



2005 Minerals Yearbook

PERLITE

PERLITE

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In 2005, the amount of domestic processed crude sold or used was essentially equal with that of 2004. The amount of expanded perlite sold or used increased slightly. Domestic production of processed crude perlite was about 508,000 metric tons (t), and the amount of expanded perlite sold or used was about 677,000 t. Imports of crude processed perlite decreased by about 18% to 196,000 t, the lowest level of imports since 2001. Exports of crude processed perlite were estimated to have been about 32,000 t, down by about 14% compared with those of 2004. Trade data in this report are from the U.S. Census Bureau. Percentages in this report were computed using unrounded data.

Production

According to the data collected by the U.S. Geological Survey (USGS), the 508,000 t of U.S.-processed crude perlite sold or used in 2005 was valued at \$20.7 million, a slight increase compared with that of 2004. The 677,000 t of expanded perlite sold or used by domestic producers was valued at \$165 million, an increase of about 9.3% compared with that of 2004 (table 1).

Domestic production data for perlite were derived by the USGS from two voluntary annual surveys—one for domestic mine operations (processed crude perlite) and one for expanding plants. The expanding plants used domestic and imported processed crude perlite. All the processed crude perlite described in table 1 was produced at 10 mines operated by 7 companies; 6 of the 10 mines responded to the USGS survey, representing about 87% of the processed crude perlite sold or used in 2005. The processed crude perlite that is reported in table 1 was mined in Arizona, California, Idaho, Nevada, New Mexico, Oregon, and Utah. The mines in New Mexico and Oregon accounted for most of the tonnage mined. Ore producers, in alphabetical order by State, were Harborlite Corp. in Arizona, New Mexico, and Utah; American Perlite Co. in California; Idaho Minerals LLC in Idaho; Eagle-Picher Minerals, Inc. and Wilkins Mining and Trucking, Inc. in Nevada; Dicaperl Corp. in New Mexico; and Cornerstone Industrial Minerals Corp. in Oregon.

All of the 62 expanding plants canvassed were active. Of those, 36 plant operators (58%) responded, reporting about 70% of the total expanded perlite sold or used. Production information for nonresponding companies was estimated based on previously reported data. The top seven producers of expanded perlite, each with production of more than 25,000 metric tons per year, accounted for about 82% of expanded perlite sold or used in the United States in 2005. The remaining 18% was produced by 25 companies.

The information in the 2004 perlite report contained incorrect information regarding Noble Materials Inc. In

September 2004, Noble Materials with plants in Fallon, NV, and Oklahoma City, OK, sold its assets to the parent company of Grefco Minerals, Inc. Noble Acquisitions LLC is the immediate legal controlling company and is not affiliated with Grefco Minerals. The plants will be operated under the name Noble Perlite.

World Minerals, Inc. (the parent of Harborlite Corp.) purchased the crude perlite processing plant and the expanding plant of Basin Perlite near Milford, UT. However, Harborlite did not purchase the perlite mine but opted to open a new mine in the vicinity. Subsequent to this action, World Minerals was purchased by the French company Imerys, SA in July. Imerys is a global company active in many different mining and mineral product sectors. Imerys emphasized the value of World Minerals' filtration applications, both perlite and diatomite, in their annual report for 2005.

In December, Compagnie de Saint-Gobain, a French building materials supplier, purchased British building material supplier BPB plc. Since 2000, BPB has been the parent company of Celotex Corporation, one of the top producers and consumers of expanded perlite in the United States.

A new producer, A&B Industrial Services of Sulphur, LA, reported the expansion and sale of perlite. The company was expected to initially be producing expanded perlite mostly for low-temperature uses in the Gulf Coast oil and gas sector.

Consumption

In 2005, domestic apparent consumption of processed crude perlite was 672,000, a 5.2% decrease compared with that of 2004. Expanded perlite consumed for construction-related uses, the major market for expanded material, was about 417,000 t, a slight increase compared with that of 2004. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 61% of total domestic sales in 2005. Expanded perlite consumption increased for fillers, filter aid, formed products, horticultural aggregates, low-temperature insulation, masonry- and cavity-fill insulation, and plaster aggregate, while consumption decreased for concrete aggregate, laundries, and other miscellaneous uses (table 3). Perlite was expanded, usually for local consumption, in 31 States. The leading States in production of expanded perlite sold or used, in descending order, were Illinois, Georgia, Mississippi, Pennsylvania, Minnesota, Virginia, Alabama, California, Oregon, and Florida. The amount of expanded perlite sold or used by State is available for those States with three or more companies expanding in each State; other States are not published to avoid disclosing proprietary data (table 2).

