



# 2013 Minerals Yearbook

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PERLITE [ADVANCE RELEASE]

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# PERLITE

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In 2013, the amount of domestic processed crude perlite sold or used increased modestly compared with that of 2012. The quantity of expanded perlite produced has declined since 2000 and decreased sharply in 2009, primarily owing to declines in new home construction, and has remained at those lower levels through 2013.

Exports of processed crude perlite increased to 51,000 metric tons (t) in 2013, and imports of processed crude perlite marginally decreased to 187,000 t. 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. World production of processed crude perlite, from 15 countries, was roughly 2.5 million metric tons (Mt) in 2013 (table 4), which is a 5% increase from 2.4 Mt in 2012. 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. Processed crude perlite was produced by six companies with nine mines in five States. All except one of the producers responded to the USGS survey in 2013. Crude perlite sold or used increased by 7% (table 1). The leading crude perlite mining company was Imerys Perlite USA, Inc. in 2013.

Perlite was expanded at 48 plants throughout the United States. Of the 48 active plants, 25 plant operators responded to the USGS survey, representing about 52% of the total expanded perlite sold or used. Production information for non-responding companies was estimated using previously reported data with adjustments based on currently reported production trends. The top three perlite-expanding companies were Armstrong World Industries, Inc., Silbrico Corp., and USG Corp. in 2013, according to reported data. The top nine companies producing expanded perlite, each with production of more than 15,000 t, accounted for about 80% of the expanded perlite sold or used in the United States in 2013. The remaining 20% was produced by 19 companies.

Perlite was expanded, usually for local consumption, in 27 States. The leading States, each with more than 20,000 t of expanded perlite sold or used were, in descending order, Illinois, Georgia, Pennsylvania, Michigan, Minnesota, California, Mississippi, Florida, and Oregon. These nine States accounted for 77% of the expanded perlite sold or used in the United States. The amount of expanded perlite sold or used by State was listed for those States with three or more companies operating in each State; for other States, individual data were

withheld to avoid disclosing company proprietary data, but were included in “Other” (table 2).

## Consumption

In 2013, domestic apparent consumption of processed crude perlite was 555,000 t, which was a 10% increase compared with that of 2012 and about 4% lower than in 2011.

Expanded perlite consumed for construction-related uses, the major market for expanded material, was 236,000 t, a decrease of about 3% compared with that of 2012. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 51% of total domestic sales of expanded perlite in 2013. Expanded perlite consumption increased for nearly all end uses (table 3).

## Prices

Processed crude perlite was sold at an average value of \$57 per metric ton, which was an 8% increase compared with that of 2012. Perlite consumed by expanding plants operated by the mining companies was valued at \$48 per ton, which was a 7% increase compared with that of 2012. The average value for all perlite sold or used by mining companies was \$55 per ton, which was a 6% increase compared with that of 2012. The average value of expanded perlite was \$320 per ton, an increase of 3% compared with \$310 per ton in 2012 (table 1).

The average value of expanded perlite by use was, in descending order, low-temperature insulation, \$588 per ton; masonry- and cavity-fill insulation, \$475 per ton; horticultural aggregate, \$470 per ton; filter aid, \$447 per ton; fillers, \$431 per ton; plaster aggregate, \$427 per ton; concrete aggregate, \$418 per ton; high-temperature insulation, \$266 per ton; and formed products, \$191 per ton (table 3).

## Foreign Trade

The U.S. Census Bureau reports perlite and vermiculite in a combined category; therefore, the exact quantities of perlite exports and imports are not available and must be estimated based on information received from the U.S. Census Bureau and PIERS. The U.S. Census Bureau data contains information on the shipping ports, which can be useful in distinguishing between vermiculite and perlite, especially for exports.

Perlite was exported to approximately 60 countries in 2013 with Canada, the Republic of Korea, and Mexico as the leading consumers of perlite exported from the United States. Perlite exports increased by 34% from last year’s estimates. Exports may have increased owing to decreased international production of processed crude perlite (table 4).

Imports of processed crude perlite, almost exclusively from Greece, remained level at 150,000 t. S&B Industrial Minerals S.A. (Kifisia, Greece) was the primary supplier of processed crude perlite imports to the United States. The average customs value of perlite imports from Greece in 2013 was estimated to be \$104 per ton. Other notable sources of perlite reported by the U.S. Census Bureau are China and Zimbabwe. Most imported perlite arrived 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

World production of perlite was estimated to be 2.5 Mt in 2013, which is a 5% increase from that of 2012 (table 4). Based on available information, the United States was estimated to be the leading consumer of processed crude and expanded perlite in 2013 but was only the third-leading producer of crude perlite (excluding production levels in China, which were not available) (table 4). Turkey and Greece produced 1,075,949 t and 600,000 t, respectively, in 2013. It is likely that Iran produced perlite in 2013, but current statistics are unavailable. About 30 countries produced perlite in 2013. Owing to the lack of reliable information, total production in table 4 does not include all major producing countries, such as China, which was probably the top producer in the world.

