

BARITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Numerous domestic barite mining and processing facilities were idled in 2020, and only one company in Nevada mined barite. Production data were withheld to avoid disclosing company proprietary data. An estimated 1.3 million tons of barite (from domestic production and imports) was sold by crushers and grinders operating in seven States. Typically, more than 90% of the barite sold in the United States is 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. Because of the higher cost of rail and truck transportation compared to ocean freight, 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:	2016	2017	2018	2019	2020^e
Production:					
Sold or used, mine	232	334	366	414	W
Ground and crushed ¹	1,420	2,030	2,420	2,350	1,300
Imports for consumption ²	1,260	2,470	2,460	2,550	1,500
Exports ³	78	116	67	38	38
Consumption, apparent (crude and ground) ⁴	1,410	2,680	2,760	2,930	W
Price, average value, ground, ex-works, dollars per ton ^e	187	179	176	179	180
Employment, mine and mill, number	400	450	520	510	350
Net import reliance ⁵ as a percentage of apparent consumption	84	88	87	86	>75

Recycling: None.

Import Sources (2016–19): China, 47%; India, 20%; Morocco, 14%; Mexico, 12%; and other, 7%.

Tariff:	Item	Number	Normal Trade Relations 12–31–20
	Ground barite	2511.10.1000	Free.
	Crude barite	2511.10.5000	\$1.25 per metric ton.
	Barium compounds:		
	Barium oxide, hydroxide, and peroxide	2816.40.2000	2% ad val.
	Barium chloride	2827.39.4500	4.2% ad val.
	Barium sulfate, precipitated	2833.27.0000	0.6% ad val.
	Barium carbonate, precipitated	2836.60.0000	2.3% ad val.

Depletion Allowance: 14% (domestic and foreign).

Government Stockpile: None.

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Events, Trends, and Issues: Domestic consumption of barite as measured by sales of ground barite decreased by an estimated 45% in 2020. World mine production was estimated to have decreased by about 15%. Decreased demand for barite mirrored global trends in oil consumption, which was adversely affected by travel restrictions owing to the global COVID-19 pandemic and reduced demand for transport fuels.

Because of barite's role in drilling for oil and gas, drilling rig counts have historically been a good barometer of barite consumption. In 2020, the total international monthly average rig count excluding the United States peaked in February at 1,334, but began to decline in March, and by the end of October had decreased by 45%. Decreases in drilling activity were greatest in the United States, where the number of active rigs had already begun to decline in 2019. Between October 2019 and October 2020, the monthly average of active rigs decreased by 67%. The largest decrease in rig activity was in the Permian Basin, where drilling activity has been concentrated in recent years. Drilling operations there are primarily supplied by imported barite ground in Texas. Sales of barite from plants in Texas were estimated to have decreased by more than 50%. Only one company mined barite in Nevada in 2020, and domestic production was estimated to have been at its lowest level since the 1930s.

The United States is typically the world's leading barite consumer, and a key trading partner for most of the world's leading barite-producing countries. Decreased U.S. imports coupled with reduced drilling activity in almost all regions likely contributed to decreased mine production in most barite-producing countries. The most notable exception was India, where decreased exports to the United States were estimated to have been offset by increased exports to the Middle East.

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 weighting agents 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 Iran and Pakistan were revised based on company and Government information.

	Mine production		Reserves ⁶
	2019	2020 ^e	
United States	414	W	NA
China	2,800	2,500	36,000
India	2,000	2,000	51,000
Iran	202	200	100,000
Kazakhstan	597	600	85,000
Laos	440	330	NA
Mexico	384	280	NA
Morocco	1,100	800	NA
Pakistan	110	110	40,000
Russia	160	160	12,000
Turkey	250	130	35,000
Other countries	418	340	30,000
World total (rounded)	8,870	77,500	390,000

World Resources:⁶ 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 quantitative 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. W Withheld to avoid disclosing company proprietary data.

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

²Includes data for the following Harmonized Tariff Schedule of the United States codes: 2511.10.1000, 2511.10.5000, and 2833.27.0000.

³Includes data for the following Schedule B codes: 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.

⁷Excludes U.S. production.