



# 2014 Minerals Yearbook

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**PERLITE [ADVANCE RELEASE]**

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# PERLITE

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In 2014, the amount of domestic processed crude perlite sold or used in the United States increased by 8% to 451,000 metric tons (t) from 419,000 t in 2013. The average unit value of crude perlite sold or used increased by 4% compared with that of 2013. In 2014, expanded perlite production was about 454,000 t. The 10-year average tonnages produced for crude perlite and expanded perlite were 425,000 t and 524,000 t, respectively. Although sales and use of expanded perlite has been relatively stable since 2009, the sales and use continued to be about 33% lower than the peak in the market in 2005. The perlite industry continued to pursue novel end uses.

Exports of processed crude perlite were estimated to have been about 45,000 t in 2014, and imports of processed crude perlite were an estimated 141,000 t. World production of crude processed perlite, from 15 countries, was 2.5 million metric tons (Mt) in 2014, a slight decrease from that in 2013. Percentages in this report were calculated 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. The processed crude perlite in table 1 was produced by six companies with seven mines. According to data collected by the USGS, the 451,000 t of U.S.-processed crude perlite sold or used in 2014 was valued at \$25.6 million. The total value of the processed crude perlite sold or used in 2014 increased by 11% compared with that of 2013.

Perlite was expanded at 46 plants throughout the United States. In addition, four plants were reported as idle. Of the 46 active plants, 19 plant operators responded to the USGS survey, representing about 67% 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 454,000 t of expanded perlite sold or used by domestic producers was valued at \$151 million, a slight decrease in quantity, but a slight increase in value compared with that of 2013 (table 1). The reopening of a mine in southern California, which had been scheduled for 2014, was put on hold indefinitely. It is unknown when this mine will become active again.

## Consumption

In 2014, domestic apparent consumption of processed crude perlite was 547,000 t, a slight decrease compared with that of 2013. Expanded perlite consumed for construction-related uses, the major market for expanded material, was about 219,000 t, a

decrease of about 7% compared with that of 2013. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 48% of total domestic sales of expanded perlite in 2014. Expanded perlite consumption increased for concrete aggregate, horticultural aggregate, and low-temperature insulation (table 2).

## Prices

The average value of processed expanded perlite increased in 2014. The industry continued the development of novel uses and specialty products to increase customer demand. Because the bulk of perlite is used for construction products, particularly formed products (46%), a strong construction market has the potential to increase consumption.

Processed crude perlite was sold at an average value of \$57 per metric ton, which was a slight increase from the revised value in 2013. Perlite consumed by expanding plants operated by mining companies was valued at \$53 per ton, a 10% increase compared with that of 2013. The average value of expanded perlite was \$332 per ton, an increase of 4% compared with the \$320 per ton reported in 2013 (table 1).

Expanded perlite unit values ranged from \$532 per ton for horticultural aggregate to \$179 per ton for formed products (table 2). This broad range is a function of the end use and quality of the perlite needed for varying products.

## Foreign Trade

The U.S. Census Bureau reports trade in perlite and vermiculite in a combined category. Because of this, 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.

U.S. exports in 2014 of processed crude and expanded perlite were estimated to be 45,000 t, about 75% (34,000 t) of which went to Canada. Most of the perlite exported to Canada was horticultural-grade perlite and was commonly mixed with peat and other ingredients to produce potting soils. Mexico and Australia received 10% and 7%, respectively, of total U.S. perlite exports. Perlite was exported to approximately 32 other countries in 2014, but the average amount exported to most of those countries was less than 1,000 t. The value of exports could not be calculated based on available information.

Imports of processed crude perlite, almost exclusively from Greece, decreased by 7% to 141,000 t compared with those of 2013. The average customs unit value of perlite imported from Greece in 2014 was estimated to be \$108 per ton, an increase of about 4% from that of 2013. 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 was shipped to expanding plants throughout the States east of the Mississippi River.

### **World Review**

The United States was estimated to be the leading consumer of processed crude and expanded perlite in 2014 but was ranked third or fourth in the production of crude perlite (depending on the production levels in China, which were not known). Perlite production in Turkey decreased in 2014 to 897,000 t. Total world production for crude perlite in 2014 was 2.5 Mt, which is a slight decrease from that of 2013. Owing to a lack of reliable information, however, this total does not include all major producing countries, including China, which likely was one of the three leading producers in the world. One unverified report of perlite production in China estimated that 900,000 t was produced in 2013.

S&B Industrial Minerals S.A. (Kifissia, Greece) was the primary supplier of processed crude perlite imports to the United States. In late 2014, Imerys S.A. announced its planned acquisition of S&B Industrial Minerals. The acquisition was scheduled to be completed in early 2015.

### **Outlook**

Total consumption of processed and expanded perlite in the United States in 2015 is expected to increase slightly from the levels in 2014. During the past 10 years, prices for expanded perlite have not seen major fluctuations, but a steady increase began in 2009 and continued through 2015. As residential and commercial construction increases, as has been seen in some areas of the United States, perlite consumption is likely to increase. Perlite imports in 2015 are expected to increase from the levels in 2014. Because Imerys is scheduled to finalize the acquisition of S&B Industrial Minerals S.A. in 2015, the global market place for perlite may change owing to this substantial new industry structure.

