STONE, CRUSHED

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Crushed stone, one of the most accessible natural resources, is a major basic raw material used by construction, agriculture, and other industries which utilize complex chemical and metallurgical processes. Despite the low value of its basic products, the crushed stone industry is a major contributor to and an indicator of the economic well-being of the Nation.

A total of 1.51 billion metric tons of crushed stone was produced for consumption in the United States in 1998, a 100-million-ton increase, or 6.8%, compared with the revised total production of 1997. This tonnage represents the highest production level ever recorded in the United States, indicating a continued increase in the demand for construction aggregates (table 1).

About 70% of the crushed stone production continued to be limestone and dolomite, followed, in descending order of tonnage, by granite, traprock, sandstone and quartzite, miscellaneous stone, marble, slate, calcareous marl, volcanic cinder and scoria, and shell (table 2).

Foreign trade of crushed stone continued to remain small. Exports increased by 6.8% to 4.4 million tons, and the value decreased by 2.8% to $41.5 million compared with that of 1997.

Imports of crushed stone, including calcium carbonate, increased by 9.7% to 13.6 million tons, and the value increased by 9.4% to $116 million (table 22-23). Domestic apparent consumption of crushed stone, which is defined as production for consumption (sold or used) plus imports minus exports, was 1.52 billion tons (tables 1, 25, and 26).

Legislation

The Transportation Equity Act for the 21st Century (Public Law 105-178), passed in 1998, appropriated $205 billion through 2003 for transportation. The law guarantees that $165 billion will be obligated for highways and $35 billion for transit work projects and represents a 44% increase compared with the previously enacted Intermodal Surface Transportation Efficiency Act legislation. The guaranteed amounts are linked to actual Highway Trust Fund receipts and can be used only for highways and highway safety programs. The States are also guaranteed a return of at least 90.5% of their contributions to the Highway Trust Fund. The law introduced a number of procedural reforms that should reduce delays in road-building project approval. These reforms include streamlining the environmental review process, the elimination of programmatic responsibilities of regional Departments of Transportation, and an improved project approval process that gives States more responsibility on non-Interstate projects. The legislation also established timetables for determining if States are complying with the U.S. Environmental Protection Agency's new air-quality standards for particulate matter, also known as PM 2.5, and ozone.

During 1988, the aggregates industry continued to work with the Mines Safety and Health Administration (MSHA) on a series of issues of concern to the industry. One of these issues was the new rules on training requirements for miners at sand and gravel, surface stone quarries, and other mines. The U.S. Congress directed MSHA to complete the new training rules by September 30, 1999 (Rock Products, 1999a). Another issue was new requirements for mine operators to limit miners' exposure to noise. MSHA indicated that the rule is likely to set a noise-exposure level at which the employers will be required to take steps to limit miners' exposure. The agency was also considering provisions addressing the role of engineering controls versus administrative controls, the use of personal hearing protection devices, and criteria for audiometric testing and exposure monitoring (Rock Products, 1999a). A National Institute for Occupational Safety and Health study concluded that hearing loss in male miners in the metal/nonmetal sectors was significantly greater than the average population. The study has become part of the record established by MSHA and will be used to support the agency's efforts to establish new noise-exposure limits in mines (Rock Products 1999b).

Production

Domestic production data for crushed stone are derived by the U.S. Geological Survey (USGS) from voluntary surveys of U.S. producers. Of the 4,705 crushed stone operations on the mailing list and 270 operations added to the survey, 3,420 operations with 3,823 quarries owned by 1,526 companies were active. Of the 3,420 active operations, 2,571 operations with 2,935 quarries, representing 75.2% of the total number of active operations, reported to the USGS. Their total production represented 86.4% of the total U.S. crushed stone output. Of the 2,571 reporting operations, 760 operations with 848 quarries owned by 153 companies did not report a breakdown by end use. Their production represented 28.8% of the U.S. total and is included in table 13 under "Unspecified, actual" uses. The nonrespondents' production was estimated by using employment data and/or adjusted production reports from prior years. The estimated production from 849 nonresponding operations owned by 652 companies represented 13.6% of the U.S. total and is included in table 13 under "Unspecified, estimated" uses.

A total of 97 underground mines that are included in the total number of active operations produced 53.3 million tons of crushed stone in 1998. Underground mines were located in 20

States. The leading States were, in descending order of tonnage, Kentucky, Iowa, Pennsylvania, Missouri, and Tennessee. Their production represented 74.3% of the total U.S. crushed stone produced from underground mines.

A total of 888 quarries were either idle or presumed to have been idle in 1998 because no information was available to estimate their production. Since the 1997 survey, 105 operations were closed down. Most of the idle or closed operations were small, temporary quarries, some of them operated by State or local governments. Operations located in the U.S. territories are not included in the above count.

A total of 1.51 billion tons of crushed stone was produced for consumption in the United States in 1998, a 6.8% increase compared with the 1997 total (table 1). Of this total, 1.06 million tons, or 70.4%, was limestone and dolomite, 240 million tons, or 15.9%, was granite, and 108 million tons, or 7.2%, was traprock. The remaining 99 million tons, or 6.5%, was shared, in descending order of quantity, by sandstone and quartzite, miscellaneous stone, marble, slate, calcareous marl, volcanic cinder and scoria, and shell (table 2).

A comparison of the four geographic regions of the United States indicates that, in 1998, the South continued to lead the Nation in the production of crushed stone with 707 million tons, or 46.8%, of the total, followed by the Midwest with 443 million tons, or 29.3%, and the Northeast with 201.6 million tons, or 13.4%. About 76% of the total U.S. crushed stone output was produced in the South and the Midwest (table 3).

Of the nine geographic divisions, as shown in figure 1, the South Atlantic led the Nation in the production of crushed stone with 360 million tons, or 23.8%, of the U.S. total. It was followed by the East North Central division with 284 million tons, or 18.8%, and the West South Central with 174 million tons, or 11.5%.

A comparison of the production data by the nine geographic divisions for 1997 and 1998 indicates that the output of crushed stone increased in all regions. The largest percentage increases were recorded in the West South Central division, 18.4%; the New England division, 13.3%; and the Pacific division, 11.1%.

Crushed stone was produced in every State except Delaware. The 10 leading producing States, in descending order of tonnage, were, Texas, Pennsylvania, Florida, Ohio, Georgia, Illinois, North Carolina, Missouri, Virginia, and Tennessee. Their combined production represented 50.6% of the national total.

Crushed stone was produced by 1,526 companies at 3,420 operations with 3,823 quarries. Leading U.S. producing companies in descending order of tonnage, were, Vulcan Materials Co., Martin Marietta Aggregates, Hanson Building Materials America/Hanson Aggregates, Oldcastle, Inc./Materials Group, and Lafarge Corp.

A review of production by size of operation at the national level indicates that in 1998, 53.6% of crushed stone was produced by 462 operations reporting more than 1 million metric tons per year, 24.1% was produced by 554 operations reporting between 500,000 and 999,999 tons per year, and 22.3% was produced by operations reporting less than 500,000 tons per year (table 7).

In 1998, consolidation in the aggregates industry continued at a somewhat accelerated pace. The majority of the acquisitions were made by the major producers of aggregates, most of which were publicly owned. These companies tried to expand their base of operations in new areas of the country or acquired operations or companies with significant amounts of reserves. Stricter environmental and permitting regulations make it more difficult to start a new operation than to acquire an existing one. Some of the acquired companies continue to operate as semi-independent organizations, but with the benefit of financial and management support provided by the larger new owner.

In January, Cornerstone Construction & Materials Inc., which became Hanson Building Materials America/Hanson Aggregates of Research Triangle Park, NC, later in the year, traded its Verdon Quarry located in Doswell, VA, and Lee Hall Sales Yard in Newport News, VA, for the Harding Street Quarry located in Indianapolis, IN, owned by Martin Marietta Aggregates of Raleigh, NC. The transaction satisfied the condition of the consent order with the U.S. Department of Justice, entered into at the time Martin Marietta acquired American Aggregates Corp. (Pit & Quarry, 1998a).

Several acquisitions were announced in March. Lafarge Corp. of Reston, VA, announced the purchase of a number of the North America aggregates operations owned by Redland Aggregates North America of Denver, CO, that included Denver-based Western Mobile, Inc., Redland Genstar Inc. of Towson, MD., Redland Stone Products Co. of San Antonio, TX, as well as Redland Quarries, Inc. of Hamilton, Ontario, Canada (Aggregates Manager, 1998c).

Martin Marietta Aggregates acquired a granite quarry from FMC Corp. of Chicago, IL. located in Bessemer City, NC, that owns significant reserves (Rock Products, 1998a). U.S. Aggregates Inc. of San Mateo, CA, announced that it had acquired Falcon Ridge Construction Inc. and its Rolfe Quarry, which produces crushed limestone for hot-mixed asphalt and ready-mixed concrete for the Salt Lake City, UT market (Rock Products, 1998a).

In April, Martin Marietta Aggregates broadened its geographic market by purchasing Mid-State Construction & Materials of Little Rock, AK, which operates quarries near Hot Springs and Little Rock, AK, and owns significant reserves in that area (Rock Products, 1998b). MDU Resources Group of Bismarck, ND, announced that it had acquired through merger ownership of Angel Brothers of Portland, OR, a crushed stone producer with about 80 million tons of permitted reserves in the Portland area. The newly acquired quarry will operate as part of Morse Brothers, Inc. now a subsidiary of MDU's Knife River Corp. (Rock Products, 1998b).

In May, Vulcan Materials of Birmingham, AL, announced the purchase of two quarries from C.W. Matthews Quarries of Marietta, GA, that will be part of Vulcan's Southeast Division. This acquisition brings the number of quarries operated by Vulcan Materials in Georgia to 18. At about the same time, Vulcan Materials bought two quarries in southern Illinois from Columbia Quarry Co. of Columbia, IL, and placed them under the management of its Reed Crushed Stone Co. operation near Paducah, KY (Rock Products, 1998c).

In August, Martin Marietta Aggregates announced the

acquisition of a granite quarry located near Lenoir, NC, from Caldwell Stone Co., and of a limestone quarry near Barnhart, MO, south of St. Louis, from Greismer Underground. Both acquisitions own significant reserves (Aggregates Manager, 1998b). Hunt Midwest Mining Inc. of Kansas City, MO, purchased the assets of Trager Stone Inc. and Trager Ready Mix Inc. of Chilicothe, MO. Trager Stone operates quarries in Mooresville, Edinburg, Pattonsburg, and Braymer, MO (Pit & Quarry, 1998b).

In September, Martin Marietta Aggregates expanded its presence in two markets by purchasing an underground limestone mine in Preston County, WV, from Greenbrier Aggregates, and a limestone quarry in Ottawa, KS, from Fogle Quarry Co. of Ottawa, KS (Rock Products, 1998d). Global Stone Corp. of Roswell, GA, completed the acquisition of a white marble mine, a limestone mine, and two automated processing plants located in Chatsworth, GA, from Filler Products Inc. (Aggregates Manager,1998c).

In October, Martin Marietta Aggregates announced the acquisition of Redland Stone Products of San Antonio, TX, from Lafarge (Pit & Quarry, 1998c).

In December, Vulcan Materials acquired Burns Stone Co., which owned a limestone quarry in Dickinson, TN (Aggregates Manager, 1998d).

Limestone.—The 1998 output of crushed limestone, including some dolomite, increased by 5% to 955 million tons valued at $4.8 billion compared with the revised 1997 totals (table 2).

Limestone only was produced by 869 companies at 1,978 operations with 2,115 quarries in 48 States. In addition, 38 companies with 54 operations and 57 quarries reported producing limestone and dolomite from the same quarries. Their combined production, 27.6 million tons, is included with the limestone shown in table 2. The limestone totals shown in this chapter, therefore, include an undetermined amount of dolomite in addition to the dolomite reported separately.

The leading producing States were, in descending order of tonnage, Texas, Florida, Missouri, Ohio, and Kentucky; these five States accounted for 37% of the total U.S. output (table 8). The leading producers were, in descending order of tonnage, Vulcan Materials, Martin Marietta Aggregates, Hanson Building Materials America/Hanson Aggregates, Rogers Group, Inc., and Lafarge.

