

## VERMICULITE

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** Two companies with mining and processing facilities in South Carolina and Virginia produced vermiculite concentrate. Most of the vermiculite concentrate was shipped to 17 exfoliating plants in 11 States. The end uses for exfoliated vermiculite were estimated to be agricultural, insulation, and other, 74%; and lightweight concrete aggregates (including cement premixes, concrete, and plaster), 26%.

<b>Salient Statistics—United States:</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006<sup>e</sup></b>
Production <sup>e,1</sup>	100	110	<sup>2</sup> 100	100	100
Imports for consumption <sup>e</sup>	56	37	69	91	50
Exports <sup>e</sup>	10	15	10	5	5
Consumption, apparent, concentrate <sup>e</sup>	150	130	160	186	145
Consumption, exfoliated <sup>e</sup>	115	95	90	85	90
Price, average, concentrate, dollars per ton, ex-plant	143	143	<sup>3</sup> 143	<sup>4</sup> 143	143
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, mine and mill, number <sup>e</sup>	90	90	<sup>5</sup> 100	<sup>5</sup> 100	<sup>5</sup> 100
Net import reliance <sup>6</sup> as a percentage of apparent consumption <sup>e</sup>	30	20	35	46	31

**Recycling:** Insignificant.

**Import Sources (2002-05):** South Africa, 63%; China, 35%; and other, 2%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations <u>12-31-06</u></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:** U.S. imports of vermiculite are not collected as a separate category by the U.S. Census Bureau. However, according to a nongovernmental source, U.S. imports, excluding those from Canada and Mexico, were about 31,000 tons for the first 8 months of 2006. Two countries supplied most of this material: China provided 76% and South Africa, 23%.<sup>7</sup>

IBI Corporation (based in Ontario, Canada) and its wholly owned subsidiary North American Vermiculite Inc. announced in early April an agreement with Rio Tinto America Industrial Minerals Inc. The agreement was to grant Rio Tinto an option to acquire 100% interest in the Mica Peak/Gold Butte vermiculite property located about 80 kilometers east of Las Vegas, NV. IBI Corp. produces vermiculite from its Namekara vermiculite mine in Uganda. Rio Tinto owns a 49% interest in Palabora Mining Co. in South Africa, which produces vermiculite from an open pit mine and recovery plant.<sup>8</sup>

South Africa continued to be the leading producer of vermiculite with an estimated 200,000 tons in 2006. Major export markets were Europe and North America. Chinese production of vermiculite may be 100,000 tons per year or more, although official data were not available. Much of the Chinese output was exported to Asia and North America.<sup>4</sup>

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

	Mine production		Reserves <sup>9</sup>	Reserve base <sup>9</sup>
	2005	2006 <sup>e</sup>		
United States <sup>e</sup>	100	100	25,000	100,000
Brazil	30	30	NA	NA
China	100	100	NA	NA
Russia	25	25	NA	NA
South Africa	210	200	14,000	80,000
Zimbabwe	23	22	NA	NA
Other countries	<u>39</u>	<u>39</u>	<u>NA</u>	<u>NA</u>
World total (rounded)	530	520	NA	NA

**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. Reserves have been reported in Australia, Brazil, China, Russia, South Africa, Uganda, the United States, Zimbabwe, and some other countries. However, reserve information comes from many sources, and in most cases it is not clear whether the numbers refer to vermiculite alone or vermiculite plus host rock and/or overburden.<sup>9</sup>

**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, slag, and slate. 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>Dickson, Ted, 2006, Vermiculite, Countries and Commodities Reports, accessed March 17, 2006, via URL <http://www.mining-journal.com>.

<sup>3</sup>Industrial Minerals, 2004, Prices: Industrial Minerals, no. 442, July, p. 64-65.

<sup>4</sup>Moeller, Eric, 2006, Vermiculite: Mining Engineering, v. 58, no. 6, June, p. 61. (Average of prices from range of sized grades.)

<sup>5</sup>Mine, mill, and office.

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

<sup>7</sup>Commonwealth Business Media, Inc., 2006, Port Import/Export Reporting Service, accessed October 24, 2006, at URL <http://www.piers.com>.

<sup>8</sup>Industrial Minerals, 2006, Mica Peak vermiculite option to Rio Tinto: Industrial Minerals, no. 464, May, p. 13.

<sup>9</sup>[See Appendix C for definitions.](#)