

PERLITE

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Domestic sales and the apparent domestic consumption of processed crude perlite dropped in 1998. Records were set, however, for perlite imports and expanded perlite sales. Increased demand from construction products producers and horticultural perlite consumers fueled the increased sales of expanded perlite.

Production

According to the U.S. Geological Survey (USGS), the amount of U.S. processed perlite sold or used decreased by about 3%, to 685,000 metric tons (t), compared with that of 1997. The value of processed perlite sold or used decreased by 6.2%, to \$21.9 million compared with that of 1997. The amount of expanded perlite sold or used by domestic producers increased by about 7%, to 742,000 t, and the associated value increased by about 5% compared with those of 1997 (table 1).

Domestic production data for perlite are derived by the USGS from two voluntary annual surveys—one for domestic mine operations (processed perlite) and the other for expanding plants. All the processed perlite included in table 1 was produced by 10 mines operated by 8 companies. Data for 9 of the 10 mines were reported to the USGS, and the data for the other mine were estimated. In addition, 3 companies reported 3 mines idle, thus bringing the total to 10 companies with 13 active or inactive perlite mines. The perlite mined came from Arizona, California, Nevada, New Mexico, Oregon, and Utah; New Mexico operations accounted for the vast majority of the total tonnage mined. Ore producers were Harborlite Corp. in Arizona and New Mexico, American Perlite Co. in California, Wilkins Mining and Trucking Co. and Eagle-Picher Minerals Inc. in Nevada, Cornerstone Industrial Minerals Corp. in Oregon, Dicaperl Corp. and USG Corp. in New Mexico, and Pearl Queen Perlite Co. in Utah. Of the 64 expanding plant operations canvassed, 62 were active; 46 operations, or 72%, responded, reporting about 85% of the total expanded perlite sold or used (table 1). The top seven producers of expanded perlite, each with production of more than 25,000 metric tons per year, accounted for 82% of expanded perlite sold or used in the United States in 1998. The remaining 17% was sold or used by 27 companies.

During 1998, Cornerstone Industrial Minerals and Pearl Queen Perlite continued to work towards operating at full capacity. Both companies were able to produce and sell processed perlite, but amounts were substantially lower than planned capacity. Idaho Minerals Co. continued to produce

expanded perlite near Malad City, ID, but perlite mining at this location was inactive during 1998.

Consumption

Domestic apparent consumption is defined as U.S. processed perlite sold and used plus imports minus exports. In 1998, domestic apparent consumption of processed perlite was 793,000 t, a slight decrease from that of 1997. Consumption of expanded perlite for construction-related uses, the major market for expanded material, increased 6.1%, to 526,000 t. Construction uses of expanded perlite, consisting of concrete aggregate, formed products, masonry and cavity-fill insulation, and plaster aggregate accounted for nearly 71% of total domestic sales in 1998. Expanded perlite consumption increased significantly for horticultural aggregate, low-temperature insulation, and miscellaneous applications. Consumption decreased significantly for concrete aggregate, masonry and cavity-fill insulation, and plaster aggregate. Consumption for filler and filter aid was essentially unchanged (table 3). Perlite was expanded, usually for local consumption, in 31 States. The leading States, in production of expanded perlite, sold or used, were Mississippi, Georgia, Illinois, Minnesota, Pennsylvania, California, and Alabama (table 2).

Prices

Processed perlite sold at an average value of \$32.25 per ton. Perlite consumed by expanding plants operated by the mining companies was valued at \$30 per ton. The average price for all perlite sold or used by mining companies was \$31.91 per ton. The average price of expanded perlite was \$202 per ton; the range in reported prices, was, however, wide—from less than \$100 to more than \$1,000 per ton.

The average prices per ton of expanded perlite, by use, were low-temperature insulation, \$397; fillers, \$383; cavity-fill insulation, \$373; plaster aggregate, \$330; filter aid, \$317; concrete aggregate, \$310; horticultural aggregate, \$309; miscellaneous uses, \$214; and formed products, \$146 (table 3).

Foreign Trade

Exports of processed and expanded perlite, primarily to Canada, were estimated to be 42,000 t, a slight increase from 1997. Imports of processed perlite, almost exclusively from Greece, increased by about 11%, to a record level of around

150,000 t. Import and export data were derived from the U.S. Bureau of Census, the Journal of Commerce, importers, and exporters.

World Review

The United States was estimated to be the largest producer and consumer of crude and expanded perlite. Other leading countries, in descending order of production of perlite (crude, processed) were Greece, Japan, Turkey, and Hungary (table 4). In 1998, 13 countries produced 1.84 million metric tons of perlite. Owing to a lack of reliable figures, however, this total does not include several producing countries, including China, which was probably the largest or second largest producer in the world.

Outlook

Total consumption of expanded perlite and processed perlite in the United States is expected to increase slightly in 1999. Growth in imports of processed perlite are expected to slow the growth of domestic processed perlite sales. The new mines in the Western United States and continued growth in imports are expected to restrain price increases for many grades of

processed perlite.

SOURCES OF INFORMATION

U.S. Geological Survey Publications

Lightweight aggregates. Ch. in United States mineral resources, U.S. Geological Survey Professional Paper 820, 1973.

Perlite. Ch. in U.S. Geological Survey Mineral Commodity Summaries, annual.¹

Other

Bates, R.L., 1969, Geology of the industrial rocks and minerals: New York, Dover Publications, Inc.

Harben, P.W., and Bates, R.L., 1990, Industrial minerals—Geology and world deposits: Surrey, UK, Metal Bulletin Plc.

