



2010 Minerals Yearbook

PERLITE [ADVANCE RELEASE]

PERLITE

By Wallace P. Bolen

Domestic survey data and tables were prepared by Joseph M. Krisanda, industry data analyst, and the world production table was prepared by Glenn J. Wallace, international data coordinator.

In 2010, the amount of domestic processed crude perlite sold or used increased by 19% and the amount of expanded perlite sold or used increased by 7% compared with those of 2009. Domestic production of processed crude perlite was 414,000 metric tons (t), and the amount of expanded perlite sold or used was 471,000 t. Domestically produced processed crude perlite sales increased after a 20% decrease in 2009. The 414,000 t sold or used was about the same amount sold or used in 2007, when 409,000 t was produced. While it was an improvement, the amount of expanded perlite sold or used in 2010 was still the second lowest quantity sold or used since 1991, when 449,000 t were sold or used.

During the year, imports of processed crude perlite increased by 14% to 174,000 t compared with those of 2009. This increase in perlite imports followed 3 consecutive years with declining imports after a record-high import level in 2006. Exports of crude processed perlite were estimated to have been about 42,000 t in 2010, increasing by about 27% compared with those of 2009. Trade data in this report are from the U.S. Census Bureau and PIERS, a U.S. trade database compiled by the Journal of Commerce. Percentages in this report were computed using unrounded data.

Production

Domestic production data for perlite were compiled by the U.S. Geological Survey (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 by seven companies with nine mines, eight of which responded to the USGS survey, representing more than 99% of the processed crude perlite sold or used in 2010. According to data collected by the USGS, the 414,000 t of U.S.-processed crude perlite sold or used in 2010 was valued at \$21.6 million. This was an increase of 19% in tonnage and a 27% increase in value compared with those of 2009. The 471,000 t of expanded perlite sold or used by domestic producers was valued at \$143 million. Sales and use increased by 7%, and value increased by 8% compared with those of 2009 (table 1).

The processed crude perlite reported in table 1 was mined in Arizona, California, Idaho, Nevada, New Mexico, and Oregon. The mines in Arizona, New Mexico, and Oregon accounted for most of the tonnage mined. Ore producers were, in alphabetical order by State, Harborlite Corp. in Arizona and New Mexico; American Perlite Co. in California; Idaho Minerals, LLC in Idaho; EP Minerals, LLC and Wilkins Mining and Trucking, Inc. in Nevada; Dicaperl Minerals Corp. in New Mexico; and Cornerstone Industrial Minerals Corp. in Oregon.

Perlite was expanded at 50 plants throughout the United States and 3 plants were reported as idle. Several of the larger expanding plants were idled in 2010 owing to decreased demand for construction-related products. Production was consolidated at other locations until demand increases. One perlite expander in New Jersey was idle while the company rebuilt after a fire destroyed much of the facility. Two smaller volume expanding operations were thought to have shut down permanently. Of the 50 active plants, 28 plant operators (56%) responded to the USGS survey, representing about 81% of the total expanded perlite sold or used. Production information for nonresponding companies was estimated using previously reported data, with adjustments based on currently reported production trends. The top seven producers of expanded perlite, each with production of more than 20,000 metric tons per year, accounted for about 80% of the expanded perlite sold or used in the United States in 2010. The remaining 20% was produced by 19 companies.

Consumption

In 2010, domestic apparent consumption of processed crude perlite was 546,000 t, a 17% increase compared with that of 2009. The average level of apparent consumption in 2009 and 2010 was the lowest since 1991, which was also a recessionary period in the United States.

Beginning with this report, an “unspecified” use category is listed in table 3. This category includes estimated and reported quantities of expanded perlite where the consuming market was unknown. For comparison, 2009 data were revised to include this category. Much of these data were previously reported in the “Other” category in recent USGS perlite reports, and, therefore, that category was revised for 2009 as well.

Expanded perlite consumed for construction-related uses, the major market for expanded material, was about 260,000 t, an increase of 12% compared with that of 2009. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 55% of total domestic sales of expanded perlite in 2010. Expanded perlite consumption increased in six markets, with the most pronounced increases by percentage reported for the concrete aggregates market (table 3). Expanded perlite consumption decreased significantly in two of the smaller markets: masonry- and cavity-fill insulation and plaster aggregate.

