

CEMENT

By Cheryl Solomon

The industry's main product, portland cement, makes up 95% of the total domestic production. The remainder comes from masonry, hydraulic, and aluminous cements.

In 1994, U.S. demand for cement increased by approximately 7%. Domestic production of portland cement increased by 5%. Cement imported for consumption increased to 11.3 million metric tons. Portland cement values increased to approximately \$61 per metric ton.

Legislation and Government Programs

At the beginning of the year, the Environmental Protection Agency announced the availability of the agency's Report to Congress on Cement Kiln Dust. The Report to Congress contained a detailed study of cement kiln dust which fell within the scope of the exemption from hazardous waste regulations provided by the Bevill Exemption. The report presented the Agency's decision making rationale and a series of options being considered regarding regulatory options for cement kiln dust waste.

Production

Domestic production and consumption data for cement are developed by means of the portland and masonry cement voluntary survey. Of the 120 cement manufacturing plants to which an annual survey collection request was made, 115 responded, representing 95% of the cement production and consumption data shown in table 1. Estimates were made for nonrespondents using monthly survey data and data received from previous annual surveys. (See table 1.) One State agency and 45 companies operated 118 plants in 37 States. In addition, two companies operated two plants in Puerto Rico, manufacturing hydraulic cement. The production data obtained are listed by State or groups of States that form cement districts. A cement district may represent a group of States or a portion of a State. The States of California, Illinois, New York, Pennsylvania, and Texas are divided to provide more definitive marketing information within those States, as follows:

California, Northern.—Points north and west of the northern borders of San Luis Obispo and Kern Counties and the western borders of Inyo and Mono Counties.

California, Southern.—All other counties in California.

Chicago, Metropolitan.—The Illinois counties of Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will.

Illinois.—All other counties in Illinois.

New York, Western.—All counties west of a dividing line following the eastern boundaries of Broome, Chenango, Lewis, Madison, Oneida, and St. Lawrence Counties.

New York, Eastern.—All counties east of the aforementioned dividing line, except Metropolitan New York.

New York, Metropolitan.—The five counties of New York City (Bronx, Kings, New York, Queens, and Richmond) plus Nassau, Rockland, Suffolk, and Westchester Counties.

Pennsylvania, Eastern.—All counties east of the eastern boundaries of Centre, Clinton, Franklin, Huntingdon, and Potter Counties.

Pennsylvania, Western.—All other counties in Pennsylvania.

Texas, Northern.—All counties north of a dividing line following the northern borders of Burnet, Crockett, Jasper, Jeff Davis, Llano, Madison, Mason, Menard, Milam, Newton, Pecos, Polk, Robertson, San Jacinto, Schleicher, Tyler, Walker, and Williamson Counties.

Texas, Southern.—All counties south of the aforementioned dividing line.

Clinker Production.—Clinker production in the United States, excluding Puerto Rico, increased by 4% to 68.5 million metric tons. California led all States in clinker production, followed by Texas, Pennsylvania, Missouri, and Michigan.

By yearend, multiplant operations were being run by 18 companies. The size of individual companies, as a percentage of total U.S. clinker production capacity, ranged from 0.4% to 12.7%. The 5 largest companies with clinker capacity provided about 40% of total clinker capacity; the 10 largest companies with clinker capacity provided a combined 63%. The 10 largest companies, in decreasing order of size of clinker production, were Holnam Inc.; Lafarge Corp.; Essroc Materials Inc.; Southdown Inc.; Ash Grove Cement Co.; Blue Circle Inc.; Lone Star Industries Inc.; Lehigh Portland Cement Co.; California Portland Cement; and RC Cement.

Portland Cement.—Portland cement

production, excluding Puerto Rico, increased by 5% to 74.3 million metric tons.

The industry operated 118 plants, including 8 grinding facilities, to produce various types of finished hydraulic cement.

The size of individual companies, as a percentage of total U.S. finished cement production capacity, ranged from 0.4% to 12.7%. The top 10 producing companies, in declining order of production, were Holnam Inc.; Lafarge Corp.; Essroc Materials, Inc.; Southdown Inc.; Ash Grove Cement Co.; Blue Circle Inc.; Lone Star Industries, Inc.; Lehigh Portland Cement Co.; California Portland; and RC Cement Co., Inc.

Masonry Cement.—Production of masonry cement increased by 22% to 3.6 million metric tons. At yearend, 84 plants were manufacturing masonry cement in the United States.

Aluminous Cement.—Aluminous cement continued to be produced by Lehigh, Buffington, IN; Lafarge, Chesapeake, VA; and Aluminum Co. of America, Bauxite, AR.

Fuel Consumption.—Approximately 71% of all U.S. clinker was produced by the dry process method. Fuels consumed in making cement with both the wet and dry process included coal, 10.5 million metric tons; natural gas, 650.1 million cubic feet; and oil, 48.8 million liters. In addition, 120,000 metric tons of tires, 74,000 metric tons of solid waste fuel, and 600 million liters of liquid waste fuel were consumed in the cement kilns.

Corporate Changes.—Florida Crushed Stone sought permits for a new kiln to be built at its Brookfield, FL, plant.² Florida Rock Industries announced plans to build a new cement plant in western Alachua County, FL. The site contained about 75 years of limerock reserves.³ Holnam Inc. sold its Tijeras, NM, cement plant to Grupo Cementos de Chihuahua, S.A. de C.V.⁴ Holderbank Financiere Glarus A.G. agreed to acquire 84.1% of the share capital of Ciments et Engrais de Dannes et de l'Est, ore Cedest, France's fifth largest cement producer.⁵ Lafarge Corp. sold its New Braunfels, TX, cement plant, related cement terminals and an interest in Parker Lafarge Inc., a construction materials company based in Houston, TX, to Sunbelt Acquisitions, Inc., a U.S. subsidiary of Cementos Mexicanos, S.A. (Cemex). The purchase price for all of the assets was approximately US \$100 million.⁶

Lafarge Coppee sold 20% stake in Vencemos Pertigalete of Venezuela to Mexico's Cemex.⁷

Lone Star Industries Inc. appeared to have successfully emerged from the threat of bankruptcy since filing for Chapter 11 protection in December 1990.⁸ Through the sale of assets, Lone Star was considerably downsized and reorganized. Lone Star Industries sold its Medley, FL, cement plant to Tarmac America Inc., which had operated the plant under lease since 1988.⁹ Lone Star Industries' subsidiary, Rosebud Holdings Inc., sold its interest in a Santa Cruz California cement plant to California Readymix, Inc., a wholly owned subsidiary of RMC Lonestar. Lone Star Industries also sold its Nazareth plant to Essroc Materials Inc.¹⁰ Rosebud Holdings also sold its Texas cement terminals to Gulf Coast Portland Cement Co.¹¹

National Portland Cement Co. of Palmetto, FL, was purchased by Vencemos, Venezuela's largest cement company. Vencemos was purchased just prior by Cemex of Mexico.¹²

Lafarge Corp. sold its 12,000 ton capacity terminal in Amarillo, TX, to Southdown, Inc.¹³ The terminal was to receive cement from the Southdown Odessa plant in Texas.

Southdown, Inc., announced that it was planning to leave the environmental services business. The company planned to sell its three hazardous waste processing facilities and to end the burning of hazardous waste in its cement kilns by the end of 1995.¹⁴

Tarmac Plc in Woverhampton, England, relocated its Tarmac America headquarters to Norfolk, VA. The company's product lines were established into three groups—aggregates and cement, ready-mix concrete, and concrete products.¹⁵

Consumption

Consumer demand for cement in the United States, excluding Puerto Rico, increased by 7%. According to U.S. Department of Commerce (DOC) data, housing starts increased 13% to 1.5 million units, in 1994. The value of new construction increased 9% to \$507 billion. The value of residential construction increased 13% to \$238 billion, primarily in single-unit structures. The value of nonresidential construction increased 9% to \$97.8 billion, owing to increases in commercial building construction other than hospitals and other institutions, and hotels and motels. Public construction increased only slightly to \$52 billion, with highways and streets, sewer and other public construction experienced small upward movements in spending. Military facility construction declined by 5%.¹⁶

California continued to lead all States in the

amount of portland cement consumed, followed by, in order of shipments received, Texas, Florida, Illinois, Ohio, and Pennsylvania. Together, these States consumed 38% of the total U.S. tonnage.

On a regional basis, all nine of the Census districts experienced increases in consumption. The largest increases were experienced by the West North Central, East North Central (shown as Midwest, West, and East in table 12), New England and South Atlantic districts with increases, respectively, of 15.7%, 8.4%, 8.3%, and 7.2%. The East South Central, Pacific, and Middle Atlantic districts showed increases in consumption of 7.1%, 6.9%, and 6.4%. The West South Central and Mountain districts had the smallest increases in consumption with 4.7% and 3.4%, respectively. Particularly in the Mountain district, States such as Colorado and Montana had experienced very high levels of consumption in prior years, and therefore, actually had decreases in consumption, compared with 1993, of 16% and 31%, respectively.

