



2022 Minerals Yearbook

BARITE [ADVANCE RELEASE]

U.S. Geological Survey, Reston, Virginia: 2025

For more information on the USGS—the Federal source for science about the Earth, its natural and living resources, natural hazards, and the environment—visit <https://www.usgs.gov> or call 1–888–392–8545.

For an overview of USGS information products, including maps, imagery, and publications, visit <https://store.usgs.gov/> or contact the store at 1–888–275–8747.

Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Although this information product, for the most part, is in the public domain, it also may contain copyrighted materials as noted in the text. Permission to reproduce copyrighted items must be secured from the copyright owner.

BARITE

By Robert C. Goodin

Domestic survey data and tables were prepared by Ashley M. Weatherford, statistical assistant.

In 2022, primary U.S. barite production (sold or used by producers) increased, but quantity and value data were withheld to avoid disclosing company proprietary information. Ground barite sold or used by producers, a reasonable indication of consumption, was 2.22 million metric tons (Mt), an increase of 33% from 1.67 Mt in 2021. General imports were 1.89 Mt, and exports were 86,500 metric tons (t). World barite production was 8.16 Mt, an increase of 23% from 6.64 Mt (revised) in 2021 (tables 1, 3, 5, 6).

Barite's primary use was as a weighting agent in oil- and gas-drilling fluids, and so trends in sales of ground barite generally mirrored trends in active drilling rig counts (fig. 1). This use typically accounted for more than 90% of domestic consumption according to reports from domestic barite crushers and grinders and approximately 70% of global consumption. In 2020, global oil consumption was affected adversely by travel restrictions owing to the global coronavirus disease 2019 (COVID-19) pandemic and reduced demand for transport fuels. In 2022, easing of pandemic-related travel restrictions resulted in global crude oil production increasing by 6% from that in 2021, but remained 3% below 2019 levels. Similarly, the worldwide average rig count increased by 28% to 1,747 from 1,361 in 2021 but remained well below counts from before the COVID-19 pandemic. In the United States, the annual average rig count was 721 in 2022, a 52% increase from 475 in 2021 but still 24% below the annual average rig count of 944 in 2019 (World Bank Group, 2020, p. 19; Baker Hughes Co., 2024; U.S. Energy Information Administration, 2024; Barytes Association, The, undated).

Barite is the mineralogical name for barium sulfate (BaSO_4). In commerce, the mineral is sometimes referred to as barytes. In this chapter, the term "primary barite" refers to the first marketable product, which includes crude barite that has undergone simple beneficiation methods, such as jigging, tabling, and washing, or more complex methods, such as flotation, heavy-media separation, or magnetic separation. Most barite ores require some upgrading to achieve minimum commercial purity or density levels.

Production

Domestic production and sales data for barite were derived from voluntary responses to a U.S. Geological Survey (USGS) canvass. Responses were received from three of the four mining operations that operated during the year, which represented 91% of domestically mined barite sold or used at company grinding mills. All of the mines were in Nevada. Data were received from 19 of the 22 grinding mills that operated during the year, which represented 87% of the quantity of ground barite sold. Estimates for nonrespondents were made using prior year and other industry data.

In 2022, most of the leading companies that mined and ground barite in the United States were also major oil-service companies. Information on active U.S. barite mines and grinding mills can be found in table 2. Crude barite production increased in 2022 compared with that in 2021, but quantity and value data were withheld to avoid disclosing company proprietary information.

Most Nevada barite ore was ground at nearby company-owned grinding mills. In addition to the 4 grinding mills in Nevada, 13 grinding mills operated along the coast of the Gulf of Mexico (5 in Louisiana and 8 in Texas). These stand-alone grinding mills processed imported crude barite that was ground primarily to American Petroleum Institute (API) specifications for the oil- and gas-drilling market, although some was ground for other uses. An additional six grinding mills in California, the Midwest, and the Southeast ground barite for use as extenders, fillers, pigments, and other uses and produced API-grade barite for the oil- and gas-drilling market.

Consumption

In 2022, domestic apparent consumption of barite increased, but data were withheld to avoid disclosing company proprietary information (table 1). Total sales of ground barite (sold or used by processors) were 2.22 Mt, an increase of 33% compared with 1.67 Mt in 2021. Sales in Louisiana increased by 57% to 760,000 t, those in Texas increased by 23% to 803,000 t, and sales by mills in all other States combined increased by 22% to 656,000 t (table 3). More than 90% of the barite sales from domestic crushers and grinders were for oil- and gas-drilling markets, and the remaining sales were for other industrial end uses.