Dolomite.—Production of dolomite increased by 7.9% to 109 million tons valued at $537 million compared with the revised 1997 totals (table 2). Crushed dolomite was reportedly produced by 105 companies at 176 operations with 186 quarries in 28 States. An additional undetermined amount of dolomite is included in the total crushed limestone, as explained above.

The leading producing States were, in descending order of tonnage, Pennsylvania, Illinois, Ohio, Indiana, and Michigan; these five States accounted for 61.9% of the total U.S. output (table 8). The leading producers were Oldcastle, S.E. Johnson Co., Hanson Building Materials America/Hanson Aggregates, Material Services Corp., and Vulcan Materials.

Marble.—Production of crushed marble increased by 15.5% to 8.6 million tons valued at $115 million compared with that of 1997 (table 2). Crushed marble was produced by 19 companies with 29 operations and 62 quarries in 13 States (table 9). The leading producers of crushed marble were, in descending order of tonnage, Dry Branch Kaolin Co., Pluess Staufer, Inc., Aggregate Industries Management, Inc., Vulcan Materials, and Florida Rock Industries, Inc.

Calcareous Marl.—Output of marl decreased by 1.3% to 4.7 million tons valued at $19 million compared with the revised 1997 totals (table 2). Marl was produced by 9 companies with 9 operations and 13 quarries in 6 States (table 9). The leading producers were, in descending order of tonnage, Holderbank/ Holman, Inc., Capitol Aggregates Inc., and Giant Group Ltd.

Shell.—Shell is derived mainly from fossil reefs or oyster shell. The output of crushed shell increased by 51.7% to 2.2 million tons valued at $9.3 million compared with the revised 1997 totals (table 2). Crushed shell was produced by 9 companies with 10 operations in 6 States. The leading producers were, in descending order of tonnage, Caloosa Shell Corp., Schroe Mante Ranch, and F&M Mines, Inc.

Granite.—The output of crushed granite increased by 14.8% to 240 million tons valued at $1.5 billion compared with the revised 1997 totals (table 2). Crushed granite was produced by 150 companies at 343 operations with 377 quarries in 35 States.

The leading States were, in descending order of tonnage, Georgia, North Carolina, Virginia, South Carolina, and Arkansas; these five States accounted for 70.9% of the U.S. output (table 10). The leading producers were, in descending order of tonnage, Vulcan Materials, Martin Marietta Aggregates, Meridian Aggregates Co., Florida Rock Industries, Inc., and Blue Circle America, Inc.

Traprock.—Production of crushed traprock increased by 8.1% to 108 million tons valued at $678 million, compared with the revised 1997 total (table 2). Traprock was produced by 236 companies at 362 operations with 491 quarries in 26 States.

The leading States were, in descending order of tonnage, Oregon, Washington, New Jersey, Virginia, and California; these five States accounted for 62.7% of U.S. output (table 10). Leading producers were, in descending order of tonnage, Oldcastle, Vulcan Materials, Eucon Co., Luck Stone Corp., and Stavola, Inc.

Sandstone and Quartzite.—The combined output of crushed sandstone and quartzite decreased by 3.8% to 40.7 million tons valued at $239 million compared with the revised 1997 totals (table 2). Crushed sandstone was produced by 115 companies at 147 operations with 152 quarries in 30 States, and crushed quartzite was produced by 38 companies at 40 operations with 49 quarries in 19 States.

The leading producing States were, in descending order of tonnage of sandstone and quartzite, Arkansas, Pennsylvania, California, South Dakota, and Virginia; their combined production accounted for 56% of the U.S. output (table 10). The leading producers of sandstone were, in descending order of tonnage, Ashland Oil, Inc./APAC, Inc., Martin Marietta Aggregates, and Stabler Co.; leading producers of quartzite were Martin Marietta Aggregates, Sweetman Construction Co., and Frank W. Whitcomb Construction Corp.

Slate.—The output of crushed slate increased by 43.5% to

4.9 million tons valued at $30.8 million, compared with the revised 1997 totals (table 2). Crushed slate was produced by 13 companies at 15 operations with 15 quarries in 10 States.

Most of the crushed slate was produced in North Carolina. The leading producers were, in descending order of tonnage, Gohmann Asphalt & Construction, Inc., Martin Marietta Aggregates, and Vulcan Materials.

Volcanic Cinder and Scoria.—Production of volcanic cinder and scoria increased 12.5% to 2.5 million tons valued at $15.8 million compared with the revised 1997 totals (table 2). Volcanic cinder and scoria were produced by 25 companies from 37 operations with 44 quarries in 13 States.

The leading producing States were, in descending order of tonnage, California, Arizona, and New Mexico; their combined production accounted for 46.1% of the total U.S. output (table 11). Leading producers were, in descending order of tonnage, Martin Marietta Aggregates, Stoney Point Rock Quarry, Inc., and the U.S. Forest Service.

Miscellaneous Stone.—Output of other kinds of crushed stone increased by 7% to 35.2 million tons valued at $189 million compared with the revised 1997 totals (table 2). Miscellaneous stone was produced by 142 companies at 217 operations with 244 quarries in 28 States.

The leading producing States were, in descending order of tonnage, Pennsylvania, California, and Texas; their combined production accounted for 42% of the total U.S. output (table 11). Leading producers were, in descending order of tonnage, Better Materials Corp., L.G. Everist, Inc., the U.S. Forest Service, the U.S. Bureau of Land Management, and Haines & Kibblehouse, Inc.

Consumption and Uses

Crushed stone production reported to the USGS is actually material that was either sold or used by producers. Stockpiled production is not included in the reported quantities. The "sold or used" tonnage, therefore, represents the amount of production released for domestic consumption or export in a given year. Because some of the crushed stone producers did not report a breakdown by end use, their total production is included in "Unspecified, actual" use. The estimated production of nonrespondents is included in "Unspecified, estimated" use.

In 1998, U.S. consumption of crushed stone was 1.52 billion tons, a 6.8% increase compared with that of 1997. This total is slightly different from the "apparent consumption" of crushed stone which is defined as "U.S. production plus imports minus exports." Of the 1.51 billion tons of crushed stone consumed, 640 million tons, or 42.4% of the total, was "Unspecified, actual and estimated" uses. Of the remaining 870 million tons reported by uses, about 82.4% was used as construction aggregates, mostly for highway and road construction and maintenance; 14.8%, for chemical and metallurgical uses, including cement and lime manufacture; 1.6%, for agricultural uses; and 0.9% for special uses and products (table 13). To provide a more accurate estimation of the consumption patterns for crushed stone, the "Unspecified" uses are not included in the above percentages. In any use pattern study or marketing analysis, the quantities included in "Unspecified" uses should be distributed among the reported uses by applying the above percentages to the "Unspecified" uses, total.

Limestone.—Of the 955 million tons of crushed limestone consumed, 384 million tons, or 40.3%, was "Unspecified, actual and estimated" uses. Of the remaining 570 million tons of crushed limestone reported by uses, 75.6% was used as construction aggregates; 21.2%, for chemical and metallurgical applications including cement and lime manufacturing; 1.8%, for agricultural uses; and 1.0%, for special uses and products (table 14).

Dolomite.—Of the 109 million tons of crushed dolomite consumed, 50.7 million tons, or 46.5%, was "Unspecified, actual and estimated" uses. Of the remaining 58.4 million tons of crushed dolomite reported by uses, 88.7% was used as construction aggregates; 6%, for agricultural uses; 4.1%, for chemical and metallurgical applications; and 1.2%, for special and miscellaneous uses. An additional undefined amount of dolomite consumed in a variety of uses, mostly construction aggregates, is reported with the limestone (table 14).

Marble.—Of the 8.6 million tons of crushed marble consumed, 5.4 million tons, or 62.6%, was reported as "Unspecified, actual and estimated" uses. Of the remaining 3.2 million tons of crushed marble reported by uses, 1.5 million tons, or 47.1%, was used for special and miscellaneous uses, including fillers and extenders, and 1 million tons, or 31.4%, was used as construction aggregates (table 16).

Calcareous Marl.—Of the 4.7 million tons of crushed calcareous marl consumed, 1.1 million tons, or 23.4%, was reported as "Unspecified, actual and estimated" uses. Of the crushed calcareous marl consumed, 3.2 million tons, or 87.9%, was used for cement manufacturing, and 368,000 tons, or 10.2%, was used as construction aggregates.

Shell.—Of the 2.2 million tons of crushed shell consumed, only 307,000 tons, or 14%, was reported as "Unspecified, actual and estimated" uses. Of the remaining 1.9 million tons, most of it was used as construction aggregates.

Granite.—Of the 240 million tons of crushed granite consumed, 111.2 million tons, or 46.3%, was reported as "Unspecified, actual and estimated" uses. Of the remaining 129 million tons, most of it was used as construction aggregates (table 17).

Traprock.—Of the 109 million tons of crushed traprock consumed, 36.2 million tons, or 33.4%, was reported as "Unspecified, actual and estimated" uses. The remaining 72.3 million tons was used as construction aggregates (table 17).

Sandstone and Quartzite.—Of the 29.0 million tons of crushed sandstone consumed, 16.7 million tons, or 59.1%, was reported as "Unspecified, actual and estimated" uses. Of the remaining 12.2 million tons of crushed sandstone reported by uses, 11.2 million tons, or 91.8%, was used as construction aggregates (table 18).

Of the 10.7 million tons of crushed quartzite consumed, 3.6 million tons, or 33.4%, was reported as "Unspecified, actual and estimated" uses. Of the remaining 7.1 million tons of crushed quartzite reported by uses, 94% was used as construction aggregates (table 18).

Volcanic Cinder and Scoria.—Of the 2.5 million tons of

volcanic cinder and scoria consumed, 1.4 million tons, or 54.5%, was reported as "Unspecified, actual and estimated" uses. Most of the remaining 1.1 million tons of crushed volcanic cinder and scoria was used as construction aggregates (table 19).

Miscellaneous Stone.—Of the 47 million tons of miscellaneous crushed stone consumed, 29.5 million tons, or 62.8%, was reported as "Unspecified, actual and estimated" uses. Of the remaining 17.5 million tons reported by uses, 11.6 million tons, or 66.3%, was used as construction aggregates, and 3.8 million tons, or 21.6%, was used for cement manufacturing (table 19).

Additional information regarding production and consumption of crushed stone by type of rock and major uses in each State and the State districts may be found in the USGS "Minerals Yearbook, Volume II, Area Reports: Domestic.

Recycling

As the recycling of most waste materials increases, aggregates producers are recycling more cement concrete and asphalt concrete materials recovered from construction projects to produce concrete aggregates and asphalt aggregates. The annual survey of crushed stone producers now collects information on recycling of cement and asphalt concretes produced by the crushed stone producers only. Information on recycling of these materials by construction or demolition companies is not collected by the USGS.

Asphalt Concrete.—A total of 1.4 million tons of asphalt concrete valued at $7.3 million was recycled by 65 companies in 29 States. This volume represents a 19.7% decrease compared with that of 1997, despite the fact that the number of companies and States reporting recycling increased compared with 1997 (tables 20-21). The leading recycling States were, in descending order of tonnage, California, Massachusetts, and Maine. The leading recycling companies were, in descending order of tonnage produced, Oldcastle, Doss & Harper Stone Co., and Raisch Products.

Cement Concrete.—A total of 1.6 tons of cement concrete valued at $8.4 million was recycled by 48 companies in 24 States. This tonnage represents a 145% increase compared with that of 1997 (tables 20-22). The leading recycling States were, in descending order of tonnage, California, Wisconsin, and Virginia. The leading companies were, in descending order of tonnage produced, Vulcan Materials, Babcock Stone Inc., and Dolomite Products Co., Inc.

Prices

Prices in this chapter are average f.o.b. plant, usually at the first point of sale or captive use, as reported by the companies. This value does not include transportation from the plant or yard to the consumer. It does, however, include all costs of mining, processing, in-plant transportation, overhead costs, and profit.