Industrial Minerals Magazine (London).

Perlite. Ch. in Mineral facts and problems, U.S. Bureau of Mines Bulletin 675, 1985.

¹Prior to January 1996, published by the U.S. Bureau of Mines.

TABLE 1
PERLITE MINED, PROCESSED, EXPANDED, AND SOLD OR USED BY PRODUCERS IN THE UNITED STATES 1/

(Thousand metric tons and thousand dollars)

Year	Perlite mined 2/	Processed perlite				Total quantity sold or used	Expanded perlite			
		Used at own plant to make					Quantity produced	Sold or used		
		Sold to expanders		expanded material				Quantity	Value	
Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value			
1994	664	531	15,900	114	3,440	644	636	636	123,000	
1995	813	592	17,900	108	3,700	700	657	652	127,000	
1996	811	565	17,500	120	3,770	684	671	670	137,000	
1997	656	605	19,900	101	3,400	706	700	695	143,000	
1998	832	583	18,800	102	3,060	685	746	742	150,000	

1/ Data are rounded to three significant digits.

2/ Crude ore mined and stockpiled for processing.

TABLE 2
EXPANDED PERLITE PRODUCED AND SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY STATE 1/

State	1997				1998			
	Quantity produced (metric tons)	Sold or used			Quantity produced (metric tons)	Sold or used		
		Quantity (metric tons)	Value (thousands)	Average value per ton 2/		Quantity (metric tons)	Value (thousands)	Average value per ton 2/
California	46,300	46,700	\$12,900	\$277	46,900	45,400	\$12,200	\$269
Florida	38,100	34,300	8,990	262	32,900	32,400	8,950	276
Michigan	28,900	28,900	5,900	185	27,900	27,900	5,760	207
Mississippi	83,700	83,700	9,320	114	129,000	129,000	14,500	113
Pennsylvania	57,200	57,200	10,700	187	47,800	47,800	9,040	189
Other 3/	446,000	445,000	95,500	215	462,000	460,000	99,300	216
Total	700,000	695,000	143,000	206	746,000	742,000	150,000	202

1/ Data are rounding to three significant digits; may not add to totals shown.

2/ Average value based on unrounded data and rounded to nearest dollar.

3/ Includes Alabama, Arizona, Arkansas, Colorado, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Massachusetts, Minnesota, Missouri, Nevada, New Jersey, North Carolina, Ohio, Oklahoma, Oregon, Tennessee, Texas, Utah, Virginia, Wisconsin, and Wyoming.

TABLE 3
EXPANDED PERLITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE 1/

Use	1997			1998		
	Quantity (metric tons)	Value (thousands)	Average value per ton 2/	Quantity (metric tons)	Value (thousands)	Average value per ton 2/
Concrete aggregate	5,410	\$1,640	\$304	4,570	\$1,410	\$310
Fillers	50,200	18,400	366	50,000	19,100	383
Filter aid	65,300	20,300	312	65,700	20,800	317
Formed products 3/	470,000	71,600	153	506,000	73,700	146
Horticultural aggregate	70,500	22,300	316	75,900	23,500	309
Low-temperature insulation	2,800	1,120	399	3,620	1,440	397
Masonry and cavity-fill insulation	8,220	2,900	354	6,920	2,580	373
Plaster aggregate	12,400	2,100	170	8,730	2,880	330
Other 4/	10,900	2,960	272	20,100	4,310	214
Total	695,000	143,000	206	742,000	150,000	202

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Average value based on unrounded data and rounded to nearest dollar.

3/ Includes acoustic ceiling panels, pipe insulation, roof insulation board, and unspecified formed products.

4/ Includes explosives, high-temperature insulation, paint, refractory, soap, steel, sugar manufacture, and various nonspecified industrial uses.

TABLE 4
 PERLITE: WORLD PRODUCTION, BY COUNTRY 1/ 2/

(Metric tons)

Country 3/	1994	1995	1996	1997	1998 e/
Armenia e/	5,000	6,000	6,000	6,000	35,000
Australia e/ 4/	5,000	5,000	5,000	5,000	5,000
Greece (screened)	371,945	431,054	417,882	425,000 e/	425,000
Hungary 4/	85,000	151,000	150,000 e/	150,000 e/	150,000
Iran e/	6,000	6,000	6,000	6,000	6,000
Italy e/	65,000	60,000	60,000	60,000	60,000
Japan e/	200,000	200,000	200,000	200,000	200,000
Mexico 4/	31,918	33,529	37,417 r/	51,758 r/	55,000
Philippines e/	20,000	20,000	20,000	20,000	20,000
Slovakia e/	50,000	50,000	50,000	50,000	50,000
South Africa	914	1,338	1,300 e/	403 r/	400
Turkey 4/	164,582	171,058	157,580 r/	160,000 r/ e/	150,000
United States (processed ore sold and used by producers)	644,000	700,000	684,000	706,000	685,000 5/
Total	1,650,000	1,840,000	1,800,000 r/	1,840,000	1,840,000

e/ Estimated. r/ Revised.

1/ World totals, U.S. data, and estimated data are rounded to three significant digits; may not add to totals shown.

2/ Unless otherwise stated, figures represent processed ore output. Table contains data available through May 20, 1999.

3/ In addition to the countries listed, Algeria, Bulgaria, China, Iceland, Mozambique, and the former Yugoslavia are believed to have produced perlite but output data are not reported, and available information is inadequate for the formulation of reliable estimates of output levels.

4/ Crude ore.

5/ Reported figure.