Drilling fluids, also known as muds, perform a number of functions in well drilling including controlling formation pressure, cooling and lubricating the drill bit, maintaining wellbore stability, removing formation cuttings, and transmitting hydraulic energy to the bit. Drilling fluids typically are made up of liquid and solid phases. The primary role of barite in drilling fluids was as a solid-state weighting agent. To maintain formation pressure, deeper wells require more heavily weighted muds, and therefore a higher percentage of barite or an alternative higher specific gravity (SG) weighting agent in the mud mix. Barite is ground to a small, uniform size, based on specifications set by the API, before use as a weighting agent in drilling mud (Williamson, 2013).

In addition to a high SG, other advantageous properties of barite include low abrasion, chemical and physical inertness, low oil absorption, low solubility, nontoxicity, and a relatively low cost when compared to alternatives. An additional benefit of barite is that it does not interfere with magnetic measurements taken in the borehole, either during logging-while-drilling or in subsequent drill-hole logging. The most common weighting

material alternatives included calcium carbonate, hematite, ilmenite, and manganese tetroxide, but are often more expensive and consequently reserved for specific applications. For all of these reasons, barite has been the leading choice for use as a weighting agent in oil and gas drilling, and available substitutes have not significantly displaced barite in this application (Offenbacher and others, 2023, p. 2).

Industrial end uses, such as barium chemicals, filler in paint and plastics, and powder coatings, require barite be ground to a small, uniform size. The required size depends on the application, but for paint- and plastic-grade material, grain size was approximately 2 to 3 micrometers. Barite-containing materials were used for sound reduction in engine compartments in automobiles, boats, and trucks. Barite was used in the base coat of automobile finishes for smoothness and corrosion resistance and continued to be used in friction products for automobiles and trucks. Barite also was used as an aggregate in “heavy” concrete or radiation-shielding concrete, barite in these applications was crushed and screened to sizes ranging from 4.75 millimeters (0.187 inches) to 3.75 centimeters (1.5 inches).

Prices

Because domestic barite-mining companies sold very little crude barite, value data for crude barite were largely estimated. The average unit value for crude barite from domestic mines and their associated beneficiation plants was withheld to avoid disclosing company proprietary data (table 1).

Value data for ground barite, as reported to the USGS, do not necessarily represent open market prices. Because oil-service companies owned many of the U.S. barite grinding mills, barite often was sold to customers at a reduced price or at cost because the barite was merely a small part of the overall service contract. Taking this reduced cost into account when comparing prices with those in 2021, the average unit value for barite ground in Louisiana increased by more than \$3 per metric ton to \$136 per metric ton; the average unit value for barite ground in Texas decreased by more than \$23 per metric ton to \$139 per metric ton; and the unit value of barite ground in other States decreased by more than \$42 per metric ton to \$162 per metric ton (table 3). The unit value of sales for barite used in chemicals, glass, paint, rubber, and other filler decreased by more than \$40 per metric ton to \$402 per ton in 2022. The average unit value for drilling-grade barite decreased by almost \$3 per metric ton to \$130 per metric ton.

According to published prices for API-grade 4.20-SG unground lump barite from major exporting countries, the 2022 annual average free on board (f.o.b.) price for barite from China was \$110 per metric ton compared with \$100 per metric ton in 2021. The f.o.b. import price for barite from Chennai, India, was \$115 per metric ton compared with \$93 per metric ton in 2021. The f.o.b. import price for barite from Morocco was \$107 per metric ton compared with \$92 per metric ton in 2021 (Fastmarkets, 2023).

Transportation

Since 2014, annual U.S. net import reliance for barite has exceeded 75%. Most crude barite imports were shipped in

handymax-size bulk carriers (typically 35,000- to 60,000-t deadweight tonnage). After being ground to API specifications, barite was transferred from grinding mills to onshore or offshore drilling platforms using some combination of barges, rail, or trucks. Imported ground barite shipped via ocean freight typically was shipped in containers (McRae, 2018, 2023).

As a bulk commodity used primarily for its weight, transportation expenses are a substantial component of the final cost of barite used on a per ton basis, accounting for approximately 30% of final cost. To maximize shipping cost efficiency for the dry-bulk ocean leg of the journey, shipment sizes have increased over time to 60,000 t in recent years. Although this practice reduces cost per ton, it also can be an impediment to smaller barite suppliers being able to enter the market, as they may not be able to supply barite in larger quantities.

Foreign Trade

The U.S. Census Bureau provides two different measures for imports—general imports and imports for consumption. General imports measure merchandise that enters the United States regardless of whether it immediately enters consumption channels, bonded warehouses, or foreign trade zones (FTZs). Imports for consumption, however, are recorded only for merchandise that enters consumption channels. Therefore, merchandise that enters bonded warehouses and FTZs is not recorded until it is withdrawn. The normal duty rate on U.S. imports of crude barite [Harmonized Tariff Schedule of the United States (HTS) code 2511.10.5000] was \$1.25 per metric ton, but imports of ground barite (HTS code 2511.10.1000) were free from duty. Imports for consumption classify imported crude barite that was subsequently ground in an FTZ as ground, thereby avoiding the tariff. As a result, the major importers of crude barite applied for and received FTZ status for many of their grinding mills in the United States. Imports for consumption data tend to be very similar to USGS reported sales of ground barite sold or used by processors. Conversely, general imports recorded crude barite received from foreign suppliers as crude barite regardless of where it entered the United States. The 10 grinding mills that were located in FTZs are identified in table 2.

