

# PUMICE AND PUMICITE

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In 1998, pumice and pumicite consumption in the United States was 847,000 metric tons (t), according to the U.S. Geological Survey (USGS). This consumption was about 2% greater than that of 1997 and represents the highest level of pumice consumption since 1986, when 851,000 t were consumed. The increase in consumption was mostly attributable to the greater consumption of imported pumice and pumicite. Domestic production increased about 1%, and exports, while minor, nearly doubled to 22,000 t (table 1).

The main use for pumice was as an aggregate in lightweight building blocks and assorted building products. The other major applications for pumice and pumicite included abrasive, absorbent, concrete aggregate and admixture, filter aid, horticultural (including landscaping), and the stonewashing of denim.

## Production

Pumice and pumicite sold or used by U.S. producers increased to 583,000 t with a value of \$12.6 million (table 1). Oregon remained the largest source of pumice and pumicite, followed, in descending order, by California, New Mexico, Idaho, Arizona, and Kansas. Domestic production data for pumice and pumicite were developed by the USGS from a voluntary survey of U.S. operations. As shown in table 1, 14 companies with 14 active operations contributed all of the quantity and value of sold and used. Because five of the companies did not respond to the 1998 survey, sold and used data for these companies were estimated. The nine companies that responded represented about 78% of the 583,000 t.

Domestic producers were Tufflite Inc., Phoenix, AZ; California Industrial Minerals Co., Friant, CA; California Lightweight Pumice, Inc., San Clemente, CA; Glass Mountain Pumice Inc., Tulelake, CA; U.S. Pumice Co., Chatsworth, CA; Amcor Precast Inc., Idaho Falls, ID; Hess Pumice Product Inc., Malad City, ID; Producers Pumice Inc., Meridian, ID; Calvert Corp., Norton, KS; Kansas Minerals Inc., Mankato, KS; Copar Pumice Co. Inc., Espanola, NM; C.R. Minerals, Inc., Santa Fe, NM; Utility Block Co., Albuquerque, NM; and Cascade Pumice Co., Bend, OR.

## Consumption

The amount of pumice sold or used by U.S. producers rose because of increased demands from the building block and horticultural (including landscaping) markets (table 2). Demand fell for the abrasive, concrete admixture, stonewashing laundry, and miscellaneous markets. The amount of pumice

sold for building block rose by about 10%, to 373,000 t from 339,000 t. Horticultural market sales rose by about 23%, to 107,000 t from 87,000 t. Abrasive sales dropped by about 22% to 32,000 t, from 41,000 t in 1997, following an even larger decrease from those of 1996. This fall was mostly in response to continuing falling foreign demand which was still affected by economic problems in Asian countries. Sales of domestic stonewashing laundries grade pumice also continued to decrease in 1998 following a trend that began in 1997. Sales fell by nearly 36% from those of 1997.

The most important market for pumice remained building block, which consumed 64% of the total pumice sold or used in the United States. Other important uses were horticultural and landscaping, 18%; concrete aggregate, 5.8%; abrasives, 5.5%; and stonewashing, 3.1%. The remaining pumice and pumicite (3.4%) was used as absorbent (including pet litter), diluents, fill, and filter aids, and in pottery clays and other unspecified uses.

## Prices

The average prices reported for pumice and pumicite, by use, varied greatly compared with the average prices for 1998. The overall average was \$21.60 per metric ton in 1998, down \$6.30 per ton from \$27.90 in 1997. Most of the price change resulted from a decrease in the average value reported for the grades of pumice used in building block and horticultural applications. These two predominant markets declined and more than offset rises in the average prices for abrasive, concrete admixture (including aggregate), stonewashing, and other miscellaneous uses. The average price per metric ton for pumice by use were abrasive, \$146; stonewashing, \$104; miscellaneous uses, \$39; concrete admixture, \$24; horticulture/landscaping, \$16; and building block, \$7.

## Foreign Trade

Exports increased to 22,000 t with a value of \$11.2 million. Receiving countries were led by Canada, 35%, followed by Japan, 13%; Germany and the United Kingdom, 9% each; and Mexico and Suriname, 6% each. The remainder of exports went to 29 other countries in Asia, Central America, South America, Europe, the Middle East, and Oceania.

