

PUMICE AND PUMICITE

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In 2001, pumice and pumicite consumption in the United States was 970,000 metric tons (t). This consumption was about 8.5% less than that of 2000 and represents the first decrease in pumice consumption since 1993. The decrease in consumption was mainly attributed to lower domestic sales but also to slightly decreased imports of pumice and pumicite. Domestic production decreased by about 11%, and imports decreased about 1.6%. Exports of 27,000 t were unchanged from 2000 (table 1).

The main use for pumice was as an aggregate in lightweight building blocks and assorted building products. Other major applications for pumice and pumicite included abrasive, absorbent, concrete aggregate and admixture, filter aid, horticulture (including landscaping), and the stonewashing of denim. Imports were consumed primarily as a lightweight aggregate but a small percentage of pumice imports was used as abrasive.

Production

Pumice and pumicite sold or used by U.S. producers decreased to 618,000 t valued at \$18 million. Oregon remained the leading source of pumice and pumicite, followed, in descending order, by New Mexico, California, Idaho, Arizona, and Kansas. Domestic production data for pumice and pumicite were developed by the U.S. Geological Survey (USGS) from a voluntary survey of U.S. operations. In 2001, 15 companies with 16 active operations produced and sold or used all the domestic pumice and pumicite in the United States. Because five of the companies did not respond to the 2001 survey, sold and used data for these companies were estimated. The 10 companies that responded represented about 74% of the 618,000 t.

Domestic producers, listed alphabetically by State, 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., and Producers Pumice Inc., Idaho Falls, ID; Hess Pumice Products, Inc., Malad City, ID; Calvert Corp., Norton, KS; Kansas Minerals Inc., Mankato, KS; Copar Pumice Co. Inc., Espanola, NM; CR Minerals Corp., Santa Fe, NM; Utility Block Co., Albuquerque, NM; Cascade Pumice Co., Bend, OR; and Sierra Cascade LLC, Chemult, OR.

Controversy continued in New Mexico concerning pumice mining at Copar Pumice's El Cajete Mine in the Jemez Mountains. The Sierra Club claims that the mining permit for the 76-acre El Cajete mine is in violation of the New Mexico Mining Act of 1993. The Sierra Club also sued the State Mining and Minerals Division, for issuing the permit in a

lawsuit to the New Mexico Supreme Court. Copar Pumice has struggled with various environmental groups for most of the past decade in their efforts to mine pumice at the U.S. Forest Service site (New Mexico Business Weekly, 2002¹).

Consumption

The amount of pumice and pumicite sold or used by U.S. producers fell in 2001 because of decreased demand mostly from the building block market (table 2). Demand also declined for abrasives, horticultural (including landscaping) applications, laundries (stonewashing), and miscellaneous markets. The amount of pumice sold for building block decreased by about 26%, from 470,000 t to 348,000 t. The only market which saw increased sales was for concrete admixture and aggregate, which more than doubled to 116,000 t compared with that of 2000. Sales of domestic stonewashing (or laundry) pumice continued to decrease following a trend that began in 1997, as laundries moved out of the United States, usually to Mexico. Sales fell to 5,000 t in 2001 from 6,000 t in 2000, which represents a decrease of about 17%.

The most important market for pumice remained building block, which consumed 56.3% of the total pumice sold or used in the United States. Other important uses were concrete admixture and aggregate (18.8%), horticulture and landscaping (14.6%), and abrasives (3.4%). The remaining pumice and pumicite (6.8%) was used as absorbent (including pet litter), diluent, fill, filter aids, in laundries, in pottery clays, and for other unspecified uses.

Prices

The average prices reported for pumice and pumicite varied greatly by use compared with the average price for all uses in 2001. The overall average price was \$29.19 per metric ton in 2001, an increase of \$4.92 from \$24.27 per ton in 2000. The price change was the result of an increase in the average price reported for the grades of pumice used in building block and more demand for higher priced pumice used in concrete. Additionally, there was an increase in the average price received for pumice used in abrasive, horticulture, and miscellaneous uses. Average prices for pumice and pumicite by use, in descending order, were \$277 per ton for abrasive, \$54 per ton for stone washing, \$34 per ton for horticulture/landscaping, \$25 per ton for miscellaneous uses, \$19 per ton for concrete admixture and aggregate, and \$17 per ton for building block.

¹A reference that includes a section twist (§) is found in the Internet Reference Cited section.

Foreign Trade

Exports of pumice remained about 27,000 t with a value of \$12 million. Importing countries were led by Canada (31%), Japan (12%), Malaysia (8%), Germany (7%), Taiwan (7%), Mexico (6%), and the United Kingdom (5%). The remaining 24% of exports went to 32 other countries in Asia, Central America, Europe, the Middle East, Oceania, and South America.

By volume, most imports of pumice and pumicite were for construction-related uses with smaller amounts used for abrasives and stonewashing. Greece remained the largest source for pumice imports, supplying more than 80% (table 3). Imports in 2001 decreased by about 1.6% to 379,000 t compared with that of 2000. Imports from Greece fell slightly to 304,000 t, while imports from Italy increased 3% to 62,000 t compared with those of 2000. Imports from Mexico and Turkey also decreased in 2001 compared with those in 2000. In addition to these countries, 14 other countries exported pumice and pumicite to the United States in 2001.