Because of the carrying cost of stocking barite, barite processors try to minimize inventory. Consequently, in most years, there has been little difference in the quantity of barite reported by general imports and imports for consumption. However, sudden changes in oil- and gas-drilling can cause the two metrics to decouple. For example, in 2020, COVID-19 pandemic-related travel restrictions quickly and dramatically reduced global demand for oil, which in turn affected drilling activity and barite consumption. In 2020, imports for consumption were 1.48 Mt, 71% more than general imports, which were 869,000 t. In 2022, imports for consumption only exceeded general imports by 23% (table 1).

In 2022, barite exports (natural barium sulfate and other sulfates of barium, the chemically precipitated form of barite) were 86,500 t, a 40% increase from that in 2021. The leading recipients of barite exports from the United States were Canada (74%), Mexico (18%), and Guyana (3%) (table 5).

The United States historically has been the world's leading barite importer. In 2022, general imports of barite (crude and ground natural barium sulfate, and precipitated barium sulfate) totaled 1.89 Mt, an increase of 31% from those in 2021 (tables 1, 6). This was more than double that of Saudi Arabia, the world's second-leading importer. In 2022, India supplied 49% of domestic general imports, followed by China (23%), Morocco (14%), and Mexico (13%). Crude barite accounted for 86% of general imports, and 89% of ground barite imports were from Mexico. Imports of the several forms of barite reported under the HTS nomenclature "Other sulfates of barium," the chemically precipitated form of barite used primarily in specialty applications, were 16,100 t, essentially unchanged from those in 2021 (table 6; Zen Innovations AG, 2024).

Environment

Common impurities in drilling-grade barite include chert, dolomite, quartz, siderite, and metallic oxide and sulfide compounds. These impurities are usually insoluble and, as a result, standards limiting their concentrations have not been developed. In addition, the API standard does not address heavy-metal impurities, but barite derived from base-metal deposits can contain heavy metals, such as cadmium and mercury, and discharges of these often are regulated by environmental laws. For example, U.S. environmental regulations on offshore drilling allow drilling waste discharges containing barite only if the barite contains less than 3 parts per million (ppm) cadmium and less than 1 ppm mercury (Argonne National Laboratory, ChevronTexaco, and Marathon Oil Company, 2009).

World Review

Estimated world barite production, excluding the United States, was 8.16 Mt in 2022, an increase of 23% compared with 6.64 Mt (revised) in 2021 (table 8). The top three leading barite-producing countries—China, India, and Morocco—were also the world's leading exporters. Production in these countries accounted for 71% of world production (Zen Innovations AG, 2024).

China.—China was the second-ranked producer of barite after India. Production in 2022 was estimated to be 1.9 Mt, a 10% decrease from that in 2021 (table 8). This decrease was attributed to China's domestic policies, which since 2018 have sought to strengthen environmental protection and consolidate mining operations. These actions reportedly led to the closure of approximately 80% of China's smaller barite mines and have affected the availability of drilling-grade barite for export more than exports of industrial-grade barite used in chemical production, paint, rubber, and other fillers. Prior to these restrictions being implemented, drilling-grade barite typically accounted for approximately 75% of exports, and industrial-grade barite accounted for the remaining 25%. In 2021, drilling-grade barite accounted for 47% of exports, and industrial-grade barite accounted for 53% (Liao, 2022, p. 4–7).

India.—India was the world's leading barite producer. Production in 2022 was estimated to be 2.7 Mt, a 69% increase from that in 2021 (table 8). As of January 2015 (the last month that the Indian Bureau of Mines collected barite production and stock statistics), low-grade stocks were 4.9 Mt. Numerous private companies have experimented with

improved beneficiation techniques and (or) blending low-grade ore with higher grade ore to produce a marketable product (Indian Bureau of Mines, 2017, p. 3–6).

In April, the leading barite mining company in India completed its barite tender that has been held every 3 years. Buyers competed for the company's barite production, which was 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 31% and 36%, respectively (Pradesh, 2022).

Laos, Thailand, and Vietnam.—Prior to the COVID-19 pandemic, Laos had started to emerge as a significant new global source of barite for the export market. Production peaked in 2019 at 486,009 t (table 8). As a landlocked country, exports from Laos were shipped through neighboring countries such as China, Thailand, or Vietnam. In 2022, production increased by more than five times from that in 2021 to an estimated 200,000 t, as pandemic-related border closures were eased (but was still below the 2019 production).