Shipments of domestically produced portland cement from U.S. mills increased by 6%, while masonry cement shipments climbed 13%. (*See table 11.*) Cement shipments that were not reported to the U.S. Bureau of Mines (USBM) according to the type of customers are shown under Government and Miscellaneous (*See table 13.*) Of the cement shipments that were reported by type of customer, ready-mix concrete producers were the primary consumers of cement, accounting for about 56% of the total, followed by concrete product manufacturers, 11%; building material dealers, 5%; roadpaving contractors, 2%; and other contractors, including those that were unspecified contractors, 4%. Smaller amounts were consumed by Federal, State, and other government agencies, and by a variety of uses, such as waste stabilization and mining.

Prices

The average mill value of portland cement was approximately \$61.07 per metric ton and the value of masonry cement was \$79.40 per metric ton. The average value of cement by yearend reported by Engineering News Record (ENR), was \$ 74.31 per metric ton. The ENR prices are based on an average per-ton value of cement delivered to 20 cities. The average price change for portland cement for December 1994 increased by 6.3% compared with December 1993.¹⁷

Foreign Trade

The European Commission found more than

33 European cement companies guilty of participating in an illegal price fixing cartel said to have operated in 15 countries. Italcementi SpA of Italy received the highest penalty followed by Ciments Francais and Lafarge Coppee of France.¹⁸

The U.S. International Trade Commission (ITC) ruled that imports of calcium aluminate cement and cement clinker from France did not injure industries in the United States. The decision meant that no antidumping duties would be imposed in this case. The original petition was filed by the Lehigh Portland Cement Co. of Allentown, PA.¹⁹

The ITC conducted an administrative review of the antidumping duty order on gray portland cement and clinker from Japan. The review covered one manufacturer, Onoda Cement Co., Ltd. and the period May 1, 1992 through April 30, 1993. The review indicated the existence of dumping margins during this period. As a result of the review, the Department preliminarily determined to assess antidumping duties equal to the difference between the United States price and the foreign market value.²⁰

At the beginning of 1993, the International Trade Administration received a request from the Ad Hoc Committee of Florida Producers of Gray Portland Cement to conduct an administrative review of the suspension agreement on gray portland cement and clinker from Venezuela. Then at the beginning of 1994, the petitioners withdrew their request for administrative review. Accordingly, the Department terminated this administrative review.²¹

The DOC conducted an administrative review of the antidumping duty order on gray portland cement and clinker from Mexico. The review covered exports of the cement during the period August 1, 1992 through July 31, 1993, and one firm, Cemex, S.A. The results of this review indicated dumping margins for the period. On August 3, 1992, the DOC had published a notice of Opportunity to Request Administrative Review for the above time period. The petitioners, the Ad Hoc Committee of Arizona-New Mexico-Texas-Florida Producers of Gray Portland Cement and the National Cement Co. of California, Inc., requested the review. On September 30, 1993, the Department published a notice of "Initiation of Antidumping Review" for Cemex. In June 1994, interested parties were requested to comment on the results.²²

The DOC notified the public of its revocation of the antidumping finding on portland cement from the Dominican Republic because it was no longer of any interest to domestic interested parties. The Department

served written notice of its intent to revoke this antidumping finding on each domestic interested party on the service list.²³ Exports of hydraulic cement and clinker, as reported by the Bureau of the Census, increased 1% to 633,000 metric tons. Canada received 2% of the total.

New York led all States in the amount of imports received, with 14% of total U.S. imports, or 1,526,000 metric tons. Of this total, 35% was shipped through the Buffalo Customs District, 39% was shipped through the New York City Customs District, and 26% was shipped through the Ogdensburg Customs District. These imports comprised 65% of New York's portland cement consumption compared with total imports representing 13% of apparent consumption nationally. Sixty-two percent of imports into New York came from Canada, 19% came from Greece, 14% came from Spain, and 5% from Norway. Michigan was the second largest recipient of imported cement, receiving 1.17 million tons or 10% of the total. All of the Michigan imports were shipped through the Detroit Customs District, and virtually all came from Canada.

Chinese cement entered the United States mainly through the Columbia Snake River, 77%, through Anchorage, AL, 18% and less, through the port of Seattle, 0.5%. By yearend, the Chinese had exported 317,000 tons.

World Review

World cement production increased by 5% to 1.37 billion tons. China continued to lead all nations with 29% of production, followed by Japan with 7%, and the United States with 6%.

The year saw major purchases and plans to build new cement plants by Holderbank of Switzerland, Lafarge Coppee of France, and Cemex of Mexico, among others, as shown below.

China.—U.S. Dominion Bridge Inc. of Lachine announced plans to build a massive cement plant, in conjunction with Chongqing Cement Plant Co., a state-owned corporation. The plant was to be erected 13 kilometers from Chongqing in Sichuan province, China's largest province with a population of 110 million.²⁴ Lafarge planned to set up a cement plant in Beijing with a joint-venture project. The investment was expected to total \$130 million.²⁵

France.—Holderbank acquired the majority of the shares of Cedest in a major move to reinforce its position in Western Europe. Cedest was France's fifth largest cement producer with two plants, one at Dannes and one at Heming. The company had a total annual production capacity of 2.7 million tons per year.²⁶

Gaza.—A consortium of Palestinian investors was established to set up a new company, the Arab Cement Company, in order to build a cement plant in Gaza, the West Bank. The cement plant was to have a capacity of 1 million tons per year. The project was to be implemented in three stages: initial import, packaging and marketing venture, and construction of a clinker grinding plant and installation of a full-scale cement plant. The project could range from \$50 to \$150 million depending on where the equipment was sourced.²⁷

Indonesia.—Blue Circle Industries sold its 23% share in PT Semen Andalas, Indonesia, to the Swiss-based Cementia, owned by Lafarge Coppee of France. The purchase was thought to be for about \$6 million. Semen Andalas operated a 1 million ton factory on the western tip of Sumatra, Indonesia, and the accompanying port terminal. In addition to serving the domestic market in Sumatra the plant exported cement to Sri Lanka, Bangladesh, and Singapore. This purchase marked the expansion of Lafarge into a new area of the world.²⁸

Israel.—Cement consumption was approximately 4.86 million metric tons, about the same amount as production. Cement production was up from 4.46 million metric tons in 1993, when cement was imported from eastern Mediterranean countries in order to fill the demand. Nesher Cement was the sole cement producer, having three plants with 4.5 million metric tons of clinker capacity and more than 5.6 million tons of clinker grinding capacity.²⁹

Japan.—The Sumitomo Cement Co. and Osaka Cement Co. were to merge to form the second largest cement company in Japan. The company was to be called Sumitomo Osaka Cement Co.³⁰

Mexico.—Cementos Mexicanos, among the top five largest cement companies in the world, purchased Cementos Bayano in Panama City for 60 million, and four facilities in Venezuela.³¹ The purchase was part of Cemex's strategy to increase its market from Venezuela, through Panama, and Mexico, to the Caribbean and to Spain. The company also purchased the former Lafarge New Braunfels plant (See Corporate Changes).

Philippines.—Cement sales in the Philippines were 12% greater in 1994 than in 1993 and were expected to surge upwards due to the country's recovering economy and emphasis on infrastructure development.³²

Singapore.—Singapore had no fully integrated production facilities but operated five grinding facilities. Jurong Cement was the

largest company with 1 million tons per annum capacity, while SsangYong Cement and Malaysia Cement had .9 million tons per annum each, and Asia Cement and Indocement had .5 million tons per annum.³³ Cement consumption, moved up steadily from 2.83 million tons in 1991 through a high of 3.74 million tons in 1993. The total cement consumption was thought to have dropped back to 3.3 million tons in 1994.

National Cement completed the first phase of a major cement terminal at Jurong Port. The facility was to comprise a 28,000 ton silo complete with a newly designed ship unloader. The facility was formerly a grain silo and was purchased in 1993 by a group made up of Queensland Cement, Australia, Partek, Finland and Eastern Industries, a local group, with affiliations in the construction, steel and ready-mix industries.³⁴

Vietnam.—Vietnam produced 5.2 million tons of cement in 1994, 1.3 million tons was imported in order to meet demand.³⁵

A number of new cement plants were to be constructed in Vietnam. Lafarge Coppee and a local Vietnamese partner were to build a new plant with 1,200-ton-per-day capacity. The total project cost was estimated at \$40 million.³⁶ Technip-CLE of France was to be the main contractor for the new But Son cement plant to be located 70 kilometers south of Hanoi in northern Vietnam and was to have a capacity of 1.4 million tons per year.³⁷

Current Research and Technology

Soils and sludges, contaminated with heavy metals or organic compounds, were stabilized and solidified by using readily available, conventional, or byproduct cementitious (hydraulic or pozzolanic) materials, such as portland cement, cement kiln dust, lime kiln dust, slag cement, hydrated lime, and fly ash. The research focused on the use of various combinations of cements, fly ash, and byproduct kiln dusts, to stabilize and solidify a wide range of contaminated materials.³⁸

The heat of hydration of normal portland cement could cause an increase in concrete temperatures that may result in undesired cracks upon hardening of the cement. The paper discussed alternatives to lowering the heat of hydration and the benefits of adding mineral admixtures such as natural pozzolan, fly ash, and granulated blast furnace slag to control heat of hydration development. For this study, blended cements were prepared using an ordinary portland cement clinker, gypsum, and mineral admixtures, previously ground in a laboratory mill.³⁹

