

# DIATOMITE

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** In 2022, production of diatomite, also known as diatomaceous earth, was estimated to be 1.1 million tons with an estimated processed value of \$450 million, free on board (f.o.b.) plant. Six companies produced diatomite at 12 mining areas and 9 processing facilities in California, Nevada, Oregon, and Washington. Approximately 55% of diatomite is used in filtration products. The remaining 45% is used in absorbents, fillers, lightweight aggregates, and other applications. A small amount, less than 1%, is used for specialized pharmaceutical and biomedical purposes. The unit value of diatomite varied widely in 2022, from approximately \$10 per ton when used as a lightweight aggregate in portland cement concrete to more than \$1,000 per ton for limited specialty markets, including art supplies, cosmetics, and deoxyribonucleic acid (DNA) extraction. The price for diatomite used for filtration was approximately \$550 per ton.

## **Salient Statistics—United States:**

	<b><u>2018</u></b>	<b><u>2019</u></b>	<b><u>2020</u></b>	<b><u>2021</u></b>	<b><u>2022<sup>e</sup></u></b>
Production <sup>1</sup>	957	768	822	998	1,100
Imports for consumption	9	10	14	14	13
Exports	68	66	66	68	60
Consumption, apparent <sup>2</sup>	898	712	770	944	1,100
Price, average value, f.o.b. plant, dollars per ton	330	340	330	410	430
Employment, mine and plant, number <sup>e</sup>	370	370	370	370	370
Net import reliance <sup>3</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** None.

**Import Sources (2018–21):** Canada, 62%; Mexico, 13%; Germany, 10%; Argentina, 5%; Japan, 5%; and other, 5%.

<b><u>Tariff:</u></b>	<b><u>Item</u></b>	<b><u>Number</u></b>	<b><u>Normal Trade Relations</u></b>
	Siliceous fossil meals, including diatomite	2512.00.0000	<b><u>12–31–22</u></b> Free.

**Depletion Allowance:** 14% (domestic and foreign).

**Government Stockpile:** None.

**Events, Trends, and Issues:** The amount of domestically produced diatomite sold or used by producers in 2022 was 10% higher than that in 2021. Apparent domestic consumption in 2022 was estimated at 1.1 million tons, 17% more than that in 2021. Exports were estimated to have decreased by 12%. The United States remained the leading global producer and consumer of diatomite. Filtration (including the purification of beer, liquors, and wine and the cleansing of greases and oils) continued to be the leading end use for diatomite. An important application for diatomite is the removal of microbial contaminants, such as bacteria, protozoa, and viruses in public water systems. Domestically, diatomite used in the production of cement was the second-ranked use. Other applications for diatomite include filtration of human blood plasma, pharmaceutical processing, and use as a nontoxic insecticide.

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In 2022, the United States accounted for an estimated 44% of total world production; followed by Denmark with 16%; China with 6%; and Argentina, Mexico, and Turkey, each with 4%. Smaller quantities of diatomite were mined in 21 additional countries. The production of diatomite in 2022 remained about the same as that in 2021.

**World Mine Production and Reserves:** Reserves for China and the Republic of Korea were revised based on Government reports.

	Mine production <sup>e</sup>		Reserves <sup>4</sup>
	<u>2021</u>	<u>2022</u>	
United States <sup>1</sup>	998	1,100	250,000
Argentina	100	100	NA
China	140	140	150,000
Denmark <sup>5</sup> (processed)	420	400	NA
France	75	80	NA
Germany	50	50	NA
Japan	40	40	NA
Korea, Republic of	65	65	2,300
Mexico	96	100	NA
New Zealand	40	40	NA
Peru	85	85	NA
Russia	51	50	NA
Spain	50	50	NA
Turkey	100	100	44,000
Other countries	<u>140</u>	<u>140</u>	<u>NA</u>
World total (rounded)	2,450	2,500	Large

**World Resources:**<sup>4</sup> Diatomite deposits form from an accumulation of amorphous hydrous silica cell walls of dead diatoms in oceanic and fresh waters. Diatomite is also known as kieselguhr (Germany), tripolite (after an occurrence near Tripoli, Libya), and moler (an impure Danish form). Because U.S. diatomite occurrences are at or near Earth's surface, recovery from most deposits is achieved through low-cost, open pit mining. Outside the United States, however, underground mining is fairly common owing to deposit location and topographic constraints. World resources of crude diatomite are adequate for the foreseeable future.

**Substitutes:** Many materials can be substituted for diatomite. However, the unique properties of diatomite assure its continued use in many applications. Expanded perlite and silica sand compete for filtration. Filters made from manufactured materials, notably ceramic, polymeric, or carbon membrane filters and filters made with cellulose fibers, are becoming competitive as filter media. Alternate filler materials include clay, ground limestone, ground mica, ground silica sand, perlite, talc, and vermiculite. For thermal insulation, materials such as various clays, exfoliated vermiculite, expanded perlite, mineral wool, and special brick can be used. Transportation costs will continue to determine the maximum economic distance that most forms of diatomite may be shipped and still remain competitive with alternative materials.

<sup>e</sup>Estimated. E Net exporter. NA Not available.

<sup>1</sup>Processed ore sold or used by producers.

<sup>2</sup>Defined as production + imports – exports.

<sup>3</sup>Defined as imports – exports.

<sup>4</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>5</sup>Includes sales of moler production.