The average unit price per ton of crushed stone decreased by 4.4% to $5.38, compared with that of 1997. The average unit prices, by kind of stone, decreased between 1.9% for limestone and 24.6% for slate. The average unit price for calcareous marl increased 30.2% (table 2).

Transportation

For 667 million tons, or 44.1%, of the 1.51 billion tons of crushed stone produced for consumption in 1998, no means of transportation was reported by the producers. Of the remaining 843 million tons of crushed stone, 645 million tons, or 75.6%, was reported as being transported by truck from the processing plant or quarry to the first point of sale or use; 5.8%, by waterway; and 6.3%, by rail. About 8.9% of the specified production was reported as not having been transported and, therefore, is assumed to have been used on-site. Information regarding means of transportation used by the producers to ship crushed stone in each geographic region is provided in table 23.

Foreign Trade

The widespread distribution of domestic crushed stone deposits and the high cost of transportation limits foreign trade to mostly local transactions across international boundaries. U.S. imports and exports are small, representing less than 1% of the domestic consumption. Shipments of crushed stone by water from Canada and especially Mexico, however, continue to increase.

Exports.—Exports of crushed stone increased by 6.8% to 4.4 million tons compared with those of 1997, and the value decreased by 2.8% to $41.5 million. About 94.7% of the exported crushed stone was limestone. Canada was the major destination with 89.2% of the total crushed stone, followed by Japan with 2%, and Belgium with 1.9% (table 25).

Imports.—Imports of crushed stone increased by 9.7% to 13.6 million tons compared with those of 1997, and the value increased by 9.4% to $116 million. About 90% of the imported crushed stone was limestone. Imports of natural calcium carbonate fines decreased from 4,000 to 3,000 tons (table 26).

Shipments of crushed stone from The Bahamas, Canada, and Mexico into the United States continued in 1998. The imported crushed stone was used mostly as construction aggregates or for cement manufacturing. This trend is expected to continue, and the volume of imports, especially from Mexico, is expected to increase.

Outlook

The demand for crushed stone in 1999 is expected to be about 1.56 billion tons, or a 3.3% increase over that of 1998. Gradual increases in demand for construction aggregates are anticipated after 1999 as well on the basis of the expected volume of work on the infrastructure that will be financed by the new Transportation Equity Act for the 21st Century and the U.S. economy in general. The projected increases will be influenced by construction activity in the public, as well as the private, construction sectors.

Crushed stone f.o.b. prices are not expected to increase significantly. The delivered prices of crushed stone are, however, expected to increase, especially in and near

metropolitan areas, mainly because more aggregates are transported from distant sources.

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TABLE 1
SALIENT CRUSHED STONE STATISTICS 1/

(Thousand metric tons and thousand dollars)

		1994	1995	1996	1997	1998
Sold or used by producers:						
Quantity 2/		1,230,000	1,260,000	1,330,000	1,410,000 r/	1,510,000
Value 2/		$6,620,000	$6,740,000	$7,180,000	$7,970,000 r/	$8,130,000
Exports	value	$38,100	$39,300	$36,300	$42,700	$41,500
Imports 3/	do.	$77,800	$91,900	$91,800	$106,000	$116,000

r/ Revised.
1/ Data are rounded to three significant digits.
2/ Does not include American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands.
3/ Excludes precipitated calcium carbonate.

TABLE 2
CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY KIND 1/

	1997				1998			
Kind	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone 2/	2,048 r/	909,000 r/	$4,700,000 r/	$5.17 r/	2,162	955,000	$4,840,000	$5.07
Dolomite	190 r/	101,000 r/	555,000 r/	5.47 r/	186	109,000	537,000	4.94
Marble	33	7,400	102,000	13.81	62	8,550	115,000	13.45
Shell	9	1,450 r/	7,100 r/	4.89 r/	13	2,200	9,290	4.23
Granite	320 r/	209,000 r/	1,440,000 r/	6.88 r/	376	240,000	1,460,000	6.09
Traprock	407 r/	99,900 r/	641,000 r/	6.42 r/	491	108,000	678,000	6.25
Sandstone and quartzite	176 r/	42,300 r/	270,000 r/	6.38 r/	196	39,800	234,000	5.89
Slate	14 r/	3,400 r/	28,500 r/	8.37 r/	15	4,880	30,800	6.31
Calcareous marl	9 r/	4,740 r/	14,800 r/	3.11 r/	13	4,680	19,000	4.05
Volcanic cinder and scoria	26	2,240 r/	14,900 r/	6.64 r/	43	2,510	15,800	6.29
Miscellaneous stone	119 r/	32,900 r/	198,000 r/	6.01 r/	247	35,200	189,000	5.37
Total	XX	1,410,000 r/	7,970,000 r/	5.64 r/	XX	1,510,000	8,130,000	5.38

r/ Revised. XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes limestone-dolomite reported with no distinction between the two kinds of stone.

TABLE 3
CRUSHED STONE SOLD OR USED IN THE UNITED STATES, BY REGION 1/ 2/

(Thousand metric tons and thousand dollars)

	1997		1998	
Region/Division	Quantity	Value	Quantity	Value
Northeast:				
New England	32,300	231,000	36,600	260,000
Middle Atlantic	156,000	975,000	165,000	944,000
Midwest:				
East North Central	270,000 r/	1,280,000 r/	285,000	1,300,000
West North Central	156,000	831,000 r/	159,000	837,000
South:				
South Atlantic	337,000 r/	2,160,000 r/	360,000	2,110,000
East South Central	171,000 r/	950,000 r/	173,000	1,050,000
West South Central	147,000 r/	654,000 r/	174,000	732,000
West:				
Mountain	48,400	276,000	52,800	268,000
Pacific	94,500	611,000	105,000	637,000
Total	1,410,000 r/	7,970,000 r/	1,510,000	8,130,000

r/ Revised.
1/ Includes volcanic cinder and scoria.
2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
CRUSHED STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998,
BY QUARTER AND DIVISION 1/

Region/Division	Quantity 1st quarter (thousand metric tons)	Percentage change 3/	Quantity 2d quarter (thousand metric tons)	Percentage change 3/	Quantity 3d quarter (thousand metric tons)	Percentage change 3/	Quantity 4th quarter (thousand metric tons)	Percentage change 3/	Total 2/ (thousand metric tons)	Value total 2/ (thousands)
Northeast:										
New England	3,100	30.2	10,700	19.6	12,500	4.9	10,500	16.9	36,800	$268,000
Middle Atlantic	22,200	8.6	45,000	2.0	55,800	6.0	44,100	12.6	167,000	1,040,000
Midwest:										
East North Central	36,800	5.7	78,200	7.7	90,200	1.1	78,700	7.9	284,000	1,390,000
West North Central	27,600	11.1	46,000	5.3	49,500	2.9	41,900	5.9	165,000	873,000
South:										
South Atlantic	70,000	-0.4	96,100	4.6	105,000	11.2	97,100	17.9	368,000	2,340,000
East South Central	32,900	9.5	46,300	2.6	53,000	2.9	46,700	7.2	179,000	998,000
West South Central	34,700	18.6	43,400	12.8	45,100	8.8	39,500	7.5	163,000	728,000
West:										
Mountain	10,200	25.9	15,500	17.8	15,800	10.9	12,400	-0.1	53,900	310,000
Pacific 4/	18,000	5.1	23,800	13.7	27,100	9.3	24,700	8.9	93,600	582,000
Total 5/	256,000	7.7	405,000	6.9	454,000	6.0	396,000	10.4	1,530,000	8,660,000

1/ As published in the "Crushed Stone and Sand and Gravel in the Fourth Quarter of 1998 Mineral Industry Surveys."
2/ Data may not add to totals shown because of independent rounding and differences between projected totals by States and regions.
3/ All percentage changes are calculated by using unrounded totals. Percentage changes are based on the corresponding quarter of the previous year.
4/ Does not include Alaska and Hawaii.
5/ Includes Alaska, Hawaii, and "Other"; see table 6.

TABLE 5
CRUSHED STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY STATE 1/ 2/

State	1997 Quantity (thousand metric tons)	1997 Value (thousands)	1997 Unit value	1998 Quantity (thousand metric tons)	1998 Value (thousands)	1998 Unit value
Alabama	42,000	$273,000	$6.51	48,900	$383,000	$7.83
Alaska 3/	3,340 4/ 5/ 6/	23,500 4/ 5/ 6/	7.06	1,700 4/ 5/ 6/	9,970 4/ 5/ 6/	5.86
Arizona	7,490	44,000	5.86	8,080	44,800	5.54
Arkansas	28,100	167,000	5.94	35,700	180,000	5.05
California	49,600	325,000	6.56	55,100	344,000	6.25
Colorado	9,720	60,800	6.26	12,000	63,800	5.34
Connecticut	5,760	55,300	9.60	7,660	69,400	9.06
Florida	73,600 r/ 7/	394,000 r/ 7/	5.36 r/	81,000 7/	377,000 7/	4.65
Georgia	65,600 r/ 8/	431,000 r/ 8/	6.57 r/	74,200 8/	440,000 8/	5.93
Hawaii	5,560	59,500	10.71	5,500	53,900	9.79
Idaho	3,910 9/	18,700 9/	4.78	4,180	18,400	4.39
Illinois	65,700	357,000	5.44	72,100 10/	371,000 10/	5.14
Indiana	59,000 5/	281,000 r/ 5/	4.75	61,600 11/	283,000 11/	4.58
Iowa	37,300	215,000	5.76	41,800	219,000	5.25
Kansas	23,000	116,000	5.04	21,800	115,000	5.28
Kentucky	63,200 r/ 10/	294,000 r/ 10/	4.65	59,500 12/	291,000 12/	4.88
Louisiana	4,420 r/ 12/	30,200 r/ 12/	6.84 r/	W 10/	W 10/	W
Maine	2,540	15,100	5.93	4,120	23,000	5.58
Maryland	24,500 6/ 8/ 11/	160,000 6/ 8/ 11/	6.52	24,300 6/ 8/ 11/	141,000 6/ 8/ 11/	5.78
Massachusetts	12,200 12/	91,300 12/	7.46	12,800	96,900	7.59
Michigan	42,000 7/ 12/	157,000 7/ 12/	3.74	43,700 7/ 12/	167,000 7/ 12/	3.82
Minnesota	14,600	75,000	5.15	13,600 10/	71,500 10/	5.26
Mississippi	5,180 7/	32,900 7/	6.36	789 7/	2,790 7/	3.54
Missouri	68,400 r/	349,000 r/	5.10 r/	68,400	356,000	5.21
Montana	2,600	10,600	4.09	3,880	15,100	3.88
Nebraska	6,900	46,000	6.67	7,490	49,800	6.65
Nevada	5,150	41,800	8.12	6,320	34,000	5.38
New Hampshire	2,010 r/ 10/	12,500 r/ 10/	6.25 r/	4,190 10/	27,500 10/	6.58
New Jersey	22,800	153,000	6.71	23,900	161,000	6.77
New Mexico	2,920 11/	15,700 11/	5.36	4,940 10/ 11/	21,000 10/ 11/	4.25
New York	44,400	285,000	6.43	47,200	279,000	5.91
North Carolina	64,300 r/	468,000 r/	7.27 r/	69,700	480,000	6.89
North Dakota	--	--	--	71 13/	232 13/	3.27
Ohio	74,100	357,000 r/	4.82 r/	75,600	352,000	4.65
Oklahoma	32,200 r/ 6/ 14/	109,000 r/ 6/ 14/	3.37 r/	38,500	152,000	3.95
Oregon	21,200	110,000	5.17	23,200	118,000	5.08
Pennsylvania	89,200	536,000	6.01	94,500	504,000	5.34
Rhode Island	1,830	11,500	6.30	2,240	14,200	6.35
South Carolina	25,900	202,000	7.79	28,000	182,000	6.50
South Dakota	5,900	30,200	5.11	5,720	24,600	4.31
Tennessee	60,400	349,000	5.79	63,600	370,000	5.83
Texas	81,000 r/	338,000 r/	4.17 r/	99,300	397,000	4.00
Utah	11,100	50,200	4.51	7,820	39,500	5.06
Vermont	7,840	44,500	5.67	5,590	28,500	5.10
Virginia	61,300 r/	377,000 r/	6.14 r/	65,900	390,000	5.92
Washington	14,700	92,200	6.25	19,400	111,000	5.74
West Virginia	12,900 15/	76,700 15/	5.95	12,300 15/	68,100 15/	5.55
Wisconsin	28,700	120,000	4.16	31,200	127,000	4.07
Wyoming	5,010	30,700	6.13	5,580	31,600	5.66
Other	12,300 r/	75,100 r/	6.12 r/	5,630	33,200	5.90
Total	1,410,000 r/	7,970,000 r/	5.64 r/	1,510,000	8,130,000	5.38

r/ Revised. W Withheld to avoid disclosing company proprietary data..

