PUMICE AND PUMICITE

By Wallace P. Bolen

Pumice and pumicite consumption in the United States in 1997 was 830,000 metric tons, according to the U.S. Geological Survey (USGS). This consumption represents the highest level of pumice consumption since 1986, when 851,000 metric tons were consumed. Because production of domestic pumice declined for the first time in 4 years, the increase in consumption was strictly attributable to greater consumption of imported pumice and pumicite. *(See table 1.)*

Pumice is an important material in lightweight building products, the main use for pumice. Other applications for pumice include, absorbent, filter aid, horticultural, and the stonewashing of denim.

Central Oregon Pumice Co., one of the largest, oldest, and longest running pumice mines in the United States, closed down in April 1997. The owner of the mining and processing operation cited rising real estate values and associated acquisition cost related to population growth in the Bend, OR, area as the impetus for the closure of pumice mining activities. The other large pumice mine in Bend, Cascade Pumice Co., continues to operate.

Production

Pumice and pumicite sold or used by U.S. producers decreased 5.7% to 577,000 metric tons with a value of $16.1 million. Oregon remained the largest source of pumice and pumicite, followed in descending order by New Mexico, California, Idaho, Arizona, and Kansas. The average price of pumice rose $3.70 per ton from $24.20 per metric ton to $27.90 per ton. Most of the price increase resulted from increased consumption of the more expensive abrasive grades of pumice and increased prices for stonewashing pumice.

Domestic production data for pumice and pumicite were developed by the USGS from a voluntary survey of U.S. operations. Fifteen companies with 15 active operations produced all of the pumice sold and used as shown in table 1. Six of the companies, with six operations, did not respond to the 1997 survey. Sold and used data for these companies were estimated. The nine companies that responded represented about 72% of the 577,000 tons reported in table 1.

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, Idaho Falls, ID; Hess Pumice Products, Malad City, ID; Producers Pumice, 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; Cascade Pumice Co., Bend, OR; and Central Oregon Pumice Co., Bend, OR.

Consumption

The amount of pumice sold or used by U.S. producers fell due to decreased demand from the abrasives and laundries markets. Abrasive sales dropped about 63% to 41,000 tons from sales of 111,000 tons in 1996. This spectacular decrease was spurred on by falling domestic and foreign demand. Foreign demand was particularly affected by economic problems in Asian countries. Sales of domestic stonewashing (or laundry) grade pumice decreased significantly in 1997. Even when imports for stonewashing (estimated between 15,000 and 17,000 tons) are added to domestic sales, consumption for this market was still estimated to have dropped about one-third. The launderers' choice for stonewashing aids is quite dynamic and future fluctuations in pumice consumption for this market should be expected. The laundries continued to experience either disposal or environmental problems with most of the stonewashing aids which include chemicals, diatomite, perlite, pumice, and others.

The most important market for pumice remained building block, which consumed 59% of the total pumice sold or used in the United States. The amount of pumice sold for building block rose about 16%, from 292,000 tons to 339,000 tons. Other important uses, in descending order, were for horticultural and landscaping (15%), concrete aggregate (8.3%), abrasives (7.1%), and stonewashing laundries (4.9%). The remaining pumice and pumicite (5.9%) was used for absorbent (pet industry), diluents, fill, filter aids, in pottery clays, and other unspecified uses. *(See table 2.)*

Foreign Trade

Exports dropped to 12,000 metric tons with a value of $7.2 million. Receiving countries were led by Canada, 52%, followed by Germany, 16.5%; and the United Kingdom, 6.9%. The remainder of exports went to 29 other countries in Asia, Central America, Europe, and South America.

By volume, most imports of pumice were for construction-related uses with small but significant amounts used for abrasives and stonewashing. Greece remained the largest source for pumice imports, supplying over 92%. Pumice imports in 1997 increased 23% compared with that of 1996 to 265,000 tons. Greek imports rose 24% to 245,000 tons. Other noteworthy exporting countries to the United States were Ecuador, Italy, Mexico, and Turkey. Besides these countries, 15 other countries exported pumice to the United States in 1997. *(See table 3.)*

World Review

The USGS estimates world pumice (and related materials)

production at 11.2 million tons in 1997. Globally, Italy remained the dominant producer of pumice and pozzolan, with annual production around 5 million tons. 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 countries, at least 17 other countries produced pumice around the world. *(See table 4.)*

Pumice is used more extensively outside of the United States and this explains the large global production (and sales) of pumice relative to the United States. In Europe, basic home construction uses significantly less gypsum sheetrock than in the United States. Stone and concrete are usually the preferred building materials. Prefabricated, lightweight concrete walls are often produced and shipped to construction locations. Pumice, because of its lightweight, strength, and cementitious properties performs very well in the European style of construction.