The hydration behavior of blended cements

containing fly ash, silica fume, and granulated blast furnace slag over the temperature range of 10° to 55°C was studied by isothermal calorimetry. The rates of heat evolution during the first 24 hours of hydration were examined. The results were analyzed to determine the kinetics of hydration of portland and blended cements. Relationships between the reactivities of these blended cements and the curing temperature were established. The results showed that the rates of hydration reactions increased with an increase in temperature in all instances. Comparison among the blends containing fly ash, silica fume, and slag was made to establish activation energies for the hydration reactions.⁴⁰

An investigation was carried out to study the effect of the magnesium-sodium sulfate environment on the performance of two plain and three blended cements; and to determine the sulfate mechanisms on these cements in the mixed magnesium and sodium sulfate environment. After 2 years of exposure, deterioration was observed in all cements, however, the deterioration was more pronounced in blast furnace slag and silica fume cements. Deterioration in these cements significantly exceeded that observed in plain and fly ash blended cements. X-Ray diffraction analyses indicated that the greater deterioration in blast furnace and silica fume blended cements could be attributable to the depletion of the hydrated calcium hydroxide as a result of pozzolanic reaction. In the absence of calcium hydroxide, magnesium ions react more directly and extensively with the cementitious calcium silicate hydrate to generate gypsum and noncementitious magnesium silicate hydrate resulting in aggravated deterioration.⁴¹

Outlook

Portland cement consumption was expected to decline somewhat from the historic level reached in 1994, since that year witnessed a strong economy and major rebuilding from flooding. However, it was expected to remain high for a couple of years. Cement plants were expected to run at full capacity utilization, with shortages of cement in some areas.

Cement prices were expected to remain at the same levels that had been attained in 1993 and 1994.

¹Federal Register. Environmental Protection Agency. Availability of Report to Congress on Cement Kiln Dust; Request for Comments and Announcement of Public Hearing. V. 59, No. 4, Jan. 6, 1994, pp. 709-714.

²Portland Cement Association. The Monitor, v.

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³———. The Monitor, v. 7, No. 3, July 1994, p.

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⁴———. The Monitor, v. 4, No. 5, May 1994, p.

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⁵———. The Monitor, v. 4, No. 2, May 1994, p.

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⁶Lafarge Corp. Press Release, May 18, 1994, and Lafarge Sells Non-Strategic Assets. Industrial Specialties News, June 6, 1994.

⁷Portland Cement Association. The Monitor, v. 4, No. 10, Jan. 1995, p. 5.

⁸International Cement Review June 1994, p. 8.

⁹Portland Cement Association. The Monitor, v. 4, No. 3, June 1994, p. 7.

¹⁰———. The Monitor, v. 4, No. 5, May 1994, p. 7.

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¹¹———. The Monitor, v. 4, No. 11, Feb. 1995, p. 3.

¹²———. The Monitor, v. 4, No. 3, July 1994, p. 7.

¹³———. The Monitor, v. 4, No. 3, July 1994, p. 7., ICR, Sept., 1994, p. 5

¹⁴———. The Monitor, v. 4, No. 3, July 1994, p. 7.

¹⁵———. The Monitor, v. 4, No. 2, May 1994, p. 5.

¹⁶U.S. Department of Commerce, International Trade Administration. Construction Review. V. 41, No. 1, winter 1995, pp. 1-10.

¹⁷Engineering News-Record. ENR Materials Prices. V. 228, No. 1, Jan. 1994, pp. 77.

¹⁸International Cement Review, Jan. 1995, p.6

¹⁹———. May 1994, p. 5.

²⁰Federal Register. International Trade Administration/Import Administration/Department of Commerce. Gray Portland Cement and Clinker From Japan; Preliminary Results of Antidumping Duty Administrative Review. V. 59, No. 29, Feb. 11, 1994, pp. 6614-6616.

²¹———. International Trade Administration. Gray Portland Cement and Clinker From Venezuela; Termination of Administrative Review. V. 59, No. 38, Feb. 25, 1994, p. 9187.

²²———. International Trade Administration/Import Administration/Department of Commerce. Preliminary Results of Antidumping Duty Administrative Review Gray Portland Cement and Clinker From Mexico. V. 59, No. 106, June 3, 1994, pp. 28844-28845.

²³———. International Trade Administration/Import Administration Department of Commerce. Revocation of Antidumping Finding on Portland Cement From the Dominican Republic. V. 59, No. 139, July 21, 1994, p. 37221.

²⁴International Cement Review. July 1994, p. 6.

²⁵———. Oct. 1994, p. 6.

²⁶———. May, 1994, p. 5.

²⁷———. Sept. 1994, p. 6.

²⁸———. Sept. 1994, p. 4.

²⁹———. May 1995, p. 17.

³⁰———. March 1994, p. 15.

³¹———. Oct. 1994, p. 5.

³²———. Dec. 1994, p. 10.

³³———. Dec. 1994, pp. 33-36.

³⁴———. Dec. 1994, p. 7.

³⁵———. May 1995, p.

³⁶———. July 1994, p. 6.

³⁷———. Oct. 1994, p. 17.

³⁸MacKay, M. and J. Emery. Stabilization and Solidification of Soils and Sludges Using Cementitious Systems. Transportation Research Record. N. 1458, Dec. 1994, pp. 67-72, 1994.

³⁹Rahhal, V. F. and O. R. Batic. Mineral Admixtures Contribution to the Development of Heat of Hydration and Strength. Cement, Concrete and Aggregates. V. 16, No. 2, Dec. 1994, pp. 150-158.

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⁴¹Rasheeduzzafar, A. A., O. S. Baghabra, S. N. Abduljawwad, and M. Maslehuddin. Magnesium-Sodium Sulfate Attack in Plain and Blended Cements. J. of Mat. in Civ. Eng. v. 6, No. 2, May 1994, pp. 201-222.

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Rock Products.
World Cement.

TABLE 1
SALIENT CEMENT STATISTICS

(Thousand metric tons unless otherwise specified)

	1990	1991	1992	1993	1994
United States 1/					
Production 2/	69,954	67,193	69,585	73,807	77,948
Shipments from mills 2/ 3/	78,199	68,999	69,203	74,079 r/ 4/	80,490 4/
Value 2/ 3/ 4/ thousands	\$4,280,105	\$3,832,096	\$3,779,286	\$4,174,818 r/ 4/	\$4,981,017 4/
Average value per ton 2/ 3/ 5/	\$54.73	\$55.54	\$54.61	\$56.36 r/ 4/	\$61.88 4/
Stocks at mills, 2/ Dec. 31	5,637	6,009	5,272	4,788	4,805
Exports	503	633	746	625	633
Imports for consumption	12,041	7,893	6,166	7,060	11,303
Consumption, apparent 6/ 7/	81,305	74,000	75,400	80,514 r/	91,160
World: Production	1,149,369	1,184,530	1,241,217	1,303,360	

e/ Estimated. r/ Revised.

1/ Excludes Puerto Rico and the U.S. Virgin Islands.

2/ Portland and masonry cement only.

3/ Includes imported cement shipped by domestic producers.

4/ Includes Puerto Rico.

5/ Value received, f.o.b. mill, excluding cost of containers.

6/ Quantity shipped plus imports minus exports.

7/ Adjusted to eliminate duplication of imported clinker and cement shipped by domestic cement manufacturers.

TABLE 2
PORTLAND CEMENT PRODUCTION, CAPACITY, AND STOCKS IN THE UNITED STATES BY DISTRICT 1/

District	1993					1994				
	Plants active during year	Production 4/ (thousand metric tons)	Capacity 2/ Finish grinding (thousand metric tons)	Percent utilized	Stocks 3/ at mills, Dec. 31 (thousand metric tons)	Plants active during year	Production 4/ (thousand metric tons)	Capacity 2/ Finish grinding (thousand metric tons)	Percent utilized	Stocks 3/ at mills, Dec. 31 (thousand metric tons)
New York and Maine	5	3,298	4,550	72.5	227	5	3,005	4,141	72.6	217
Pennsylvania, eastern	8	3,848	4,833	79.6	339	8	4,014	4,878	82.3	196
Pennsylvania, western	4	1,517	1,961	77.4	139	4	1,616	2,009	80.4	111
Illinois	4	2,431	2,971	81.8	102	4	2,585	3,217	80.4	127
Indiana	4	2,065	2,708	76.3	165	4	2,291	2,867	79.9	116
Michigan	5	5,115	5,756	88.9	314	5	5,160	6,532	79.0	226
Ohio	4	1,494	2,064	72.4	78	3	1,054	1,588	66.4	37
Iowa, Nebraska, South Dakota	6	3,656	5,761	63.5	265	6	3,891	5,758	67.6	291
Kansas	4	1,382	1,796	76.9	109	4	1,644	1,801	91.3	127
Missouri	5	4,057	4,808	84.4	334	5	4,725	5,059	93.4	340
Florida	6	3,470	4,770	72.7	193	6	3,371	4,382	76.9	291
Georgia and South Carolina	5	3,212	4,368	73.5	246	5	3,256	4,599	70.8	154
Maryland, Virginia, West Virginia	6	3,036	4,082	74.4	244	6	3,237	3,987	81.2	203
Alabama	5	3,748	4,481	83.6	219	5	3,976	4,573	86.9	268
Kentucky, Mississippi, Tennessee	4	2,010	2,129	94.4	178	4	1,983	2,128	93.2	139
Arkansas and Oklahoma	4	2,461	2,762	89.1	167	4	2,434	2,694	90.3	166
Texas, northern	6	3,519	4,466	78.8	191	6	3,809	4,512	84.4	209
Texas, southern	6	4,609	5,529	83.4	131	6	4,815	5,529	87.1	182
Arizona and New Mexico	3	1,707	2,288	74.6	46	3	1,967	2,288	86.0	51
Colorado and Wyoming	4	1,867	2,377	78.5	100	4	1,822	2,377	76.7	97
Idaho, Montana, Nevada, Utah	6	2,064	2,312	89.3	142	6	2,180	2,422	90.0	174
Alaska, Hawaii, Oregon, Washington	4	1,769	2,204	80.3	143	4	1,861	2,295	81.1	180
California, northern	3	2,427	2,867	84.7	80	3	2,616	2,776	94.2	141
California, southern	8	6,084	7,725	78.8	236	8	7,023	7,933	88.5	258
Total or average 5/	119	70,845	89,567	79.1	4,389	118	74,335	90,346	82.3	4301
Puerto Rico	2	1,310	1,957	66.9	33	2	W	W	71.8	W

