



2008 Minerals Yearbook

PERLITE [ADVANCE RELEASE]

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 2008, the amount of domestic processed crude perlite sold or used increased by 6.1%, while the amount of expanded perlite sold or used decreased by 4.7% compared with that of 2007. Domestic production of processed crude perlite was about 434,000 metric tons (t), and the amount of expanded perlite sold or used was about 548,000 t. Domestically produced processed crude perlite rebounded after 4 years of declining sales. During the year, imports of processed crude perlite decreased by 18.5% to 187,000 t compared to that of 2007. This was the second year with falling perlite imports after a record high import level in 2006. Exports of crude processed perlite were estimated to have been about 37,000 t, increasing by about 32% compared with those of 2007. Trade data in this report are from the U.S. Census Bureau and the Journal of Commerce's Port Import and Export Reporting Service. Percentages in this report were computed using unrounded data.

Production

Domestic production data for perlite were derived 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 nine mines operated by seven companies; eight of the mines responded to the USGS survey, representing about 98% of the processed crude perlite sold or used in 2008. According to data collected by the USGS, the 434,000 t of U.S.-processed crude perlite sold or used in 2008 was valued at \$20.8 million, an increase of 12.6% compared with that of 2007. The 548,000 t of expanded perlite sold or used by domestic producers was valued at \$153 million, a decrease of 1.1% compared with that of 2007 (table 1).

The processed crude perlite reported in table 1 was mined in Arizona, California, Idaho, Nevada, New Mexico, and Oregon. The mines in 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 55 plants throughout the United States, two plants were reported as idle, and one plant was removed from the expanded perlite survey. Of the 55 active plants, 31 plant operators (56%) responded, reporting about 74.1% 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 81% of the expanded perlite sold or used in the United States in 2008. The remaining 19% was produced by 22 companies. Dicaperl Minerals closed its perlite expanding facility in Antonito, CO. The company was to continue to produce and sell expanded perlite at seven other affiliated locations throughout the United States.

Consumption

In 2008, domestic apparent consumption of processed crude perlite was 584,000 t, a 4.3% decrease compared with that of 2007. This was the lowest level of apparent consumption since 1992, when 577,000 t of processed crude perlite was consumed. Expanded perlite consumed for construction-related uses, the major market for expanded material, was about 321,000 t, a decrease of 6.4% compared with that of 2007. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 59% of total domestic sales in 2008, a slight decrease from that of 2007. Expanded perlite consumption decreased in most markets, with the most pronounced decrease by percentage reported for the plaster aggregate market (table 3). Expanded perlite consumption did increase for two markets: concrete aggregate and filter-aid. Perlite was expanded, usually for local consumption, in 28 States. The leading States in production of expanded perlite sold or used were, in descending order, Illinois, Georgia, Pennsylvania, Mississippi, Minnesota, Alabama, Oregon, California, Florida, and Michigan. 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 listed individually to avoid disclosing proprietary data (table 2).

Prices

Processed crude perlite was sold at an average value of \$48.62 per metric ton, which was a 5.4% increase compared with that of 2007. Perlite consumed by expanding plants operated by the mining companies was valued at \$45.43 per ton, which was a 8.7% increase compared with that of 2007. The average price for all perlite sold or used by mining companies was \$48.01 per ton, which was a 6.1% increase compared with that of 2007. The average price of expanded perlite was \$279 per ton, up from \$269 per ton in 2007; the range in reported prices, however, was wide—from about \$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, \$527 per ton; fillers, \$467 per ton; masonry- and cavity-fill insulation, \$438 per ton; filter aid, \$383 per ton; horticultural aggregate, \$380 per ton; concrete aggregate, \$348 per ton; plaster aggregate, \$333 per ton; laundries, \$295 per ton; and formed products, \$186 per ton (table 3).

Foreign Trade

Exports of processed crude and expanded perlite, primarily to Canada, were estimated to be 37,000 t, up by about 32% compared with those of 2007. This increase was probably related to the increased costs of perlite from Greece, which affected imports to both American and Canadian perlite expanding companies and made crude processed perlite sourced in the United States more attractive. Besides Canada, perlite was exported to about 25 other countries, but the average amount exported to each country 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, decreased by 18.5% to about 187,000 t compared with those of 2007. The U.S. Census Bureau reported that the average customs value of perlite imports in 2008 was estimated to be \$132 per ton, an increase of nearly 147% from that of 2008. If insurance and freight costs (\$14.13 per ton) were added to the value of the imports, the total average value of imports was estimated to rise to \$146.10 per ton, an increase of about 146% compared with the average value in 2007. These extreme increases in the price of imported perlite are probably partially based on incorrect data, but the trend of increased import cost was likely a result of the rapid increase in fuel cost and a scarcity of ocean transport experienced in 2008. The cost of imports was expected to drop in 2009 as the global economic slowdown and subsequent decline in the demand for shipping lower freight costs and increase ship availability. 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.

Perlite expanding plants, mostly in the Eastern United States, continued to purchase imported perlite, but the percentage of their demand met by imports has been decreasing in recent years. Imported perlite has lost some of its price advantage compared with domestically produced perlite. This strong competition is expected to continue in the coming years as suppliers fight for market share and struggle to keep transportation costs down, whether rail or ocean freight.