### Outlook

Total consumption of processed and expanded perlite in the United States in 2014 is expected to increase slightly from the levels in 2013. Prices for expanded perlite have not experienced major fluctuations over the past 2 years and will likely continue on a similar trend with no major obstacles to the recovery of the market. With an increased interest in sustainability and “green” living, perlite consumption could increase further as more novel perlite products become available. As housing and office construction increases, as it already has in some areas of the

United States, perlite consumption is likely to increase. Perlite imports in 2014 are expected to increase modestly from the levels in 2013. For 2014, the average price of expanded perlite is expected to remain near the 2013 level.

Perlite expanding plants, mostly in the Eastern United States, continued to purchase imported perlite, and imports offer strong competition to domestic perlite producers. Imported perlite has accounted for about one-quarter to one-third of the consumption of processed crude perlite in the United States during recent years, and that trend is expected to continue contingent on the availability and cost of ocean freight. With the opening of two mobile expanders, Imerys may create even stronger competition for domestic market prices; however, strong competition from other countries is expected to continue as domestic and foreign suppliers continue to compete for market share amid fluctuating transportation costs, whether rail or ocean freight.

## GENERAL SOURCES OF INFORMATION

### U.S. Geological Survey Publications

Historical Statistics for Mineral and Material Commodities in the United States. Data Series 140.  
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—Geology and World Deposits. Metal Bulletin plc, 1990.  
Industrial Minerals, monthly.  
Perlite. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.  
Perlite. Ch. in Industrial Minerals and Rocks (6th ed.), Society for Mining, Metallurgy, and Exploration, Inc., 2006.

TABLE 1  
 PERLITE MINED, PROCESSED, AND EXPANDED IN THE UNITED STATES<sup>1</sup>

(Thousand metric tons and thousand dollars unless otherwise specified)

	2009	2010	2011	2012	2013
Perlite mined <sup>2</sup>	304	529	469	471	471
Processed crude perlite:					
Sold to expanders:					
Quantity	263	319	300	319 <sup>r</sup>	340
Value	13,100	16,500	16,600	17,000 <sup>r</sup>	19,300
Average value	50	52	55	53	57
dollars per metric ton					
Used at own plants to make expanded perlite:					
Quantity	85	95	120	74 <sup>r</sup>	79
Value	4,000	5,090	6,990	3,340 <sup>r</sup>	3,800
Average value	47	54	58	45	48
dollars per metric ton					
Total, sold and used:					
Quantity	348	414	420	393 <sup>r</sup>	419
Value	17,100	21,600	23,600	20,400 <sup>r</sup>	23,100
Average value	49	52	56	52	55
dollars per metric ton					
Expanded perlite:					
Production, quantity	450	472	477	462 <sup>r</sup>	466
Sold or used:					
Quantity	439	471	475	460 <sup>r</sup>	463
Value	132,000	143,000	144,000	143,000 <sup>r</sup>	148,000
Average value	302	304	302	310	320
dollars per metric ton					

<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>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	2012				2013			
	Production, quantity (metric tons)	Quantity (metric tons)	Value (thousands)	Average value <sup>2</sup> (dollars per metric ton)	Production, quantity (metric tons)	Quantity (metric tons)	Value (thousands)	Average value <sup>2</sup> (dollars per metric ton)
California	24,500 <sup>r</sup>	24,500	\$9,730	\$397	25,400	25,300	\$10,300	\$405
Florida	23,700	23,600	7,460	315	24,200	24,000	8,140	339
Michigan	26,900	26,900	6,860	255	28,900	28,900	7,350	254
Nevada	16,900 <sup>r</sup>	16,800 <sup>r</sup>	7,430 <sup>r</sup>	441 <sup>r</sup>	18,700	18,600	8,460	454
Other <sup>3</sup>	370,000 <sup>r</sup>	368,000 <sup>r</sup>	111,000 <sup>r</sup>	302 <sup>r</sup>	369,000	366,000	114,000	311
Total or average	462,000 <sup>r</sup>	460,000 <sup>r</sup>	143,000 <sup>r</sup>	310	466,000	463,000	148,000	320

<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 is rounded to the nearest dollar.