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

1/ Includes Puerto Rico. Includes data for three white cement facilities as follows: California (1), Pennsylvania (1), and Texas (1).

Includes data for grinding plants as follows: California (1), Florida (2), Iowa (1), Michigan (1), Ohio (1), Pennsylvania (1), and Texas (1).

2/ Grinding capacity based on fineness necessary to grind Types I and II cement, making allowance for downtime required for maintenance.

3/ Includes imported cement. Source of imports withheld to avoid disclosing company proprietary data.

4/ Includes cement produced from imported clinker.

5/ Data may not add to totals shown because of independent rounding.

TABLE 3
CLINKER CAPACITY AND PRODUCTION IN THE UNITED STATES IN 1994, 1/ BY DISTRICT

District	Active plants			Total	Number of kilns	Daily capacity (thousand metric tons)	Average number of days maintenance	Apparent annual capacity 2/ (thousand metric tons)	Production 3/ (thousand metric tons)	Percent utilized
	Process used									
	Wet	Dry	Both							
New York and Maine	4	1	--	5	6	11	105	2,985	2,804	93.9
Pennsylvania, eastern	2	5	--	7	15	14	48	4,334	3,881	89.5
Pennsylvania, western	3	1	--	4	8	6	49	1,891	1,630	86.2
Illinois	--	4	--	4	8	8	28	2,568	2,332	90.8
Indiana	2	2	--	4	8	9	43	2,758	2,317	84.0
Michigan	1	2	--	3	8	13	40	4,147	3,896	93.9
Ohio	1	1	--	2	3	3	17	1,094	901	82.4
Iowa, Nebraska, South Dakota	--	4	1	5	9	13	41	4,123	3,637	88.2
Kansas	2	2	--	4	11	6	37	1,823	1,588	87.1
Missouri	2	3	--	5	7	13	36	4,411	4,322	98.0
Florida	2	2	--	4	7	9	36	2,971	2,826	95.1
Georgia and South Carolina	2	2	1	5	11	11	36	3,759	3,192	84.9
Maryland, Virginia, West Virginia	2	3	--	5	15	11	38	3,563	3,110	87.3
Alabama	--	5	--	5	7	14	36	4,495	3,816	84.9
Kentucky, Mississippi, Tennessee	2	2	--	4	5	6	31	1,971	1,887	95.7
Arkansas and Oklahoma	2	2	--	4	10	8	41	2,532	2,373	93.7
Texas, northern	3	3	--	6	14	12	35	4,014	3,770	93.9
Texas, southern	--	4	1	5	6	13	35	4,242	3,817	90.0
Arizona and New Mexico	--	3	--	3	9	7	18	2,448	1,881	76.8
Colorado and Wyoming	1	3	--	4	6	6	30	1,938	1,699	87.7
Idaho, Montana, Nevada, Utah	4	2	--	6	9	6	24	2,010	2,069	102.9
Alaska, Hawaii, Oregon, Washington	1	3	--	4	4	5	30	1,775	1,652	93.1
California, northern	--	3	--	3	3	9	61	2,616	2,567	98.1
California, southern	--	7	--	7	15	22	46	7,187	6,556	91.2
Total or average 4/	36	69	3	108	204	234	NA	75,653	68,525	90.6
Puerto Rico	--	2	--	2	2	5	42	1,546	1,262	81.6

NA Not available.

1/ Includes Puerto Rico and white cement producing facilities.

2/ Calculated on individual company data; 365 days minus average days for maintenance times the reported 24 hour capacity.

3/ Includes production reported for plants that added or shut down kilns during the year.

4/ Data may not add to totals shown because of independent rounding.

TABLE 4
RAW MATERIALS USED IN PRODUCING PORTLAND CEMENT
IN THE UNITED STATES 1/

(Thousand metric tons)

Raw materials	1993	1994
Calcareous:		
Limestone (includes aragonite, marble, chalk)	78,958	78,427
Cement rock (includes marl)	19,186	24,243
Coral	754	675
Argillaceous:		
Clay	4,200	4,189
Shale	5,066	5,514
Other (includes staurolite, bauxite, aluminum dross, alumina, volcanic material, other)	442	500
Siliceous:		
Sand and calcium silicate	2,046	2,095
Sandstone, quartzite, other	571	588
Ferrous: Iron ore, pyrites, millscale, other iron bearing material	1,097	1,186
Other:		
Gypsum and anhydrite	3,696	3,873
Blast furnace slag	38	33
Fly ash	888	1,125
Other, n.e.c.	224	135
Total 2/	117,165	122,582

1/ Includes Puerto Rico.

2/ Data may not add to totals shown because of independent rounding.

TABLE 5
MASONRY CEMENT PRODUCTION AND STOCKS IN THE UNITED STATES, BY DISTRICT

District	1993			1994		
	Plants active during year	Production (thousand metric tons)	Stocks 1/ at mills, Dec. 31 (thousand metric tons)	Plants active during year	Production (thousand metric tons)	Stocks 1/ at mills, Dec. 31 (thousand metric tons)
New York and Maine	5	84	19	5	89	17
Pennsylvania, eastern	6	165	39	6	161	25
Pennsylvania, western	4	83	13	4	84	13
Illinois	--	--	(2/)	1	W	W
Indiana	4	W	W	4	W	31
Michigan	5	216	38	5	235	24
Ohio	3	W	W	2	W	W
Iowa, Nebraska, South Dakota	4	49	6	4	58	12
Kansas	4	W	20	3	24	W
Missouri	3	W	W	1	W	W
Florida	4	351	29	4	400	W
Georgia and South Carolina	4	374	30	4	417	39
Maryland, Virginia, West Virginia	5	199	20	6	571	52
Alabama	4	277	39	5	312	36
Kentucky, Mississippi, Tennessee	3	105	13	3	105	11
Arkansas and Oklahoma	4	102	17	4	104	14
Texas, northern	4	93	9	4	106	10
Texas, southern	5	152	16	5	151	15
Arizona and New Mexico	3	W	4	3	W	W
Colorado and Wyoming	2	W	W	2	W	W
Idaho, Montana, Nevada, Utah	2	W	W	4	W	W
Alaska, Hawaii, Oregon, Washington	2	W	4	2	W	2
California, northern	1	W	W	1	W	W
California, southern	2	W	W	2	W	W
Total or average 3/	83	2,962	399	84	3,613	400

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

1/ Includes imported cement.

2/ Less than 1/2 unit.

3/ Data may not add to totals shown because of independent rounding.

TABLE 6
CLINKER PRODUCED AND FUEL CONSUMED BY THE PORTLAND CEMENT INDUSTRY
IN THE UNITED STATES, 1/ BY PROCESS

Process	Clinker produced			Fuel consumed			Waste fuel		
	Plants active during year	Quantity (thousand metric tons)	Percent of total	Coal (thousand metric tons)	Oil (thousand liters)	Natural gas (thousand cubic meters)	Tires (thousand metric tons)	Solid (thousand metric tons)	Liquid (thousand liters)
1993:									
Wet	37	19,700	29.4	3,328	10,152	231,111	20	74	489,988
Dry	72	44,696	66.8	6,298	35,386	375,769	50	15	253,706
Both	4	2,561	3.8	408	8	61,143	--	--	--
Total 2/	113	66,957	100.0	10,034	45,546	668,024	70	90	743,693
1994:									
Wet	36	18,605	26.7	3,197	10,913	174,815	26	58	369,078
Dry	71	49,333	70.7	6,984	37,858	411,657	90	16	230,577
Both	3	1,849	2.6	303	--	63,676	4	--	--
Total 2/	110	69,787	100.0	10,484	48,771	650,148	120	74	599,655

1/ Includes Puerto Rico.

2/ Data may not add to totals shown because of independent rounding.