Perlite was expanded, usually for local consumption, in 26 States. The leading States in production of expanded perlite sold or used were, in descending order, Illinois, Georgia, Pennsylvania, Minnesota, Mississippi, Michigan, California, Oregon, and Florida. The amount of expanded perlite sold or used by State was listed for those States with three or more companies expanding in each State; for other States, individual

data were withheld to avoid disclosing company proprietary data (table 2).

Prices

Processed crude perlite was sold at an average value of \$52 per metric ton, which was a 4% increase compared with that of 2009. Perlite consumed by expanding plants operated by the mining companies was valued at \$54 per ton, which was a 15% increase compared with that of 2009. The average value for all perlite sold or used by mining companies was \$52 per ton, which was a 6% increase compared with that of 2009. The average value of expanded perlite was \$304 per ton, up slightly from \$302 per ton in 2009. The range in reported prices, however, was wide—from about \$100 per ton to more than \$1,000 per ton.

The average value of expanded perlite by use, in descending order, was low-temperature insulation, \$559 per ton; masonry- and cavity-fill insulation, \$469 per ton; fillers, \$459 per ton; horticultural aggregate, \$446 per ton; plaster aggregate, \$403 per ton; filter aid, \$399 per ton; concrete aggregate, \$378 per ton; high-temperature insulation, \$281 per ton; and formed products, \$198 per ton (table 3).

Foreign Trade

Exports of processed crude and expanded perlite, primarily to Canada, were estimated to be 42,000 t, up by about 27% compared with those of 2009. Most of the perlite exported to Canada was horticultural grade perlite and is commonly mixed with peat and other ingredients to produce potting soils. Canada has abundant peat resources and is a leading producer of potting soils. The Republic of Korea was probably the second largest recipient of U.S. exports, receiving nearly 9,000 t. Perlite was exported to approximately 30 other countries, but the average amount exported to each of those countries was less than 1,000 t. 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, increased by 14% to 174,000 t compared with those of 2009. S&B Industrial Minerals S.A., Kifissia, Greece, was the primary supplier of processed crude perlite imports to the United States. Based on information from the U.S. Census Bureau, the average customs value of perlite imports in 2010 was estimated to be \$102 per ton, a slight decrease from that of 2009. If insurance and freight costs (\$11.15 per ton) were added to the value of the imports, the total average value of imports was \$113 per ton, a decrease of about 3% compared with the total average value in 2009. These decreases in the price of imported perlite were probably in response to lower demand amid strong competition during 2010. Most imported perlite arrives through the ports of Brunswick, GA; Mobile, AL; Philadelphia, PA; and Wilmington, DE. After arriving at one of these ports, the perlite is shipped to expanding plants throughout the States east of the Mississippi River.

World Review

Based on available information, the United States was estimated to be the leading consumer of processed crude

and expanded perlite in 2010. Greece was estimated to have produced about 500,000 t and sold or used the largest amount of perlite among the countries listed in table 4. Other leading producers of processed crude perlite were, in descending order, the United States, Turkey, and Japan. In 2010, 15 countries produced 1.67 million metric tons of perlite, a slight increase compared with global production in 2009. Owing to a lack of reliable information, however, this total does not include all major producing countries, such as China, which was probably the leading or second ranked producer in the world.

Outlook

Total consumption of processed and expanded perlite in the United States in 2011 was expected to remain around the relatively low levels of 2010. With the economic recession, which was characterized by lackluster construction activity, including the continuing slump in housing and office construction, the perlite consumption amounts seen in 2010 are expected to continue. Perlite imports in 2011 were expected to be essentially unchanged from 2010 levels. Prices for crude processed perlite increased in 2010, but prices for expanded perlite were essentially flat compared with 2009 prices. For 2011, market conditions were expected to be conducive for prices of crude processed perlite and expanded perlite to remain near 2010 levels. Price increases might be difficult to achieve amidst weak demand and strong competition.

