

## VERMICULITE

(Data in thousand metric tons, unless otherwise noted)

**Domestic Production and Use:** Two companies with mining and processing facilities produced vermiculite concentrate. One company had its operation in South Carolina, and the other company had an operation in Virginia and an operation in South Carolina (which was operated by its subsidiary company). Most of the vermiculite concentrate was shipped to 18 exfoliating plants in 10 States. The end uses for exfoliated vermiculite were estimated to be agricultural, insulation, and other, 73%; and lightweight concrete aggregates (including cement premixes, concrete, and plaster), 27%.

<b>Salient Statistics—United States:</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003<sup>e</sup></b>
Production <sup>1</sup>	<sup>e, 2</sup> 150	<sup>e, 3</sup> 150	NA	NA	<sup>4</sup> 100
Imports for consumption <sup>e</sup>	71	59	65	56	48
Exports <sup>e</sup>	13	5	7	10	10
Consumption, apparent, concentrate	<sup>e</sup> 208	<sup>e</sup> 204	NA	NA	138
Consumption, exfoliated <sup>e</sup>	175	165	140	115	110
Price, base value, concentrate, dollars per ton, ex-plant <sup>5</sup>	143	143	143	143	143
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, mine and mill, number <sup>e</sup>	130	120	100	90	90
Net import reliance <sup>6</sup> as a percentage of apparent consumption	<sup>e</sup> 28	<sup>e</sup> 26	NA	NA	28

**Recycling:** Insignificant.

**Import Sources (1999-2002):** South Africa, 73%; China, 25%; and other, 2%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12/31/03</b>
Vermiculite, perlite and chlorites, unexpanded	2530.10.0000	Free.
Exfoliated vermiculite, expanded clays, foamed slag, and similar expanded materials	6806.20.0000	Free.

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

**Government Stockpile:** None.

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**Events, Trends, and Issues:** Stansbury Holdings Corp. indicated that it might not pursue its vermiculite activities in Montana but instead concentrate on its garnet operation. The company had done some initial mining and processing of vermiculite at its Dillon, MT, and Los Banos, CA, operations.<sup>7</sup>

During the past 2 or 3 years, concern had been expressed over vermiculite supplied from the mine near Libby, MT, including material that was used in attic insulation. The mine was closed in 1990 but had previously been a major supplier of the mineral. In May 2003, the U.S. Environmental Protection Agency issued guidelines and information on vermiculite insulation used in some home attics. If homeowners are concerned about vermiculite insulation in their attic, the guidelines recommend leaving the material undisturbed, if possible. Any dealing with or removing of the insulation should be handled by professionals.<sup>8</sup>

### **World Mine Production, Reserves, and Reserve Base:**

	Mine production		Reserves <sup>9</sup>	Reserve base <sup>9</sup>
	2002	2003 <sup>e</sup>		
United States	NA	<sup>4</sup> 100	25,000	100,000
Brazil	22	23	NA	NA
China	50	50	NA	NA
Russia	25	25	NA	NA
South Africa	210	220	14,000	80,000
Zimbabwe	24	20	NA	NA
Other countries	45	42	11,000	20,000
World total (rounded)	<sup>10</sup> 376	480	50,000	200,000

**World Resources:** Marginal reserves of vermiculite that occur in Colorado, Nevada, North Carolina, Texas, and Wyoming are estimated to be 2 million to 3 million tons.

**Substitutes:** Expanded perlite is a substitute for vermiculite in lightweight concrete and plaster. Other more dense but less costly material substitutes in these applications are expanded clay, shale, slate, and slag. Alternate materials for loosefill fireproofing insulation include fiberglass, perlite, and slag wool. In agriculture, substitutes include peat, perlite, sawdust, bark and other plant materials, and synthetic soil conditioners.

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>Concentrate sold and used by producers.

<sup>2</sup>Moeller, E.M., 2000, Vermiculite: Mining Engineering, v. 52, no. 6, June, p. 66-67.

<sup>3</sup>Moeller, E.M., 2001, Vermiculite: Mining Engineering, v. 53, no. 6, June, p. 6.

<sup>4</sup>U.S. Geological Survey estimate.

<sup>5</sup>Industrial Minerals magazine, yearend prices.

<sup>6</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>7</sup>Industrial Minerals, 2003, Stansbury drops Montana vermiculite to focus on garnet: Industrial Minerals, no. 426, March, p. 10.

<sup>8</sup>U.S. Environmental Protection Agency, 2003, Current best practices for vermiculite attic insulation—May 2003, accessed November 4, 2003, at URL <http://www.epa.gov/asbestos/insulation.html>.

<sup>9</sup>See Appendix C for definitions.

<sup>10</sup>Does not include U.S. data.