TABLE 7
ELECTRIC ENERGY USED AT PORTLAND CEMENT PLANTS
IN THE UNITED STATES, 1/ BY PROCESS

Process	Electric energy used						Finished cement produced (Thousand metric tons)	Average electric energy used (per ton of cement produced kilowatt-hours)
	Generated at portland Cement plants		Purchased		Total			
	Plants active during year	Quantity (million kilowatt-hours)	Plants active during year	Quantity (million kilowatt-hours)	Quantity (million kilowatt-hours)	Percent		
1993:								
Wet	1	149	34	2,412	2,562	25.6	20,303	12.6
Dry	6	571	65	6,449	7,020	70.2	47,290	14.8
Both	--	--	4	421	421	4.2	2,677	15.7
Total 2/	7	720	103	9,282	10,002	100.0	70,270	14.2
Percent of total electric energy used	--	7.2	--	92.8	--	--	--	--
1994:								
Wet	--	--	35	2,675	2,675	24.6	19,295	13.9
Dry	5	593	69	7,288	7,882	72.5	51,409	15.3
Both	--	--	3	310	310	2.9	1,957	15.8
Total 2/	5	593	107	10,273	10,866	100.0	72,661	15.0
Percent of total electric energy used	--	5.5	--	94.5	--	--	--	--

1/ Includes Puerto Rico.

2/ Data may not add to totals shown because of independent rounding.

TABLE 8
SHIPMENTS OF PORTLAND CEMENT FROM MILLS IN THE UNITED STATES, 1/ IN BULK AND
IN CONTAINERS, BY TYPE OF CARRIER

(Thousand metric tons)

	Shipments from plant to terminal		Shipments to ultimate consumer				Total shipments 3/
	In bulk	In containers	From plant to consumer		From terminal to consumer		
			In bulk	In containers	In bulk	In containers	
1993:							
Railroad	8,879	89	3,782	495	490	41	4,808
Truck	2,955	131	41,040	1,822	19,063	454	62,378
Barge and boat	6,319	12	582	--	477	--	1,059
Unspecified 2/	484	--	2,377	12	455	15	2,859
Total 3/	18,637	232	47,780	2,329	20,485	510	71,104 4/
1994:							
Railroad	8,871	56	3,205	419	840	15	4,479
Truck	2,667	124	41,701	2,010	25,712	818	70,241
Barge and boat	8,046	--	659	3	294	--	956
Unspecified 2/	1,742	--	643	36	533	16	1,228
Total 3/	21,326	180	46,208	2,468	27,378	849	76,903 5/

1/ Includes Puerto Rico.

2/ Includes cement used at plant.

3/ Data may not add to totals shown because of independent rounding.

4/ Bulk shipments were 96.0% and container (bag) shipments were 4.0%.

5/ Bulk shipments were 95.7% and container (bag) shipments were 4.3%.

TABLE 9
PORTLAND CEMENT SHIPPED BY PRODUCERS IN THE UNITED STATES, BY DISTRICT 1/

District	1993			1994		
	Quantity (thousand metric tons)	Value (thousands)	Average per ton	Quantity (thousand metric tons)	Value (thousands)	Average per ton
New York and Maine	3,055	\$154,901	\$50.70	3,099	\$163,141	\$52.64
Pennsylvania, eastern	3,780	195,824	51.81	4,141	221,121	53.40
Pennsylvania, western	1,484	81,501	54.92	1,520	95,171	62.61
Illinois	2,592	130,962	50.53	2,524	147,721	58.53
Indiana	2,235	117,638	52.63	2,293	132,487	57.78
Michigan	4,922	301,425	61.24	5,135	329,409	64.15
Ohio	1,428	86,338	60.46	1,063	70,273	66.11
Iowa, Nebraska, South Dakota	3,467	210,971	60.85	3,722	239,483	64.34
Kansas	1,560	83,390	53.46	1,708	104,988	61.47
Missouri	4,274	211,765	49.55	5,054	283,013	56.00
Florida and Puerto Rico	4,737	298,328	62.98	5,242	395,381	75.43
Georgia and South Carolina	3,442	181,546	52.74	3,334	215,100	64.52
Maryland, Virginia, West Virginia	3,092	157,658	50.99	3,338	185,519	55.58
Alabama	3,345	170,300	50.91	3,839	239,220	62.31
Kentucky, Mississippi, Tennessee	2,255	113,196	50.20	2,323	144,977	62.41
Arkansas and Oklahoma	2,335	107,946	46.23	2,401	140,899	58.68
Texas, northern	3,377	178,152	52.75	3,350	192,328	57.41
Texas, southern	4,677	215,887	46.16	4,872	242,347	49.74
Arizona and New Mexico	1,707	107,621	63.05	1,932	126,565	65.51
Colorado and Wyoming	2,120	138,420	65.29	1,951	135,254	69.33
Idaho, Montana, Nevada, Utah	2,034	147,731	72.63	2,341	175,730	75.07
Alaska, Hawaii, Oregon, Washington	1,518	131,399	86.56	1,568	124,158	79.18
California, northern	1,935	109,608	56.64	1,933	123,062	63.66
California, southern	5,732	312,291	54.48	6,341	339,231	53.50
Total 2/ 3/ 4/ 5/ 6/ or average	71,104	3,944,796	55.48	76,903	4,696,198	61.07

1/ Includes Puerto Rico. Includes data for three white cement facilities as follows:

California (1), Pennsylvania (1), and Texas (1). Includes data for grinding plants as follows:

California (1), Florida (2), Iowa (1), Michigan (1), Ohio (1), Pennsylvania (1), and Texas (1).

2/ Includes cement produced from imported clinker.

3/ Data may not add to totals shown because of independent rounding.

4/ Cement imported and distributed by domestic producers only.

5/ Does not include cement consumed at plant.

6/ Total includes imports shipped by independent importers.

TABLE 10
MASONRY CEMENT SHIPPED BY PRODUCERS IN THE UNITED STATES, 1/ BY DISTRICT

District	1993			1994		
	Quantity (thousand metric tons)	Value (thousands)	Average per ton	Quantity (thousand metric tons)	Value (thousands)	Average per ton
New York and Maine	85	\$6,319	\$74.34	91	\$6,823	\$75.21
Pennsylvania, eastern	171	12,240	71.58	187	13,518	72.34
Pennsylvania, western	79	6,692	84.71	83	7,658	92.76
Illinois, Indiana, Michigan, Ohio	668	56,785	85.05	723	60,056	83.06
Iowa, Kansas, Missouri, Nebraska, South Dakota	181	10,539	58.09	206	12,852	62.41
Florida	356	27,645	77.65	358	31,022	86.57
Georgia and South Carolina	360	27,859	77.39	396	36,406	91.83
Maryland, Virginia, West Virginia	204	16,184	79.33	531	35,151	66.23
Alabama	260	20,610	79.27	317	29,401	92.86
Kentucky, Mississippi, Tennessee	106	8,108	76.49	119	8,848	74.45
Arkansas, Oklahoma, Texas	322	24,381	75.71	354	26,075	73.70
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	82	5,146	63.03	110	8,821	80.36
Alaska, California, Hawaii, Oregon, Washington	103	7,515	73.31	110	7,738	70.49
Total 2/ 3/ 4/ or average	2,975	230,022	77.32	3,587	284,819	79.40

1/ Does not include quantities produced on the job by masons.

2/ Calculated on unrounded data.

3/ Data may not add to totals shown because of independent rounding.

4/ Total includes imports shipped by independent importers.

TABLE 11
CEMENT SHIPMENTS, BY DESTINATION AND ORIGIN 1/

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	1993	1994	1993	1994
Destination:				
Alabama	1,296	1,432	122	131
Alaska	106	103	W	W
Arizona	1,845	2,158	W	W
Arkansas	818	880	51	56
California, northern	2,820	2,872	--	--
California, southern	4,846	5,328	W	W
Colorado	2,086	1,746	19	29
Connecticut 2/	587	624	15	12
Delaware 2/	233	230	9	9
District of Columbia 2/	108	112	(3/)	(3/)
Florida	5,262	5,623	437	458
Georgia	2,483	2,751	186	201
Hawaii	442	396	7	6
Idaho	405	456	1	1
Illinois	1,301	1,516	23	30
Chicago, metropolitan 2/	1,998	2,077	50	49
Indiana	1,757	1,876	91	98
Iowa	1,308	1,515	12	13
Kansas	1,124	1,277	15	18
Kentucky	1,180	1,163	86	94
Louisiana 2/	1,689	1,706	46	52
Maine	224	227	5	5
Maryland	1,015	1,083	79	84
Massachusetts 2/	1,002	1,119	24	27
Michigan	2,285	2,585	115	120
Minnesota 2/	1,388	1,518	34	39
Mississippi	880	920	45	75
Missouri	1,882	2,386	38	48
Montana	415	278	1	1
Nebraska	877	1,014	11	12
Nevada	1,131	1,358	(3/)	(3/)
New Hampshire 2/	222	242	6	7
New Jersey 2/	1,425	1,427	54	62
New Mexico	688	665	6	6
New York, eastern	569	514	24	22
New York, western	815	821	34	33
New York, metropolitan 2/	783	1,010	35	38
North Carolina 2/	1,946	2,151	237	253
North Dakota 2/	239	245	3	3
Ohio	3,225	3,482	169	199
Oklahoma	1,051	1,114	35	43
Oregon	818	946	(3/)	(3/)
Pennsylvania, eastern	1,756	1,967	57	61
Pennsylvania, western	1,080	1,102	73	73
Rhode Island 2/	134	152	3	3
South Carolina	970	981	106	113
South Dakota	331	338	5	5
Tennessee	1,536	1,711	165	187
Texas, northern	3,784	3,817	133	134
Texas, southern	3,810	4,053	83	108
Utah	910	1,020	2	2
Vermont 2/	107	101	4	3
Virginia	1,621	1,716	145	146
Washington	1,623	1,723	5	6
West Virginia	441	437	32	33
Wisconsin	1,811	1,889	41	41
Wyoming	230	275	1	2
U.S. total 4/	76,717	82,232	2,984	3,250
Foreign countries 5/	345	377	53	75
Puerto Rico	1,306	1,392	--	--
Total shipment 4/	78,368	84,001	3,037	3,325

See footnotes at end of table.

