

DIATOMITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2019, production of diatomite was estimated to be 980,000 tons with an estimated processed value of \$330 million, f.o.b. plant. Six companies produced diatomite at 12 mining areas and 9 processing facilities in California, Nevada, Oregon, and Washington. Approximately 60% of diatomite is used in filtration products. The remaining 40% 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 2019, 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 DNA extraction.

Salient Statistics—United States:	2015	2016	2017	2018	2019^e
Production ¹	832	686	768	957	980
Imports for consumption	7	8	9	9	10
Exports	74	66	87	68	72
Consumption, apparent ²	765	628	690	898	920
Price, average value, dollars per ton, f.o.b. plant	290	280	360	330	340
Employment, mine and plant, number ^e	345	350	360	370	370
Net import reliance ³ as a percentage of apparent consumption	E	E	E	E	E

Recycling: None.

Import Sources (2015–18): Canada, 75%; Mexico, 11%; Germany, 9%; Japan, 2%; and other, 3%.

Tariff:	Item	Number	Normal Trade Relations 12–31–19
	Siliceous fossil meals, including diatomite	2512.00.0000	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 2019 increased slightly compared with that of 2018. Apparent domestic consumption increased slightly in 2019 to an estimated 920,000 tons; exports increased by an estimated 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, also known as diatomaceous earth. 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.

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In 2019, the United States was the leading producer of diatomite, accounting for an estimated 34% of total world production, followed by Denmark and China with 15% each, Turkey with 6%, the Republic of Korea with 5%, Peru with 4%, and Mexico with 3%. Smaller quantities of diatomite were mined in 23 additional countries.

World Mine Production and Reserves:

	Mine production		Reserves ⁴
	<u>2018</u>	<u>2019^e</u>	
United States ¹	957	980	250,000
Argentina	70	70	NA
China	420	420	110,000
Denmark ⁵ (processed)	440	440	NA
France	75	80	NA
Germany	52	50	NA
Japan	40	40	NA
Korea, Republic of	134	130	NA
Mexico	96	100	NA
New Zealand	40	40	NA
Peru	110	110	NA
Russia	47	50	NA
Spain	50	50	NA
Turkey	170	170	44,000
Other countries	<u>143</u>	<u>170</u>	<u>NA</u>
World total (rounded)	2,840	2,900	Large

World Resources: 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.