World Review

The USGS estimated world pumice (and related materials) production to be 12.5 million metric tons in 2001, about the same as in 2000 (table 4). Most of the data published were provided by official government agencies in each country. Large revisions of data are sometimes reported by these agencies, usually without supporting explanations. Italy remained the dominant producer of pumice and pozzolan, with production estimated to be 4.6 million metric tons per year. Other leading countries in the production of pumice and related materials were Chile, Ecuador, France, Germany, Greece, Guatemala, New Zealand, Spain, Turkey, and the United States. In addition, at least 19 other countries produced pumice.

Pumice is used more extensively outside of the United States, which helps to explain the large global production and sales of

pumice relative to the United States. In Europe, for example, basic home construction uses significantly less gypsum sheetrock, stone and concrete being the preferred building materials. Prefabricated lightweight concrete walls are often produced and shipped to construction locations. Owing to its light weight, strength, and cementitious properties, pumice performs very well in the European style of construction.

Outlook

Consumption of pumice and pumicite in 2002 should return to 2000 levels, because construction activity is expected to increase with an improving economy. Imports and exports are expected to increase slightly in 2002.

Internet Reference Cited

New Mexico Business Weekly, February 4, 2002, Sierra Club takes mining company and state to Supreme Court, accessed April 5, 2002, at URL <http://albuquerque.bizjournals.com/albuquerque/stories/2002/02/04/story6.html>.

GENERAL SOURCES OF INFORMATION

U.S. Geological Survey Publications

Lightweight Aggregates. Ch. in United States Mineral Resources, Professional Paper 820, 1973.

Pumice and Pumicite. Ch. in Mineral Commodity Summaries, annual.

Other

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

TABLE 1
SALIENT PUMICE AND PUMICITE STATISTICS 1/

(Thousand metric tons and thousand dollars, unless otherwise specified)

| | 1997 | 1998 | 1999 | 2000 | 2001 |
|--|-----------|-----------|-----------|-----------|-----------|
| United States, sold and used by producers: | | | | | |
| Pumice and pumicite | 577 | 583 | 643 | 697 | 618 |
| Value 2/ | \$16,100 | \$12,600 | \$17,800 | \$16,900 | \$18,000 |
| Average value per ton | \$27.90 | \$21.59 | \$27.69 | \$24.27 | \$29.19 |
| Exports e/ | 12 | 22 | 23 | 27 | 27 |
| Imports for consumption | 265 | 288 | 354 | 385 | 379 |
| Apparent consumption 3/ | 830 | 849 | 974 | 1,060 | 970 |
| World, production of pumice and related volcanic materials | 11,900 r/ | 12,300 r/ | 12,900 r/ | 12,600 r/ | 12,500 e/ |

e/ Estimated. r/ Revised.

1/ Data are rounded to no more than three significant digits, except average value per ton.

2/ Freight on board mine and/or mill.

3/ 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/

| Use | 2000 | | | 2001 | | |
|-------------------------------------|---------------------------------------|----------------------|--------------------------|---------------------------------------|----------------------|--------------------------|
| | Quantity (thousand metric tons) | Value (thousands) | Average unit value | Quantity (thousand metric tons) | Value (thousands) | Average unit value |
| Abrasives 2/ | 26 | \$5,590 | \$215.08 | 21 | \$5,810 | \$276.52 |
| Building block, includes decorative | 470 | 5,080 | 10.81 | 348 | 5,770 | 16.57 |
| Concrete admixture and aggregate | 46 | 1,730 | 37.65 | 116 | 2,200 | 18.96 |
| Horticulture and landscaping | 100 | 2,860 | 28.57 | 90 | 3,050 | 33.88 |
| Laundries | 6 | 661 | 110.17 | 5 | 271 | 54.20 |
| Other 3/ | 50 | 992 | 19.84 | 37 | 949 | 25.65 |
| Total | 697 | 16,900 | 24.27 | 618 | 18,000 | 29.19 |

1/ Data are rounded to no more than three significant digits, except average unit value; 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 |
| 2000: | | | | |
| Greece 2/ | 305 | 7,910 | (3/) | 225 |
| Italy | 60 | 651 | (3/) | 178 |
| Mexico | 1 | 186 | (3/) | 28 |
| Turkey | 19 | 3,070 | -- | -- |
| Other 4/ | (3/) | 91 | (3/) | 1,380 |
| Total | 384 | 11,900 | 1 | 1,810 |
| 2001: | | | | |
| Greece 2/ | 304 | 5,910 | (3/) | 430 |
| Italy 2/ | 62 | 2,840 | (3/) | 152 |
| Mexico | (3/) | 33 | (3/) | 12 |
| Turkey | 12 | 2,130 | -- | -- |
| Other 5/ | (3/) | 89 | (3/) | 1,780 |
| Total | 378 | 11,000 | 1 | 2,370 |

-- Zero.

