

**BAUXITE AND ALUMINA<sup>1</sup>**

(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.

<b>Salient Statistics—United States:</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007<sup>e</sup></b>
Production, bauxite, mine	NA	NA	NA	NA	NA
Imports of bauxite for consumption <sup>2</sup>	8,860	10,500	10,400	13,000	10,000
Imports of alumina <sup>3</sup>	2,310	1,650	1,860	1,860	2,300
Exports of bauxite <sup>2</sup>	89	75	62	43	29
Exports of alumina <sup>3</sup>	1,090	1,230	1,210	1,540	1,200
Shipments of bauxite from Government stockpile excesses <sup>2</sup>	1,710	66	—	—	—
Consumption, apparent, bauxite and alumina (in aluminum equivalents) <sup>4</sup>	2,580	2,810	2,940	3,230	3,000
Price, bauxite, average value U.S. imports (f.a.s.) dollars per ton	19	22	26	28	27
Stocks, bauxite, industry, yearend <sup>2</sup>	3,830	3,120	W	W	W
Net import reliance, <sup>5</sup> bauxite and alumina, as a percentage of apparent consumption	100	100	100	100	100

**Recycling:** None.

**Import Sources (2003-06):<sup>6</sup>** Bauxite: Guinea, 29%; Jamaica, 23%; Brazil, 20%; Guyana, 12%; and other, 16%. Alumina: Australia, 47%; Suriname, 29%; Jamaica, 9%; and other, 15%. Total: Guinea, 20%; Jamaica, 19%; Australia, 17%; Brazil, 15%; and other, 29%.

**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 2007 had normal-trade-relations status.

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

**Government Stockpile:****Stockpile Status—9-30-07<sup>7</sup>**

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2007</b>	<b>Disposals FY 2007</b>
Bauxite, metal grade:					
Jamaica-type	—	—	—	2,030	—
Suriname-type	—	—	—	406	—
Bauxite, refractory-grade	—	—	—	44	—

## BAUXITE AND ALUMINA

**Events, Trends, and Issues:** Spot prices for metallurgical-grade alumina, as published by Metal Bulletin, rebounded in January and remained in a narrow range through the third quarter as a result of increased aluminum production and slightly lower alumina production. The published price range began the year at \$200 to \$210 per ton of alumina. By the end of January, the price range had reached \$350 to \$370 per ton. The price range remained at \$350 to \$370 per ton until mid-July when a gradual decline began. The price range was \$330 to \$350 per ton at the end of September.

World production of alumina declined slightly compared with that of 2006. Based on production data from the International Aluminium Institute, world alumina production during the first two quarters of 2007 decreased less than 1% compared with that for the same period in 2006. Expansions of bauxite mines in China, Brazil, and Guyana accounted for most of the 6% increase in worldwide production of bauxite, offsetting declines caused by a strike in Guinea and reduced production from Russia.

### **World Bauxite Mine Production, Reserves, and Reserve Base:**

	Mine production		Reserves <sup>8</sup>	Reserve base <sup>8</sup>
	2006	2007 <sup>e</sup>		
United States	NA	NA	20,000	40,000
Australia	62,300	64,000	5,800,000	7,900,000
Brazil	21,000	24,000	1,900,000	2,500,000
China	21,000	32,000	700,000	2,300,000
Greece	2,450	2,400	600,000	650,000
Guinea	14,500	14,000	7,400,000	8,600,000
Guyana	1,400	2,000	700,000	900,000
India	12,700	13,000	770,000	1,400,000
Jamaica	14,900	14,000	2,000,000	2,500,000
Kazakhstan	4,800	4,900	360,000	450,000
Russia	6,600	6,000	200,000	250,000
Suriname	4,920	5,000	580,000	600,000
Venezuela	5,500	5,500	320,000	350,000
Other countries	5,460	6,800	3,400,000	4,000,000
World total (rounded)	178,000	190,000	25,000,000	32,000,000

**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.

<sup>e</sup>Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data. — Zero.

<sup>1</sup>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.

<sup>2</sup>Includes all forms of bauxite, expressed as dry equivalent weights. A company acquisition in 2007 resulted in the withholding of data, including revisions to data from 2005.

<sup>3</sup>Calcined equivalent weights.

<sup>4</sup>The sum of U.S. bauxite production and net import reliance.

<sup>5</sup>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 16% for alumina in 2007. For the years 2003-06, the net import reliance was 100% for bauxite and ranged from 5% to 29% for alumina.

<sup>6</sup>Aluminum equivalents.

<sup>7</sup>See Appendix B for definitions.

<sup>8</sup>See Appendix C for definitions.