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

2/ To avoid disclosing company proprietary data, certain State totals do not include all types of stone produced within the State; the portion not shown has been included with "Other."

3/ Data derived, in part, from Alaska Division of Geological and Geophysical Surveys information.

4/ Excludes limestone-dolomite.

5/ Excludes slate.

6/ Excludes shell.

7/ Excludes calcareous marl.

8/ Excludes marble.

9/ Excludes quartzite.

10/ Excludes sandstone.

11/ Excludes traprock.

12/ Excludes miscellaneous stone.

13/ Excludes volcanic cinder.

14/ Excludes granite.

15/ Excludes dolomite.

TABLE 6
CRUSHED STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998,
BY QUARTER AND STATE 1/

State	Quantity 1st quarter (thousand metric tons)	Percentage change 3/	Quantity 2d quarter (thousand metric tons)	Percentage change 3/	Quantity 3d quarter (thousand metric tons)	Percentage change 3/	Quantity 4th quarter (thousand metric tons)	Percentage change 3/	Total 2/ (thousand metric tons)	Value total 2/ (thousands)
Alabama	9,700	7.7	11,600	5.4	12,500	12.7	11,000	1.3	44,800	$291,000
Alaska 4/ 5/	--	--	--	--	--	--	--	--	3,200	22,500
Arizona 6/	--	--	--	--	--	--	--	--	7,490	44,000
Arkansas	6,000	23.6	8,300	14.2	8,200	-4.1	6,500	-11.4	29,100	173,000
California	11,000	13.9	14,200	18.2	16,500	20.6	15,800	10.9	57,500	377,000
Colorado	2,400	21.1	3,600	35.5	3,300	13.4	2,300	4.1	11,500	71,900
Connecticut	300	60.1	2,900	67.2	2,600	19.1	2,300	38.8	8,100	77,800
Delaware 4/	--	--	--	--	--	--	--	--	--	--
Florida 5/	20,300	14.4	21,100	16.8	20,800	7.0	21,200	14.0	83,400	448,000
Georgia 5/	14,500	6.3	19,500	13.7	21,800	17.5	20,300	27.9	76,200	501,000
Hawaii 4/	--	--	--	--	--	--	--	--	5,000	53,500
Idaho 5/	400	30.6	700	-16.6	1,100	-18.1	1,600	16.7	3,860	18,500
Illinois	8,300	11.8	17,900	1.8	22,600	3.3	20,300	7.8	69,100	375,000
Indiana 5/	9,800	-8.6	16,100	8.8	19,600	7.6	17,000	11.2	62,500	297,000
Iowa	5,800	9.3	11,900	3.9	12,700	13.8	11,500	22.3	41,900	242,000
Kansas	4,500	1.9	6,600	3.5	6,000	-9.2	4,900	-11.8	22,000	111,000
Kentucky 5/	10,600	18.9	15,600	-3.3	19,500	-10.0	17,900	12.2	63,600	296,000
Louisiana 5/ 6/	--	--	--	--	--	--	--	--	4,600	30,400
Maine	300	8.7	800	19.6	1,100	6.9	700	29.4	2,930	17,400
Maryland 5/	3,700	-13.7	6,300	-9.7	7,300	2.7	6,300	3.3	23,600	154,000
Massachusetts 5/	1,300	36.4	3,800	10.7	4,300	-0.8	4,000	18.3	13,500	101,000
Michigan 5/	3,300	16.3	13,400	10.2	13,100	-9.5	12,900	3.1	42,700	160,000
Minnesota	700	8.5	4,500	11.0	6,000	1.2	3,500	-12.3	14,700	75,500
Mississippi 5/ 6/	--	--	--	--	--	--	--	--	5,150	32,700
Missouri	15,100	17.8	18,800	4.4	20,800	5.9	19,700	9.4	74,400	380,000
Montana 6/	--	--	--	--	--	--	--	--	2,680	10,900
Nebraska	1,400	7.7	2,200	7.0	2,000	-5.2	1,600	9.9	7,170	47,800
Nevada	1,200	-17.5	1,300	13.2	1,600	32.2	1,500	6.1	5,530	44,900
New Hampshire 5/	200	30.9	600	17.4	700	8.3	700	-2.6	2,130	13,300
New Jersey	3,700	15.3	6,300	9.2	7,500	5.1	6,800	2.6	24,400	164,000
New Mexico 5/	1,000	79.6	1,700	84.9	1,400	86.9	600	-24.6	4,580	24,600
New York	4,100	9.9	13,300	2.7	17,500	0.6	12,100	17.1	47,000	304,000
North Carolina	12,100	-3.8	17,900	-0.4	19,400	8.5	17,300	12.5	66,600	485,000
North Dakota 4/	--	--	--	--	--	--	--	--	--	--
Ohio	12,600	13.9	23,000	14.1	25,300	3.1	19,900	9.0	80,900	433,000
Oklahoma 5/	7,200	7.1	9,100	3.4	9,600	10.0	10,000	30.1	35,900	126,000
Oregon	3,700	-13.3	5,400	-4.0	6,300	-5.8	4,600	-1.2	20,000	104,000
Pennsylvania	14,400	6.8	25,300	0.2	30,800	9.3	25,200	13.4	95,700	575,000
Rhode Island 4/	--	--	--	--	--	--	--	--	1,830	11,500
South Carolina	5,800	2.9	7,300	3.1	7,700	11.0	7,200	15.6	28,000	218,000
South Dakota	700	7.2	1,800	12.1	2,100	-5.9	1,400	-0.4	6,000	23,100
Tennessee	10,700	6.9	17,000	5.2	19,700	6.4	17,000	8.2	64,400	$372,000
Texas	20,500	24.0	25,200	19.5	26,300	15.5	21,600	4.2	93,700	400,000
Utah	2,000	23.4	3,100	12.1	3,200	-6.8	2,000	-39.9	10,200	46,100

See footnotes at end of table.

TABLE 6--Continued
CRUSHED STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998,
BY QUARTER AND STATE 1/

State	Quantity 1st quarter (thousand metric tons)	Percentage change 3/	Quantity 2d quarter (thousand metric tons)	Percentage change 3/	Quantity 3d quarter (thousand metric tons)	Percentage change 3/	Quantity 4th quarter (thousand metric tons)	Percentage change 3/	Total 2/ (thousand metric tons)	Value total 2/ (thousands)
Vermont 6/	--	--	--	--	--	--	--	--	8,350	$47,600
Virginia	12,200	-16.9	20,500	-1.3	23,800	16.4	21,700	28.3	78,200	460,000
Washington	3,200	-6.6	4,100	23.9	3,900	-16.6	3,800	12.2	14,900	93,500
West Virginia 5/	1,800	-20.0	3,600	-1.5	4,100	5.0	3,100	1.4	12,600	74,900
Wisconsin	2,800	5.7	7,600	-4.5	9,800	-5.7	8,300	7.7	28,500	119,000
Wyoming	1,000	62.2	1,700	-3.9	1,800	22.6	1,700	50.3	6,250	38,300
Other	--	--	--	--	--	--	--	--	11,000	63,200
Total 3/	XX	XX	XX	XX	XX	XX	XX	XX	1,530,000	8,660,000

XX Not applicable.

1/ As published in the "Crushed Stone and Sand and Gravel in the Fourth Quarter of 1998 Mineral Industry Surveys."

2/ Data may not add to totals shown because of independent rounding and differences between projected totals by States and regions.

3/ All percentage changes are calculated by using unrounded totals. Percentage changes are based on the corresponding quarter of 1997.

4/ State not included in quarterly survey.

5/ To avoid disclosing proprietary data, certain State totals do not include all types of stone produced within the State; the portion not shown has been included with "Other."

6/ Owing to the low number of companies, no production estimates by quarter were generated.

TABLE 7
CRUSHED STONE SOLD OR USED IN THE UNITED STATES IN 1998,
BY REGION AND SIZE OF OPERATION 1/

Size range (metric tons)	Northeast				Midwest				South			
	Number of operations	Percentage of total	Quantity (thousand metric tons)	Percentage of total	Number of operations	Percentage of total	Quantity (thousand metric tons)	Percentage of total	Number of operations	Percentage of total	Quantity (thousand metric tons)	Percentage of total
Less than 25,000	44	9.7	374	0.2	180	15.5	1,770	0.4	56	5.2	430	0.1
25,000 to 49,999	27	5.9	944	0.4	85	7.0	3,000	0.5	39	3.6	1,390	0.2
50,000 to 99,999	41	9.0	2,840	1.4	179	15.4	12,100	2.7	112	10.4	7,910	1.1
100,000 to 199,999	58	12.7	7,980	4.0	176	15.2	23,200	5.2	124	11.5	17,100	2.4
200,000 to 299,999	34	7.5	7,590	3.8	126	10.9	28,000	6.3	97	9.0	21,900	3.1
300,000 to 399,999	51	11.2	16,000	8.0	78	6.7	24,700	5.6	85	7.9	27,200	3.9
400,000 to 499,999	45	9.9	18,400	9.1	54	4.7	21,800	4.9	80	7.4	32,700	4.6
500,000 to 599,999	28	6.1	14,200	7.0	37	3.2	18,600	4.2	70	6.5	35,300	5.0
600,000 to 699,999	28	6.1	16,700	8.0	38	3.3	22,300	5.0	43	4.0	25,600	3.6
700,000 to 799,999	15	3.3	10,200	5.1	32	2.8	21,800	4.9	44	4.1	29,700	4.2
800,000 to 899,999	16	3.5	12,200	6.1	28	2.4	21,500	4.8	48	4.5	37,100	5.3
900,000 to 999,999	11	2.4	9,490	4.7	26	2.2	22,500	5.1	37	3.4	32,000	4.5
1,000,000 to 1,499,999	38	8.3	42,300	20.9	62	5.4	70,400	15.9	119	11.0	132,000	18.6
1,500,000 to 1,999,999	9	2.0	13,200	6.5	25	2.2	39,000	8.8	69	6.4	107,000	15.1
2,000,000 to 2,499,999	2	0.4	3,890	2.0	14	1.2	28,200	6.4	16	1.5	33,000	4.7
2,500,000 to 4,999,999	9	2.0	25,800	12.8	15	1.3	45,400	10.3	30	2.8	92,800	13.1
5,000,000 and over	--	--	--	--	6	0.6	39,800	9.0	10	0.8	74,000	10.5
Total	456	100.0	202,000	100.0	1,160	100.0	443,000	100.0	1,080	100.0	707,000	100.0

