

BARITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Domestic producers of crude barite sold or used for grinding an estimated 380,000 tons in 2009 valued at about \$20 million, a decrease in production of 41% from that of 2008. Most of the production came from four major mines in Nevada followed by a significantly smaller sales volume from a single mine in Georgia. In 2009, an estimated 1.9 million tons of barite (from domestic production and imports) was sold by crushers and grinders in eight 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 barite imports to Louisiana and Texas ports went primarily to offshore drilling operations in the Gulf of Mexico and to onshore operations in Louisiana, New Mexico, Oklahoma, and Texas. 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.

Salient Statistics—United States:	2005	2006	2007	2008	2009^e
Sold or used, mine	489	589	455	648	380
Imports for consumption	2,690	2,550	2,600	2,620	1,600
Exports	93	72	15	62	40
Consumption, apparent ¹ (crude and ground)	3,080	3,070	3,040	3,210	1,940
Consumption ² (ground and crushed)	2,720	3,040	2,980	2,840	1,900
Price, average value, dollars per ton, f.o.b. mine	35.90	40.00	45.30	47.60	52.00
Employment, mine and mill, number ^e	340	330	330	350	330
Net import reliance ³ as a percentage of apparent consumption	84	81	85	80	80

Recycling: None.

Import Sources (2005-08): China, 93%; India, 5%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12-31-09
Crude barite	2511.10.5000	\$1.25 per metric ton.
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 of barium	2833.27.0000	0.6% 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: Kent Exploration Inc. announced that it had received mine plan approval from the U.S. Bureau of Land Management for the company's Flagstaff, WA, barite property. The approved mine plan permits the mining of a maximum of 100,000 short tons per year of barite from the historic open pit mine on the property. CE Minerals produced about 85,000 short tons of barite from the site in the early 1980s and reported a remaining resource of approximately 1.2 million short tons grading 4.2 specific gravity. During the first year of operation, Kent Exploration planned to test the economics of the project by crushing, separating, and upgrading to 4.1 specific gravity the estimated 30,000 short tons of existing stockpiled barite ore. The company has already signed a supply agreement with a customer for 20,000 short tons per year.⁴

In 2008, oil and gas prices rose dramatically through the first half of the year and peaked in July. The levels of exploration drilling in North America (measured by the count of operating drilling rigs) followed suit, but began to decrease when oil and gas prices started falling. The financial downturn that began in late 2008 and the concurrent global recession pushed oil and gas prices even lower, which resulted in a major decrease in drilling activity. The North American rig count hit its lowest point in early summer of 2009 when less than half the rigs were operating compared with operations in the same period the previous year. In the United States, approximately 80% of drill rigs are exploring for natural gas, and while oil prices recovered to some extent, natural gas prices remained low (under \$3.50 per thousand cubic feet) in the latter part of 2009.

World Mine Production and Reserves: In 2009, the average monthly international rig count decreased by about 30% compared with that of 2008. An estimated 85% of all barite consumed worldwide is used in oil and gas drilling, so estimates for country production were made based on rig count data for lack of any other sources of data.

	Mine production		Reserves ⁵
	<u>2008</u>	<u>2009^e</u>	
United States	648	380	15,000
Algeria	60	40	9,000
Bulgaria	40	30	NA
China	4,600	3,000	62,000
Germany	77	60	1,000
India	1,100	800	34,000
Iran	240	180	NA
Kazakhstan	⁶ 95	⁶ 70	NA
Mexico	140	160	7,000
Morocco	⁷ 500	⁷ 350	10,000
Pakistan	43	35	1,000
Russia	63	50	2,000
Turkey	150	110	4,000
United Kingdom	50	40	100
Vietnam	80	60	NA
Other countries	<u>160</u>	<u>110</u>	<u>24,000</u>
World total (rounded)	8,050	5,500	170,000

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.

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

²Imported and domestic barite, crushed and ground, sold or used by domestic grinding establishments.

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

⁴Kent Exploration Inc., 2009, Kent receives mine plan approval for Flagstaff, WA: Vancouver, British Columbia, Canada, Kent Exploration Inc. press release, May 5, 2 p.

⁵See Appendix C for definitions. Reserve base estimates were discontinued in 2009; see [Introduction](#).

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

⁷Estimated marketable production based on export data.