TABLE 11-Continued
CEMENT SHIPMENTS, BY DESTINATION AND ORIGIN 1/

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	1993	1994	1993	1994
Origin:				
United States 6/	71,053	75,130	2,901	3,283
Puerto Rico	1,306	1,392	--	--
Foreign: 7/	6,009	8,870	136	42
Total shipment 4/	78,368	84,001	3,037	3,325

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

1/ Includes cement produced from imported clinker and imported cement shipped by domestic producers, Canadian cement manufacturers, and other importers. Includes Puerto Rico.

2/ Has no cement producing plants.

3/ Less than 1/2 unit.

4/ Data may not add to totals shown because of independent rounding.

5/ Direct shipments by producers to foreign countries and U.S. possessions and territories; includes States indicated by the symbol W.

6/ Includes cement produced from imported clinker by domestic producers.

7/ Imported cement distributed by domestic producers, Canadian cement manufacturers, and other importers.

Origin of imports withheld to avoid disclosing company proprietary data.

TABLE 12
CEMENT SHIPMENTS 1/, BY DESTINATION (REGION AND SUBREGION)

Region and subregion 2/	Portland cement				Masonry cement			
	Thousand metric tons		Percent of grand total		Thousand metric tons		Percent of grand total	
	1993	1994	1993	1994	1993	1994	1993	1994
Northeast:								
New England	2,276	2,466	3	3	56	57	2	2
Middle Atlantic	6,428	6,841	8	8	278	289	9	9
Total	8,704	9,307	11	11	334	346	11	11
South:								
Atlantic	14,078	15,084	19	18	1,233	1,297	41	40
East Central	4,892	5,226	6	6	419	487	14	15
West Central	11,152	11,570	15	14	348	392	12	12
Total 3/	30,122	31,881	39	39	2,000	2,176	67	67
Midwest:								
East	12,377	13,425	16	16	490	537	16	17
West	7,149	8,294	9	10	118	137	4	4
Total	19,526	21,719	25	26	608	674	20	21
West:								
Mountain	7,710	7,956	10	10	30	42	1	1
Pacific	10,655	11,368	14	14	12	12	--	(4/)
Total 3/	18,365	19,325	24	24	42	54	1	2
Grand total 3/	76,717	82,232	100	100	2,984	3,250	100	100

1/ Includes imported cement shipped by importers.

2/ Geographic regions as designated by the U.S. Department of Commerce, Bureau of the Census.

3/ Data may not add to totals shown because of independent rounding.

4/ Less than 1/2 unit.

TABLE 13
PORTLAND CEMENT SHIPMENTS IN 1994, BY DISTRICT OF ORIGIN AND TYPE OF CUSTOMER 1/

(Thousand metric tons)

District of origin	Building Material Dealers	Concrete Product Manufacturers 2/	Ready Mixed Concrete	Contractors 3/	Oil Well, Mining, Waste 4/	Government and Miscellaneous. 5/	Total 6/
New York and Maine	135	304	1,893	78	--	686	3,099
Pennsylvania, eastern	258	615	1,602	172	27	1,467	4,141
Pennsylvania, western	82	231	941	139	19	109	1,520
Illinois	11	220	1,124	145	8	1,017	2,524
Indiana	41	151	1,066	20	--	1,016	2,293
Michigan	268	598	2,112	215	14	1,928	5,135
Ohio	13	141	411	32	4	461	1,063
Iowa, Nebraska, South Dakota	22	424	2,345	397	46	488	3,722
Kansas	17	101	924	96	11	559	1,708
Missouri	118	440	2,838	452	--	1,207	5,054
Florida and Puerto Rico	628	650	2,267	252	20	1,426	5,242
Georgia and South Carolina	154	636	2,272	229	--	42	3,334
Maryland, Virginia, West Virginia	147	506	1,985	168	7	523	3,338
Alabama	302	573	2,526	306	40	93	3,839
Kentucky, Mississippi, Tennessee	148	233	1,788	118	3	33	2,323
Arkansas and Oklahoma	30	92	1,318	258	39	665	2,401
Texas, northern	102	215	1,785	454	348	445	3,350
Texas, southern	346	196	2,193	304	173	1,661	4,872
Arizona and New Mexico	59	318	1,226	84	11	235	1,932
Colorado and Wyoming	51	193	1,477	156	50	24	1,951
Idaho, Montana, Nevada, Utah	19	205	1,382	162	12	559	2,341
Alaska, Hawaii, Oregon, Washington	75	107	1,006	99	--	282	1,568
California, northern	67	242	1,532	54	2	36	1,933
California, southern	353	1,025	4,556	251	124	33	6,341
Total 6/ 7/ or average	3,638	8,482	42,825	4,643	960	16,357	76,903

1/ Includes Puerto Rico.

2/ Concrete product manufacturers included in thousand metric tons: brick/ block- 1,288 in U.S.; precast-800 in U.S.; pipe- 562 in U.S.; and others- 5,832 in U.S. Other includes unspecified amounts of brick/ block, precast, and pipe.

3/ Contractors included in thousand metric tons: roadpaving- 1,842 in U.S.; soil cement- 363 in U.S. and other- 2,340 in U.S. Other includes unspecified amounts of road paving, and soil cement.

4/ Oil well, mining, and waste included in thousand metric tons in U.S.: oil well drilling- 736; mining- 43; and waste stabilization- 181.

5/ Included in this amount are cement shipments which were unspecified by type of customer.

6/ Data may not add to totals shown because of independent rounding.

7/ Total includes imports shipped by independent importers.

TABLE 14
PORTLAND CEMENT SHIPPED FROM PLANTS
IN THE UNITED STATES, 1/ 2/ BY TYPE

Type	1993	1994
	Quantity (thousand metric tons)	Quantity (thousand metric tons)
General use and moderate heat (Types I and II)	64,806	69,810
High early strength (Type III)	2,659	2,618
Sulfate resisting (Type V)	1,570	1,763
Block	471	463
Oil well	804	937
White	263	519
Portland slag and portland pozzolan	264	422
Expansive	W	W
Regulated fast setting	W	W
Miscellaneous 3/	137	304
Total 4/ 5/ or average	71,104	76,903

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

1/ Includes Puerto Rico.

2/ The value of grey portland cement \$54.97 in 1993 and \$60.28 in 1994; value of white portland cement \$192.40 in 1993 and \$177.04 in 1994.

3/ Includes waterproof, and lowheat (Type IV).

4/ Data may not add to totals shown because of independent rounding.

5/ Does not include cement consumed at plant.

TABLE 15
AVERAGE MILL VALUE, IN BULK
OF CEMENT IN THE UNITED STATES 1/

Year	(Per metric ton)		
	Portland cement	Prepared masonry cement 2/	All classes of cement
1993	55.48	77.32	56.36
1994	61.07	79.4	61.88

1/ Includes Puerto Rico. Mill value is the actual value of sales to customers, f.o.b. plant, less all discounts and allowances, less all freight charges from producing plant to distribution terminal if any, less total cost of operating terminal, if any, less cost of paper bags and pallets.

2/ Masonry cement made at cement plants only.

TABLE 16
U.S. EXPORTS OF HYDRAULIC CEMENT AND CEMENT CLINKER, BY COUNTRY

(Thousand metric tons and thousand dollars)

Country	1993		1994	
	Quantity	Value 1/	Quantity	Value 1/
Bahamas, The	44	2,227	9	546
Canada	502	36,028	510	35,272
Ghana	2	145	(2/)	31
Mexico	21	3,424	62	4,221
Netherlands	2	307	1	223
Other	54	5,641	52	4,896
Total 3/	625	47,772	633	45,189

1/ Free alongside ship (f.a.s.) value is the value of exports at the U.S. seaport, or border port of export, based on the transaction price, including inland freight, insurance, and other changes incurred in placing the merchandise alongside the carrier at the U.S. port of exportation. The value excludes the cost of loading.

2/ Less than 1/2 unit.