Size range (metric tons)	West				U.S. total			
	Number of operations	Percentage of total	Quantity (thousand metric tons)	Percentage of total	Number of operations	Percentage of total	Quantity (thousand metric tons)	Percentage of total
Less than 25,000	211	29.8	1,600	1.0	491	14.4	4,170	0.2
25,000 to 49,999	90	12.7	2,970	1.9	241	7.1	8,310	0.5
50,000 to 99,999	104	14.7	7,070	4.5	436	12.8	29,900	2.0
100,000 to 199,999	107	15.1	14,200	9.0	465	13.7	62,500	4.1
200,000 to 299,999	50	7.1	11,000	7.0	307	9.0	68,500	4.5
300,000 to 399,999	36	5.1	11,500	7.3	250	7.3	79,400	5.3
400,000 to 499,999	20	2.8	8,110	5.1	199	5.8	81,100	5.4
500,000 to 599,999	17	2.4	8,480	5.4	152	4.5	76,500	5.1
600,000 to 699,999	15	2.1	8,740	5.5	124	3.6	73,300	4.9
700,000 to 799,999	7	1.0	4,680	3.0	97	2.9	65,800	4.4
800,000 to 899,999	5	0.8	3,890	2.5	97	2.9	74,800	5.0
900,000 to 999,999	10	1.4	8,490	5.4	84	2.5	72,500	4.8
1,000,000 to 1,499,999	21	3.0	23,200	14.7	241	7.1	268,000	17.7
1,500,000 to 1,999,999	3	0.3	4,930	3.0	106	3.1	164,000	10.9
2,000,000 to 2,499,999	3	0.3	6,450	4.1	35	1.0	71,600	4.7
2,500,000 to 4,999,999	10	1.4	32,500	20.6	64	1.9	197,000	13.0
5,000,000 and over	--	--	--	--	16	0.4	114,000	7.5
Total	709	100.0	158,000	100.0	3,410	100.0	1,510,000	100.0

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

TABLE 8
CRUSHED LIMESTONE AND DOLOMITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998, BY STATE 1/

(Thousand metric tons and thousand dollars)

State	Limestone		Dolomite	
	Quantity	Value	Quantity	Value
Alabama	42,900 2/	286,000 2/	W	W
Alaska 3/	W 2/	W 2/	--	--
Arizona	4,300	23,900	--	--
Arkansas	13,300	61,900	W	W
California	24,800	149,000	252	1,060
Colorado	2,470	16,200	--	--
Connecticut	W	W	W	W
Florida	77,700 2/	360,000 2/	1,310	8,330
Georgia	17,600 2/	111,000 2/	W	W
Hawaii	357	2,160	--	--
Idaho	1,040	4,030	--	--
Illinois	55,100 2/	291,000 2/	17,000	79,800
Indiana	48,300 2/	220,000 2/	11,500	51,900
Iowa	41,700 2/	219,000 2/	72	W
Kansas	21,200 2/	109,000 2/	--	--
Kentucky	59,500	291,000	--	--
Maine	1,360	8,020	--	--
Maryland	18,300	102,000	--	--
Massachusetts	2,170 2/	21,000 2/	--	--
Michigan	34,700	133,000	8,970	33,500
Minnesota	7,180	37,300	W	W
Mississippi	789	2,790	--	--
Missouri	64,400 2/	335,000 2/	2,770	13,200
Montana	3,370	13,200	--	--
Nebraska	7,490	49,800	--	--
Nevada	5,050	23,000	W	W
New Jersey	W	W	--	--
New Mexico	2,200	8,630	--	--
New York	29,500 2/	169,000 2/	8,250	50,400
North Carolina	W	W	279	1,870
Ohio	61,500 2/	283,000 2/	12,500	59,900
Oklahoma	27,500	108,000	1,560	6,570
Oregon	W	W	--	--
Pennsylvania	54,300 2/	303,000 2/	17,500	82,900
Rhode Island	W	W	--	--
South Carolina	W	W	--	--
South Dakota	2,920	12,100	--	--
Tennessee	56,800	329,000	W	W
Texas	92,500	370,000	W	W
Utah	3,100 2/	18,200 2/	W	W
Vermont	2,580	11,400	W	W
Virginia	18,500 2/	103,000 2/	3,800	22,600
Washington	1,020 2/	6,220 2/	W	W
West Virginia	11,300	61,400	W	W
Wisconsin	22,500 2/	94,100 2/	2,350	10,100
Wyoming	W 2/	W 2/	W	W
Other	13,700 2/	93,400 2/	20,700	115,000
Total	955,000	4,840,000	109,000	537,000

W Withheld to avoid disclosing company proprietary data; included with "Other."

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

2/ Includes limestone-dolomite reported with no distinction between the two kinds of stone.

3/ Data derived, in part, from Alaska Division of Geological and Geophysical Surveys information.

TABLE 9
CRUSHED CALCAREOUS MARL AND MARBLE SOLD OR USED BY
PRODUCERS IN THE UNITED STATES IN 1998, BY STATE 1/

(Thousand metric tons and thousand dollars)

State	Calcareous marl		Marble	
	Quantity	Value	Quantity	Value
Alabama	--	--	2,240	76,300
New York	--	--	90	1,580
Pennsylvania	--	--	363	2,170
South Carolina	3,170	12,900	W	W
Vermont	--	--	1,540	6,610
Other	1,520 2/	6,020 2/	4,310 3/	28,300 3/
Total	4,680	19,000	8,550	115,000

W Withheld to avoid disclosing company proprietary data; included with "Other."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes data for Florida, Michigan, Mississippi, North Carolina, and Texas.
3/ Includes data for Arizona, California, Georgia, Maryland, Oregon, South Carolina, Texas, Washington, and Wyoming.

TABLE 10
CRUSHED GRANITE, TRAPROCK, AND SANDSTONE AND QUARTZITE SOLD OR USED BY PRODUCERS
IN THE UNITED STATES IN 1998, BY STATE 1/

(Thousand metric tons and thousand dollars)

State	Granite		Traprock		Sandstone and quartzite	
	Quantity	Value	Quantity	Value	Quantity	Value
Alabama	W	W	--	--	W	W
Alaska 2/	--	--	605	2,700	W	W
Arizona	2,190	10,900	--	--	280	3,030
Arkansas	12,300	64,100	--	--	7,650	42,600
California	10,400	51,500	9,740	74,400	2,810	25,900
Colorado	6,090	29,100	W	W	651	3,450
Connecticut	143	1,150	W	W	--	--
Florida	--	--	--	--	W	W
Georgia	56,100	326,000	--	--	W	W
Hawaii	582	2,490	4,030	44,600	W	W
Idaho	256	911	1,900	8,960	W	W
Illinois	--	--	--	--	W	W
Indiana	--	--	W	W	--	--
Kansas	W	W	--	--	W	W
Louisiana	--	--	--	--	W	W
Maine	478	3,410	W	W	W	W
Maryland	W	W	W	W	W	W
Massachusetts	3,140	22,800	7,230	51,400	--	--
Michigan	--	--	W	W	7	113
Minnesota	W	W	--	--	W	W
Missouri	W	W	W	W	W	W
Montana	--	--	W	W	88	296
Nevada	W	W	W	W	--	--
New Hampshire	W	W	W	W	W	W
New Jersey	9,830	62,800	12,200	86,600	W	W
New Mexico	W	W	W	W	W	W
New York	2,770	21,500	W	W	1,550	11,300
North Carolina	52,800	365,000	6,180	43,400	W	W
Ohio	--	--	--	--	1,640	9,340
Oklahoma	W	W	--	--	1,210	4,450
Oregon	165	777	19,400	97,300	W	W
Pennsylvania	3,710	19,000	3,160	15,400	7,100	37,800
Rhode Island	1,610	10,500	W	W	--	--
South Carolina	20,400	137,000	--	--	--	--
South Dakota	W	W	--	--	2,710	12,100
Tennessee	W	W	--	--	W	W
Texas	W	W	W	W	938	4,070
Utah	W	W	--	--	335	1,740
Vermont	W	W	--	--	1,270	8,980
Virginia	28,600	186,000	11,400	59,300	2,460	12,000
Washington	W	W	15,000	83,000	788	8,220
West Virginia	--	--	--	--	1,020	6,710
Wisconsin	2,210	6,530	1,790	7,070	W	W
Wyoming	W	W	--	--	W	W
Other	26,400	141,000	15,900	104,000	7,280	42,200
Total	240,000	1,460,000	108,000	678,000	39,800	234,000

W Withheld to avoid disclosing company proprietary data; included with "Other."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Data derived, in part, from Alaska Division of Geological and Geophysical Surveys information.

TABLE 11
CRUSHED VOLCANIC CINDER AND SCORIA AND CRUSHED
MISCELLANEOUS STONE SOLD OR USED BY PRODUCERS
IN THE UNITED STATES IN 1998, BY STATE 1/

(Thousand metric tons and thousand dollars)

State	Volcanic cinder and scoria		Miscellaneous stone 2/	
	Quantity	Value	Quantity	Value
Alabama	--	--	67	477
Alaska 3/	--	--	1,100	7,270
Arizona	333	1,610	957	5,270
Arkansas	--	--	106	583
California	538	3,370	6,190	35,000
Colorado	28	125	2,230	12,200
Connecticut	--	--	W	W
Hawaii	W	W	W	W
Idaho	--	--	497	2,320
Indiana	--	--	--	--
Kentucky	--	--	W	W
Louisiana	--	--	--	--
Maine	--	--	836	4,420
Massachusetts	--	--	228	1,610
Michigan	--	--	W	W
Montana	--	--	66	219
Nevada	W	W	674	7,000
New Jersey	--	--	W	W
New Mexico	290	2,820	980	4,350
New York	--	--	1,200	7,340
North Carolina	W	W	W	W
North Dakota	W	W	70	232
Oklahoma	--	--	1,500	7,130
Oregon	--	--	2,730	13,100
Pennsylvania	--	--	8,200	43,400
Texas	W	W	3,260	10,800
Utah	W	W	257	1,360
Virginia	--	--	954	5,960
Washington	200	1,120	820	4,460
Wyoming	W	W	332	1,290
Other	1,120	6,760	9,050	53,600
Total	2,510	15,800	42,300	229,000

W Withheld to avoid disclosing company proprietary data; included with "Other."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes shell and slate.
3/ Data derived, in part, from Alaska Division of Geological and Geophysical Surveys information.

TABLE 12
KIND OF CRUSHED STONE PRODUCED IN THE UNITED STATES IN 1998, BY STATE

State	Lime-stone	Dolo-mite	Marble	Calcareous marl	Shell	Granite	Trap-rock	Sand-stone	Quartzite	Slate	Volcanic cinder and scoria	Miscella-neous
Alabama	X	X	X			X		X		X		X
Alaska 1/	X				X		X			X		X
Arizona	X		X			X		X	X		X	X
Arkansas	X	X				X		X	X	X		X
California	X	X	X		X	X	X	X	X	X	X	X
Colorado	X					X	X	X	X		X	X
Connecticut	X	X				X	X					X
Florida	X	X		X	X			X				
Georgia	X	X	X			X			X			
Hawaii	X					X	X	X			X	X
Idaho	X				X	X	X		X			X
Illinois	X	X						X				
Indiana	X	X					X			X		
Iowa	X	X										
Kansas	X					X		X	X			
Kentucky	X											X
Louisiana								X				
Maine	X					X	X		X	X		X
Maryland	X		X		X	X	X	X				
Massachusetts	X					X	X					X
Michigan	X	X		X			X	X				X
Minnesota	X	X				X		X	X			
Mississippi	X			X								
Missouri	X	X				X	X	X				
Montana	X						X	X	X		X	X
Nebraska	X											
Nevada	X	X				X	X				X	X
New Hampshire						X	X	X				
New Jersey	X					X	X	X				X
New Mexico	X					X	X	X			X	X
New York	X	X	X			X	X	X				X
North Carolina	X	X		X		X	X		X	X	X	X
North Dakota											X	X
Ohio	X	X						X				
Oklahoma	X	X				X		X				X
Oregon	X		X			X	X	X				X
Pennsylvania	X	X	X			X	X	X	X	X		X
Rhode Island	X					X	X					
South Carolina	X		X	X		X						
South Dakota	X					X			X			
Tennessee	X	X				X		X				
Texas	X	X	X	X		X	X	X	X		X	X
Utah	X	X				X		X	X		X	X
Vermont	X	X	X			X			X	X		
Virginia	X	X				X	X	X	X	X		X
Washington	X	X	X		X	X	X	X			X	X
West Virginia	X	X						X				
Wisconsin	X	X				X	X	X	X			
Wyoming	X	X	X			X			X		X	X

1/ Data derived, in part, from Alaska Division of Geological and Geophysical Surveys information.

