BARITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2022, three companies mined barite in Nevada. Two mines resumed production after having been idle for years, one since 2016 and one since 2020. Mine production increased, but data were withheld to avoid disclosing company proprietary data. The barite assets (two mines and one grinding plant) of a fourth company in Nevada were acquired by a gold-mining company that bought the properties for water and rail access but did not intend to resume barite production. An estimated 2.1 million tons of barite (from domestic production and imports) was sold by crushers and grinders operating in nine States. A company based in Turkey invested $10 million to construct a new grinding plant in Moundsville, WV.

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, in automobile paint primer for metal protection and gloss, 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:	**2018**	**2019**	**2020**	**2021**	**2022[e]**
Production:					
Sold or used, mine	366	414	W	W	W
Ground and crushed[1]	2,420	2,350	1,410	1,670	2,100
Imports for consumption[2]	2,460	2,500	1,480	1,660	2,300
Exports[3]	67	38	48	62	89
Consumption, apparent (crude and ground)[4]	2,760	2,880	W	W	W
Price, average unit value, ground, ex-works, dollars per metric ton	176	179	183	167	170
Employment, mine and mill, number[e]	520	480	350	330	360
Net import reliance[5] as a percentage of apparent consumption	87	86	>75	>75	>75

Recycling: None.

Import Sources (2018–21): China,[6] 38%; India, 29%; Morocco, 16%; Mexico, 13%; and other, 4%.

Tariff: Item	**Number**	**Normal Trade Relations 12–31–22**
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 valorem.
Barium chloride	2827.39.4500	4.2% ad valorem.
Barium sulfate, precipitated	2833.27.0000	0.6% ad valorem.
Barium carbonate, precipitated	2836.60.0000	2.3% ad valorem.

Depletion Allowance: 14% (domestic and foreign).

Government Stockpile: None.

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Events, Trends, and Issues: Historically, rig counts have been a good barometer of barite consumption. In 2022, the monthly average rig count in all regions except for Europe generally increased throughout the year. Through October, the world annual average rig count excluding the United States was 1,050, an increase of 15% compared with that in 2021. In all regions except for Canada, the average annual rig count remained below averages in 2019, before the coronavirus disease 2019 (COVID-19) pandemic. Increases in worldwide rig counts contributed to an estimated 17% increase in world barite production. In the United States, the annual average rig count increased by nearly 50% in 2022. This trend was reflected in domestic sales of ground barite, which were estimated to have increased by 26%. In addition to increased rig counts, barite consumption in the United States was likely supported by a decrease in the number of drilled-but-uncompleted (DUC) wells, which the U.S. Energy Information Administration began tracking in 2014. The number of DUC wells reached its highest level in June 2020, but by September 2022 had reached its lowest level since the inception of the count.

In April, the leading barite mining company in India completed its barite tender that is held every 3 years. Buyers compete for the company's barite production, which is offered in several grades—A-grade with a minimum specific gravity of 4.2, B-grade with a minimum specific gravity of 4.1, and C-, D-, and W-grades, with no guarantee as to specific gravity, but which typically exceeded 3.9. Prices for A- and B-grades increased by about 30% to 45%, or approximately $25 per metric ton. Three U.S. companies reportedly signed agreements to purchase a total of 1.6 million tons of barite.

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. Estimated reserves data were included only if developed since the adoption of the 4.1-specific-gravity standard. Reserves for China were revised based on Government reports.

	Mine production		Reserves[7]
	2021	2022[e]	
United States	W	W	NA
China	2,100	1,900	37,000
India	1,600	2,600	51,000
Iran	224	220	100,000
Kazakhstan	450	500	85,000
Mexico	321	320	NA
Morocco	1,100	1,300	NA
Russia	150	150	12,000
Turkey	258	300	35,000
Other countries	528	580	70,000
World total (rounded)	[8]6,730	[8]7,900	NA

World Resources:[7] 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.

Substitutes: In the oil- and gas-well-drilling industry, alternatives to barite include celestite, ilmenite, iron ore, and synthetic hematite that is manufactured in Germany. However, substitutes have been used in relatively small amounts, and barite remains the preferred choice for drilling applications.

[e]Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

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

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

[3]Includes data for the following Schedule B codes: 2511.10.1000 and 2833.27.0000.

[4]Defined as mine production (sold or used) + imports – exports.

[5]Defined as imports – exports.

[6]Includes Hong Kong.

[7]See Appendix C for resource and reserve definitions and information concerning data sources.

[8]Excludes U.S. production.