

# PERLITE

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 2002, the amount of domestic processed and expanded perlite sold and used decreased compared with that of 2001. Imports rose substantially, while exports decreased slightly compared with those of 2001. Increasing imports combined with weak demand from some construction markets had a substantial negative impact on many domestic perlite mining operations. Demand decreased primarily for formed construction products as well as for laundries (stone washing) and plaster aggregate.

## Production

According to the data collected by the U.S. Geological Survey (USGS), the amount of U.S.-processed perlite sold or used decreased by about 11.4% to 521,000 metric tons (t) in 2002 compared with that of 2001. The value of processed perlite sold or used decreased by 11.1% to \$19 million compared with that of 2001. The amount of expanded perlite sold or used by domestic producers decreased by 3% to 672,000 t compared with that of 2001, but the associated value remained about \$146 million (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 one for expanding plants. The expanding plants consume domestic and imported processed perlite. All the processed perlite included in table 1 was produced by 10 mines operated by 8 companies; 8 of the 10 operations responded to the USGS survey, representing about 92% of the processed perlite sold or used in 2002. The perlite 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 were Harborlite Corp. in Arizona and New Mexico; American Perlite Co. in California; Idaho Minerals LLC in Idaho; Eagle-Picher Minerals, Inc. and Wilkins Mining and Trucking, Inc. in Nevada; Cornerstone Industrial Minerals Corp. in Oregon; Dicaperl Corp. in New Mexico; and Basin Perlite Co. in Utah. Of the 64 expanding operations canvassed, 63 were active. Of those, 43 operations (68%) responded, reporting about 78% 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 about 81% of expanded perlite sold or used in the United States in 2002. The remaining 19% was produced by 27 companies.

## Consumption

Domestic apparent consumption is defined as U.S.-processed perlite sold and used plus imports minus exports. In 2002, domestic apparent consumption of processed perlite was 705,000 t, a 2.1% decrease compared with that of 2001.

Consumption of expanded perlite for construction-related uses, which was the major market for expanded material, decreased by 8.3% to 427,000 t. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 64% of total domestic sales in 2002. Expanded perlite consumption increased for concrete aggregate, fillers, filter aid, horticultural aggregate, low-temperature insulation, masonry- and cavity-fill insulation, and miscellaneous uses. Consumption decreased for formed products, laundries, and plaster (table 3). Perlite was expanded, usually for local consumption, in 30 States. The leading States in production of expanded perlite sold or used, in descending order, were Mississippi, Georgia, Illinois, Pennsylvania, Minnesota, Alabama, Virginia, and California (table 2).

## Prices

Processed perlite sold at an average value of \$36.04 per metric ton, which was a decrease of about 1.3% compared with that of 2001. Perlite consumed by expanding plants operated by the mining companies was valued at \$38.14 per ton, which was an increase of 7.2% compared with that of 2001. The average price for all perlite sold or used by mining companies was \$36.45 per ton, which was about the same as that of 2001. The average price of expanded perlite was \$217 per ton, up from \$211 per ton in 2001; the range in reported prices, however, was wide—from less than \$100 per ton to more than \$1,000 per ton.

The average prices by use per ton of expanded perlite, in descending order, were laundries, \$464 per ton; fillers, \$410 per ton; low-temperature insulation, \$365 per ton; filter aid, \$323 per ton; concrete aggregate, \$321 per ton; horticultural aggregate, \$312 per ton; plaster aggregate, \$307 per ton; masonry- and cavity-fill insulation, \$243 per ton; and formed products, \$145 per ton (table 3).

## Foreign Trade

Exports of processed and expanded perlite, primarily to Canada, were estimated to be 42,000 t, which was slightly lower compared with those of 2001. Imports of processed perlite, almost exclusively from Greece, increased by 28% to about 224,000 t. Import and export data were derived from U.S. Census Bureau data, the Journal of Commerce's Port Import and Export Reporting Service, and importers and exporters.