TABLE 13
CRUSHED STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998, BY USE 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1-1/2-inch):			
Macadam	5,100	$29,000	$5.68
Riprap and jetty stone	17,200	116,000	6.74
Filter stone	7,290	43,800	6.01
Other coarse aggregate	15,600	75,400	4.83
Coarse aggregate, graded:			
Concrete aggregate, coarse	95,900	549,000	5.72
Bituminous aggregate, coarse	75,400	473,000	6.27
Bituminous surface-treatment aggregate	18,500	117,000	6.33
Railroad ballast	16,900	80,300	4.75
Other graded coarse agggregate	69,000	430,000	6.21
Fine aggregate (-3/8 inch):			
Stone sand, concrete	16,000	91,400	5.70
Stone sand, bituminous mix or seal	20,400	110,000	5.41
Screening, undesignated	25,000	124,000	4.95
Other fine aggregate	16,900	83,100	4.91
Coarse and fine aggregates:			
Graded road base or subbase	168,000	806,000	4.80
Unpaved road surfacing	23,200	111,000	4.79
Terrazzo and exposed aggregate	2,410	15,300	6.37
Crusher run or fill or waste	44,000	205,000	4.65
Roofing granules	3,690	21,200	5.75
Other coarse and fine aggregates	55,100	283,000	5.13
Other construction materials 2/	15,900	81,100	5.11
Agricultural:			
Agricultural limestone	12,200	67,700	5.53
Poultry grit and mineral food	802	7,140	8.91
Other agricultural uses	1,080	9,140	8.43
Chemical and metallurgical:			
Cement manufacture	94,600	407,000	4.30
Lime manufacture	23,600	155,000	6.56
Dead-burned dolomite manufacture	654	3,500	5.35
Flux stone	6,880	30,600	4.45
Chemical stone	488	2,190	4.49
Glass manufacture	443	6,720	15.16
Sulfur oxide removal	1,660	10,600	6.42
Special:			
Mine dusting or acidic water treatment	374	5,170	13.83
Asphalt fillers or extenders	1,560	13,600	8.68
Whiting or whiting substitute	1,020	47,200	46.05
Other fillers or extenders	4,700	109,000	23.18
Other miscellaneous uses:			
Abrasives	W	W	W
Flour (slate)	W	W	W
Sugar refining	W	W	W
Other specified uses not listed 3/	2,980	21,800	7.30
Unspecified: 4/			
Actual	440,000	2,360,000	5.37
Estimated	205,000	1,020,000	4.97
Total	1,510,000	8,130,000	5.38

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes building products, drain fields, lightweight aggregate (slate), pipe bedding, and waste material.
3/ Includes refractory stone, including ganister.
4/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 14
CRUSHED LIMESTONE AND DOLOMITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998, BY USE 1/

(Thousand metric tons and thousand dollars)

Use	Limestone 2/		Dolomite	
	Quantity	Value	Quantity	Value
Coarse aggregate (+1-1/2 inch):				
Macadam	3,360	18,600	508	2,750
Riprap and jetty stone	9,110	54,600	872	6,200
Filter stone	4,500	23,000	176	1,070
Other coarse aggregate	10,600	48,600	573	2,990
Coarse aggregate, graded:				
Concrete aggregate, coarse	60,800	326,000	6,790	34,800
Bituminous aggregate, coarse	46,800	282,000	6,100	36,300
Bituminous surface-treatment aggregate	11,200	62,200	1,860	12,000
Railroad ballast	2,260	11,000	626	3,220
Other graded coarse aggregate	40,000	232,000	4,970	21,400
Fine aggregate (-3/8 inch):				
Stone sand, concrete	8,930	46,600	1,380	8,210
Stone sand, bituminous mix or seal	9,360	46,700	1,330	7,710
Screening, undesignated	14,500	68,900	2,530	12,200
Other fine aggregate	12,600	59,800	531	2,470
Coarse and fine aggregates:				
Graded road base or subbase	112,000	497,000	11,100	53,600
Unpaved road surfacing	14,900	74,200	1,170	4,630
Terrazzo and exposed aggregate	702	3,810	112	651
Crusher run or fill or waste	22,400	92,300	1,920	9,910
Other coarse and fine aggregates	32,100	169,000	8,680	36,400
Roofing granules	237	2,250	W	W
Other construction materials 3/	11,500	54,900	W	W
Agricultural:				
Agricultural limestone	8,820	50,300	3,420	17,400
Poultry grit and mineral food	771	6,820	--	--
Other agricultural uses	754	6,300	88	755
Chemical and metallurgical:				
Cement manufacture	90,000	386,000	186	1,260
Lime manufacture	22,300	149,000	1,280	4,640
Dead-burned dolomite manufacture	654	3,500	--	--
Flux stone	5,790	25,400	933	3,470
Chemical stone	488	2,190	--	--
Glass manufacture	88	917	W	W
Sulfur oxide removal	1,660	10,600	--	--
Special:				
Mine dusting or acidic water treatment	325	4,620	W	W
Asphalt fillers or extenders	1,490	12,700	72	829
Whiting or whiting substitute	298	7,600	W	W
Other fillers or extenders	3,350	69,000	188	5,140
Other miscellaneous uses:				
Abrasives	W	W	--	--
Sugar refining	W	W	--	--
Other specified uses not listed 4/	1,790	12,000	W	W
Unspecified: 5/				
Actual	252,000	1,270,000	42,000	199,000
Estimated	137,000	661,000	8,650	42,300
Total	955,000	4,840,000	109,000	537,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

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

2/ Includes a minor amount of limestone-dolomite reported without a distinction between the two.

3/ Includes building products, drain fields, pipe bedding, and waste material.

4/ Includes refractory stone, including ganister.

5/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 15
CRUSHED LIMESTONE AND DOLOMITE SOLD OR USED BY PRODUCERS
IN 1998, BY STATE AND USE 1/

(Thousand metric tons and thousand dollars)

State	Concrete aggregate		Bituminous aggregate		Roadstone and coverings		Riprap and railroad ballast		Other construction uses	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Alabama	2,460	13,900	7,990	46,500	676	4,890	103	624	6,390	35,300
Alaska	--	--	--	--	--	--	--	--	--	--
Arizona	--	--	W	W	--	--	--	--	W	W
Arkansas	2,070	9,390	3,580	19,400	4,270	17,600	242	1,160	2,240	10,300
California	922	4,480	575	5,520	695	2,970	302	1,750	348	1,770
Colorado	--	--	W	W	W	W	--	--	--	--
Connecticut	W	W	W	W	W	W	--	--	W	W
Florida	11,100	67,600	6,570	38,300	12,900	47,500	94	719	12,400	50,300
Georgia	1,330	8,850	1,300	9,010	856	4,040	75	735	384	2,200
Hawaii	114	564	--	--	W	W	--	--	W	W
Idaho	--	--	--	--	--	--	--	--	--	--
Illinois	6,350	35,600	7,830	48,600	15,100	75,800	944	6,550	4,950	22,600
Indiana	5,000	23,400	6,620	29,800	4,550	22,400	1,060	5,410	2,480	10,100
Iowa	1,160	6,700	690	4,350	6,160	32,600	88	492	1,580	6,970
Kansas	659	3,580	2,550	16,700	1,750	8,860	96	696	4,610	26,700
Kentucky	3,250	18,600	7,370	47,100	4,830	26,500	635	4,180	3,650	19,000
Maine	W	W	W	W	--	--	W	W	--	--
Maryland	958	7,170	233	1,630	1,390	6,710	146	1,300	804	3,530
Massachusetts	W	150	27	W	51	W	--	--	255	3,210
Michigan	4,520	18,100	3,720	17,400	1,680	7,960	77	946	1,600	7,470
Minnesota	463	2,560	2,030	11,100	1,930	9,710	98	775	2,250	11,100
Mississippi	--	--	--	--	--	--	--	--	--	--
Missouri	2,900	17,500	5,740	43,000	11,500	50,900	2,880	13,200	3,960	19,300
Montana	--	--	W	W	204	653	W	W	11	47
Nebraska	W	W	W	W	814	6,760	185	1,700	655	4,530
Nevada	138	W	562	W	256	951	W	W	W	W
New Jersey	W	W	W	W	W	W	--	--	298	2,200
New Mexico	531	2,120	W	W	W	W	11	W	43	180
New York	1,720	10,200	7,440	51,600	4,360	25,700	319	2,570	7,120	39,900
North Carolina	123	876	W	W	84	448	31	224	254	1,500
Ohio	4,160	18,000	6,750	30,700	21,500	90,800	1,260	6,340	3,780	16,400
Oklahoma	5,610	25,200	4,020	18,500	2,000	8,650	272	1,630	3,970	15,200
Oregon	--	--	--	--	--	--	--	--	--	--
Pennsylvania	3,090	17,400	11,300	64,400	7,250	37,200	719	4,910	8,710	37,600
Rhode Island	--	--	--	--	--	--	--	--	W	W
South Carolina	--	--	--	--	--	--	--	--	--	--
South Dakota	W	W	W	W	W	W	W	W	W	W
Tennessee	5,030	31,600	16,200	102,000	16,100	86,100	1,440	8,460	8,250	47,500
Texas	21,600	98,400	12,000	57,500	21,300	72,500	629	3,440	8,590	27,400
Utah	W	W	W	W	155	522	78	464	65	214
Vermont	21	162	W	W	W	W	W	W	W	W
Virginia	2,430	15,100	3,700	24,000	2,640	13,200	556	3,540	3,650	17,900
Washington	--	--	--	--	W	W	118	572	66	342
West Virginia	635	3,850	1,060	6,120	548	2,850	126	721	933	4,580
Wisconsin	1,510	7,090	1,100	4,960	8,230	34,000	90	582	2,070	8,660
Wyoming	87	634	W	W	4	W	W	W	W	W
Total by use	89,900	469,000	121,000	698,000	154,000	699,000	12,700	73,700	96,300	454,000
Total withheld by use	1,120	8,990	2,000	15,300	772	3,630	188	1,300	1,550	8,450
Grand total	91,000	478,000	123,000	714,000	154,000	702,000	12,900	75,000	97,900	462,000

See footnotes at end of table.

TABLE 15--Continued
CRUSHED LIMESTONE AND DOLOMITE SOLD OR USED BY PRODUCERS
IN 1998, BY STATE AND USE 1/

(Thousand metric tons and thousand dollars)

