

DIATOMITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2021, production of diatomite, also known as diatomaceous earth, was estimated to be 830,000 tons with an estimated processed value of \$274 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 2021, 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.

Salient Statistics—United States:

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021^e</u>
Production ¹	768	957	768	822	830
Imports for consumption	9	9	10	14	14
Exports	87	68	68	66	70
Consumption, apparent ²	690	898	710	770	770
Price, average value, f.o.b. plant, dollars per ton	360	330	340	330	330
Employment, mine and plant, number ^e	360	370	370	370	370
Net import reliance ³ as a percentage of apparent consumption	E	E	E	E	E

Recycling: None.

Import Sources (2017–20): Canada, 68%; Mexico, 12%; Germany, 10%; Argentina, 4%; and other, 6%.

<u>Tariff:</u>	<u>Item</u>	<u>Number</u>	<u>Normal Trade Relations</u>
	Siliceous fossil meals, including diatomite	2512.00.0000	<u>12-31-21</u> 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 2021 was essentially unchanged compared with that in 2020. Apparent domestic consumption in 2021 was the same at an estimated 770,000 tons; exports were estimated to have increased by 6%. 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. Other applications for diatomite include filtration of human blood plasma, pharmaceutical processing, and use as a nontoxic insecticide. Domestically, diatomite used in the production of cement was the second-ranked use. Despite disruptions caused by the global COVID-19 pandemic, the production of diatomite through 2021 remained about the same as that in 2020.

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In 2021, the United States accounted for an estimated 36% of total world production; followed by Denmark with 17%; Turkey with 9%; China with 6%; and Argentina, Mexico, and Peru, each with 4%. Smaller quantities of diatomite were mined in 21 additional countries.

World Mine Production and Reserves:

	Mine production		Reserves ⁴
	2020	2021 ^e	
United States ¹	822	830	250,000
Argentina	94	90	NA
China	140	140	110,000
Denmark ⁵ (processed)	400	400	NA
France	75	75	NA
Germany	52	50	NA
Japan	40	40	NA
Korea, Republic of	26	50	NA
Mexico	96	100	NA
New Zealand	40	40	NA
Peru	91	90	NA
Russia	51	50	NA
Spain	50	50	NA
Turkey	220	200	44,000
Other countries	120	120	NA
World total (rounded)	2,320	2,300	Large

World Resources:⁴ 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.

^eEstimated. E Net exporter. NA Not available.

¹Processed ore sold or used by producers.

²Defined as production + imports – exports.

³Defined as imports – exports.

⁴See Appendix C for resource and reserve definitions and information concerning data sources.

⁵Includes sales of moler production.