

**DIATOMITE**

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** In 2018, production of diatomite was estimated to be 790,000 tons with an estimated processed value of \$300 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 2018, 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.

<b>Salient Statistics—United States:</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018<sup>e</sup></b>
Production <sup>1</sup>	901	832	686	768	790
Imports for consumption	4	7	8	9	10
Exports	82	75	66	87	72
Consumption, apparent <sup>2</sup>	823	765	628	690	728
Price, average value, dollars per ton, f.o.b. plant	300	290	280	360	380
Employment, mine and plant, number <sup>e</sup>	750	750	750	750	750
Net import reliance <sup>3</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** None.

**Import Sources (2014–17):** Canada, 75%; Mexico, 11%; Germany, 7%; Japan, 3%; and other, 4%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
	Siliceous fossil meals, including diatomite	2512.00.0000	<u>12–31–18</u> Free.

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

**Government Stockpile:** None.

## DIATOMITE

**Events, Trends, and Issues:** The amount of domestically produced diatomite sold or used by producers in 2018 increased by an estimated 3% compared with that of 2017. Apparent domestic consumption increased by 6% in 2018 to an estimated 728,000 tons; exports decreased by an estimated 17%. The United States remained the leading global consumer. 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.

In 2018, the United States was the leading producer of diatomite, accounting for 29% of total world production, followed by Denmark with 16%, China with 15%, South Africa with 10%, and Japan, Mexico, and Peru with 4% each. Smaller quantities of diatomite were mined in 20 additional countries.

### **World Mine Production and Reserves:**

	Mine production		Reserves <sup>4</sup>
	<u>2017</u>	<u>2018<sup>e</sup></u>	
United States <sup>1</sup>	768	790	250,000
Argentina	57	60	NA
China	420	420	110,000
Denmark <sup>5</sup> (processed)	440	440	NA
France	75	75	NA
Germany	52	50	NA
Japan	100	100	NA
Mexico	97	100	NA
Peru	110	110	NA
South Africa	NA	270	NA
Spain	50	50	NA
Turkey	62	60	44,000
Other countries	<u>224</u>	<u>220</u>	<u>NA</u>
World total (rounded)	2,460	2,700	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.

<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.