WOLLASTONITE

(Data in metric tons unless otherwise noted)

Domestic Production and Use: Wollastonite was mined by two companies in New York during 2020. U.S. production of wollastonite (sold or used by producers) was withheld to avoid disclosing company proprietary data but was estimated to have remained essentially unchanged from that of 2019. Economic resources of wollastonite typically form as a result of thermal metamorphism of siliceous limestone during regional deformation or chemical alteration of limestone by siliceous hydrothermal fluids along faults or contacts with magmatic intrusions. Deposits of wollastonite have been identified in Arizona, California, Idaho, Nevada, New Mexico, New York, and Utah; however, New York is the only State where long-term continuous mining has taken place.

The U.S. Geological Survey does not collect consumption statistics for wollastonite, but consumption was estimated to have decreased in 2020, compared with that of 2019. Ceramics (frits, sanitaryware, and tile), friction products (primarily brake linings), metallurgical applications (flux and conditioner), paint (architectural and industrial paints), plastics and rubber markets (thermoplastic and thermoset resins and elastomer compounds), and miscellaneous uses (including adhesives, concrete, glass, and sealants) accounted for wollastonite sales in the United States.

In ceramics, wollastonite decreases shrinkage and gas evolution during firing; increases green and fired strength; maintains brightness during firing; permits fast firing; and reduces crazing, cracking, and glaze defects. In metallurgical applications, wollastonite serves as a flux for welding, a source for calcium oxide, a slag conditioner, and protects the surface of molten metal during the continuous casting of steel. As an additive in paint, it improves the durability of the paint film, acts as a pH buffer, improves resistance to weathering, reduces gloss and pigment consumption, and acts as a flatting and suspending agent. In plastics, wollastonite improves tensile and flexural strength, reduces resin consumption, and improves thermal and dimensional stability at elevated temperatures. Surface treatments are used to improve the adhesion between wollastonite and the polymers to which it is added. As a substitute for asbestos in floor tiles, friction products, insulating board and panels, paint, plastics, and roofing products, wollastonite is resistant to chemical attack, stable at high temperatures, and improves flexural and tensile strength.

Salient Statistics—United States: The United States was thought to be a net exporter of wollastonite in 2020. Comprehensive trade data were not available for wollastonite because it is imported and exported under generic Harmonized Tariff Schedule of the United States and Schedule B codes, respectively, that include multiple mineral commodities. Prices for domestically produced wollastonite were estimated to be between $360 to $390 per metric ton. Price data for globally produced wollastonite were unavailable. Products with finer grain sizes and acicular (highly elongated) particles sold for higher prices. Surface treatment, when necessary, also increased the selling price. Approximately 60 people were employed at wollastonite mines and mills in 2019 (excluding office workers).

Recycling: None.

Import Sources (2016–19): Comprehensive trade data were not available, but wollastonite was primarily imported from Canada, China, India, and Mexico.

Tariff: Item	**Number**	**Normal Trade Relations 12–31–20**
Mineral substances not elsewhere specified or included	2530.90.8050	Free.

Depletion Allowance: 10% (domestic and foreign).

Government Stockpile: None.

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WOLLASTONITE

Events, Trends, and Issues: Construction starts of new housing units through July 2020, increased by 4.7% compared with those during the same period in 2019, suggesting that sales of wollastonite to domestic construction-related markets, such as adhesives, caulks, cement board, ceramic tile, paints, stucco, and wallboard, might have increased. However, sales of wollastonite to most other major markets in which wollastonite is used were estimated to have decreased. Owing to disruptions caused by the COVID-19 pandemic, production of motor vehicles and parts, which contain wollastonite in friction products and plastic and rubber components, decreased in the first 7 months of 2020; plastics and rubber production decreased by 33% each; and primary iron and steel production decreased by 19% compared with those in the same period of 2019.

Globally, ceramics, polymers (such as plastics and rubber), and paint accounted for most wollastonite sales. Lesser global uses for wollastonite included miscellaneous construction products, friction materials, metallurgical applications, and paper. Global sales of wollastonite were estimated to be in the range of 830,000 to 880,000 tons, slightly lower than those in 2019.

World Mine Production and Reserves: More countries than those listed may produce wollastonite; however, many countries do not publish wollastonite production data.

	Mine production		Reserves[1]
	2019	2020[e]	
United States	W	W	World reserves of wollastonite exceed 100 million tons. Many deposits, however, have not been surveyed, precluding accurate estimates of reserves.
Canada	20,000	20,000	
China	890,000	890,000	
India	170,000	120,000	
Mexico	101,000	100,000	
Other countries	17,000	17,000	
World total (rounded)[2]	1,200,000	1,100,000	

World Resources:[1] Reliable estimates of wollastonite resources do not exist for most countries. Large deposits of wollastonite have been identified in China, Finland, India, Mexico, and the United States. Smaller, but significant, deposits have been identified in Canada, Chile, Kenya, Namibia, South Africa, Spain, Sudan, Tajikistan, Turkey, and Uzbekistan.

Substitutes: The acicular nature of many wollastonite products allows it to compete with other acicular materials, such as ceramic fiber, glass fiber, steel fiber, and several organic fibers, such as aramid, polyethylene, polypropylene, and polytetrafluoroethylene, in products where improvements in dimensional stability, flexural modulus, and heat deflection are sought. Wollastonite also competes with several nonfibrous minerals or rocks, such as kaolin, mica, and talc, which are added to plastics to increase flexural strength, and such minerals as barite, calcium carbonate, gypsum, and talc, which impart dimensional stability to plastics. In ceramics, wollastonite competes with carbonates, feldspar, lime, and silica as a source of calcium and silica. Its use in ceramics depends on the formulation of the ceramic body and the firing method.

[e]Estimated. W Withheld to avoid disclosing company proprietary data.

[1]See Appendix C for resource and reserve definitions and information concerning data sources.

[2]Excludes U.S. production.