Laos, Thailand, and Vietnam all have long histories of barite production. In addition, Thailand and Vietnam each had companies with capacity to grind and process barite for the oil- and gas-drilling industry, of which a few companies reportedly had supply agreements with mines in Laos, particularly in Vientiane Province near Kasi. Because of these relationships and trade logistics, it has been difficult to ascertain where domestic barite imports from these southeast Asian countries originated, although most are thought to originate in Laos.

Morocco.—Morocco was the third-ranked barite-producing country in the world. Production in Morocco was an estimated 1.2 Mt in 2022, a 43% increase from that in 2021 (table 8). Increased exports were facilitated by ongoing initiatives to expand roads and port facilities to accommodate larger shipments. However, demand for larger shipments increased lead times to prepare larger orders and led to localized supply shortages (Laghzali, 2022, p. 14–16, 22–23).

Outlook

Barite's properties, including low abrasion, chemical and physical inertness, high SG, low oil absorption, and low solubility, as well as it being less expensive than alternatives, have made it the leading choice for use as a weighting agent in oil and gas drilling. Available substitutes are not expected to significantly displace barite for the foreseeable future. Long-term barite consumption therefore is expected to be commensurate with trends in oil and gas production and consumption.

Travel restrictions imposed in response to the COVID-19 pandemic contributed to significant decreases in total global oil consumption and production in 2020 and 2021 compared with consumption and production in 2019. Throughout 2022 and expected to continue into 2023, increased oilfield activity led to increased global production of barite. Although oilfield activity has been increasing, it has not recovered back to 2019 levels. The U.S. Energy Information Administration expected these trends to continue through at least 2024, which would likely contribute to increased consumption of barite (U.S. Energy Information Administration, 2023, p. 1–3; Baker Hughes Co., 2024).

References Cited

- Argonne National Laboratory, ChevronTexaco, and Marathon Oil Company, 2009, Fact sheet—Discharge to ocean: Argonne National Laboratory, ChevronTexaco, and Marathon Oil Company, Drilling Waste Management Information System. (Accessed December 9, 2024, at <https://www.oilandgasbmps.org/viewpub.php?id=38>.)
- Baker Hughes Co., 2024, Worldwide rig counts—Current & historical data: Houston, TX, Baker Hughes Co. (Accessed May 17, 2024, via <https://rigcount.bakerhughes.com/intl-rig-count>.)
- Barytes Association, The, [undated], What is barytes?—Introduction: Brussels, Belgium, The Barytes Association. (Accessed May 17, 2024, at <https://www.barytes.org/barytes/>.)
- Fastmarkets, 2023, Fastmarkets dashboard: Fastmarkets. (Accessed April 28, 2023, via <https://auth.fastmarkets.com/>.)
- Indian Bureau of Mines, 2017, Minor minerals—Barytes, chap. 3 of Part III—Mineral reviews (final release): Nagpur, India, Indian Minerals Yearbook 2015, v. III, 11 p. (Accessed March 24, 2022, at [http://ibm.nic.in/writereaddata/files/08092017094858Barytes2015\(Final\).pdf](http://ibm.nic.in/writereaddata/files/08092017094858Barytes2015(Final).pdf).)
- Laghzali, Youssef, 2022, Moroccan barite development & outlook: INFORMED [Industrial Mineral Forums & Research Ltd.] Oilfield Minerals & Markets Forum Houston 2022, Houston, TX, May 23–25, 2022, presentation, 25 p.
- Liao, Ying, 2022, Barite supply development in China and Mexico: INFORMED [Industrial Mineral Forums & Research Ltd.] Oilfield Minerals & Markets Forum Houston 2022, Houston, TX, May 23–25, 2022, 14 p.
- McRae, M.E., 2018, Barite: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 28–29.
- McRae, M.E., 2023, Barite: U.S. Geological Survey Mineral Commodity Summaries 2023, p. 38–39.
- Offenbacher, M., Broussard, L., and Eisenman, T., 2023, Supply chain chaos—Securing barite aftermath of the pandemic: 2023 American Association of Drilling Engineers National Technical Conference and Exhibition, Midland, TX, April, 6 p.
- Pradesh, Andhra, 2022, Record revenue from barytes auction: The New Indian Express [Vijayawada, India], April 21. (Accessed April 17, 2024, at <https://www.newindianexpress.com/states/andhra-pradesh/2022/Apr/22/record-revenue-from-barytes-auction-2445058.html>.)
- U.S. Energy Information Administration, 2023, Short-term energy outlook: Washington, DC, U.S. Energy Information Administration, January, 49 p. (Accessed May 17, 2024, at <https://www.eia.gov/outlooks/steo/archives/Jan23.pdf>.)