By volume, most imports of pumice and pumicite were for construction-related uses with small but significant amounts used for abrasives and stonewashing. Greece remained the largest source for pumice imports, supplying more than 82% (table 3). Imports in 1998 increased by about 8%, to 288,000 t

compared with that of 1997. Imports from Italy rose drastically, to 31,000 t, and Greek imports fell by 3%, to 237,000 t. Other noteworthy exporting countries to the United States were Ecuador and Turkey. Besides these, 16 other countries exported pumice and pumicite to the United States in 1998.

### **World Review**

The USGS estimated world pumice (and related materials) production to be 11.5 million metric tons (Mt) in 1998 (table 4). Globally, Italy remained the dominant producer of pumice and pozzolan, with annual production around 5 Mt. Other leading countries in the production of pumice and related materials were Chile, Ethiopia, France, Germany, Greece, Spain, Turkey, and the United States. Besides these, at least 17 other countries produced pumice.

Pumice was used more extensively outside of the United States which explains the large global production (and sales) of pumice relative to the United States. In Europe, for example, basic home construction used significantly less gypsum sheetrock; stone and concrete were usually the preferred building materials. Prefabricated, lightweight concrete walls were often produced and shipped to construction locations. Because of its lightweight, strength, and cementitious properties, pumice performed very well in the European style of construction.

### **Outlook**

Consumption of pumice and pumicite in 1999 is expected to rise slightly or to stay at about the same level as that of 1998, because construction activity is expected to continue at a steady level. Trade should pick up in 1999, with imports and exports exceeding 1998 levels, because importers will be installing new facilities for pumice storage and handling in the United States and economies begin to recover in Asia.

### **SOURCES OF INFORMATION**

#### **U.S. Geological Survey Publications**

Lightweight aggregates. Ch. in United States mineral resources, U.S. Geological Survey Professional Paper 820, 1973.

Pumice and pumicite. Ch. in Mineral Commodity Summaries, annual.<sup>1</sup>

#### **Other**

Bates, R.L., 1969, Geology of the industrial rocks and minerals, Dover Publications, Inc., New York, p. 39-50. Industrial Minerals Magazine (London).

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<sup>1</sup>Prior to January 1996, published by the U.S. Bureau of Mines.

TABLE 1  
SALIENT PUMICE AND PUMICITE STATISTICS 1/

(Thousand metric tons and thousand dollars)

	1994	1995	1996	1997	1998
United States (sold and used by producers):					
Pumice and pumicite	490	529	612	577	583
Value (f.o.b. mine and/or mill)	\$11,800	\$13,200	\$14,800	\$16,100	\$12,600
Average value per ton	\$24.10	\$25.00	\$24.20	\$27.90	\$21.60
Exports e/	18	16	13	12	22
Imports for consumption	143	238	215	265	286
Apparent consumption 2/	615	728	814	830	847
World: Production, pumice and related volcanic materials	11,400 r/	11,500 r/	11,500 r/	11,600 r/	11,500 e/

e/ Estimated. r/ Revised.

1/ Data are rounded to three significant digits.

2/ Production plus imports, minus exports, plus adjustments for Government and industry stock changes.

TABLE 2  
PUMICE AND PUMICITE SOLD AND USED BY PRODUCERS IN THE UNITED STATES, BY USE 1/

(Thousand metric tons and thousand dollars)

Use	1997		1998	
	Quantity	Value	Quantity	Value
Abrasives 2/	41	4,880	32	4,660
Building block, includes decorative	339	4,360	373	2,690
Concrete admixture and aggregate	48	1,060	34	814
Horticulture and landscaping	87	2,460	107	1,760
Laundries	28	2,330	18	1,880
Other 3/	34	986	20	779
Total	577	16,100	583	12,600

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes cleaning and scouring compounds.

3/ Includes absorbent, diluents, fill, filter aids, pottery and other unspecified uses.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF PUMICE, BY CLASS AND COUNTRY 1/

(Thousand metric tons and thousand dollars)

Country	Crude or unmanufactured		Wholly or partly manufactured	
	Quantity	Value	Quantity	Value
1997:				
Ecuador	(2/)	59	1	41
Greece 3/	245	4,860 r/	--	--
Italy	1	314	(2/)	119
Mexico	2	156	(2/)	30
Turkey	15	2,110	--	--
Other 4/	1	64	(2/)	1,060
Total	265	7,560 r/	1 r/	1,250
1998:				
Ecuador	2	115	(2/)	28
Greece 3/	237	3,410	--	--
Italy 3/	30	1,930	1	604
Mexico	(2/)	48	(2/)	75
Turkey	16	2,250	(2/)	4
Other 5/	1	181	(2/)	747
Total	286	7,930	2	1,460

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

3/ The Journal of Commerce Port Import/Export Reporting Service data.