State	Cement manufacture		Agricultural uses		Lime manufacture		Other uses		Total by State	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Alabama	3,060	26,800	224	1,800	4,360	52,300	20,000	116,000	45,200	298,000
Alaska	--	--	--	--	--	--	W	W	(2/)	(2/)
Arizona	W	W	--	--	W	W	98	534	4,300	23,900
Arkansas	W	W	160	1,130	--	--	1,670	9,070	15,600	72,500
California	11,300	50,800	176	2,950	W	W	10,600	78,900	25,000	150,000
Colorado	W	W	W	W	--	--	W	W	2,470	16,200
Connecticut	--	--	42	425	--	--	W	W	1,520	17,700
Florida	3,440	13,200	818	6,560	--	--	31,700	144,000	79,000	368,000
Georgia	W	W	W	W	--	--	12,100	77,900	17,700	112,000
Hawaii	--	--	W	W	--	--	122	948	357	2,160
Idaho	W	W	44	144	W	W	101	447	1,040	4,030
Illinois	2,510	9,930	2,100	8,940	--	--	32,400	163,000	72,100	371,000
Indiana	3,770	15,000	2,820	12,600	W	W	33,400	153,000	59,700	272,000
Iowa	2,310	W	1,010	3,980	W	W	28,600	155,000	41,800	219,000
Kansas	2,000	7,860	211	1,190	--	--	9,300	43,600	21,200	109,000
Kentucky	W	W	333	1,860	W	W	33,700	155,000	59,500	291,000
Maine	W	W	W	W	W	W	W	W	1,360	8,020
Maryland	2,670	8,820	--	--	--	--	12,100	72,600	18,300	102,000
Massachusetts	--	--	W	W	W	W	1,400	14,100	2,170	21,000
Michigan	6,300	20,800	99	698	W	W	23,800	87,200	43,700	167,000
Minnesota	--	--	275	1,230	4	24	3,690	18,100	10,700	54,700
Mississippi	778	2,710	W	W	--	--	W	W	789	2,710
Missouri	7,080	28,600	1,120	5,600	2,900	29,100	29,000	141,000	67,100	348,000
Montana	W	W	23	W	W	W	621	2,050	3,370	13,200
Nebraska	W	W	656	5,190	--	--	2,490	16,400	7,490	49,800
Nevada	W	W	63	2,050	W	W	784	5,680	5,050	23,100
New Jersey	--	--	81	1,270	2	10	W	W	1,110	7,670
New Mexico	W	W	--	--	--	--	813	3,580	2,200	8,630
New York	W	W	199	1,730	--	--	13,300	73,700	37,700	219,000
North Carolina	--	--	5	25	--	--	W	W	6,590	43,500
Ohio	W	W	1,020	4,520	--	--	34,100	169,000	74,000	343,000
Oklahoma	1,830	8,940	57	221	--	--	11,300	36,400	29,100	115,000
Oregon	W	W	--	--	--	--	W	W	(2/)	(2/)
Pennsylvania	6,910	32,500	395	2,300	W	W	33,000	187,000	71,800	386,000
Rhode Island	--	--	W	W	--	--	W	W	(2/)	(2/)
South Carolina	--	--	--	--	--	--	3,660	26,200	3,660	26,200
South Dakota	1,200	W	--	--	W	W	W	W	2,920	12,100
Tennessee	W	W	432	3,150	W	W	13,900	74,300	63,000	367,000
Texas	10,300	35,900	420	2,930	W	W	17,200	69,100	93,000	372,000
Utah	W	W	9	202	W	W	3,180	14,200	6,350	32,600
Vermont	--	--	--	--	--	--	2,230	9,060	2,640	11,800
Virginia	W	W	609	4,880	W	W	6,360	36,600	22,300	126,000
Washington	119	196	W	W	W	W	1,060	6,390	1,590	8,790
West Virginia	1,170	W	W	W	--	--	7,250	42,000	11,700	64,100
Wisconsin	W	W	378	3,150	W	W	11,200	44,800	24,800	104,000
Wyoming	558	W	--	--	--	--	--	--	1,510	6,980
Total by use	67,300	262,000	13,800	80,800	7,260	81,400	446,000	2,250,000	XX	XX
Total withheld by use	22,900	126,000	64	813	17,000	76,100	9,880	70,500	XX	XX
Grand total	90,200	388,000	13,900	81,600	24,200	158,000	456,000	2,320,000	1,060,000	5,370,000

W Withheld to avoid disclosing company proprietary data; included in "Total withheld by use" and "Total by State." XX Not applicable.

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

2/ Withheld to avoid disclosing company proprietary data; included in "Grand total."

TABLE 16
CRUSHED MARBLE SOLD OR USED BY PRODUCERS IN
THE UNITED STATES IN 1998, BY USE 1/

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Coarse aggregate (+1-1/2-inch):		
Riprap and jetty stone	14	151
Filter stone	W	W
Coarse aggregate, graded:		
Bituminous surface-treatment aggregate	45	300
Other graded coarse aggregate 2/	519	4,380
Fine aggregate (-3/8-inch):		
Stone sand, concrete	(3/)	2
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	W	W
Coarse and fine aggregates:		
Graded road base or subbase	389	2,180
Terrazzo and exposed aggregate	39	1,100
Other construction materials 4/	425	3,110
Agricultural, other agricultural uses	W	W
Chemical and metallurgical, lime manufacture	47	1,040
Special:		
Mine dusting or acidic water treatment	W	W
Whiting or whiting substitute	703	38,700
Other fillers or extenders	803	32,300
Unspecified: 5/		
Actual	2,620	16,100
Estimated	2,730	13,200
Total	8,550	115,000

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes bituminous aggregate (coarse) and concrete aggregate (coarse).
3/ Less than 1/2 unit.
4/ Includes crusher run (select material or fill) and roofing granules.
5/ Includes production reported without a breakdown by end use and estimates for respondents.

TABLE 17
CRUSHED GRANITE AND TRAPROCK SOLD OR USED BY PRODUCERS
IN THE UNITED STATES IN 1998, BY USE 1/

(Thousand metric tons and thousand dollars)

Use	Granite		Traprock	
	Quantity	Value	Quantity	Value
Coarse aggregate (+1-1/2-inch):				
Macadam	W	W	444	2,530
Riprap and jetty stone	3,220	25,600	3,030	21,600
Filter stone	1,140	9,630	1,200	8,430
Other coarse aggregate	2,830	13,300	1,100	8,040
Coarse aggregate, graded:				
Concrete aggregate, coarse	18,900	121,000	6,940	51,200
Bituminous aggregate, coarse	13,300	94,000	5,220	32,300
Bituminous surface-treatment aggregate	2,540	19,700	1,790	16,800
Railroad ballast	9,980	44,200	3,150	17,200
Other graded coarse aggregate	16,500	120,000	5,240	38,400
Fine aggregate (-3/8-inch):				
Stone sand, concrete	3,750	19,400	1,490	13,400
Stone sand, bituminous mix or seal	6,990	40,500	1,460	8,210
Screening, undesignated	5,120	26,300	1,910	11,100
Other fine aggregate	2,220	11,200	768	5,380
Coarse and fine aggregates:				
Graded road base or subbase	20,900	119,000	16,100	95,900
Unpaved road surfacing	1,610	6,330	4,420	20,600
Terrazzo and exposed aggregate	780	4,930	336	1,620
Crusher run or fill or waste	12,600	68,800	5,560	26,200
Other coarse and fine aggregates	3,280	18,400	9,270	53,600
Roofing granules	W	W	1,000	7,530
Other construction materials	379	2,120	1,700 2/	12,100 2/
Other specified uses not listed	88	462	129	1,010
Agricultural:				
Poultry grit and mineral food	W	W	--	--
Other agricultural uses	--	--	25	84
Unspecified: 3/				
Actual	94,700	593,000	21,400	143,000
Estimated	16,500	91,700	14,800	82,300
Total	240,000	1,460,000	108,000	678,000

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes drain fields.
3/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 18
CRUSHED SANDSTONE AND QUARTZITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998, BY USE 1/

(Thousand metric tons and thousand dollars)

Use	Sandstone		Quartzite	
	Quantity	Value	Quantity	Value
Coarse aggregate (+1-1/2-inch):				
Macadam	W	W	41	248
Riprap and jetty stone	574	5,260	93	775
Filter stone	120	723	82	462
Other coarse aggregate	230	947	144	722
Coarse aggregate, graded:				
Concrete aggregate, coarse	916	4,980	322	2,340
Bituminous aggregate, coarse	1,410	12,400	726	5,950
Bituminous surface-treatment aggregate	249	1,470	95	914
Railroad ballast	80	374	268	1,990
Other graded coarse aggregate	591	6,040	1,350	8,070
Fine aggregate (-3/8-inch):				
Stone sand, concrete	369	2,580	--	--
Stone sand, bituminous mix or seal	285	1,650	295	2,010
Screening, undesignated	302	1,470	351	2,460
Other fine aggregate	500	2,740	171	680
Coarse and fine aggregates:				
Graded road base or subbase	3,550	20,600	900	5,440
Unpaved road surfaces	385	1,800	81	497
Terrazzo and exposed aggregate	150	1,130	66	765
Crusher run or fill or waste	651	2,520	335	1,410
Roofing granules	W	W	--	--
Other coarse and fine aggregates	714	5,280	1,080	6,070
Other construction materials	157	1,270	295	989
Agricultural, poultry grit and mineral food	--	--	W	W
Chemical and metallurgical:				
Cement manufacture	429	1,700	278	1,720
Flux stone	W	W	W	W
Glass manufacture	W	W	--	--
Special:				
Other fillers or extenders	W	W	--	--
Other specified uses not listed	W	W	W	W
Unspecified: 2/				
Actual	9,360	47,700	2,720	13,500
Estimated	7,370	39,600	858	3,980
Total	29,000	171,000	10,700	63,400

W Withheld to avoid disclosing company proprietary data; included in "Total."

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

2/ Includes production reported without breakdown by end use and estimates for nonrespondents.

TABLE 19
CRUSHED VOLCANIC CINDER AND SCORIA AND CRUSHED MISCELLANEOUS STONE
SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998, BY USE 1/

(Thousand metric tons and thousand dollars)

Use	Volcanic cinder and scoria		Miscellaneous stone 2/	
	Quantity	Value	Quantity	Value
Coarse aggregate (+1-1/2-inch):				
Riprap and jetty stone	9	55	264	1,470
Filter stone	27	161	15	113
Other coarse aggregate	--	--	137	835
Course aggregate, graded:				
Concrete aggregate, coarse	138	722	946	7,130
Bituminous aggregate, coarse	W	W	1,700	9,200
Bituminous surface-treatment aggregate	--	--	715	3,310
Railroad ballast	--	--	W	W
Other graded coarse aggregate	64	250	167	1,470
Fine aggregate (-3/8-inch):				
Stone sand, concrete	31	337	79	980
Stone sand, bituminous mix or seal	--	--	645	3,380
Screening, undesignated	67	262	127	882
Other fine aggregate	--	--	W	W
Coarse and fine aggregates:				
Graded road base or subbase	207	943	2,640	11,400
Unpaved road surfacing	W	W	610	2,930
Terrazzo and exposed aggregate	218	1,270	6	71
Crusher run or fill or waste	5	20	458	2,690
Roofing granules	W	W	W	W
Other coarse and fine aggregates	--	--	1,220	4,530
Other construction materials	140	615	1,860	10,500
Agricultural:				
Poultry grit and mineral food	--	--	W	W
Other agricultural uses	--	--	80	571
Chemical and metallurgical, cement manufacture	--	--	3,770	15,400
Special, other fillers or extenders	--	--	W	W
Other miscellaneous uses:				
Light weight aggregate (slate)	--	--	W	W
Flour (slate)	--	--	W	W
Other specified uses not listed	188	2,880	417 3/	2,920 3/
Unspecified: 4/				
Actual	876	5,390	13,700	77,400
Estimated	491	2,660	15,800	80,900
Total	2,510	15,800	47,000	248,000

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes calcareous marl, shell, and slate.
3/ Includes abrasives and drain fields.
4/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 20
RECYCLED ASPHALT AND CONCRETE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY REGION 1/

Region/Division	Recycled asphalt						Recycled concrete					
	1997			1998			1997			1998		
	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value
Northeast:												
New England	758	$3,640	$4.81	388	$1,850	$4.76	52	$321	$6.17	23	$115	$5.00
Middle Atlantic	387	2,570	6.63	182	1,260	6.95	141 r/	759	5.38 r/	173	906	5.24
Midwest:												
East North Central	245	146	0.60 r/	86	329	3.83	17 r/	46	2.71 r/	539	2,350	4.36
West North Central	10	47	4.70	201	943	4.69	128	475	3.71	83	342	4.12
South:												
South Atlantic	W	W	7.00	W	W	W	201 r/	1,280 r/	6.35 r/	329	2,170	6.58
East South Central	--	--	--	--	--	--	W	W	W	W	W	W
West South Central	W	W	5.86	W	W	W	--	--	--	--	--	--
West:												
Mountain	2 r/	11	5.50 r/	2	7	3.50	W	W	W	W	W	W
Pacific	80	806	10.08	352	1,890	5.37	101	1,020	10.11	396	2,350	5.92
Total 2/	1,730	9,090	5.25	1,390	7,290	5.23	649 r/	3,930 r/	6.06 r/	1,590	8,420	5.30

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Includes volcanic cinder and scoria.