Perlite expanding plants, mostly in the Eastern United States, continued to purchase imported perlite and offer strong competition to domestic perlite producers. Imported perlite has supplied about one-quarter of the demand for processed crude perlite in the United States during the past 3 years, and that trend is expected to continue contingent upon the availability and cost of ocean freight. This strong competition from other countries is expected to continue in the coming years as domestic and foreign suppliers fight for market share amidst fluctuating transportation costs, whether rail or ocean freight.

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. Dover Publications Inc., 1969.
Industrial Minerals Handybook, The. *Industrial Minerals Information*, 2002.
Industrial Minerals—Geology and World Deposits, Metal Bulletin plc, 1990.
Industrial Minerals, monthly.
Perlite. Ch. in *Industrial Minerals and Rocks* (7th ed.), Society for Mining, Metallurgy, and Exploration, Inc., 2006.
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)

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|----------------------------------------------|---------|---------|-----------------|---------|---------|
| Perlite mined ² | 516 | 516 | 524 | 304 | 529 |
| Processed crude perlite: | | | | | |
| Sold to expanders: | | | | | |
| Quantity | 360 | 324 | 337 | 263 | 319 |
| Value | 15,600 | 15,000 | 16,400 | 13,100 | 16,500 |
| Average value dollars per metric ton | 43 | 46 | 49 | 50 | 52 |
| Used at own plants to make expanded perlite: | | | | | |
| Quantity | 95 | 85 | 98 | 85 | 95 |
| Value | 3,850 | 3,550 | 4,450 | 4,000 | 5,090 |
| Average value dollars per metric ton | 41 | 42 | 46 ^r | 47 | 54 |
| Total, sold and used: | | | | | |
| Quantity | 454 | 409 | 434 | 348 | 414 |
| Value | 19,500 | 18,500 | 20,800 | 17,100 | 21,600 |
| Average value dollars per metric ton | 43 | 45 | 48 | 49 | 52 |
| Expanded perlite: | | | | | |
| Production, quantity | 646 | 577 | 554 | 450 | 472 |
| Sold or used: | | | | | |
| Quantity | 644 | 575 | 548 | 439 | 471 |
| Value | 165,000 | 155,000 | 153,000 | 132,000 | 143,000 |
| Average value dollars per metric ton | 256 | 269 | 279 | 302 | 304 |

^rRevised.

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 | 2009 | | | | 2010 | | | |
|--------------------|---------------------------------------|---------------------------|----------------------|--------------------------------------------------------|---------------------------------------|---------------------------|----------------------|--------------------------------------------------------|
| | Sold or used | | | Average value ² (dollars per metric ton) | Sold or used | | | Average value ² (dollars per metric ton) |
| | Production, quantity (metric tons) | Quantity (metric tons) | Value (thousands) | | Production, quantity (metric tons) | Quantity (metric tons) | Value (thousands) | |
| California | 29,100 | 28,700 | \$10,800 | 377 ^r | 27,500 | 27,300 | \$10,400 | 379 |
| Florida | 21,300 | 21,000 | 7,120 | 338 | 24,900 | 24,700 | 8,250 | 334 |
| Indiana | 12,900 | 12,800 | 4,710 | 369 | W | W | W | W |
| Michigan | 21,800 | 21,200 | 5,460 | 258 | 27,900 | 28,100 | 6,880 | 245 |
| Nevada | 11,100 | 11,100 | 4,980 | 448 | 12,600 | 12,400 | 5,920 | 476 |
| Pennsylvania | 47,700 | 47,700 | 11,200 | 235 | 52,600 | 52,600 | 12,300 | 233 |
| Other ³ | 306,000 | 296,000 | 88,100 | 297 ^r | 327,000 | 326,000 | 99,300 | 305 |
| Total or average | 450,000 | 439,000 | 132,000 | 302 | 472,000 | 471,000 | 143,000 | 304 |

^rRevised. W Withheld to avoid disclosing company proprietary data.

