WOLLASTONITE
(Data in metric tons unless otherwise noted)

Domestic Production and Use: Wollastonite was mined by two companies in New York. Domestic deposits of wollastonite have been identified in Arizona, California, Idaho, Nevada, New Mexico, New York, and Utah, but New York is the only State where long-term continuous mining has taken place.

The USGS does not collect consumption statistics for wollastonite. Plastics and rubber markets (thermoplastic and thermoset resins and elastomer compounds), were estimated to have accounted for more than 25% of U.S. use of wollastonite, followed by ceramics (frits, sanitaryware, and tile), paint (architectural and industrial paints), metallurgical applications (flux and conditioner), friction products (primarily brake linings), and miscellaneous uses (including adhesives, concrete, glass, and sealants). Globally, ceramics were estimated to account for more than 30% of sales, followed by polymers and paint. Lesser global uses for wollastonite also included miscellaneous construction products, friction materials, and metallurgical applications.

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 its resistance to weathering, reduces gloss, reduces pigment consumption, and acts as a flattening 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 the 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, inert, stable at high temperatures, and improves flexural and tensile strength.

Salient Statistics—United States: U.S. production was withheld to protect company proprietary data. In 2014, U.S. production and apparent consumption increased compared with those in 2013. Comprehensive trade data are not available (the United States was a net exporter of wollastonite). Exports were estimated to be less than 8,000 tons and imports probably were less than 4,000 tons in 2014. Prices for wollastonite were reported in the trade literature to range from $80 to $440 per metric ton. Products with finer grain sizes and acicular (highly elongated) particles sold for higher prices. Surface treatment, when necessary, also increased the selling price.

Recycling: None.

Import Sources (2010–13): Comprehensive trade data are not available, but wollastonite was imported from China, Finland, India, and Mexico.

Tariff: Item Number Normal Trade Relations 12–31–14
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:** U.S. production and consumption of wollastonite increased in 2014. Exports probably increased slightly and imports may have declined slightly in 2014. Sales to domestic construction-related markets, such as adhesives, caulks, cement board, ceramic tile, paints, stucco, and wallboard, were likely to have increased in 2014 because of growth in residential and commercial construction. With increased domestic manufacturing, sales of wollastonite to the manufacturing industries, such as metal casting and processing, paint, plastics, and rubber, probably increased in 2014. In Western Europe, demand for wollastonite may have increased just slightly in 2014 because of the effect of economic uncertainties on construction and manufacturing. Consumption in Asia continued to increase, although at a slower pace than in 2013.

Despite receiving voter approval for a State proposition to allow the leading U.S. producer of wollastonite to explore and mine 81 hectares of land in the Adirondack Forest Preserve adjacent to its current mine, a restraining order was issued by the Albany County (New York) Supreme Court suspending any exploration activity, pending further review.

**World Mine Production and Reserves:** Production data for wollastonite are not available for many countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>2013e</th>
<th>2014e</th>
<th>Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>W</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>300,000</td>
<td>300,000</td>
<td>World reserves of wollastonite were estimated to exceed 90 million tons. Many deposits, however, have not been surveyed, making accurate reserve estimates unavailable.</td>
</tr>
<tr>
<td>Finland</td>
<td>11,500</td>
<td>11,500</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>160,000</td>
<td>145,000</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>55,000</td>
<td>55,000</td>
<td></td>
</tr>
<tr>
<td>Other countries</td>
<td>8,000</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>World total</td>
<td>535,000</td>
<td>520,000</td>
<td></td>
</tr>
</tbody>
</table>

**World Resources:** World resources have not been estimated for wollastonite. Large deposits of wollastonite were in China, Finland, India, Mexico, and the United States. Smaller, but significant, deposits were 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.

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*a*Estimated. W Withheld to avoid disclosing company proprietary data.

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

2Excludes U.S. production.

3Refined concentrate production.