

## BARITE

(Data in thousand metric tons, unless otherwise noted)

**Domestic Production and Use:** Barite sales by domestic producers totaled about 400,000 tons in 2002, unchanged from 2001, as was the value at about \$12 million. Sales were from three States, with the preponderance coming from Nevada, followed by Georgia and Tennessee. In 2001, an estimated 2.7 million tons of ground barite was sold from six States from domestic production and imports by domestic crushers and grinders. Nearly 98% of the barite sold in the United States was used as a weighting agent in gas- and oil-well-drilling fluids. Shipments went mostly to the gas drilling industry in the Gulf of Mexico and onshore in Louisiana and Texas, which had a little less than 70% of gas production in the conterminous United States. Smaller amounts were used in the western United States, which had about 20% of gas production in the conterminous United States, in western Canada, and in Alaska. Industrial end uses for barite include an additive to cement, rubber, and urethane foam as a weighing material. Barite is also used in automobile paint primer for metal protection and gloss, "leaded" glass, and as the raw material for barium chemicals. In the metal casting industry, barite forms part of the mold-release compounds. Barite also has become part of friction products (brake and clutch pads) for transportation vehicles. Because barite significantly reduces X-rays and gamma rays, it is used in cement vessels that contain radioactive materials, gastrointestinal X-ray "milkshakes," and the faceplate and funnelglass of cathode-ray tubes used for television sets and computer monitors to protect against radiation.

<b>Salient Statistics—United States:</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002<sup>e</sup></b>
Sold or used, mine	476	434	392	400	400
Imports for consumption:					
Crude barite	1,850	836	2,070	2,470	1,270
Ground barite	20	17	16	29	15
Other	13	18	15	13	15
Exports	15	22	36	45	35
Consumption, apparent <sup>1</sup> (crude barite)	2,340	1,280	2,460	2,870	1,670
Consumption <sup>2</sup> (ground and crushed)	1,890	1,370	2,100	2,670	1,900
Price, average value, dollars per ton, mine	22.70	25.60	25.10	25.00	28.80
Employment, mine and mill, number <sup>e</sup>	410	300	330	340	320
Net import reliance <sup>3</sup> as a percentage of apparent consumption	80	66	84	86	76

**Recycling:** None.

**Import Sources (1998-2001):** China, 86%; India, 11%; Canada, 1%; Thailand, 1%; and other, 1%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
			<b>12/31/02</b>
	Crude barite	2511.10.5000	\$1.25/t.
	Ground barite	2511.10.1000	Free.
	Oxide, hydroxide, and peroxide	2816.30.0000	2% ad val.
	Other chlorides	2827.38.0000	4.2% ad val.
	Other sulfates	2833.27.0000	0.6% ad val.
	Other nitrates	2834.29.5000	3.5% ad val.
	Carbonate	2836.60.0000	2.3% ad val.

**Depletion Allowance:** 14% (Domestic and foreign).

**Government Stockpile:** None.

**Events, Trends, and Issues:** Imports for consumption of lower cost barite decreased by an estimated 50% compared with 2001 levels, but still greatly exceeded U.S. production. The major sources of imported barite have high-grade deposits with relatively low labor costs, and relatively low (per ton-mile) ocean transportation to U.S. Gulf Coast grinding plants. The Nevada producers were competitive in the California market, the Great Plains, and the Canadian markets, and will probably continue to utilize local mines for several years. In third quarter 2002 reports to stockholders, three of the four major domestic barite providers reported decreased barite consumption owing to decreased drilling activity. Drilling rig activity declined owing to natural gas price declines and the suspension of offshore drill rig operations caused by Tropical Storm Isidore along parts of the U.S. Gulf Coast.

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Historically, petroleum well drilling has long been a driving force in the demand for barite, but oil well drilling has recently become less important to the demand for barite. The change began in early 1998, when oil-directed drill rig counts declined from about 400 to about 100 rigs in July 1999 owing to about a 40% decline in futures oil prices to less than \$12 per barrel in February 1999.<sup>4</sup> U.S. barite consumption in 1999 was 1.28 million metric tons, down from 2.34 million tons in 1998. U.S. barite consumption in 2002 was about 1.67 million tons, down from about 2.87 million tons in 2001. In 2002, oil-directed drill rigs were nearly constant at 140 rigs for most of the year. In contrast, the U.S. gas-directed drill rig count has been about 80% of the total working rig count since early 1999, and, in response to gas price changes, has been driving the U.S. drill rig count since that time.

Imports of barite were about 700,000 tons for the first 6 months of 2002 and were estimated to be about 600,000 tons for the second half of the year.

**World Mine Production, Reserves, and Reserve Base:** Reserves and reserve base estimates for China and India have been increased based on new information from those countries.

	Mine production		Reserves <sup>5</sup>	Reserve base <sup>5</sup>
	2001	2002 <sup>e</sup>		
United States	400	400	26,000	60,000
Algeria	52	52	9,000	15,000
Brazil	55	60	2,100	5,000
Burma	34	32	NA	NA
China	3,600	3,000	62,000	360,000
France	75	65	2,000	2,500
Germany	120	120	1,000	1,500
India	850	900	53,000	80,000
Iran	185	190	NA	NA
Korea, North	70	70	NA	NA
Mexico	130	130	7,000	8,500
Morocco	320	400	10,000	11,000
Russia	60	60	2,000	3,000
Thailand	57	30	9,000	15,000
Turkey	100	100	4,000	20,000
United Kingdom	60	70	100	600
Other countries	200	270	12,000	160,000
World total (rounded)	6,700	6,000	200,000	750,000

**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 750 million tons are identified.

**Substitutes:** In the drilling mud market, alternatives to barite include celestite, ilmenite, iron ore, and synthetic hematite that is manufactured in Germany. None of these substitutes, however, 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>Oil & Gas Journal, 1998-2002, Baker Hughes [domestic] rig count, U.S. industry scoreboard, futures prices [weekly]: Oil & Gas Journal, various issues, various pages.

<sup>5</sup>See Appendix C for definitions.