The availability of reliable data for China in 2015 would provide valuable insight into perhaps one of the leading perlite-producing countries in the world. The data will allow for more reliable world production totals, as well as a more complete understanding of the trade patterns for perlite, especially in Southeast Asia. Information about the price of perlite from China would also help in estimating the global unit value for perlite.

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 supplied 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 upon the availability and cost of 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 Industrial Minerals and Rocks (6th 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 STATES<sup>1</sup>

(Thousand metric tons and thousand dollars unless otherwise specified)

	2010	2011	2012	2013	2014	
Perlite mined <sup>2</sup>	529	469	471	471	418	
Processed crude perlite:						
Sold to expanders:						
Quantity	319	300	319	340	376	
Value	16,500	16,600	17,000	19,300	21,700	
Average value	dollars per metric ton	52	55	53	57	58
Used at own plants to make expanded perlite:						
Quantity	95	120	74	79	75	
Value	5,090	6,990	3,340	3,800	3,960	
Average value	dollars per metric ton	54	58	45	48	53
Total, sold and used:						
Quantity	414	420	393	419	451	
Value	21,600	23,600	20,400	23,100	25,600	
Average value	dollars per metric ton	52	56	52	55	57
Expanded perlite:						
Production, quantity	472	477	462	466	454	
Sold or used:						
Quantity	471	475	503 <sup>r</sup>	463	454	
Value	143,000	144,000	142,000 <sup>r</sup>	148,000	151,000	
Average value	dollars per metric ton	304	302	283 <sup>r</sup>	320	332

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

Use	2013			2014		
	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	3,950	\$1,650	\$418	4,000	\$1,660	\$415
Fillers	70,700	30,400	431	16,400	7,610	464
Filter aid	48,600	21,700	447	45,300	20,400	451
Formed products <sup>3</sup>	218,000	41,700	191	210,000	37,800	179
High-temperature insulation	8,060	2,150	266	7,850	2,070	264
Horticultural aggregate	66,800	31,400	470	103,000	54,700	532
Low-temperature insulation	1,320	778	588	13,500	5,950	438
Masonry- and cavity-fill insulation	1,690	803	475	1,190	550	463
Plaster aggregate	12,600	5,390	427	3,310	1,090	329
Other <sup>4</sup>	1,630	454	278	34,600	16,700	483
Unspecified <sup>5</sup>	30,000	11,900	396	15,000	2,360	157
Total or average	463,000	148,000	320	454,000	151,000	332

<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 3  
 PERLITE: WORLD PRODUCTION, BY COUNTRY<sup>1, 2</sup>

(Metric tons)

Country <sup>3</sup>	2010	2011	2012	2013	2014 <sup>e</sup>
Armenia	95	229	181	53	14 <sup>4</sup>
Australia <sup>5</sup>	NA	NA	NA	NA	NA
Bulgaria	--	--	4,000	5,000 <sup>e</sup>	5,000
Greece <sup>5</sup>	816,873 <sup>r</sup>	842,870	876,396 <sup>r</sup>	890,000 <sup>r</sup>	985,328 <sup>4</sup>
Hungary <sup>5, 6</sup>	29,000 <sup>r</sup>	29,000 <sup>r</sup>	30,000 <sup>r</sup>	27,000 <sup>r</sup>	28,000 <sup>4</sup>
Iran	19,200	20,000	30,000	55,100	55,000
Italy	NA	NA	NA	NA	NA
Japan	-- <sup>r</sup>	-- <sup>r</sup>	-- <sup>r</sup>	-- <sup>r</sup>	--
Mexico <sup>5</sup>	31,779	31,779	29,950 <sup>r</sup>	27,200 <sup>r</sup>	27,200
Philippines	4,756	6,272	9,221	14,249	17,194 <sup>4</sup>
Slovakia <sup>e</sup>	23,000	23,000	24,000	16,000 <sup>r</sup>	17,000
Turkey <sup>5</sup>	545,585	702,673	887,600	1,075,949	897,125 <sup>4</sup>
United States <sup>7</sup>	414,000	420,000	393,000	419,000	451,000 <sup>4</sup>
Zimbabwe <sup>e</sup>	1,000	1,000	1,000	1,000	1,000
World total	1,890,000 <sup>r</sup>	2,080,000 <sup>r</sup>	2,290,000 <sup>r</sup>	2,530,000 <sup>r</sup>	2,480,000

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

<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 June 29, 2016.

<sup>3</sup>In addition to the countries listed, Algeria, China, Cyprus, Georgia, Morocco, 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>Hungary reports perlite production, in cubic meters, as follows: 2010—33,912; 2011—33,869; 2012—34,624; 2013—31,024; and 2014—32,750. One cubic meter of perlite equals 0.86 metric tons. Data are calculated and rounded to four significant digits.

<sup>7</sup>Processed perlite ore sold and used by producers.