- U.S. Energy Information Administration, 2024, Short-term energy outlook data browser: Washington, DC, U.S. Energy Information Administration, May 7. (Accessed May 17, 2024, at <https://www.eia.gov/outlooks/steo/data/browser/>.)
- Williamson, Don, 2013, Drilling fluid basics: Houston, TX, Oilfield Review 25, no. 1, Spring. (Accessed May 17, 2024, at <https://www.slb.com/-/media/files/oilfield-review/defining-drilling-fluids.ashx>.)
- World Bank Group, 2020, Commodity markets outlook—Persistence of commodity shocks: Washington, DC, World Bank Group, October, 83 p. (Accessed May 17, 2024, at <https://openknowledge.worldbank.org/bitstream/handle/10986/34621/CMO-October-2020.pdf>.)
- Zen Innovations AG, 2024, Global Trade Tracker: Bern, Switzerland, Zen Innovations AG.

GENERAL SOURCES OF INFORMATION

U.S. Geological Survey Publications

- Barite. Ch. in Mineral Commodity Summaries, annual.
- Barite (Barium). Ch. in Critical Mineral Resources of the United States—Economic and Environmental Geology and Prospects for Future Supply, Professional Paper 1802, 2017.
- Historical Statistics for Mineral and Material Commodities in the United States. Data Series 140, 2005.

Other

- Barite. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.
- Barium Minerals. Ch. in Industrial Minerals and Rocks (7th ed.), Society for Mining, Metallurgy, and Exploration, Inc., 2006.
- Barytes. British Geological Survey Mineral Profile, September 2005.
- Economics of Barytes, The (10th ed.). Roskill Information Services Ltd., 2006.

TABLE 1
SALIENT BARITE STATISTICS¹

(Thousand metric tons and thousand dollars)

	2018	2019	2020	2021	2022
United States:					
Barite, primary:					
Crude, sold or used by producers:					
Quantity	366	414	W	W	W
Value ^e	40,300	45,700	W	W	W
Exports: ²					
Quantity	67	38	48	62	86
Value	20,100	12,800	14,900	21,200	25,400
General imports: ^{3,4}					
Quantity	1,980	2,330	869	1,440	1,890
Value	252,000	292,000	142,000	206,000	289,000
Imports for consumption: ^{3,5}					
Quantity	2,460	2,500	1,480	1,660	2,330
Value	284,000	311,000	194,000	215,000	324,000
Consumption, apparent ⁶	2,760	2,880	W	W	W
Crushed and ground, sold or used by processors: ⁷					
Quantity	2,420	2,350	1,410	1,670	2,220
Value	426,000	420,000	257,000	280,000	321,000
World, production ⁸	8,430 ^r	8,500 ^r	5,910 ^r	6,640 ^r	8,260

^eEstimated. ^rRevised. W Withheld to avoid disclosing company proprietary data.

¹Table includes data available through June 8, 2023. Data are rounded to no more than three significant digits.

²Exports include crude, ground, and other barite exports calculated from Schedule B numbers 2511.10.0000 and 2833.27.0000.

³Imports include crude, ground, and other barite imports calculated from Harmonized Tariff Schedule of the United States codes 2511.10.1000, 2511.10.5000, and 2833.27.0000.

⁴General import data report the form of imported barite at the time it enters the United States.

⁵Imports for consumption data report crude barite processed in free trade zones as ground.

⁶Defined as primary barite sold or used by producers plus imports for consumption minus exports.

⁷From domestically mined and imported crude barite.

⁸May include estimated data.

