

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 19 exfoliating plants in 10 States. The end uses for exfoliated vermiculite were estimated to be agricultural, insulation, and other, 78%; and lightweight concrete aggregates (including cement premixes, concrete, and plaster), 22%.

Salient Statistics—United States:	1998	1999	2000	2001	2002^e
Production ¹	W	^{e 2} 150	^{e 3} 150	W	W
Imports for consumption ^e	68	71	59	65	48
Exports ^e	11	13	5	7	5
Consumption, apparent, concentrate	W	^e 208	^e 204	W	W
Consumption, exfoliated ^e	170	175	165	140	125
Price, base value, concentrate, dollars per ton, ex-plant ⁴	143	143	143	143	143
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment, mine and mill, number ^e	130	130	120	100	100
Net import reliance ⁵ as a percentage of apparent consumption	W	^e 28	^e 26	W	W

Recycling: Insignificant.

Import Sources (1998-2001): South Africa, 72%; China, 26%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12/31/02
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.

VERMICULITE

Events, Trends, and Issues: The U.S. Geological Survey has been studying the composition of 101 vermiculite-rich, archived samples from 62 domestic vermiculite mines and deposits in 10 States. The purpose of the study is to determine how common the amphibole asbestos minerals, like those found at Libby, MT, are in other vermiculite deposits, and if they occur in similar morphologies and compositions. (The Libby mine was shut down in 1990.) Studies of vermiculite deposits may help guide priorities for sampling, reclamation, permitting, and monitoring of active and inactive vermiculite mines.⁶

Imerys Minerals Australia Pty. Ltd. acquired Australian Vermiculite Industries Pty. Ltd. for about \$2.5 million. The operation, near Alice Springs in the Northern Territory, has a vermiculite production capacity of 12,000 tons per year.⁷ In Canada, Hedman Resources Ltd. began production at a plant near North Bay, Ontario. The joint-venture operation, with Enviro Industrial Technologies Inc. (NY), has a capacity of 15,000 tons yearly.⁸ Canada's IBI Corp. received a letter of intent for the sale of \$1.7 million of its Ugandan vermiculite. IBI's subsidiary, Canmin Resources Ltd., operates the Namekara vermiculite mine near the Kenyan border.⁹

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ¹⁰	Reserve base ¹⁰
	2001	2002 ^e		
United States	W	W	25,000	100,000
Brazil	23	23	NA	NA
China	40	55	NA	NA
Russia	25	25	NA	NA
South Africa	157	220	20,000	80,000
Zimbabwe	12	9	NA	NA
Other countries	48	40	5,000	20,000
World total (may be rounded)	305	370	50,000	200,000

World Resources: Marginal reserves of vermiculite, occurring in Colorado, Nevada, North Carolina, Texas, and Wyoming, are estimated to be 2 million to 3 million tons. Resources in other countries may include material that does not exfoliate as well as U.S. and South African vermiculite.

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.

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

¹Concentrate sold and used by producers.

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

³Moeller, E.M., 2001, Vermiculite: Mining Engineering, v. 53, no. 6, June, p. 65.

⁴Industrial Minerals magazine, yearend prices.

⁵Defined as imports - exports + adjustments for Government and industry stock changes.

⁶Van Gosen, B.S., Lowers, H.A., Bush, A.L., Meeker, G.P., Plumlee, G.S., Brownfield, I.K., and Sutley, S.J., 2002, Reconnaissance study of the geology of U.S. vermiculite deposits—Are asbestos minerals common constituents?: U.S. Geological Survey Bulletin 2192, 8 p.

⁷Industrial Minerals, 2002, Imerys buys Australian Vermiculite Industries: Industrial Minerals, no. 415, April, p. 27.

⁸Industrial Minerals, 2002, Hedman Canadian vermiculite plant on-stream: Industrial Minerals, no. 419, August, p. 21.

⁹Industrial Minerals, 2002, IBI vermiculite order: Industrial Minerals, no. 420, September, p. 70.

¹⁰See Appendix C for definitions.