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

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

³Includes Alabama (2009), Arizona, Arkansas, Colorado, Georgia, Idaho, Illinois, Indiana (2010), Louisiana, Maine, Massachusetts, Minnesota, Mississippi, Missouri, New Jersey (2009), North Carolina, Ohio, Oklahoma, Oregon, Tennessee, Texas, Wisconsin, and Wyoming.

TABLE 3
EXPANDED PERLITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE¹

| Use | 2009 | | | 2010 | | |
|-------------------------------------|---------------------------|----------------------|--------------------------------------------------------------|---------------------------|----------------------|--------------------------------------------------------------|
| | 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 | 2,440 | \$973 | 398 | 3,910 | \$1,480 | 378 |
| Fillers | 62,700 | 28,900 | 461 | 67,900 | 31,200 | 459 |
| Filter aid | 37,200 | 14,500 | 391 | 41,700 | 16,700 | 399 |
| Formed products ³ | 222,000 | 43,200 | 195 | 251,000 | 49,700 | 198 |
| High-temperature insulation | 6,320 | 1,830 | 290 | 7,430 | 2,090 | 281 |
| Horticultural aggregate | 63,800 ^r | 27,100 | 425 ^r | 65,300 | 29,100 | 446 |
| Low-temperature insulation | 1,990 | 1,110 | 559 | 1,910 | 1,060 | 559 |
| Masonry- and cavity-fill insulation | 2,610 | 1,190 | 457 ^r | 1,730 | 810 | 469 |
| Plaster aggregate | 4,880 | 1,720 | 352 | 3,010 | 1,210 | 403 |
| Other ⁴ | 2,630 ^r | 678 ^r | 258 ^r | 1,740 | 444 | 255 |
| Unspecified ⁵ | 32,100 | 11,100 | 347 | 25,000 | 9,310 | 373 |
| Total or average | 439,000 | 132,000 | 302 | 471,000 | 143,000 | 304 |

^rRevised.

¹Data are rounded to no more than three significant digits; 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 absorbents, laundries, paint texturizers, and other miscellaneous uses.

⁵Estimated and reported data with specific use unknown.

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

(Metric tons)

| Country ³ | 2006 | 2007 | 2008 | 2009 | 2010 |
|-------------------------------|----------------------|------------------------|------------------------|------------------------|-----------|
| Armenia | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 |
| Australia ⁴ | 6,500 | 7,000 | 7,000 | 6,500 | 7,000 |
| Georgia | 45,000 | 45,000 | 45,000 | 45,000 | 45,000 |
| Greece ⁵ | 525,000 | 525,000 | 525,000 | 525,000 | 500,000 |
| Hungary ⁴ | 71,000 | 67,000 | 67,000 | 65,000 | 65,000 |
| Iran | 40,000 | 30,000 | 30,000 | 30,000 | 20,000 |
| Italy | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 |
| Japan | 240,000 | 230,000 | 230,000 | 220,000 | 210,000 |
| Mexico ⁴ | 41,219 ⁶ | 54,405 ^{r, 6} | 43,180 ^{r, 6} | 51,395 ^{r, 6} | 50,000 |
| Philippines | 4,352 ⁶ | 4,515 ⁶ | 4,593 ⁶ | 4,606 ^{r, 6} | 4,600 |
| Slovakia | 16,000 | 20,000 | 25,000 | 25,000 | 25,000 |
| South Africa | 400 | 400 | 400 | 400 | 400 |
| Turkey ⁴ | 260,000 | 270,000 | 270,000 | 230,000 | 230,000 |
| United States ^{6, 7} | 454,000 ^r | 409,000 ^r | 434,000 ^r | 348,000 ^r | 414,000 |
| Zimbabwe | 3,000 | 3,000 | 3,000 | 3,000 | 2,000 |
| Total | 1,800,000 | 1,760,000 ^r | 1,780,000 ^r | 1,650,000 | 1,670,000 |

^rRevised.

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 26, 2011.

³In addition to the countries listed, Djibouti started perlite production in 2009, and 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 to estimate output.

⁴Crude ore.

⁵Crude perlite screened and sold.

⁶Reported figure.

⁷Processed ore sold and used by producers.