TABLE 2
BARITE MINES AND GRINDING MILLS IN THE UNITED STATES IN 2022¹

State and operator (owner)	County or parish	Mine or mill	Foreign trade zone
Mines:			
Nevada:			
Halliburton Energy Services, Inc. (Halliburton Co.)	Elko	Rossi	XX.
M-I LLC, operating as M-I SWACO (Schlumberger Ltd.)	Lander	Greystone	XX.
Do.	do.	Mountain Springs	XX.
Progressive Contracting Inc.	Elko	Coyote	XX.
Grinding mills:			
California, Industrial Minerals Co.	Sacramento	Florin	XX.
Georgia, CIMBAR Performance Minerals, Inc.	Murray	Chatsworth	XX.
Indiana, CIMBAR Performance Minerals, Inc.	Posey	Mt. Vernon	XX.
Louisiana:			
Baker Hughes Drilling Fluids (Baker Hughes Inc.)	St. Mary	Morgan City	No. 124, Gramercy, LA.
CIMBAR Performance Minerals, Inc.	Iberia	New Iberia	Do.
Halliburton Energy Services, Inc. (Halliburton Co.)	Calcasieu	Lake Charles	No. 087, Lake Charles, LA.
Do.	Lafourche	Larose	No. 124, Gramercy, LA.
M-I LLC, operating as M-I SWACO (Schlumberger Ltd.)	St. Mary	Amelia	Do.
Nevada:			
Halliburton Energy Services, Inc. (Halliburton Co.)	Eureka	Dunphy	XX.
M-I LLC, operating as M-I SWACO (Schlumberger Ltd.)	Lander	Battle Mountain	XX.
Drilling Mineral Industries, LLC	Elko	Osino	XX.
Ohio:			
CIMBAR Performance Minerals, Inc.	Columbiana	Wellsville	XX.
Do.	Washington	Marietta	XX.
Tennessee, CIMBAR Performance Minerals, Inc.	Dyer	Dyersburg	XX.
Texas:			
CIMBAR Performance Minerals, Inc. ²	Nueces	Corpus Christi - CC	No. 122, Corpus Christi, TX.
Do. ³	do.	Corpus Christi - TC	Do.
CIMBAR Performance Minerals, Inc.	Harris	Houston	XX.
Do.	do.	do.	XX.
CIMBAR Performance Minerals, Inc.	Nueces	Corpus Christi	No. 122, Corpus Christi, TX.
Halliburton Energy Services, Inc. (Halliburton Co.)	do.	do.	Do.
Milwhite Inc. (Control MINAR, S.A. de C.V.)	Cameron	Brownsville	XX.
Superior Weighting Products, LLC (CES Energy Solutions Corp.)	Nueces	Corpus Christi	No. 122, Corpus Christi, TX.

Do., do. Ditto. XX Not applicable.

¹Table includes data available through June 5, 2023.

²Processed barite for use in oil-and-gas drilling fluids.

³Processed barite for use in paint.

TABLE 3
CRUSHED AND GROUND BARITE SOLD OR USED BY PROCESSORS IN THE UNITED STATES, BY STATE^{1,2}

State	2021			2022		
	Number of plants	Quantity (thousand metric tons)	Value (thousands)	Number of plants	Quantity (thousand metric tons)	Value (thousands)
Louisiana	5	483	\$63,900	5	760	\$103,000
Texas	8	652	106,000	8	803	111,000
Other ³	10	538	110,000	10	656	107,000
Total	23	1,670	280,000	23	2,220	321,000

¹Table includes data available through June 5, 2023. Data are rounded to no more than three significant digits; may not add to totals shown.

²From domestically mined and imported crude barite.

³Includes California, Georgia, Indiana, Nevada, Ohio, and Tennessee.

TABLE 4
CRUSHED AND GROUND BARITE SOLD OR USED BY PROCESSORS IN THE UNITED STATES, BY USE^{1, 2}

Use	2021		2022	
	Quantity (thousand metric tons)	Value (thousands)	Quantity (thousand metric tons)	Value (thousands)
Barium chemicals, filler and (or) extender, glass, paint, rubber	W	W	W	W
Well drilling	W	W	W	W
Total	1,670	\$280,000	2,220	\$321,000

W Withheld to avoid disclosing company proprietary data.

¹Table includes data available through June 5, 2023. Data are rounded to no more than three significant digits.

²From domestically mined and imported crude barite.

TABLE 5
U.S. EXPORTS OF NATURAL BARIUM SULFATE (BARITE), BY COUNTRY OR LOCALITY^{1, 2}

Country or locality	2021		2022	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Canada	39,800	\$8,610	64,400	\$13,400
China	88	59	263	161
Colombia	83	60	729	325
El Salvador	526	525	1,660	1,060
Guadeloupe	549	227	47	20
Guyana	5,210	2,040	2,450	697
Mexico	14,500	8,950	15,400	8,870
Peru	--	--	122	52
Thailand	271	110	1,050	256
Other ³	512 ^r	592 ^r	445	573
Total	61,600	21,200	86,500	25,400

^rRevised. -- Zero.

¹Table includes data available through June 5, 2023. Data are rounded to no more than three significant digits; may not add to totals shown.

²Exports calculated from Schedule B numbers 2511.10.0000 and 2833.27.0000.

³Includes countries and (or) localities with less than 100 metric tons each.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS OF BARITE, BY COUNTRY OR LOCALITY^{1, 2}