3/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 17
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER, BY COUNTRY

(Thousand metric tons and thousand dollars)

Country	1993			1994		
	Quantity	Value		Quantity	Value	
		Customs 1/	C.i.f. 2/		Customs 1/	C.i.f. 2/
Canada	3,629	147,747	158,670	4,268	168,603	183,314
Colombia	550	18,017	23,201	709	24,830	31,351
France	216	14,833	17,237	474	27,088	32,538
Greece	282	8,884	11,931	914	31,919	44,060
Japan	43	1,667	2,116	14	668	891
Korea, Republic of	33	891	1,254	--	--	--
Mexico	783	29,074	35,482	640	25,573	31,097
Spain	597	25,745	31,382	1,342	54,585	64,771
Venezuela	269	9,837	12,344	803	32,735	42,090
Other	659	26,436	37,721	2,139	77,036	107,620
Total 3/	7,060	283,131	331,337	11,303	443,038	537,731

1/ Customs value price actually paid or payable for merchandise when sold for exportation to the United States, excluding U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise to the United States.

2/ C.i.f. (Cost, insurance and freight) import value represents the landed value of the merchandise at the first port of arrival in the United States. It is computed by adding "import charges" to the "customs value."

3/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 18
U.S. IMPORTS FOR CONSUMPTION OF CLINKER, BY COUNTRY

(Thousand metric tons and thousand dollars)

Country	1993			1994		
	Quantity	Value		Quantity	Value	
		Customs	C.i.f. 1/		Customs	C.i.f. 1/
Australia	133	4,518	6,417	103	3,675	5,414
Canada	883	27,917	28,262	913	31,674	32,261
Colombia	239	6,724	9,060	212	6,370	7,914
France	118	9,458	10,717	154	13,535	15,319
Greece	26	814	1,179	--	--	--
Mexico	--	--	--	(2/)	7	8
New Zealand	78	2,282	3,344	27	837	1,253
Spain	--	--	--	33	912	1,262
Other	30	800	1,074	766	22,773	31,540
Total 3/	1,508	52,513	60,054	2,208	79,783	94,970

1/ Cost, insurance, and freight.

2/ Less than 1/2 unit.

3/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 19
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER,
BY CUSTOMS DISTRICT AND COUNTRY

(Thousand metric tons and thousand dollars)

Customs district and country	1993			1994		
	Quantity	Value		Quantity	Value	
		Customs	C.i.f. 1/		Customs	C.i.f. 1/
Anchorage:						
Canada	6	655	895	1	13	28
China	14	504	679	56	2,147	3,097
Japan	43	1,392	1,782	14	478	672
Total 2/	62	2,551	3,355	71	2,638	3,797
Baltimore:						
Brazil	(3/)	12	14	(3/)	39	46
France	(3/)	2	2	--	--	--
Greece	--	--	--	9	289	410
Japan	(3/)	46	56	(3/)	24	24
Netherlands	(3/)	57	60	--	--	--
Spain	--	--	--	53	1,618	3,094
United Kingdom	(3/)	18	22	(3/)	68	92
Venezuela	--	--	--	13	507	507
Total 2/	(3/)	135	154	74	2,545	4,173
Boston:						
Canada	--	--	--	13	632	707
Germany	--	--	--	(3/)	16	22
Netherlands	(3/)	24	27	--	--	--
Niger	(3/)	12	14	--	--	--
United Kingdom	--	--	--	(3/)	9	9
Total 2/	(3/)	36	41	14	656	739
Buffalo:						
Canada	621	32,841	35,225	532	27,683	30,046
United Kingdom	--	--	--	(3/)	1	1
Total	621	32,841	35,225	532	27,685	30,048
Charleston:						
Canada	--	--	--	43	1,451	2,147
Germany	--	--	--	(3/)	6	8
Greece	--	--	--	23	627	1,020
United Kingdom	(3/)	24	31	(3/)	58	78
Venezuela	--	--	--	12	443	598
Total	1	24	31	78	2,585	3,852
Chicago:						
Japan	(3/)	46	56	(3/)	47	56
Switzerland	(3/)	3	3	--	--	--
Total 2/	(3/)	49	59	(3/)	47	56

See footnotes at end of table.

TABLE 19-Continued
 U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER,
 BY CUSTOMS DISTRICT AND COUNTRY

(Thousand metric tons and thousand dollars)

Customs district and country	1993			1994		
	Quantity	Value		Quantity	Value	
		Customs	C.i.f. 1/		Customs	C.i.f. 1/
Cleveland: Canada	319	10,801	11,243	522	18,032	19,145
ColumbiaSnake:						
China	188	6,891	9,122	243	9,241	11,660
Colombia	--	--	--	4	123	125
Japan	(3/)	2	2	--	--	--
Netherlands	--	--	--	(3/)	1	1
Total 2/	189	6,893	9,124	248	9,366	11,786
Detroit:						
Canada	1,021	39,866	41,070	1,171	45,712	47,525
Japan	(3/)	4	4	--	--	--
Netherlands	--	--	--	(3/)	10	10
Total 2/	1,021	39,869	41,074	1,171	45,721	47,535
Duluth: Canada	93	3,352	3,900	239	8,620	9,964
El Paso: Mexico	91	3,322	4,313	80	3,037	3,944
Great Falls:						
Canada	279	9,679	10,303	220	6,373	7,092
United Kingdom	(3/)	40	47	(3/)	29	35
Total 2/	279	9,719	10,350	220	6,402	7,127
Honolulu:						
Australia	132	4,518	6,417	103	3,675	5,414
Colombia	42	1,134	2,084	--	--	--
New Zealand	78	2,282	3,344	27	837	1,253
Venezuela	--	--	--	26	814	1,404
Total	253	7,933	11,845	157	5,326	8,071
Houston-Galveston:						
Colombia	--	--	--	7	324	438
Denmark	--	--	--	6	308	309
France	--	--	--	68	2,868	3,219
Japan	(3/)	90	111	(3/)	70	82
Singapore	(3/)	2	3	--	--	--
Spain	33	1,365	1,365	529	21,811	23,203
Switzerland	--	--	--	33	1,404	1,734
United Kingdom	(3/)	11	15	(3/)	23	31
Total	33	1,469	1,494	644	26,807	29,016
Laredo:						
China	1	242	266	--	--	--
Mexico	28	2,376	2,710	48	3,978	4,560
Total	29	2,618	2,976	49	3,978	4,560
Los Angeles:						
France	--	--	--	(3/)	22	26
Japan	(3/)	46	54	(3/)	50	57
Mexico	376	14,338	16,747	355	13,393	15,811
Spain	--	--	--	24	828	1,103
Total 2/	376	14,384	16,801	380	14,293	16,996
Miami:						
Belgium	2	219	296	3	251	340
Colombia	208	7,528	9,539	306	11,523	14,636
Denmark	24	1,397	2,138	31	1,886	2,841
Greece	18	664	874	35	1,275	1,647
Norway	--	--	--	64	2,275	2,892
Spain	210	9,911	12,058	288	13,331	15,364
Sweden	--	--	--	158	4,425	6,469
United Kingdom	(3/)	11	11	(3/)	3	3
Venezuela	51	1,910	2,390	47	1,755	2,336
Total 2/	513	21,641	27,307	932	36,724	46,527
Milwaukee:						
Canada	139	4,147	4,884	179	6,056	6,226
Germany	--	--	--	(3/)	1	2
Total 2/	139	4,147	4,884	179	6,057	6,228
Minneapolis: Germany	(3/)	25	28	(3/)	25	26
Mobile:						
Bulgaria	--	--	--	56	1,407	2,201
France	--	--	--	54.4311	1491	1843

See footnotes at end of table.

TABLE 19-Continued
 U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER,
 BY CUSTOMS DISTRICT AND COUNTRY

(Thousand metric tons and thousand dollars)