1/ Data are rounded to no more than 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, China, the Czech Republic, Ecuador, Germany, Japan, the Republic of Korea, the Philippines, Poland, South Africa, Taiwan, and the United Kingdom.

5/ Includes Austria, Canada, China, Ecuador, France, Germany, Iceland, Japan, the Republic of Korea, the Philippines, Poland, Switzerland, Taiwan, and the United Kingdom.

Source: U.S. Census Bureau.

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

(Metric tons)

| Country 3/ | 1997 | 1998 | 1999 | 2000 | 2001 e/ |
|---|----------------------|----------------------|----------------------|----------------------|-------------------|
| Argentina, pumice | 10,545 r/ | 18,000 r/ | 17,662 r/ | 16,000 r/ e/ | 16,000 |
| Austria, trass e/ | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| Burkina Faso e/ | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| Cameroon, pozzolan e/ | 100,000 | 105,000 | 90,000 r/ | 90,000 | 90,000 |
| Cape Verde, pozzolan e/ | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |
| Chile, pumice and pozzolan | 491,000 | 912,000 | 958,000 r/ | 830,000 r/ e/ | 800,000 |
| Costa Rica e/ | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 |
| Croatia, volcanic tuff | 63,000 | 38,000 | 55,000 | 38,000 | 35,000 |
| Dominica, pumice and volcanic ash e/ | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Ecuador: | | | | | |
| Pumice | 368,269 | 320,000 | 275,274 r/ | 275,879 r/ | 270,000 |
| Pozzolan e/ | 85,000 | 80,000 | 70,000 | 80,000 | 80,000 |
| Eritrea, pumice | 754 | 391 | 153 r/ | 41 r/ | 40 |
| Ethiopia 4/ | 325,000 e/ | 325,000 e/ | 135,400 r/ | 156,466 r/ | 169,000 |
| France, pozzolan and lapilli e/ | 477,000 5/ | 460,000 | 460,000 | 450,000 | 450,000 |
| Germany, pumice (marketable) e/ | 600,000 | 600,000 | 500,000 r/ | 500,000 r/ | 500,000 |
| Greece: e/ | | | | | |
| Pumice | 900,000 | 900,000 | 900,000 | 850,000 | 850,000 |
| Pozzolan | 841,646 5/ | 850,000 | 800,000 | 750,000 | 750,000 |
| Guadeloupe, pumice e/ | 210,000 | 210,000 | 210,000 | 210,000 | 210,000 |
| Guatemala, pumice | 6,935 r/ | 130,420 r/ | 381,480 r/ | 419,116 r/ | 420,000 |
| Iceland: e/ | | | | | |
| Pumice | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| Scoria | 500 | 500 | 500 | 500 | 500 |
| Iran e/ | 200,000 | 150,000 | 150,000 | 150,000 | 150,000 |
| Italy: e/ | | | | | |
| Pumice and pumiceous lapilli | 600,000 | 600,000 | 600,000 | 600,000 | 600,000 |
| Pozzolan | 4,000,000 | 4,000,000 | 4,000,000 | 4,000,000 | 4,000,000 |
| Macedonia, volcanic tuff e/ | 75,000 | 75,000 | 70,000 | 60,000 | 60,000 |
| Martinique, pumice e/ | 130,000 | 130,000 | 130,000 | 130,000 | 130,000 |
| New Zealand e/ | 196,687 5/ | 190,000 | 500,000 | 500,000 | 500,000 |
| Saudi Arabia, pozzolan e/ | 145,000 | 145,000 | 140,000 | 150,000 | 150,000 |
| Serbia and Montenegro, volcanic tuff e/ | 75,000 | 75,000 | 70,000 | 70,000 | 70,000 |
| Slovenia, volcanic tuff e/ | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |
| Spain e/ 6/ | 600,000 | 600,000 | 600,000 | 600,000 | 600,000 |
| Turkey | 681,000 | 579,000 | 950,189 r/ | 787,081 r/ | 800,000 |
| Uganda, pozzolanic materials | NA | NA | 20,213 | 35,603 | 37,700 |
| United States, pumice, sold and used by producers | 577,000 | 583,000 | 643,000 | 697,000 | 618,000 5/ |
| Total | 11,900,000 r/ | 12,300,000 r/ | 12,900,000 r/ | 12,600,000 r/ | 12,500,000 |
| Of which: | | | | | |
| Pumice | 2,830,000 | 2,920,000 | 3,080,000 | 3,120,000 | 3,040,000 |
| Pozzolan | 5,170,000 | 5,180,000 | 5,120,000 | 5,110,000 | 5,110,000 |
| Trass and scoria | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 |
| Volcanic tuff | 253,000 | 228,000 | 235,000 | 208,000 | 205,000 |
| Unspecified | 3,690,000 | 3,930,000 | 4,470,000 | 4,190,000 | 4,190,000 |

e/ Estimated. r/ Revised. NA Not available.

1/ World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

2/ Table includes data available through April 29, 2002.

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

4/ Data are for year ending July 7 of the year listed.

5/ Reported figure.

6/ Includes Canary Islands.