Country or locality	Imports for consumption ³				General imports ⁴			
	2021		2022		2021		2022	
	Quantity (metric tons)	Value ⁵ (thousands)	Quantity (metric tons)	Value ⁵ (thousands)	Quantity (metric tons)	Value ⁵ (thousands)	Quantity (metric tons)	Value ⁵ (thousands)
Crude:								
Canada	84	\$31	532	\$55	84	\$31	532	\$55
China	167,000	27,400	286,000	45,000	322,000	44,900	427,000	61,700
Germany	--	--	1,080	30	--	--	1,080	30
Hong Kong	5,180	159	--	--	5,180	159	--	--
India	71,800	7,050	289,000	33,700	396,000	42,900	904,000	104,000
Mexico	53,100	6,650	35,600	5,030	82,900	9,270	35,600	5,030
Morocco	138,000	14,100	19,100	1,950	432,000	41,300	257,000	28,500
Pakistan	--	--	--	--	10,100	1,740	--	--
United Kingdom	5,340	170	3,910	120	5,340	170	3,910	120
Vietnam ⁶	--	17,400	--	24,400	--	17,400	--	24,400
Other [2 countries and (or) localities]	423 ^r	16 ^r	11	15	423 ^r	16 ^r	11	15
Total	441,000	73,000	635,000	110,000	1,250,000	158,000	1,630,000	223,000
Ground:								
China	345,000	33,900	227,000	24,300	174	171	180	229
Germany	2,700	2,660	2,530	3,380	2,700	2,660	2,530	3,380
India	393,000	37,700	785,000	82,700	9,000	1,030	19,400	2,850
Mexico	184,000	21,200	217,000	29,200	152,000	18,800	217,000	29,200
Morocco	267,000	20,500	440,000	43,600	3,000	367	--	--
Netherlands	151	195	123	101	151	195	123	101
Pakistan	9,970	1,700	--	--	--	--	--	--
Turkey	441	260	4,160	1,840	441	260	4,160	1,840
United Kingdom	37	34	675	117	37	34	675	117
Other [4 countries and (or) localities]	47 ^r	24 ^r	31	12	47 ^r	24 ^r	31	12
Total	1,200,000	118,000	1,680,000	185,000	168,000	23,500	244,000	37,700
Other sulfates of barium:								
China	6,380	5,420	7,150	7,360	6,380	5,420	7,150	7,360
Finland	15	21	--	--	15	21	--	--
Germany	4,370	11,500	4,380	12,900	4,370	11,500	4,380	12,900
Hong Kong	198	192	--	--	198	192	--	--
India	14	57	45	111	14	57	45	111
Italy	4,060	4,950	3,890	6,170	4,060	4,950	3,890	6,170
Japan	747	2,090	544	1,640	747	2,090	544	1,640
Malaysia	--	--	16	25	--	--	16	25
Spain	9	17	--	--	9	17	--	--
Switzerland	60	45	61	99	60	45	61	99
Other [3 countries and (or) localities]	13 ^r	34 ^r	3	11	13 ^r	34 ^r	3	11
Total	15,900	24,300	16,100	28,300	15,900	24,300	16,100	28,300
Grand total	1,660,000	215,000	2,330,000	324,000	1,440,000	206,000	1,890,000	289,000

^rRevised. -- Zero.

¹Table includes data available through June 5, 2023. Data are rounded to no more than three significant digits; may not add to totals shown.

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

³Imports for consumption data report crude barite processed in free trade zones as ground.

⁴General import data report the form of imported barite at the time it enters the United States.

⁵Cost, insurance, and freight value.

⁶Referred to U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF BARIUM CHEMICALS^{1,2}

	2021		2022	
	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)
Barium chloride	1,620	\$1,690	588	\$748
Barium oxide, hydroxide, peroxide	3,400	6,260	3,410	8,480
Barium carbonate, precipitated	1,590	3,150	1,940	3,940

¹Table includes data available through June 5, 2023. Data are rounded to no more than three significant digits.

²Imports calculated from Harmonized Tariff Schedule of the United States codes 2816.40.2000, 2827.39.4500, and 2836.60.0000.

³Cost, insurance, and freight value.

Source: U.S. Census Bureau.

TABLE 8
BARITE: WORLD PRODUCTION, BY COUNTRY OR LOCALITY¹

(Metric tons)