## World Review

Based on available information, the United States was estimated to be the largest producer and consumer of crude and expanded perlite in 2002. Other leading producers of processed

crude perlite, in descending order, were Greece, Japan, Hungary, and Turkey (table 4). In 2002, 13 countries produced 1.65 million metric tons of perlite. Owing to a lack of reliable figures, however, this total does not include several producing countries, such as 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 2002. Growth in imports of processed perlite is expected to slow the growth of domestic processed perlite sales. The growth in Canadian horticultural perlite demand however, may result in increased exports of domestic processed perlite. The newer mines opened during the past 5 years, and continued growth in imports is expected to continue to restrain price increases for many grades of processed perlite.

## 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

Bates, R.L., 1969, Geology of the industrial rocks and minerals: New York, NY, Dover Publications Inc., 459 p.  
Harben, P.W., and Bates, R.L., 1990, Industrial minerals—Geology and world deposits: Surrey, United Kingdom, Metal Bulletin plc, 312 p.  
Industrial Minerals Magazine.  
Perlite. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.

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

(Thousand metric tons and thousand dollars)

| Year | Perlite mined <sup>2</sup> | Processed perlite |        |   |       | Expanded perlite            |                   |              |         |
|------|----------------------------|-------------------|--------|---|-------|-----------------------------|-------------------|--------------|---------|
|      |                            | Sold to expanders |        | Used at own plant to make expanded material |       | Total quantity sold or used | Quantity produced | Sold or used |         |
|      |                            | Quantity          | Value  | Quantity                                    | Value |                             |                   | Quantity     | Value   |
| 1998 | 832                        | 583               | 18,800 | 102   | 3,060 | 685                         | 738               | 736          | 148,000 |
| 1999 | 821                        | 619               | 20,700 | 92  | 3,050 | 711                         | 731               | 729          | 148,000 |
| 2000 | 873                        | 570               | 19,600 | 101   | 3,100 | 672                         | 715               | 715          | 148,000 |
| 2001 | 611                        | 490               | 17,900 | 97  | 3,450 | 588                         | 686               | 693          | 146,000 |
| 2002 | 638                        | 419               | 15,100 | 102   | 3,890 | 521                         | 674               | 672          | 146,000 |

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

<sup>2</sup>Crude ore mined and stockpiled for processing.

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

| State              | 2001                            |                        |                     |                                    | 2002                            |                        |                   |                                    |
|--------------------|---------------------------------|------------------------|---------------------|------------------------------------|---------------------------------|------------------------|-------------------|------------------------------------|
|                    | Quantity produced (metric tons) | Sold or used           |                     | Average value per ton <sup>2</sup> | Quantity produced (metric tons) | Sold or used           |                   | Average value per ton <sup>2</sup> |
|                    |                                 | Quantity (metric tons) | Value (thousands)   |                                    |                                 | Quantity (metric tons) | Value (thousands) |                                    |
| California         | 30,300                          | 30,300                 | \$10,700            | \$352                              | 38,400                          | 38,400                 | \$13,400          | \$348                              |
| Florida            | 30,800                          | 30,700                 | 7,880               | 256                                | 29,800                          | 28,800                 | 7,650             | 265                                |
| Michigan           | 21,000                          | 21,000                 | 4,860               | 232                                | 20,600                          | 20,600                 | 4,810             | 233                                |
| Mississippi        | 123,000                         | 123,000                | 16,100              | 130                                | 93,700                          | 93,700                 | 12,900            | 137                                |
| Pennsylvania       | 49,000                          | 49,000                 | 8,140               | 166                                | 49,300                          | 49,300                 | 8,270             | 167                                |
| Other <sup>3</sup> | 431,000 <sup>r</sup>            | 438,000 <sup>r</sup>   | 98,800 <sup>r</sup> | 225 <sup>r</sup>                   | 443,000                         | 441,000                | 99,400            | 225                                |
| Total or average   | 686,000                         | 693,000                | 146,000             | 211                                | 674,000                         | 672,000                | 146,000           | 217                                |

<sup>r</sup>Revised.

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

<sup>2</sup>Average value is based on unrounded data and rounded to nearest dollar.

