-based refractories. Although more costly, silicon carbide and alumina-zirconia substitute for bauxite-based abrasives.

"Estimated. 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.

³Includes all forms of bauxite, expressed as dry equivalent weights.

⁵The sum of U.S. bauxite production and net import reliance.

⁶Defined 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 31% for alumina in 2001. For the years 1997-2000, the net import reliance was 100% for bauxite and ranged from 33% to 37% for alumina.

⁷Aluminum equivalents.

⁸See Appendix B for definitions.

⁹Defense Logistics Agency, 2001, FY 2002 Annual Materials Plan: Fort Belvoir, VA, Defense Logistics Agency news release, October 1, 2 p. ¹⁰See Appendix C for definitions.

²Includes U.S. Virgin Islands.

⁴Calcined equivalent weights.