World Review

Based on available information, the United States was estimated to be the leading consumer of processed crude and expanded perlite in 2008. 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 were, in descending order, the United States, Turkey, and Japan. In 2008, 15 countries produced 1.79 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 leading or second ranked producer in the world.

Outlook

Total consumption of processed and expanded perlite in the United States in 2009 was expected to remain at the historically low levels of 2008. The economic recession, which was characterized by lackluster construction activity including the continuing slump in housing construction, will probably result in lower perlite consumption. Perlite imports in 2009 were expected to continue to decrease and be somewhat lower compared with those of 2008. Prices for crude processed perlite and expanded perlite were expected to continue to be influenced by moderating costs for transportation (both for waterborne and rail) and a leveling off of costs in the expansion process owing to more stable fuel costs and historically weak demand for perlite based products.

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.

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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)

	2004	2005	2006	2007	2008
Perlite mined ²	601	606	516	516	524
Processed perlite:					
Sold to expanders:					
Quantity	407	406	360	324	337
Value	16,700	16,500	15,600	15,000	16,400
Average value dollars per metric ton	41	41	43	46	49
Used at own plants to make expanded perlite:					
Quantity	101	103	95	85	98
Value	3,950	4,200	3,850	3,550	4,450
Average value dollars per metric ton	39	41	41	42	45
Total, sold and used:					
Quantity	508	508	454	409	434
Value	20,600	20,700	19,500	18,500	20,800
Average value dollars per metric ton	42	41	43	45	48
Expanded perlite:					
Production, quantity	673	677	646	577	554
Sold or used:					
Quantity	670	677	644	575	548
Value	151,000	165,000	165,000	155,000	153,000
Average value dollars per metric ton	226	243	256	269	279

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	2007				2008			
	Production, quantity (metric tons)	Quantity (metric tons)	Value (thousands)	Average value ² (dollars per metric ton)	Production, quantity (metric tons)	Quantity (metric tons)	Value (thousands)	Average value ² (dollars per metric ton)
California	33,500	33,200	\$11,500	348	33,200	33,000	\$11,700	353
Florida	28,300	27,900	8,060	288	25,600	25,300	7,470	295
Indiana	17,400	17,300	5,970	345	16,000	15,800	5,700	359
Michigan	23,100	22,500	6,160	274	21,700	21,700	5,750	265
Nevada	11,300	11,300	4,810	425	10,900	10,900	4,890	450
Pennsylvania	51,300	51,300	11,200	217	52,700	52,700	11,800	224
Other ³	412,000	411,000	107,000	260	339,000	389,000	106,000	272
Total or average	577,000	575,000	155,000	269	554,000	548,000	153,000	279

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, Arizona, Arkansas, Colorado, Georgia, Idaho, Illinois, Louisiana, Maine, Massachusetts, Minnesota, Mississippi, Missouri, New Jersey, 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	2007			2008		
	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	2,160	\$844	392	2,400	\$836	348
Fillers	74,700	33,900	453	68,800	32,100	467
Filter aid	41,000	14,600	355	44,200	16,900	383
Formed products ³	330,000	59,200	179	310,000	57,800	186
Horticultural aggregate	75,000	28,700	384	71,400	27,100	380
Laundries	875	250	286	832	246	295
Low-temperature insulation	1,660	846	510	1,600	845	527
Masonry- and cavity-fill insulation	3,380	1,450	430	3,090	1,350	438
Plaster aggregate	6,760	2,250	332	5,400	1,800	333
Other ⁴	39,100	12,700	326	40,400	14,100	348
Total or average	575,000	155,000	269	548,000	153,000	279

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

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

(Metric tons)

Country ³	2004	2005	2006	2007	2008
Armenia	35,000	35,000	35,000	35,000	35,000
Australia ⁴	5,000	6,000	6,500	7,000	7,000
Georgia	45,000	45,000	45,000	45,000	45,000
Greece, screened	525,000	525,000	525,000	525,000	525,000
Hungary ⁴	65,100	65,000	71,000	67,000 ^r	70,000 ⁵
Iran	31,259 ⁵	31,000	40,000 ^r	30,000	30,000
Italy	60,000	60,000	60,000	60,000	60,000
Japan	240,000	240,000	240,000	230,000 ^r	230,000
Mexico ⁴	188,027 ⁵	91,724 ⁵	41,219 ⁵	41,000	54,405 ⁵
Philippines	5,510 ⁵	4,410 ⁵	4,352 ^{r, 5}	4,515 ^{r, 5}	4,500
Slovakia	23,840 ⁵	13,000	20,000	20,000	20,000
South Africa	400	400	400	400	400
Turkey ⁴	133,829 ⁵	156,935 ^{r, 5}	260,000 ^r	270,000	270,000
United States ⁶	508,000	508,000 ⁵	454,000 ⁵	409,000 ⁵	434,000 ⁵
Zimbabwe	5,000	4,000	4,000	3,000	3,000
Total	1,870,000	1,790,000 ^r	1,810,000 ^r	1,750,000 ^r	1,790,000

^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 12, 2009.

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.