Prices

Processed crude perlite was sold at an average value of \$40.56 per metric ton, which was a slight decrease compared with that of 2004. Perlite consumed by expanding plants operated by the mining companies was valued at \$40.75 per ton, which was a increase of about 4.2% compared with that of 2004. The average price for all perlite sold or used by mining companies was \$40.68 per ton, which was a slight decrease compared with that of 2004. The average price of expanded perlite was \$243 per ton, up from \$226 per ton in 2004; the range in reported prices, however, was wide—from less than \$100 per ton to more than \$1,000 per ton.

The average price by use of expanded perlite, in descending order, was low-temperature insulation, \$464 per ton; plaster aggregate, \$461 per ton; fillers, \$426 per ton; masonry- and cavity-fill insulation, \$347 per ton; filter aid, \$342 per ton; concrete aggregate, \$334 per ton; horticultural aggregate, \$324 per ton; laundries, \$269 per ton; and formed products, \$161 per ton (table 3).

Foreign Trade

Export and import data were derived from U.S. Census Bureau data. Exports of processed crude and expanded perlite, primarily to Canada, were estimated to be 32,000 t, down by 14% compared with those of 2004. The value of exports could not be calculated based on available information, but the average prices quoted previously could be applied.

Imports of processed crude perlite, almost exclusively from Greece, decreased by 18% to about 196,000 t compared with those of 2004. The average customs value of perlite imports was estimated to be \$34.60 per ton. If insurance and freight costs (\$5.00) were added to the value of the imports, the total average value of imports was estimated to rise to \$39.60 per ton, an increase of 14% compared with the average value in 2004.

Perlite expanding plants, mostly in the Eastern United States, continued to purchase less expensive, imported perlite. Imported perlite has a price advantage compared with domestically produced perlite owing to the low cost of shipping it from Greece to the United States east coast versus higher domestic rail transportation costs. Perlite production in Greece is centered on the islands of Milos and Kos, which offer deepwater access to large ocean-going vessels, thus lowering freight cost. U.S. producers normally must transport perlite by rail, which is subject to higher insurance and freight rates, resulting in higher transportation cost per ton than waterborne transport.

World Industry Structure

Based on available information, the United States was estimated to be the leading consumer of processed crude and expanded perlite in 2005. Greece was estimated to have produced about 525,000 t and sold or used the largest amount of perlite among the countries listed in table 4. Other leading producers of processed crude perlite, in descending order, were the United States, Japan, Mexico, Hungary, and Turkey. In 2005, 15 countries produced 1.95 million metric tons of perlite. Owing to a lack of reliable information, however, this total does not include all major producing countries, such as China, which was probably the first or second ranked producer in the world.

Outlook

Total consumption of processed and expanded perlite in the United States was expected to remain near 2005 levels in 2006. Recent large jumps in energy cost were expected to have a negative impact on the rate of perlite consumption. Perlite imports were expected to rebound slightly from the 4-year low in 2005. Prices for processed crude and especially expanded perlite were expected to increase because costs for transportation (waterborne and rail) and the expansion process were expected to rise owing to sustained increases in fuel costs.

GENERAL SOURCES OF INFORMATION

U.S. Geological Survey Publications

Lightweight Aggregates. Ch. in *United States Mineral Resources*, Professional Paper 820, 1973.
Perlite. Ch. in *Mineral Commodity Summaries*, annual.

Other

Geology of the Industrial Rocks and Minerals. R.L. Bates, Dover Publications Inc., 1969.
Industrial Minerals, monthly.
Industrial Minerals—Geology and World Deposits. P.W. Harben and R.L. Bates, *Metal Bulletin* plc, 1990.
Industrial Minerals Handybook, The. P.W. Harben, *Industrial Minerals Information*, 2002.
Perlite. Ch. in *Mineral Facts and Problems*, U.S. Bureau of Mines Bulletin 675, 1985.

TABLE 1
PERLITE MINED, PROCESSED, AND EXPANDED IN THE UNITED STATES¹

(Thousand metric tons and thousand dollars unless otherwise specified)

	2001	2002	2003	2004	2005
Perlite mined ²	611	638	591	601	606
Processed perlite:					
Sold to expanders:					
Quantity	490	419	381	407	406
Value	17,900	15,100	14,800	16,700	16,500
Average value dollars per ton	36.52	36.01	38.76	40.93	40.56
Used at own plants to make expanded perlite:					
Quantity	97	102	112	101	103
Value	3,450	3,890	4,060	3,950	4,200
Average value dollars per ton	35.52	38.13	36.89	39.10	40.75
Total, sold and used:					
Quantity	588	521	493	508	508
Value	21,300	19,000	18,800	20,600	20,700
Average value dollars per ton	36.29	36.42	38.20	41.81	40.68
Expanded perlite:					
Production, quantity	686	674	665	673	677
Sold or used:					
Quantity	693	672	664	670	677
Value	146,000	146,000	147,000	151,000	165,000
Average value dollars per ton	211.24	217.84	221.38	225.98	243.07

¹Data are rounded to no more than three significant digits, except average value; may not add to totals shown.