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

TABLE 21
RECYCLED ASPHALT SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY STATE 1/

State	1997			1998		
	Quantity (thousand metric tons)	Value (thousands)	Unit value	Quantity (thousand metric tons)	Value (thousands)	Unit value
Alabama	--	--	--	W	W	$3.26
Alaska	19	$166	$8.74	3	$38	12.67
Arizona	(2/)	(2/)	(2/)	--	--	--
California	55 r/	382 r/	6.95 r/	319	1,740	5.44
Connecticut	--	--	--	W	W	5.00
Florida	--	--	--	W	W	6.67
Hawaii	--	--	--	W	W	4.53
Idaho	2	11	5.50	1	6	6.00
Illinois	18	73	4.06	24	98	4.08
Iowa	--	--	--	1	6	6.00
Kansas	--	--	--	W	W	6.04
Louisiana	--	--	--	W	W	11.11
Maine	53	384	7.25	115	677	5.89
Maryland	W	W	1.00	--	--	--
Massachusetts	623	2,900	4.65	182	643	3.53
Michigan	7	16	2.29	--	--	--
Minnesota	6	29	4.83	W	W	5.00
Missouri	--	--	--	W	W	4.46
Montana	--	--	--	W	W	1.00
New Hampshire	W	W	4.45	28	161	5.75
New Jersey	W	W	6.63	67	357	5.33
New York	40	131	3.28	W	W	15.97
Ohio	W	W	2.80	W	W	3.50
Oregon	--	--	--	W	W	1.60
Pennsylvania	110	866	7.87	76	300	3.95
Rhode Island	--	--	--	W	W	5.56
South Dakota	W	W	4.50	W	W	4.41
Tennessee	--	--	--	18	100	5.56
Texas	W	W	6.55	W	W	3.31
Vermont	--	--	--	W	W	7.00
Washington	W	W	5.09	9	40	4.44
Wisconsin	214	43	2.01	60	224	3.73
Total 3/	1,730	9,090	5.25	1,390	7,290	5.23

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Includes volcanic cinder and scoria.
2/ Revised to zero.
3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 22
RECYCLED CONCRETE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY STATE 1/ 2/

State	1997 Quantity (thousand metric tons)	1997 Value (thousands)	1997 Unit value	1998 Quantity (thousand metric tons)	1998 Value (thousands)	1998 Unit value
Alabama	W	W	$5.51	W	W	$4.10
Alaska	9	$65	7.22	1	$6	6.00
California	84	641	7.63	378	2,260	5.97
Connecticut	--	--	--	W	W	5.00
Georgia	W	W	8.73	W	W	9.66
Hawaii	--	--	--	W	W	5.00
Idaho	W	W	5.52	--	--	--
Illinois	3	14	4.67	W	W	5.59
Indiana	W	W	2.00	W	W	3.82
Kansas	--	--	--	W	W	5.86
Maine	W	W	4.90	W	W	4.00
Maryland	W	W	5.56	--	--	--
Massachusetts	41	269	6.56	W	W	5.50
Minnesota	W	W	3.71	W	W	3.93
Mississippi	--	--	--	W	W	12.00
New Hampshire	W	W	4.00	1	6	6.00
New Jersey	W	W	6.90	W	W	4.38
New Mexico	W	W	4.00	W	W	4.17
New York	W	W	4.55	W	W	5.27
North Carolina	11	72	6.55	--	--	--
Ohio	1	4	4.00	2	4	2.00
Oregon	--	--	--	W	W	3.00
Pennsylvania	34	195	5.74	9	62	6.89
South Dakota	--	--	--	W	W	4.60
Virginia	W	W	5.99	226	1,160	5.14
Washington	W	W	4.00	W	W	4.00
Wisconsin	W	W	2.22	289	979	3.39
Total	649 r/	3,930 r/	6.06 r/	1,590	8,420	5.30

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Includes volcanic cinder and scoria.
2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 23
CRUSHED STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES IN 1998,
BY REGION AND METHOD OF TRANSPORTATION 1/

(Thousand metric tons)

Region/Division	Truck	Rail	Water	Other	Not transported	Not specified	Total
Northeast:							
New England	8,920	1,640	--	--	3,020	23,000	36,600
Middle Atlantic	77,900	2,560	W	3,330	11,400	68,700	165,000
Midwest:							
East North Central	118,000	4,730	26,500	W	8,470	126,000	285,000
West North Central	63,900	2,380	8,000	1,920	4,660	78,000	159,000
South:							
South Atlantic	155,000	10,300	4,260	2,140	15,800	173,000	360,000
East South Central	87,000	2,280	2,160	937	12,500	69,300	174,000
West South Central	77,400	24,200	W	4,250	6,480	55,700	173,000
West:							
Mountain	20,000	1,690	--	W	5,150	24,100	52,800
Pacific	37,300	3,430	1,760	6,010	7,610	48,600	105,000
Total	645,000	53,200	49,000	21,300	75,000	667,000	1,510,000

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 24
NUMBER OF CRUSHED AND BROKEN STONE OPERATIONS AND PROCESSING PLANTS IN THE UNITED STATES IN 1998, BY STATE 1/

State	Mining operations on land				Dredging operations	Total active operations
	Stationary	Portable	Stationary and portable	No. plants or unspecified		
Alabama	55	3	1	7	--	66
Alaska 2/	2	10	2	2	--	16
Arizona	17	23	1	6	--	47
Arkansas	35	16	5	5	--	61
California	73	30	15	13	1	132
Colorado	14	6	6	4	--	30
Connecticut	18	2	1	--	--	21
Florida	56	21	7	11	2	97
Georgia	85	3	3	3	--	94
Hawaii	13	10	5	3	--	31
Idaho	9	30	4	4	--	47
Illinois	86	39	13	9	--	147
Indiana	77	2	6	11	--	96
Iowa	33	177	2	5	--	217
Kansas	24	80	4	1	--	109
Kentucky	78	6	7	2	--	93
Louisiana	--	--	--	1	--	1
Maine	8	9	--	--	--	17
Maryland	23	5	--	1	1	30
Massachusetts	25	6	2	3	--	36
Michigan	18	8	2	4	--	32
Minnesota	8	26	1	5	--	40
Mississippi	2	1	1	--	--	4
Missouri	98	90	11	5	--	204
Montana	11	8	--	2	--	21
Nebraska	6	2	3	--	--	11
Nevada	12	3	1	1	--	17
New Hampshire	8	3	1	2	--	14
New Jersey	16	2	8	1	--	27
New Mexico	15	30	2	5	--	52
New York	76	10	15	3	--	104
North Carolina	88	8	4	4	--	104
North Dakota	--	--	--	4	--	4
Ohio	105	13	9	4	1	132
Oklahoma	46	6	7	--	--	59
Oregon	46	94	3	16	2	161
Pennsylvania	149	22	19	19	--	209
Rhode Island	8	1	--	--	--	9
South Carolina	32	--	3	3	--	38
South Dakota	9	2	--	--	--	11
Tennessee	109	7	3	3	--	122
Texas	99	38	11	1	--	149
Utah	11	15	4	2	--	32
Vermont	10	5	2	2	--	19
Virginia	92	4	7	10	--	113
Washington	26	51	11	22	--	110
West Virginia	35	7	5	1	--	48
Wisconsin	30	113	3	12	--	158
Wyoming	5	6	1	2	--	14
Total	1,900	1,050	221	226	7	3,410

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

2/ Data derived, in part, from Alaska Division of Geological and Geophysical Surveys information.

TABLE 25
U.S. EXPORTS OF CRUSHED STONE IN 1998, BY DESTINATION 1/

(Metric tons)

Destination	Limestone for cement manufacturing	Other	Chalk, crude	Granules, chippings	Total
North America:					
Bahamas, The	498	--	--	60	558
Barbados	--	--	35	262	297
Bermuda	--	--	--	13	13
British Virgin Islands	27	--	--	--	27
Canada	3,750,000	866	1,500	142,000	3,900,000
Cayman Islands	234	--	--	--	234
Costa Rica	--	--	--	6	6
Dominican Republic	46	--	--	--	46
Honduras	--	--	4	--	4
Jamaica	--	--	7	379	386
Mexico	11,300	27	70	5,240	16,600
Nicaragua	--	--	--	4	4
Panama	20	--	--	--	20
Total	3,760,000	893	1,620	148,000	3,910,000
South America:					
Argentina	--	--	13	576	589
Brazil	13,500	--	35	266	13,800
Chile	708	--	2	4,230	4,940
Colombia	--	--	40	--	40
Ecuador	--	--	193	--	193
Suriname	17,100	--	--	--	17,100
Uruguay	--	--	--	2,090	2,090
Venezuela	750	--	1,140	816	2,710
Total	32,000	--	1,430	7,980	41,400
Europe:					
Austria	800	--	--	3	803
Belgium	83,000	--	--	--	83,000
Czech Republic	4,200	--	--	--	4,200
Denmark	124	--	--	--	124
France	20,800	60	--	5,020	25,900
Germany	52,600	12,200	--	14	64,900
Hungary	1,600	--	--	--	1,600
Iceland	1,640	85	1	--	1,730
Italy	31,200	45	--	776	32,000
Netherlands	--	21	--	4,530	4,550
Poland	2,400	--	--	--	2,400
Spain	--	18	--	--	18
Sweden	3,320	21	--	8	3,350
Switzerland	1,030	--	--	54	1,090
United Kingdom	31,700	574	--	74	32,400
Total	234,000	13,000	1	10,500	258,000
Asia:					
China	5,540	--	--	4,430	9,970
Hong Kong	67	36	7	768	878
Indonesia	--	29	89	--	118
Japan	86,600	1,110	1	39	87,800
Korea, Republic of	1,760	100	--	531	2,390
Malaysia	45	--	--	--	45
Philippines	--	--	--	19	19
Singapore	--	199	41	77	317
Sri Lanka (Ceylon)	--	52	--	--	52
Taiwan	10,400	--	--	3,100	13,500
Vietnam	--	--	16	--	16
Total	104,000	1,520	154	8,970	115,000
Oceania:					
Australia	4,610	4	22	36,400	41,000
New Zealand	5	--	1	--	6
Total	4,610	4	24	36,400	41,000

See footnotes at end of table.

TABLE 25--Continued
U.S. EXPORTS OF CRUSHED STONE IN 1998, BY DESTINATION 1/

(Metric tons)

Destination	Limestone for cement manufacturing	Other	Chalk, crude	Granules, chippings	Total
Middle East:					
Israel	--	57	--	--	57
Qatar	--	--	--	17	17
Saudi Arabia	--	--	--	1,950	1,950
United Arab Emirates	--	--	--	14	14
Total	--	57	--	1,980	2,040
Africa:					
Egypt	--	--	1	--	1
Uganda	--	--	--	181	181
Total	--	--	1	181	182
Grand total	4,140,000	15,500	3,220	214,000	4,370,000
Total value thousands	$17,700	$7,370	$2	$16,400	$41,500

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

Source: Bureau of the Census.

TABLE 26
U.S. IMPORTS OF CRUSHED STONE AND CALCIUM CARBONATE FINES, BY TYPE 1/

(Thousand metric tons and thousand dollars)

Type	1997 Quantity	1997 C.i.f. value	1997 Unit price	1998 Quantity	1998 C.i.f. value	1998 Unit price
Crushed stone and chips:						
Limestone	7,840	61,400	$8.00	8,260	66,700	$8.00
Limestone for flux or cement manufacturing	3,720	32,200	9.00	3,970	34,400	9.00
Quartzite	(2/)	253	1,004	(2/)	305	1,120
Other	865	9,740	11	1,400	13,400	10.00
Total	12,400	104,000	XX	13,600	115,000	XX
Calcium carbonate fines: 3/						
Natural chalk	(2/)	770	XX	(2/)	312	XX
Calcium carbonates other chalk	4	1,150	298.00	3	1,040	382.00
Total	4	1,920	XX	3	1,360	XX
Grand total	12,400	106,000	XX	13,600	116,000	XX

XX Not applicable.
1/ Data are rounded to three significant digits, except prices; may not add to totals shown.
2/ Less than 1/2 unit.
3/ Excludes precipitated calcium carbonates.

Source: Bureau of the Census.

FIGURE 1
PRODUCTION OF CRUSHED STONE IN THE UNITED STATES IN 1998, BY GEOGRAPHIC DIVISION