

## BARITE

(Data in thousand metric tons, unless noted)

**Domestic Production and Use:** Barite sales in 1995 were about the same as 1994's level of 580,000 tons, and the value was unchanged at \$21 million. Sales came from five States, with slightly less than 85% of the total coming from Nevada. The second largest producing State was Georgia. About 1,300 tons of ground barite from both domestic production and imports were sold in 1995, as reported by the domestic grinders and crushers. Nearly 90% of the barite sold in the United States in 1995 was used as a weighing agent in oil- and gas-well-drilling fluids, mostly in the Gulf of Mexico region, with much smaller amounts used in the Pacific coast areas. Barite was also used in the production of paint, rubber, glass, and barium chemicals.

<b>Salient Statistics—United States:</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995<sup>e</sup></b>
Sold or used, mine	448	326	315	583	600
Imports for consumption:					
Crude barite	841	323	766	1,020	1,050
Ground barite	46	31	38	58	80
Other	10	12	11	13	10
Exports	43	12	18	14	20
Consumption, apparent <sup>1</sup> (crude barite)	1,290	668	1,100	1,640	1,710
Consumption <sup>2</sup> (ground and crushed)	1,270	999	1,090	1,250	1,310
Price, average value, dollars per ton, mine	47.57	60.22	61.16	37.22	41.00
Employment, mine and mill <sup>e</sup>	400	350	330	350	400
Net import reliance <sup>3</sup> as a percent of apparent consumption	66	52	72	65	65

**Recycling:** None.

**Import Sources (1991-94):** China, 68%; India, 21%; Mexico, 5%; and other, 6%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Most favored nation (MFN)</b>	<b>Non-MFN<sup>4</sup></b>
			<b>12/31/95</b>	<b>12/31/95</b>
	Crude barite	2511.10.5000	\$1.25/mt	\$3.94/mt.
	Ground barite	2511.10.1000	\$2.56/mt	\$7.38/mt.
	Witherite <sup>5</sup>	2511.20.0000	2.4% ad val.	30% ad val.
	Oxide, hydroxide, and peroxide <sup>6</sup>	2816.30.0000	2% ad val.	10.5% ad val.
	Other sulfates <sup>6</sup>	2833.27.0000	0.6% ad val.	4.2% ad val.
	Other chlorides <sup>6</sup>	2827.38.0000	4.2% ad val.	28.5% ad val.
	Other nitrates <sup>6</sup>	2834.29.5000	3.5% ad val.	10% ad val.
	Carbonate <sup>6</sup>	2836.60.0000	2.3% ad val.	8.4% ad val.

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

**Government Stockpile:** None.

**Events, Trends, and Issues:** The demand for barite, as indicated by the ground and crushed barite consumption figures, increased from that recorded in 1994. The increase occurred following increased petroleum prices and stable gas prices and continued high oil and gas price expectations. The drilling in the Gulf of Mexico for deep natural gas deposits in Louisiana, offshore Louisiana, south Texas, offshore Texas and Oklahoma continues unabated. The demand for jack up drilling rigs and semisubmersible drilling rigs in the Gulf of Mexico was strong. There was an increase of 18% in light, sweet crude futures prices from the last week of December 1994 to the week of May 5, 1995, while natural gas prices increased during the same period by 5%. The rotary drill rig count in the United States for December 23, 1994, was 813 rigs and by May 5, 1995 was down to 664, which was also down from a year ago of 719 rigs. Later in 1995, the rig count rose sharply and was reported at 763 rigs for the week of October 13, but was down from 828 rigs for the week of October 14, 1994. The explanation of this decline in drilling rigs along with good barite consumption is attributed to new technologies.<sup>7</sup> Owing to new seismic technology, fewer wells are required to establish and develop reserves. Other technologies, such as horizontal and directional drilling, have reduced the number of wells needed to access a reservoir effectively. Measurement-while-drilling, logging-while-drilling, increased drill bit effectiveness and durability, new well completion techniques, and new well stimulation services have all combined to increase flow rates, reduce well drilling and maintenance costs, and reduce the number of wells while keeping product flowing profitably at present prices.

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Imports for consumption of lower-cost foreign barite surpassed domestic production by more than 120%. Major sources of imported barite are China, India, and Mexico. These countries have high grade deposits, relatively low labor costs, and relatively low (per ton-mile) cost for ocean transportation to the locations of the Gulf coast crusher and grinder plants. China and India have reportedly had problems in their mines, such as floods, diminishing high purity-reserves, and quality control. Often, ocean transportation is lower per ton than rail transportation from Georgia and Missouri to end-use regions. Nevada mines, crushers, and grinders are competitive in the California market and are trying to reenter the Gulf of Mexico market through negotiated railroad tariff reductions.

The principal environmental impact of chemically inert barite is the land disturbance normally associated with mining. Mud pits at petroleum well drilling sites that contain some barite are treated according to the chemical content other than barite. The mud in the pits may be dewatered and covered, dewatered and spread over the ground, or transported to special waste handling facilities depending on the base drilling fluid (water or oil).

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

	Mine production		Reserves <sup>8</sup>	Reserve base <sup>8</sup>
	1994	1995 <sup>e</sup>		
United States	583	600	30,000	60,000
Algeria	45	40	2,000	8,000
Belgium	30	30	1,000	3,000
Brazil	45	45	1,000	2,000
Canada	55	60	11,000	14,600
China	1,500	1,500	38,000	150,000
France	70	75	2,000	2,500
Germany	135	150	1,000	1,500
India	510	400	30,000	32,000
Iran	100	100	NA	NA
Ireland	60	55	1,000	1,500
Italy	60	50	2,000	2,000
Kazakstan	150	150	NA	NA
Mexico	150	180	7,000	8,500
Morocco	265	250	10,000	11,000
Romania	105	100	NA	NA
Thailand	49	60	9,000	15,000
Tunisia	30	30	3,200	5,700
Turkey	140	140	4,000	20,000
United Kingdom	40	40	200	700
Other countries	190	195	21,000	160,000
World total (may be rounded)	4,300	4,250	170,000	500,000

**World Resources:** In the United States, identified resources of barite are estimated to be 150 million tons, and hypothetical resources include an additional 150 million tons. The world's barite resources in all categories are about 2 billion tons, but only about 550 million tons is identified.

**Substitutes:** In the drilling mud market, alternatives to barite include celestite, ilmenite, iron ore, and synthetic hematite that is manufactured in Germany. However, none of these substitutes has had a major impact on the barite drilling mud industry.

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>Sold or used by domestic mines - exports + imports.

<sup>2</sup>Domestic and imported crude barite sold or used by domestic grinding establishments.

<sup>3</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>4</sup>See Appendix B.

<sup>5</sup>Per metric ton.

<sup>6</sup>Per kilogram.

<sup>7</sup>The Oil & Gas Journal, PennWell Publishing Co., Tulsa, OK, v. 93, No. 39, Sept. 25, 1995, pp. 49-55.

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