<sup>3</sup>Includes Arizona, Arkansas, Colorado, Georgia, Idaho, Illinois, Indiana, Louisiana, Maine, Massachusetts, Minnesota, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Wisconsin, and Wyoming.

TABLE 3  
EXPANDED PERLITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1</sup>

Use	2012				2013				
	Quantity (metric tons)	Value (thousands)	Average value <sup>2</sup> (dollars per metric ton)	Quantity (metric tons)	Value (thousands)	Average value <sup>2</sup> (dollars per metric ton)	Quantity (metric tons)	Value (thousands)	Average value <sup>2</sup> (dollars per metric ton)
Concrete aggregate	3,870	\$1,590	\$412	3,950	\$1,650	\$418			
Fillers	66,500	28,400	427	70,700	30,400	431			
Filter aid	48,000 <sup>r</sup>	21,200 <sup>r</sup>	441 <sup>r</sup>	48,600	21,700	447			
Formed products <sup>3</sup>	226,000	41,400	183	218,000	41,700	191			
High-temperature insulation	5,770	1,550	268	8,060	2,150	266			
Horticultural aggregate	64,400	30,300	471	66,800	31,400	470			
Low-temperature insulation	1,130	644	572	1,320	778	588			
Masonry- and cavity-fill insulation	2,340	1,100	469	1,690	803	475			
Plaster aggregate	11,500	4,910	425	12,600	5,390	427			
Other <sup>4</sup>	1,320	404	306	1,630	454	278			
Unspecified <sup>5</sup>	29,000	11,200	385	30,000	11,900	396			
Total or average	460,000 <sup>r</sup>	143,000 <sup>r</sup>	310	463,000	148,000	320			

<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 is rounded to the nearest dollar.

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

<sup>4</sup>Includes absorbents, laundries, paint texturizers, and other miscellaneous uses.

<sup>5</sup>Estimated and reported data with specific use unknown.

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

(Metric tons)

Country <sup>3</sup>	2009	2010	2011	2012	2013 <sup>e</sup>
Armenia	35,000 <sup>e</sup>	95 <sup>r</sup>	229 <sup>r</sup>	181 <sup>r</sup>	53 <sup>4</sup>
Australia <sup>5</sup>	6,500	7,000	7,000	7,000 <sup>r</sup>	7,000
Georgia	NA <sup>r</sup>	NA <sup>r</sup>	NA <sup>r</sup>	NA <sup>r</sup>	NA
Greece <sup>5</sup>	862,935	760,000 <sup>e</sup>	842,870 <sup>r</sup>	680,000 <sup>r</sup>	600,000 <sup>4</sup>
Hungary <sup>5</sup>	83,000 <sup>r</sup>	71,000	70,899 <sup>r</sup>	72,364 <sup>r</sup>	64,000
Iran	NA <sup>r</sup>	NA <sup>r</sup>	NA <sup>r</sup>	NA <sup>r</sup>	NA
Italy	60,000	60,000	60,000	60,000	60,000
Japan	220,000	210,000	200,000	200,000	190,000
Mexico <sup>5</sup>	51,395	31,779	31,779 <sup>r</sup>	30,750 <sup>r</sup>	30,700
Philippines	4,606	4,756	6,272	9,221 <sup>r</sup>	14,249 <sup>4</sup>
Slovakia <sup>e</sup>	25,000 <sup>4</sup>	23,000 <sup>r</sup>	23,000 <sup>r</sup>	24,000 <sup>r</sup>	24,000
South Africa	NA <sup>r</sup>	NA <sup>r</sup>	NA <sup>r</sup>	NA <sup>r</sup>	NA
Turkey <sup>5</sup>	522,832	545,585	702,673 <sup>r</sup>	887,600 <sup>r</sup>	1,075,949 <sup>4</sup>
United States <sup>6</sup>	348,000	414,000	420,000	393,000 <sup>r</sup>	419,000 <sup>4</sup>
Zimbabwe	3,000	1,000	1,000	1,000	1,000
Total	2,220,000 <sup>r</sup>	2,130,000 <sup>r</sup>	2,370,000 <sup>r</sup>	2,370,000 <sup>r</sup>	2,490,000

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available.

<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. Contains data available through March 4, 2015.

<sup>3</sup>In addition to the countries listed, Algeria, Bulgaria, China, Cyprus, Georgia, Iceland, Morocco, Mozambique, and Russia, are thought to have produced perlite, but output is not reported, and available information is inadequate to make reliable estimates of output levels.

<sup>4</sup>Reported figure.

<sup>5</sup>Crude ore.

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