

BARITE

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: Barite sales in 1998 decreased slightly from the 1997 level of 692,000 tons to about 660,000 tons, and the value decreased accordingly to about \$18 million. Sales came from six States, with the preponderance coming from Nevada. The second largest producing State was Georgia. About 3.1 million tons of ground barite from both domestic production and imports was sold in 1998 as reported by the domestic grinders and crushers. Nearly 90% of the barite sold in the United States 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, western Canada, and Alaska areas. 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 is part of the mold-release compounds. Barite has become part of the friction products (brake and clutch pads) for transportation vehicles. Because barite strongly reduces x-rays and γ rays, it is used in cement vessels that contain radioactive materials, gastrointestinal x-ray "milkshakes," and the faceplates and funnelglass of cathode-ray tubes used for television sets and computer monitors.

Salient Statistics—United States:	1994	1995	1996	1997	1998^e
Sold or used, mine	583	543	662	692	660
Imports for consumption: Crude barite	1,010	965	1,470	2,210	2,605
Ground barite	58	80	70	34	25
Other	13	10	14	12	13
Exports	14	16	31	22	15
Consumption, apparent ¹ (crude barite)	1,640	1,570	2,170	2,920	3,275
Consumption ² (ground and crushed)	1,250	1,370	1,870	2,180	3,100
Price, average value, dollars per ton, mine	32.76	19.15	22.21	22.45	22.70
Employment, mine and mill, number ^e	350	400	350	380	410
Net import reliance ³ as a percent of apparent consumption	64	65	70	76	80

Recycling: None.

Import Sources (1994-97): China, 78%; India, 14%; Mexico, 4%; Morocco, 2%; and other, 2%.

Tariff:	Item	Number	Normal Trade Relations (NTR)	Non-NTR⁴
			12/31/98	12/31/98
	Crude barite	2511.10.5000	\$1.25/t	\$3.94/t.
	Ground barite	2511.10.1000	\$0.64/t	\$7.38/t.
	Witherite	2511.20.0000	0.6% ad val.	30% ad val.
	Oxide, hydroxide, and peroxide	2816.30.0000	2% ad val.	10.5% ad val.
	Other chlorides	2827.38.0000	4.2% ad val.	28.5% ad val.
	Other sulfates	2833.27.0000	0.6% ad val.	4.2% ad val.
	Other nitrates	2834.29.5000	3.5% ad val.	10% ad val.
	Carbonate	2836.60.0000	2.3% ad val.	8.4% ad val.

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

Government Stockpile: None.

Events, Trends, and Issues: Barite is used primarily in petroleum well drilling and historically has had a positive relationship to petroleum price trends and drill rig usage. The domestic demand for barite continued in the spring of 1998, following expansions in the exploration and development activities both onshore and offshore along the Gulf Coast of the United States in the spring of 1997, and slowed down in the summer of 1998. This slowdown of activity occurred following declines in oil futures prices below normally profitable levels in the United States. The month-to-month price differences from 1997 to 1998 averaged, for light sweet crude oil futures, a decrease of nearly \$6 per barrel, and only \$0.37 per million British Thermal Units (BTU) of natural gas. Oil prices reached critical levels, causing the strong downturn in drilling activity despite relatively stable natural gas futures. Exploration/production drilling in the Gulf of Mexico offshore of Louisiana and Texas for petroleum deposits declined from 142 rigs at the end of February to 111 at the end of October 1998. The average futures price for light sweet crude went from \$16.06 per barrel to \$13.78 per barrel over the same time period of February to October. The average futures natural gas price declined from \$2.21 per million BTU during the first week of March to \$1.97, same basis, in the first week of September.

BARITE

In the United States, estimated barite prices at the mine for the different products sold by the domestic producers were essentially unchanged, exhibiting a price elastic market.

Imports for consumption of lower-cost foreign barite were approximately quadruple domestic production. The major sources of imported barite have high-grade deposits, relatively low labor costs, and relatively low-cost (per ton-mile) ocean transportation (relative to land) to the U.S. Gulf Coast grinding plants. Often the cost of ocean transportation from other continents is lower per ton than the cost of rail transportation from Georgia and Nevada to the end-use regions. Nevada mines, crushers, and grinders are competitive in the California market and sell portions of their production to same-company mills along the U.S. Gulf Coast.

Over the past year, China has had problems with decisions of legal mine control and shipping barite past the Three Gorge Dam construction site.

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

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁵	Reserve base ⁵
	<u>1997</u>	<u>1998^e</u>		
United States	692	660	27,000	60,000
Canada	103	100	11,000	14,600
China	3,500	3,300	35,000	150,000
France	76	80	2,000	2,500
Germany	120	110	1,000	1,500
India	400	450	28,000	32,000
Iran	150	150	NA	NA
Kazakhstan	250	270	NA	NA
Mexico	237	240	7,000	8,500
Morocco	270	250	10,000	11,000
Thailand	55	60	9,000	15,000
Turkey	160	160	4,000	20,000
United Kingdom	100	110	100	600
Other countries	<u>820</u>	<u>260</u>	<u>20,000</u>	<u>161,000</u>
World total (may be rounded)	6,930	6,200	150,000	480,000

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 are identified.

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

^eEstimated. NA Not available.

¹Sold or used by domestic mines - exports + imports.

²Domestic and imported crude barite sold or used by domestic grinding establishments.

³Defined as imports - exports + adjustments for Government and industry stock changes.

⁴See Appendix B.

⁵See Appendix D for definitions.