Outlook

Consumption of pumice and pumicite in 1998 is expected to rise slightly to about the same levels as in 1997, as construction activity is expected to continue at a steady level in 1998. Trade will probably increase in 1998, with both imports and exports exceeding 1997 levels, as importers install new U.S. facilities for pumice storage and handling and economies 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.[1]

Other

Bates, R.L., 1969, Geology of the industrial rocks and minerals, Dover Publications, Inc., New York, p. 39-50.

Industrial Minerals Magazine (London).

[1]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)

	1993	1994	1995	1996	1997
United States: Sold and used by producers:					
Pumice and pumicite	469	490	529	612	577
Value (f.o.b. mine and/or mill)	$12,000	$11,800	$13,200	$14,800	$16,100
Average value per ton	$25.70	$24.10	$25.00	$24.20	$27.90
Exports e/	18	18	16	13	12
Imports for consumption	143	143	238	215	265
Apparent consumption 2/	594	615	728	814	830
World: Production, pumice and related volcanic materials	11,800 r/	11,500	11,200 r/	11,400 r/	11,200 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)

	1996		1997	
Use	Quantity	Value	Quantity	Value
Abrasives 2/	111	4,590	41	4,880
Building block (includes decorative)	292	4,250	339	4,360
Concrete admixture and aggregate	46	820	48	1,060
Horticulture and landscaping	66	1,910	87	2,460
Laundries	49	1,340	28	2,330
Other 3/	48	1,860	34	986
Total	612	14,800	577	16,100

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, 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
1996:				
Ecuador	3	185	--	--
Greece 2/	198	13,400	--	--
Italy	(3/)	265	(3/)	158
Mexico	(3/)	31	(3/)	27
Turkey	14	1,920	(3/)	10
Other 4/	(3/)	151	(3/)	513
Total	215	16,000	(3/)	708
1997:				
Ecuador	(3/)	59	1	41
Greece 2/	245	16,600	--	--
Italy	1	314	(3/)	119
Mexico	2	156	(3/)	30
Turkey	15	2,110	--	--
Other 5/	1	64	(3/)	1,060
Total	265	19,300	(3/)	1,250

1/ Data are rounded to three significant digits; may not add to totals shown.
2/ The Journal of Commerce Port Import/Export Reporting Service data.
3/ Less than 1/2 unit.
4/ Includes Austria, Canada, China, France, Germany, Guatemala, Honduras, Iceland, Indonesia, Japan, the Republic of Korea, the Netherlands, New Zealand, Nicaragua, the Philippines, Spain, Taiwan, and the United Kingdom.
5/ Includes Canada, China, France, Georgia, Germany, Ireland, Japan, the Republic of Korea, the Netherlands, New Zealand, Spain, Syria, Taiwan, Tokelau, 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/	1993	1994	1995	1996	1997 e/
Argentina 4/	98,631	131,661 r/	74,941 r/	81,283 r/	80,000
Austria: Trass	9,102	5,620	6,000 e/	6,000 e/	5,000
Burkina Faso e/	10,000	11,000	11,000	11,000	11,000
Cameroon: Pozzolan e/	130,000	130,000	130,000	130,000	100,000
Cape Verde: Pozzolan e/	25,000	5,000	5,000	1,000	1,000
Chile: Pozzolan	448,250	452,000	466,000 r/	500,000 r/	450,000
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: Pozzolan	83,920 r/	86,560 r/	88,000 r/ e/	88,000 r/ e/	80,000
Ethiopia e/	40,000	127,000	360,000	400,000	400,000
France: Pozzolan and lapilli	526,000	490,000	427,000	450,000 e/	450,000
Germany: Pumice (marketable)	647,000	504,000	625,000 e/	600,000 e/	600,000
Greece: e/					
Pumice	600,000	635,470 5/	600,000	600,000	600,000
Pozzolan	600,000	649,608 5/	600,000	600,000	600,000
Guadeloupe: Pumice e/	210,000	210,000	210,000	210,000	210,000
Guatemala: Pumice e/	6,300 5/	6,000	6,200	6,300	6,300
Iceland e/	45,000	23,000	30,000	25,000	25,000
Iran e/	185,000 5/	200,000	200,000	200,000	200,000
Italy: e/					
Pumice and pumiceous lapilli	700,000	700,000	650,000	600,000	600,000
Pozzolan	4,500,000	4,500,000	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	69,179	116,840	77,054	90,571 r/	90,000
Serbia and Montenegro: Volcanic tuff e/	74,230 5/	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	700,000	600,000	600,000	600,000
Turkey	1,224,114	947,174	1,125,820 r/	1,130,000 r/ e/	1,130,000
United States (sold and used by producers)	469,000	490,000	529,000	612,000	577,000 5/
Total	11,800,000 r/	11,500,000	11,200,000 r/	11,400,000 r/	11,200,000

e/ Estimated. r/ Revised.

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

2/ Table includes data available through April 29, 1998.

3/ Pumice and related volcanic materials are also produced in a number of other countries, including (but not limited to) Japan, Mexico, and the former U.S.S.R.; output is not reported quantitatively, and 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.