

BARITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Barite sales by domestic producers were estimated to be about 540,000 tons in 2007 valued at about \$23 million, a decrease in production of about 8% from that of 2006. The majority of production came from three major mines in Nevada followed by a significantly smaller sales volume from a single mine in Georgia. In 2007, about 3.2 million tons of barite (from domestic production and imports) was sold by crushers and grinders in five States. Nearly 95% of the barite sold in the United States was used as a weighting agent in gas and oil-well drilling fluids. The majority of Nevada crude barite was ground in Nevada and then sold to gas drilling customers in Colorado, Utah, and Wyoming. Crude barite was shipped to a Canadian grinding mill in Lethbridge, Alberta, which supplies the Western Canadian drilling mud market. The imports to the Louisiana and Texas ports went primarily to offshore drilling operations in the Gulf of Mexico and to onshore operations in Texas, Louisiana, New Mexico, and Oklahoma. The Gulf of Mexico and these four States account for about 70% of natural gas production in the United States and represent the major regional market for barite.

Barite is also used as a filler, extender, or weighting agent in products such as paints, plastics, and rubber. Some specific applications include its use in automobile brake and clutch pads and automobile paint primer for metal protection and gloss, and to add weight to rubber mudflaps on trucks and to the cement jacket around petroleum pipelines under water. In the metal casting industry, barite is part of the mold-release compounds. Because barite significantly blocks X-ray and gamma-ray emissions, it is used as aggregate in high-density concrete for radiation shielding around X-ray units in hospitals, nuclear powerplants, and university nuclear research facilities. Ultrapure barite consumed as liquid is used as a contrast medium in medical X-ray examinations. It is the raw material for barium chemicals, such as barium carbonate, which is an ingredient in faceplate glass in the cathode-ray tubes of televisions and computer monitors.

<u>Salient Statistics—United States:</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007^e</u>
Sold or used, mine	468	532	489	589	540
Imports for consumption:					
Crude barite	1,620	1,960	2,570	2,530	2,720
Ground barite	(¹)	5	84	1	6
Other	33	34	29	22	14
Exports	44	70	93	72	20
Consumption, apparent ² (crude and ground)	2,080	2,460	3,080	3,070	3,260
Consumption ³ (ground and crushed)	2,230	2,440	2,720	3,040	3,240
Price, average value, dollars per ton, f.o.b. mine	29.70	35.10	35.90	40.00	40.00
Employment, mine and mill, number ^e	340	340	340	330	330
Net import reliance ⁴ as a percentage of apparent consumption	77	78	84	81	83

Recycling: None.

Import Sources (2003-06): China, 90%; India, 8%; and other, 2%.

<u>Tariff: Item</u>	<u>Number</u>	<u>Normal Trade Relations</u> <u>12-31-07</u>
Crude barite	2511.10.5000	\$1.25/t.
Ground barite	2511.10.1000	Free.
Oxide, hydroxide, and peroxide	2816.40.2000	2% ad val.
Other chlorides	2827.39.4500	4.2% ad val.
Other sulfates	2833.27.0000	0.6% ad val.
Carbonate	2836.60.0000	2.3% ad val.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

BARITE

Events, Trends, and Issues: Increasing exploration for natural gas in Colorado, Utah, and Wyoming has fueled increased demand for drilling mud and, consequently, barite. This demand has resulted in two developments—sales of 4.1 specific gravity barite to extend reserves at existing mines in Nevada, and exploration in Montana and Nevada of previously explored or mined barite deposits in order to initiate new mining operations.

Prices of ground barite for the oil and gas market remain high. Almost all barite consumed for drilling in the major U.S. oil and gas producing regions (excluding the Rocky Mountain region) is supplied by imports from China and India. Ocean freight rates remain high, and port congestion remains a problem in Chinese ports causing delays and higher costs. Other factors have adversely affected barite prices, including higher prices for natural gas, which is used to dry barite before grinding, and transportation problems ranging from poor barge availability to higher diesel prices (barges are needed to transport barite from ships to grinding mills).

World Mine Production, Reserves, and Reserve Base: Reserves and reserve base estimates for the United States were revised based on data from a recent paper presented by one of the major Nevada barite producers. Reserve base estimate for Kazakhstan was revised based on a recent Russian Mining Journal article.

	Mine production		Reserves ⁵	Reserve base ⁵
	2006	2007 ^e		
United States	589	540	15,000	45,000
Algeria	53	60	9,000	15,000
Brazil	50	50	2,100	5,000
Bulgaria	80	80	NA	NA
China	4,400	4,400	62,000	360,000
France	30	—	2,000	2,500
Germany	90	85	1,000	1,500
India	950	1,000	53,000	80,000
Iran	290	250	NA	NA
Kazakhstan	⁶ 120	⁶ 120	NA	150,000
Mexico	206	250	7,000	8,500
Morocco	350	600	10,000	11,000
Russia	63	65	2,000	3,000
Thailand	120	5	9,000	15,000
Turkey	180	160	4,000	20,000
United Kingdom	50	50	100	600
Vietnam	120	120	NA	NA
Other countries	220	210	14,000	160,000
World total (rounded)	7,960	8,000	190,000	880,000

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 resources⁵ in all categories are about 2 billion tons, but only about 740 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. None of these substitutes, however, has had a major impact on the barite drilling mud industry.

^eEstimated. NA Not available. — Zero.

¹Less than ½ unit.

²Sold or used by domestic mines – exports + imports.

³Domestic and imported crude barite sold or used by domestic grinding establishments.

⁴Defined as imports – exports + adjustments for Government and industry stock changes.

⁵See Appendix C for definitions.

⁶Estimated marketable barite; however, reported production figures are significantly higher.