4/ Includes Canada, China, France, Georgia, Germany, Ireland, Japan, the Republic of Korea, the Netherlands, New Zealand, Spain, Syria, Taiwan, Tokelau, and the United Kingdom.

5/ Includes Bangladesh, Canada, China, France, Germany, India, Indonesia, Japan, the Republic of Korea, New Zealand, Poland, South Africa, Spain, Taiwan, and the United Kingdom.

Source: Bureau of the Census.

TABLE 4  
PUMICE AND RELATED MATERIALS: WORLD PRODUCTION, BY COUNTRY 1/ 2/

(Metric tons)

Country 3/	1994	1995	1996	1997	1998 e/
Argentina 4/	131,661	74,941	81,283	80,000	75,000
Austria: Trass e/	5,620 5/	6,000	6,000	5,000	5,000
Burkina Faso e/	11,000	11,000	11,000	10,000 r/	10,000
Cameroon: Pozzolan e/	101,870 r/ 5/	100,000 r/	100,000 r/	100,000	90,000
Cape Verde: Pozzolan e/	5,000	5,000	1,000	1,000	1,000
Chile: Pozzolan	452,000	466,000	500,000	491,000 r/	480,000
Costa Rica e/	8,000	8,000	8,000	8,000	8,000
Dominica: Pumice and volcanic ash e/	100,000	100,000	100,000	100,000	100,000
Ecuador: Pumice	8,665 r/	9,000 r/ e/	231,875 r/	368,269 r/	250,000
Ethiopia e/	127,000	360,000	360,000 r/	325,000 r/	325,000
France: Pozzolan and lapilli	490,000	427,000	410,000 r/	477,000 r/	480,000
Germany: Pumice (marketable) e/	504,000 5/	625,000	600,000	600,000	600,000
Greece:					
Pumice	635,470	856,450 r/	867,450 r/	900,000 r/ e/	900,000
Pozzolan	649,608	691,722 r/	749,790 r/	750,000 r/ e/	750,000
Guadeloupe: Pumice e/	210,000	210,000	210,000	210,000	210,000
Guatemala: Pumice e/	6,000	6,200	6,300	6,300	6,350
Iceland e/	23,000	30,000	25,000	25,000	25,000
Iran e/	200,000	200,000	200,000	200,000	200,000
Italy: e/					
Pumice and pumiceous lapilli	700,000	650,000	600,000	600,000	600,000
Pozzolan	4,500,000	4,000,000	4,000,000	4,000,000	4,000,000
Macedonia: Volcanic tuff e/	75,000	75,000	75,000	75,000	75,000
Martinique: Pumice e/	130,000	130,000	130,000	130,000	130,000
New Zealand	116,840	77,054	90,571	90,000	90,000
Serbia and Montenegro: Volcanic tuff e/	75,000	75,000	75,000	75,000	75,000
Slovenia: Volcanic tuff e/	40,000	40,000	40,000	40,000	40,000
Spain e/ 6/	700,000	600,000	600,000	600,000	600,000
Turkey	947,174	1,125,820	774,000 r/	800,000 r/ e/	800,000
United States (sold and used by producers)	490,000	529,000	612,000	577,000	583,000 5/
Total	11,400,000 r/	11,500,000 r/	11,500,000 r/	11,600,000 r/	11,500,000

e/ Estimated. r/ Revised.

1/ World totals, U.S. data, and estimated data have been rounded to three significant digits; may not add to totals shown.

2/ Table includes data available through April 29, 1999.

3/ Pumice and related materials are also produced in a number of other countries, including Japan, Mexico, and the former U.S.S.R.; available information is inadequate for the formulation of reliable estimates of output levels.

4/ Unspecified volcanic materials produced mainly for use in construction products (includes pumice, perlite, pozzolan, and toba).

5/ Reported figure.

6/ Includes Canary Islands.