



2015 Minerals Yearbook

PERLITE [ADVANCE RELEASE]

PERLITE

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In 2015, the amount of domestic processed crude perlite sold and used decreased slightly to 459,000 metric tons (t) in 2015 from the revised figure of 462,000 t in 2014 (table 1). The average unit value of crude perlite sold and used increased by 11% compared with that of 2014. In 2015, expanded perlite production was 491,000 t. The 10-year average tonnages for crude perlite mined and expanded perlite production were 477,000 t and 508,000 t, respectively. Although sales and use of expanded perlite were relatively stable between 2009 and 2015, sales and use remained about 28% lower than in 2005.

Exports of processed crude perlite were estimated to have been about 40,000 t in 2015. During 2015, imports of processed crude perlite were an estimated 155,000 t. World production of crude processed perlite, from 14 countries, was 4.38 million metric tons (Mt) in 2015, a slight increase from the revised figures in 2014 (table 3). 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 (mined and processed crude perlite) and one for expanding plants. The expanding plants used domestic and imported processed crude perlite. Processed crude perlite (table 1) was produced by six companies with seven mines. According to data collected by the USGS, the 459,000 t of U.S.-processed crude perlite sold and used in 2015 was valued at \$27.9 million, a 10% increase in value compared with the revised value of 2014. The 490,000 t of expanded perlite sold or used by domestic producers was valued at \$161 million, a 3% increase in quantity and a 5% increase in value compared with the revised values of 2014 (table 1).

The processed crude perlite reported in table 1 was mined in Arizona, 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, Imerys S.A. (France) in Arizona and New Mexico; 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 46 plants throughout the United States. Four additional plants were reported as idle. Of the 46 active plants, 22 plant operators responded to the USGS survey, representing about 75% of the total expanded perlite sold or used. Nestlé Purina PetCare Co. (St. Louis, MO) opened a new expansion plant in Bloomfield, MO, during late 2015. Production information for nonresponding companies was estimated using previously reported data, with adjustments based on currently reported production trends.

Consumption

In 2015, domestic apparent consumption of processed crude perlite was 574,000 t, a 6% increase compared with that of 2014. Domestic consumption of expanded perlite was about 490,000 t. Expanded perlite consumed for construction-related uses, which accounted for about 53% of the market for expanded material, was about 260,000 t, a 6% increase compared with that of 2014. Construction uses of expanded perlite consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate. Expanded perlite consumption increased for fillers, filter aid, formed products, high-temperature insulation, masonry- and cavity-fill insulation, and plaster aggregate (table 2). According to U.S. Census Bureau data, housing starts increased by 12% in 2015 from those in 2014. It is likely that the increase in construction fueled the increase in construction-related perlite consumption.

Prices

The average annual value of processed crude perlite sold to expanders in 2015 was \$60 per metric ton, 9% more than that in 2014. Perlite consumed by expanding plants operated by mining companies was valued at \$65 per metric ton, a 23% increase compared with that of 2014. The average annual value of expanded perlite in 2015 was \$327 per metric ton, slightly more than that in 2014 (table 1).

Expanded perlite unit values ranged from \$686 per metric ton for low-temperature insulation to \$199 per metric 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

Because the U.S. Census Bureau reported trade in perlite and vermiculite in a combined category, Harmonized Tariff Schedule of the United States code 2530.10.0000 (vermiculite, perlite, and chlorites, unexpanded), foreign trade data were estimated.

U.S. exports of processed crude and expanded perlite in 2015 were estimated to be 40,000 t, about 75% (30,000 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 the United Kingdom received 14% and 3%, respectively, of total U.S. perlite exports. Perlite was exported to approximately 41 other countries in 2015, but the average quantity exported to most of those countries was less than 300 t.

U.S. imports of processed crude perlite, almost exclusively from Greece, were estimated to have decreased by 7% to 155,000 t compared with those of 2014. The average customs unit value of perlite imported from Greece in 2015 was estimated to be \$102 per metric ton, a decrease of about 6%

from that of 2014. 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 in States east of the Mississippi River.

World Review

Total world production of crude perlite in 2015 was 4.38 Mt, a slight increase from the revised value of 2014 (table 3). New information for China's perlite production for 2011–15 was received from industry sources, and inclusion of these data resulted in a significant increase in world production for those years. Based on the newly included estimates for China's production, the world's leading producers of crude perlite in 2015 were, in descending order of production, China, Greece, Turkey, and the United States, accounting for 41%, 23%, 21%, and 11%, respectively, of world production. Greece and Turkey remained the leading exporters of perlite. Although China was the leading producer, most crude perlite was believed to be consumed internally.

S&B Industrial Minerals S.A. (Greece) was the primary supplier of processed crude perlite imports to the United States. Imerys completed its purchase of S&B Industrial Minerals in early 2015. The acquisition was one of the largest in the perlite industry since Imerys purchased World Minerals, a producer of perlite products with mines in Arizona and New Mexico, in 2010. Including the acquired S&B Industrial Minerals facilities, Imerys owned 6 perlite mines and 11 perlite plants located in 6 countries (O'Driscoll, 2015).

