



2005 Minerals Yearbook

PERLITE

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By Wallace P. Bolen

Domestic survey data and tables were prepared by Virginia C. Harper, statistical assistant, and the world production table was prepared by Linder Roberts, international data coordinator.

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.