²Crude ore mined and stockpiled for processing.

TABLE 2
EXPANDED PERLITE PRODUCED AND SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY STATE¹

State	2004				2005			
	Production, quantity (metric tons)	Sold or used		Average value ² (dollars per metric ton)	Production, quantity (metric tons)	Sold or used		Average value ² (dollars per metric ton)
		Quantity (metric tons)	Value (thousands)			Quantity (metric tons)	Value (thousands)	
California	31,500	31,500	\$10,500	334	34,200	34,200	\$11,200	327
Florida	34,000	30,700	7,770	253	31,400	31,400	8,280	263
Michigan	21,000	21,000	5,380	256	21,600	21,600	5,910	273
Mississippi	64,400	64,400	8,990	139	61,000	61,000	9,630	157
Nevada	3,820	3,820	1,120	292	6,610	6,610	3,950	596
Pennsylvania	52,200	52,200	9,260	177	51,900	51,900	9,920	191
Other ³	466,000	466,000	108,000	223	470,000	470,000	116,000	246
Total or average	673,000	670,000	151,000	226	677,000	677,000	165,000	243

¹Data are rounded to no more than three significant digits; may not add to totals shown.

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

³Includes Alabama, Arizona, Arkansas, Colorado, Georgia, Idaho, Illinois, Indiana, Louisiana (2005), Kansas, 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 USE¹

Use	2004			2005		
	Quantity (metric tons)	Value (thousands)	Average value ² (dollars per metric ton)	Quantity (metric tons)	Value (thousands)	Average value ² (dollars per metric ton)
Concrete aggregate	2,790	\$1,090	389	2,140	\$715	334
Fillers	74,000	29,300	395	77,400	32,900	426
Filter aid	49,600	16,300	328	50,600	17,300	342
Formed products ³	398,000	58,400	147	399,000	64,100	161
Horticultural aggregate	90,800	29,400	324	95,300	30,900	324
Laundries	3,170	855	270	1,060	284	269
Low-temperature insulation	1,790	799	448	1,810	838	464
Masonry- and cavity-fill insulation	3,310	1,130	342	4,060	1,410	347
Plaster aggregate	11,500	3,780	328	11,600	5,350	461
Other ⁴	35,600	10,400	293	34,700	10,700	308
Total or average	670,000	151,000	226	677,000	165,000	243

¹Data are rounded to no more than three significant digits, except average value; may not add to totals shown.

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

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

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

TABLE 4
PERLITE: WORLD PRODUCTION, BY COUNTRY^{1, 2}

(Metric tons)

Country ³	2001	2002	2003	2004 ^c	2005 ^c
Armenia ^c	35,000	35,000	35,000	35,000	35,000
Australia ^{c, 4}	5,000	5,000	5,000	5,000	5,000
Greece, screened	449,000	516,000	525,000	525,000	525,000
Georgia	NA	NA	NA ^r	45,000	45,000
Hungary ^{c, 4}	151,000	140,000	59,530 ^{r, 5}	59,800 ^r	145,000
Iran	18,130	20,000	26,495 ^r	31,259 ^{r, 5}	20,000
Italy ^c	60,000	60,000	60,000	60,000	60,000
Japan ^c	250,000	250,000	240,000	240,000	240,000
Mexico ⁴	80,297	85,703	194,463 ^r	188,027 ^{r, 5}	195,000
Philippines ^c	6,000	6,000	6,000 ⁵	6,000	6,000
Slovakia	14,910	18,630	19,000 ^r	19,000 ^r	19,000
South Africa ^c	400 ^r	400 ^r	400 ^r	400 ^r	400
Turkey ⁴	70,738	151,902	136,633	133,829 ^{r, 5}	140,000
United States ^{5, 6}	588,000	521,000	493,000	508,000	508,000
Zimbabwe ^c	5,000	5,000	5,000	4,000 ^r	4,000
Total	1,730,000	1,810,000 ^r	1,810,000 ^r	1,860,000 ^r	1,950,000

^cEstimated. ^rRevised. NA Not available.

¹World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Unless otherwise stated, figures represent processed ore output. Table contains data available through May 20, 2006.

³In addition to the countries listed, Algeria, Bulgaria, China, Cyprus, Iceland, Morocco, Mozambique, and Russia are thought to have produced perlite, but output is not reported, and available information is inadequate for the formulation of estimates of output levels.

⁴Crude ore.

⁵Reported figure.

⁶Processed ore sold and used by producers.