Outlook

Total consumption of processed and expanded perlite in the United States in 2016 is expected to increase slightly from that in 2015. In 2015, Imerys and EP Minerals announced price increases in their product lines, including perlite products (Business Wire, 2015a, b). As residential and commercial construction increases, which has taken place in some areas of the United States, perlite consumption is likely to increase. Perlite imports in 2016 were expected to increase from the levels in 2015 to meet increased demand.

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 upon the availability and cost of ocean freight.

A number of new technologies have the potential to increase perlite consumption during the next 5 to 10 years. These technologies include wallpaper infused with perlite, concrete

with perlite added to increase flame-retardant abilities, and insulation with perlite embedded (Edie.net, 2015). All of these new technologies are directly related to the construction industry and have a strong potential to increase energy efficiency and safety in construction materials (Kemp, 2015). These new technologies continue the green technology trend that the perlite industry has been a part of for more than 10 years (Brunel University, 2015).

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GENERAL SOURCES OF INFORMATION

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TABLE 1
 PERLITE MINED, PROCESSED, AND EXPANDED IN THE UNITED STATES¹

(Thousand metric tons and thousand dollars unless otherwise specified)

	2011	2012	2013	2014	2015	
Perlite mined ²	469	471	471	462 ^r	504	
Processed crude perlite:						
Sold to expanders:						
Quantity	300	319	340	388 ^r	394	
Value	16,600	17,000	19,300	21,500 ^r	23,700	
Average value	dollars per metric ton	55	53	57	55 ^r	60
Used at own plants to make expanded perlite:						
Quantity	120	74	79	75	65	
Value	6,990	3,340	3,800	3,960	4,230	
Average value	dollars per metric ton	58	45	48	53	65
Total, sold and used:						
Quantity	420	393	419	462 ^r	459	
Value	23,600	20,400	23,100	25,500 ^r	27,900	
Average value	dollars per metric ton	56	52	55	55	61
Expanded perlite:						
Production, quantity	477	462	466	481 ^r	491	
Sold or used:						
Quantity	475	503	463	475 ^r	490	
Value	144,000	142,000	148,000	153,000 ^r	161,000	
Average value	dollars per metric ton	302	283	320	323 ^r	327

^rRevised.

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

²Crude ore mined and stockpiled for processing.

TABLE 2
 EXPANDED PERLITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE¹

Use	2014 ^r			2015		
	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	1,520	\$1,240	\$815	1,300	\$364	\$280
Fillers	72,500	34,200	472	74,100	35,000	472
Filter aid	39,600	16,500	417	46,000	19,700	429
Formed products ³	226,000	40,200	178	240,000	47,900	199
High-temperature insulation	7,800	2,020	259	8,270	2,200	266
Horticultural aggregate	79,200	37,800	477	75,100	35,100	468
Low-temperature insulation	2,070	1,380	667	1,870	1,280	686
Masonry- and cavity-fill insulation	1,400	652	467	1,670	825	494
Plaster aggregate	15,100	4,360	290	16,400	7,640	467
Other ⁴	2,400	763	318	6,180	2,080	336
Unspecified ⁵	27,800	14,300	513	19,300	8,410	435
Total or average	475,000	153,000	323	490,000	161,000	327

^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 3
 PERLITE: WORLD PRODUCTION, BY COUNTRY^{1, 2}

(Metric tons)

Country ³	2011	2012	2013	2014	2015 ^e
Armenia	229	181	53	14 ^e	20
Australia	NA	NA	NA	5 ^r	7
Bulgaria ^e	-- ⁴	4,000 ⁴	5,000	5,000	5,000
China ^e	2,500,000	2,100,000	1,800,000	1,800,000	1,800,000
Greece ⁵	842,870 ^r	876,396	890,000	985,328	1,000,000
Hungary ^{5, 6}	39,254 ^r	40,129 ^r	35,957 ^r	37,957 ^r	40,000
Iran	20,000	30,000	55,100	55,000 ^e	60,000
Mexico ⁵	31,779	29,950	27,200	26,000 ^r	26,000
New Zealand	NA	NA	NA	22,000 ^e	25,000
Philippines	6,272	9,221	14,249	17,194	19,000
Slovakia ^e	23,000	24,000	16,000	17,000	18,000
Turkey ⁵	702,673	887,600	1,075,949	897,125	925,000
United States ⁷	420,000	393,000	419,000	462,000 ^r	459,000 ⁴
Zimbabwe ^e	1,000	1,000	1,000	1,000	1,000
Total	4,590,000 ^r	4,400,000 ^r	4,340,000 ^r	4,330,000 ^r	4,380,000

^eEstimated. ^rRevised. NA Not available. -- Zero.

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. Contains data available through August 11, 2016.

³In addition to the countries listed, Algeria, Cyprus, Georgia, Italy, 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.

⁴Reported figure.

⁵Crude ore.

⁶Hungary reports perlite production, in cubic meters, as follows: 2011—33,869; 2012—34,624; 2013—31,024; 2014—32,750; and 2015—34,500 (estimated). One cubic meter of perlite equals 1.159 metric tons.

⁷Processed ore of perlite sold and used by producers.