<sup>3</sup>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<sup>1</sup>

| Use                                | 2001                      |                      |  | 2002                      |                      |  |
|------------------------------------|---------------------------|----------------------|--|---------------------------|----------------------|--|
|                                    | Quantity<br>(metric tons) | Value<br>(thousands) | Average<br>value<br>per ton <sup>2</sup> | Quantity<br>(metric tons) | Value<br>(thousands) | Average<br>value<br>per ton <sup>2</sup> |
| Concrete aggregate                 | 3,280                     | \$980                | \$299                                    | 4,050                     | \$1,300              | \$321                                    |
| Fillers                            | 54,400                    | 22,000               | 404                                      | 57,300                    | 23,500               | 410                                      |
| Filter aid                         | 56,800                    | 18,200               | 321                                      | 57,500                    | 18,600               | 323                                      |
| Formed products <sup>3</sup>       | 452,000                   | 65,800               | 146                                      | 415,000                   | 60,200               | 145                                      |
| Horticultural aggregate            | 81,000                    | 25,900               | 320                                      | 89,400                    | 27,800               | 312                                      |
| Laundries                          | 2,440                     | 750                  | 307                                      | 1,560                     | 723                  | 464                                      |
| Low-temperature insulation         | 1,750                     | 635                  | 363                                      | 4,230                     | 1,550                | 365                                      |
| Masonry and cavity-fill insulation | 4,880                     | 1,780                | 365                                      | 5,500                     | 1,340                | 243                                      |
| Plaster aggregate                  | 5,750                     | 1,530                | 266                                      | 2,620                     | 803                  | 307                                      |
| Other <sup>4</sup>                 | 30,900                    | 8,860                | 287 <sup>r</sup>                         | 35,000                    | 10,600               | 303                                      |
| Total or average                   | 693,000                   | 146,000              | 211                                      | 672,000                   | 146,000              | 217                                      |

<sup>r</sup>Revised.

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

<sup>2</sup>Average value is based on unrounded data and rounded to nearest dollar.

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

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

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

(Metric tons)

| Country <sup>3</sup>       | 1998                   | 1999      | 2000                | 2001                   | 2002 <sup>e</sup>    |
|----------------------------|------------------------|-----------|---------------------|------------------------|----------------------|
| Armenia <sup>e</sup>       | 35,000                 | 35,000    | 35,000              | 35,000                 | 35,000               |
| Australia <sup>e,4</sup>   | 5,000                  | 5,000     | 5,000               | 5,000                  | 5,000                |
| Greece, screened           | 500,000                | 435,431   | 360,000             | 360,000 <sup>e</sup>   | 360,000              |
| Hungary <sup>e,4</sup>     | 130,000                | 148,000   | 150,000             | 151,000 <sup>r</sup>   | 150,000              |
| Iran                       | 13,320                 | 15,069    | 15,000 <sup>e</sup> | 15,000 <sup>e</sup>    | 15,000               |
| Italy <sup>e</sup>         | 60,000                 | 60,000    | 60,000              | 60,000                 | 60,000               |
| Japan <sup>e</sup>         | 251,400 <sup>r,5</sup> | 260,000   | 250,000             | 250,000                | 250,000              |
| Mexico <sup>4</sup>        | 54,840                 | 61,596    | 68,702              | 80,297 <sup>r</sup>    | 80,000               |
| Philippines                | 6,356                  | 10,265    | 5,650 <sup>e</sup>  | 6,000                  | 6,000                |
| Slovakia                   | 24,200 <sup>e</sup>    | 19,460    | 17,020              | 15,000 <sup>r</sup>    | 15,000               |
| South Africa <sup>e</sup>  | 400                    | 400       | 400                 | 400                    | 400                  |
| Turkey <sup>4</sup>        | 124,312                | 147,818   | 149,429             | 150,000 <sup>e</sup>   | 150,000              |
| United States <sup>6</sup> | 685,000                | 711,000   | 672,000             | 588,000                | 521,000 <sup>5</sup> |
| Total                      | 1,890,000              | 1,910,000 | 1,790,000           | 1,720,000 <sup>r</sup> | 1,650,000            |

<sup>e</sup>Estimated. <sup>r</sup>Revised.

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

<sup>2</sup>Unless otherwise stated, figures represent processed ore output. Table contains data available through May 20, 2003.

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

<sup>4</sup>Crude ore.

<sup>5</sup>Reported figure.

<sup>6</sup>Processed ore sold and used by producers.