

BARITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2018, domestic mine production increased by more than 40%, to an estimated 480,000 tons valued at an estimated \$46 million. Most of the production came from Nevada and a single mine in Georgia. An estimated 2.4 million tons of barite (from domestic production and imports) was sold by crushers and grinders operating in seven States. More than 90% of the barite sold in the United States was used as a weighting agent in fluids used in the drilling of oil and natural gas wells. The majority of Nevada crude barite was ground in Nevada and then sold to companies drilling in the Central and Western United States. Offshore drilling operations in the Gulf of Mexico and onshore drilling operations in other regions primarily used imported barite.

Barite also is used as a filler, extender, or weighting agent in products such as paints, plastics, and rubber. Some specific applications include use in automobile brake and clutch pads, automobile paint primer for metal protection and gloss, use as a weighting agent in rubber, and in the cement jacket around underwater petroleum pipelines. 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 is used as a contrast medium in x-ray and computed tomography examinations of the gastrointestinal tract.

Salient Statistics—United States:	2014	2015	2016	2017	2018^e
Production:					
Sold or used, mine	667	433	232	334	480
Ground and crushed ¹	3,410	2,010	1,420	2,030	2,400
Imports for consumption ²	2,700	1,660	1,260	2,220	2,600
Exports ³	161	147	78	116	74
Consumption, apparent (crude and ground) ⁴	3,210	1,950	1,410	2,440	3,000
Estimated price, ground, average value, dollars per ton, f.o.b. mill	191	194	187	179	180
Employment, mine and mill, number	614	458	300	350	410
Net import reliance ⁵ as a percentage of apparent consumption	79	78	84	86	84

Recycling: None.

Import Sources (2014–17): China, 63%; India, 14%; Mexico, 11%; Morocco, 10%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12–31–18
Ground barite	2511.10.1000	Free.
Crude barite	2511.10.5000	\$1.25 per metric ton.
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: In May 2018, the U.S. Department of the Interior, in coordination with other executive branch agencies, published a list of 35 critical minerals (83 FR 23295), including barite. This list was developed to serve as an initial focus, pursuant to Executive Order 13817, “A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals” (82 FR 60835).

Drilling rig counts have historically been an effective barometer of barite consumption. In January, the monthly average number of operating rigs was 937, which increased to 1,063 in October. Sales from grinding plants in all regions, including Louisiana, Texas, and all other States, increased by an estimated 18% compared with 2017. Sales from plants in Texas, which had increased by more than 110% in 2017, increased by more than 45% in 2018. These increases reflected continued recovery in U.S. drilling activity, which has been concentrated in the Permian Basin.

World Mine Production and Reserves: In response to concerns about dwindling global reserves of 4.2-specific-gravity barite used by the oil and gas drilling industry, the American Petroleum Institute issued an alternate specification for 4.1-specific-gravity barite in 2010. This has likely stimulated exploration and expansion of global barite resources. Estimated reserves data are included only if developed since the adoption of the 4.1-specific-gravity standard. Reserves data for China, India, and Pakistan were revised based on Government information.

	Mine production		Reserves ⁶
	<u>2017</u>	<u>2018^e</u>	
United States	334	480	NA
China	3,200	3,200	36,000
India	1,560	2,000	51,000
Iran	550	550	24,000
Kazakhstan	620	620	85,000
Mexico	360	400	NA
Morocco	950	1,000	NA
Pakistan	106	110	30,000
Russia	221	220	12,000
Thailand	148	150	18,000
Turkey	200	290	35,000
Other countries	<u>418</u>	<u>460</u>	<u>29,000</u>
World total (rounded)	8,670	9,500	320,000

World Resources: In the United States, identified resources of barite are estimated to be 150 million tons, and undiscovered resources contribute an additional 150 million tons. The world’s barite resources in all categories are about 2 billion tons, but only about 740 million tons are identified resources. However, no known systematic assessment of either U.S. or global barite resources has been conducted since the 1980s.

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.

¹Imported and domestic barite, crushed and ground, sold or used by domestic grinding establishments.

²Imports calculated from Harmonized Tariff Schedule of the United States codes 2511.10.1000, 2511.10.5000, and 2833.27.0000.

³Exports calculated from Schedule B numbers 2511.10.1000 and 2833.27.0000.

⁴Defined as sold or used by domestic mines + imports – exports.

⁵Defined as imports – exports.

⁶See Appendix C for resource and reserve definitions and information concerning data sources.