

BARITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Barite sales by domestic producers totaled about 540,000 tons in 2006 valued at about \$21 million, an increase in production of about 10% from 2005. 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 2006, an estimated 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. Nevada shipments of ground barite went mostly to Colorado and Wyoming gas drilling customers, but some crude barite was shipped to out-of-State grinding mills. Colorado and Wyoming continued to be prime areas for natural gas exploration; between late October 2005 and late October 2006, the combined rig count in these two States increased from 174 to 193. 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 used as a filler, extender, or weighting agent in products such as paints, plastics, and rubber. Some specific uses include its use in brake and clutch pads for automobiles, 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>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006^e</u>
Sold or used, mine	420	468	532	489	540
Imports for consumption:					
Crude barite	1,510	1,620	1,960	2,570	2,710
Ground barite	5	(¹)	5	84	12
Other	31	33	34	29	15
Exports	47	44	70	93	78
Consumption, apparent ² (crude and ground)	1,920	2,080	2,460	3,080	3,200
Consumption ³ (ground and crushed)	1,980	2,230	2,440	2,720	3,200
Price, average value, dollars per ton, f.o.b. mine	28.90	29.70	35.10	35.90	39.00
Employment, mine and mill, number ^e	320	340	340	340	330
Net import reliance ⁴ as a percentage of apparent consumption	78	77	78	84	83

Recycling: None.

Import Sources (2002-05): China, 90%; India, 8%; and other, 2%.

<u>Tariff: Item</u>	<u>Number</u>	<u>Normal Trade Relations</u> <u>12-31-06</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.
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.

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Events, Trends, and Issues: Fueled by the dramatic increase in oil and gas prices, the increase in domestic exploration (especially for natural gas) has followed suit. The average monthly U.S. rig count has nearly doubled since 2002 (from 830 to 1,636). This increased drilling activity has pushed domestic barite production up by 29% and imports of crude barite up by 79% during the same period. During the same period, the international rig count (excluding the United States) has increased by about 28%.

In an effort to extend barite reserves in Nevada and to hold down future price increases, one of the major oil-service companies introduced a new grade of barite with a slightly lower specific gravity of 4.1 compared with the American Petroleum Institute specific gravity specification of 4.2. The company performed an engineering analysis that showed that on a highly weighted drilling mud, only about an additional 1% of barite will be required to achieve the desired mud weight, and there are no effects on the performance of the typical drilling fluid system. The company started producing the new product in July and has reported no negative feedback from customers.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁵	Reserve base ⁵
	2005	2006 ^e		
United States	489	540	25,000	55,000
Algeria	53	50	9,000	15,000
Brazil	61	60	2,100	5,000
Bulgaria	95	95	NA	NA
China	4,200	4,300	62,000	360,000
France	82	75	2,000	2,500
Germany	95	89	1,000	1,500
India	⁶ 1,000	1,000	53,000	80,000
Iran	280	280	NA	NA
Kazakhstan	120	120	NA	NA
Mexico	275	250	7,000	8,500
Morocco	360	420	10,000	11,000
Russia	63	65	2,000	3,000
Thailand	120	120	9,000	15,000
Turkey	155	200	4,000	20,000
United Kingdom	60	60	100	600
Vietnam	116	110	NA	NA
Other countries	250	250	14,000	160,000
World total (rounded)	7,870	8,080	200,000	740,000

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.

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.

⁶Data are for fiscal year ending March 31 of the year shown.