Country or locality ²	2018	2019	2020	2021	2022
Algeria, crude	39,426 ³	31,138	32,940	33,000 ^e	33,000 ^e
Argentina	7,225	3,898	4,000 ^e	4,000 ^e	4,000 ^e
Australia	6,534	1,982	--	1,127	3,922
Bolivia	53,163	39,458	9,611	26,781 ^r	49,000
Bulgaria ^c	70,000	72,000	41,000	72,000	75,000
Burma	2,935	13,045	2,642	2,220	2,200
Canada ^e	40,000	40,000	50,000	50,000	50,000
China ^c	2,400,000	2,300,000	1,700,000	2,100,000	1,900,000
Ecuador	2,868	3,000 ^e	3,000 ^e	3,000 ^e	3,000 ^e
Germany	37,897	30,474	26,656	27,921 ^r	28,000 ^e
Guatemala	63	60 ^e	--	--	--
India ^c	2,390,000	2,100,000	1,600,000	1,600,000	2,700,000
Iran	201,721	224,412	288,341 ^r	290,000 ^r	300,000 ^e
Kazakhstan	570,000 ^e	530,600	445,300	600,000 ^{r,e}	650,000 ^e
Laos	230,000 ^e	486,009	96,278	37,403	302,709
Liberia	--	12,000 ^e	-- ^e	--	--
Mexico	366,234	378,295	372,262	320,642	315,736
Morocco, crude	899,365	1,100,000 ^e	501,939 ^r	840,486 ^r	1,200,000 ^e
Nigeria	83	348	390 ^r	460 ^r	500
Pakistan	99,286	85,992	88,054 ^r	83,749 ^r	84,000 ^e
Peru	15,621	16,373	5,252	10,361	29,293
Russia	163,000	228,000	287,000	250,000 ^{r,e}	250,000 ^e
Slovakia	9,500	5,770	-- ^r	-- ^r	--
Thailand	67,490	33,644	22,394	4,988 ^r	5,000 ^e
Turkey, crude and ground	335,473	299,000 ^e	283,161 ^r	256,076 ^r	250,000 ^e
United Kingdom	55,000	50,000	50,000	27,000 ^r	27,000 ^e
United States, crude ⁴	366,000	414,000	W	W	W
Total	8,430,000 ^r	8,500,000 ^r	5,910,000 ^r	6,640,000 ^r	8,260,000

^cEstimated. ^rRevised. W Withheld to avoid disclosing company proprietary data; not included in total. -- Zero.

¹Table includes data available through June 8, 2023. All data are reported unless otherwise noted; totals may include estimated data. Totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the countries and (or) localities listed, Afghanistan, Egypt, Italy, Vietnam, and some other countries and (or) localities may have produced barite, but available information was inadequate to make reliable estimates of output.

³Data as reported by the Algeria Office of National Statistics only included production from state-owned entities.

⁴Crude barite sold or used by producers.

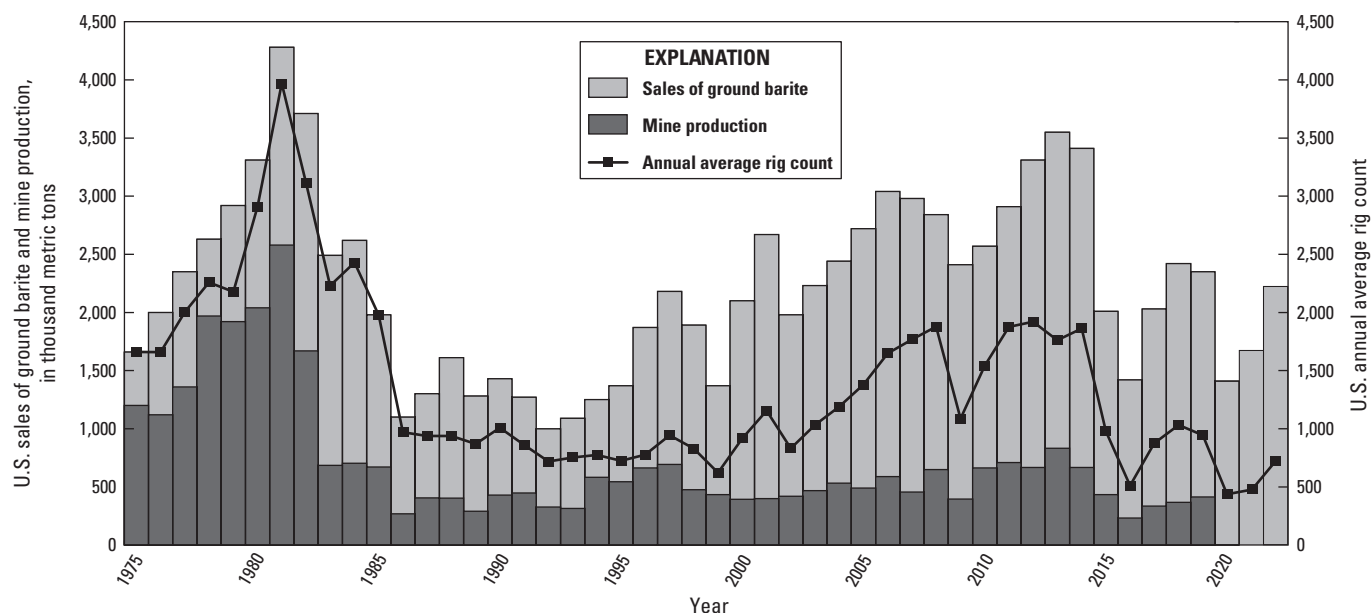


Figure 1. Historical trends in sales of ground barite, mine production of barite, and annual average rig count in the United States from 1975 through 2022. Sales of ground barite include domestically mined and imported crude barite. Mine production data in 2020 through 2022 were withheld to avoid disclosing company proprietary information. Sources: Baker Hughes Co. and U.S. Geological Survey.