Customs district and country	1993			1994		
	Quantity	Value		Quantity	Value	
		Customs	C.i.f. 1/		Customs	C.i.f. 1/
Macao	--	--	--	24	619	850
Morocco	--	--	--	20	543	778
Total 2/	--	--	--	155	4,060	5,673
New Orleans:						
Belgium	(3/)	28	31	--	--	--
Bulgaria	--	--	--	24	599	917
Colombia	--	--	--	43	1,610	2,197
Denmark	--	--	--	103	3,618	5,438
France	37	3,567	3,989	230	9,741	12,755
Greece	--	--	--	363	12,486	17,357
Italy	--	--	--	179	6,165	8,612
Spain	196	7,479	9,224	99	3,613	4,726
Tunisia	--	--	--	26	741	1,115
Turkey	--	--	--	474	14,162	20,311
Ukraine	--	--	--	34	900	1,247
Venezuela	--	--	--	34	1,351	1,826
Total 2/	233	11,074	13,244	1,612	54,988	76,500
New York:						
Greece	182	5,529	7,705	300	11,102	15,300
Netherlands	(3/)	6	7	(3/)	107	114
Norway	--	--	--	78	2,522	3,496
Spain	22	2,008	2,551	208	8,157	10,614
United Kingdom	22	698	904	(3/)	10	11
Total 2/	227	8,242	11,167	586	21,899	29,535
Nogales: Mexico	287	8,848	11,456	156	5,110	6,724
Norfolk:						
Denmark	--	--	--	117	5,865	7,198
France	40	7,192	8,104	84	11,740	12,998
Greece	81	2,691	3,352	183	6,140	8,325
Netherlands	(3/)	57	65	(3/)	16	17
Spain	--	--	--	(3/)	180	199
Venezuela	--	--	--	33	1,260	1,701
Total 2/	122	9,940	11,521	418	25,200	30,438
Ogdensburg:						
Canada	305	10,408	11,260	408	13,246	14,688
Mexico	(3/)	13	13	--	--	--
United Kingdom	(3/)	13	14	--	--	--
Total	306	10,434	11,286	408	13,246	14,688
Pembina: Canada	69	2,148	2,657	120	5,104	5,983
Philadelphia:						
France	(3/)	11	13	--	--	--
Germany	--	--	--	(3/)	6	15
United Kingdom	(3/)	13	16	--	--	--
Total	(3/)	25	29	(3/)	6	15
Portland:						
Bulgaria	--	--	--	28	733	1,028
Canada	5	192	253	10	469	622
Total	5	192	253	38	1,201	1,649
San Diego:						
Mexico	(3/)	13	18	1	56	58
Spain	38	1,652	2,047	28	1,261	1,545
Total 2/	38	1,666	2,065	29	1,317	1,603
San Francisco:						
China	--	--	--	(3/)	2	2
France	--	--	--	(3/)	32	37
Germany	(3/)	2	4	--	--	--
Japan	(3/)	2	4	--	--	--
Korea, Republic of	33	891	1,254	--	--	--
New Zealand	(3/)	13	16	1	738	977
Total 2/	33	908	1,278	1	771	1,016
San Juan:						
Belgium	10	860	1,819	10	838	1,418
Colombia	--	--	--	(3/)	22	29

See footnotes at end of table.

TABLE 19-Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER,
BY CUSTOMS DISTRICT AND COUNTRY

(Thousand metric tons and thousand dollars)

Customs district and country	1993			1994		
	Quantity	Value		Quantity	Value	
		Customs	C.i.f. 1/		Customs	C.i.f. 1/
Denmark	9	746	1,259	13	1,157	1,853
Germany	--	--	--	(3/)	5	5
Mexico	1	165	226	--	--	--
Spain	--	--	--	(3/)	7	8
Turkey	--	--	--	(3/)	4	7
Total 2/	20	1,772	3,304	23	2,033	3,319
Savannah: Germany	(3/)	2	3	--	--	--
Seattle:						
Canada	665	30,382	32,634	663	31,141	33,400
China	83	3,041	4,083	17	646	896
Colombia	44	1,485	1,789	100	3,349	3,963
Japan	(3/)	39	47	--	--	--
Total 2/	792	34,946	38,552	780	35,136	38,259
St Albans:						
Canada	67	1,819	2,263	78	2,699	3,543
Netherlands	(3/)	60	68	(3/)	102	116
Total 2/	68	1,878	2,331	79	2,801	3,660
Tampa:						
Canada	29	968	1,429	44	481	877
Colombia	239	7,097	8,902	241	7,531	9,427
Denmark	72	4,135	6,344	79	4,510	6,931
France	139	4,061	5,129	37	1,195	1,661
Spain	100	3,329	4,136	113	3,779	4,915
Sweden	--	--	--	79	2,721	3,705
Turkey	--	--	--	38	1,248	1,616
Venezuela	121	4,396	5,443	450	17,578	22,406
Total 2/	699	23,985	31,384	1,081	39,043	51,538
U.S. Virgin Islands:						
Barbados	11	79	92	--	--	--
Colombia	18	773	887	8	348	536
Denmark	(3/)	1	1	--	--	--
Martinique	--	--	--	4	28	30
Panama	3	94	119	--	--	--
Trinidad and Tobago	9	296	339	8	284	337
Venezuela	44	1,479	1,765	49	3,683	4,130
Total 2/	85	2,721	3,202	70	4,343	5,034
Washington:						
Netherlands	--	--	--	(3/)	3	4
Venezuela	5	244	338	--	--	--
Total 2/	5	244	338	(3/)	3	4
Wilmington:						
Canada	13	492	654	25	893	1,321
Venezuela	47	1,807	2,407	139	5,344	7,183
Total 2/	60	2,300	3,061	164	6,237	8,503
Grand total 2/	7,060	283,131	331,337	11,303	443,038	537,731

1/ Cost, insurance, and freight.

2/ Data may not add to totals shown because of independent rounding.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 20
U.S. IMPORTS FOR CONSUMPTION OF CEMENT AND CLINKER

(Thousand metric tons and thousand dollars)

Year	Roman, portland, other hydraulic cement		Hydraulic cement clinker		White nonstaining portland cement		Total 1/	
	Value		Value		Value		Value	
	Quantity	(customs)	Quantity	(customs)	Quantity	(customs)	Quantity	(customs)
1993	5,178	199,499	1,508	52,513	375	31,118	7,060	283,131
1994	8,635	329,012	2,208	79,783	459	34,243	11,303	443,038

1/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 21
HYDRAULIC CEMENT: WORLD PRODUCTION BY COUNTRY 1/ 2/

(Thousand metric tons)

Country	1990	1991	1992	1993	1994 e/
Afghanistan e/	112	112	115	115	115
Albania e/	750	600	200	200	200
Algeria	6,340	6,320	6,400	6,400 e/	6,400
Angola e/	260	260	300	250	300
Argentina	3,610 r/	3,400 r/	5,050 r/	5,650 t/	6,000
Armenia e/	XX	XX	500	200	200
Australia	7,070	6,110	5,410	5,500 e/	6,000
Austria	4,900	5,020	5,030 r/	4,940 t/	5,000
Azerbaijan e/	XX	XX	600	400	300
Bahrain	148	150	220 r/	225 t/	225
Bangladesh 3/	337	275	273	275	280
Barbados e/	200	200	175	175	200
Belgium	6,930	7,180	8,070	7,570 t/	8,000
Belarus e/	XX	XX	1,600	1,000	800
Benin e/	300	320	370	380	380
Bolivia	560	592	600	480 t/	500
Bosnia and Herzegovina e/	XX	XX	150	150	150
Brazil	25,800	27,500	24,900	25,900 t/	26,000
Bulgaria	4,710	2,370	2,130 r/	2,500 e/	2,300
Burma	414 r/	435	465	401 t/	453
Cameroon	624	622	620	620 e/	620
Canada	11,700	9,400	5,700	6,670	10,600 4/
Chile	2,120	2,250	2,650	2,600 e/	2,600
China	210,000 r/	253,000	308,000 r/	368,000 t/	400,000 4/
Colombia	6,250	6,300	6,810	6,900 e/	7,000
Congo	90	103	115	114 e/	114
Costa Rica e/	620 4/	700	700	750 t/	780
Côte d'Ivoire e/	500	500	510	500	500
Croatia	XX	XX	1,770 r/	1,680 t/	1,700
Cuba e/	3,000	2,000	2,000	1,000 t/	1,000
Cyprus	1,130	1,130	1,130	1,090 e/	1,040
Czech Republic	XX	XX	XX	5,390 t/	5,300 4/
Czechoslovakia 5/	10,200	8,300	8,500	XX	XX
Denmark (sales)	1,660	2,020	2,070	2,270 t/	2,300
Dominican Republic	1,060	1,230	1,370	1,300 e/	1,200
Ecuador	2,250	2,300	2,250	2,200 e/	2,250
Egypt	14,100	16,400	17,000	16,000 t/	16,000
El Salvador	641	680	419	861 t/	850
Eritrea e/	--	--	--	30	40
Estonia e/	XX	XX	600	500	500
Ethiopia	340	290	300 r/	270 t/ e/	260 4/
Fiji	78	79	84	80 t/	94 4/
Finland	1,670	1,320	1,130	835 t/	870 4/
France	26,400	26,500	21,200	19,300 t/	20,200
Gabon	116	117	116	132	126
Georgia e/	XX	XX	1,000	700	500
Germany:					
Eastern states	7,230	XX	XX	XX	XX
Western states	30,500	XX	XX	XX	XX
Total	37,700	34,400	37,500	36,600 t/	40,400 4/
Ghana	675	750	1,020	1,200	1,350 4/
Greece	13,600	11,800 r/	10,700 t/	12,600 t/	12,600 4/
Guadeloupe e/	225	240	235	230	230
Guatemala	1,680	1,440	1,400 e/	1,450 t/	1,480
Haiti e/	200	250	200	100	75
Honduras	652	693	650 e/	645 e/	645
Hong Kong	1,810	1,680	1,640	1,710	1,930 4/
Hungary	3,930	2,530	2,240	2,530 t/	2,810 4/
Iceland	114	106	100	86 t/	83 4/
India	49,000	51,000	50,000 e/	53,800 t/	54,000
Indonesia	13,800	16,200	17,300	18,900 t/	19,000
Iran e/	13,000	15,000	18,000	18,000 t/	20,000
Iraq e/	10,000	5,000	10,000	12,000 t/	12,000
Ireland e/	1,630	1,600	1,600	1,600	1,550

See footnotes at end of table.

TABLE 21--Continued
HYDRAULIC CEMENT: WORLD PRODUCTION BY COUNTRY 1/ 2/

(Thousand metric tons)

Country	1990	1991	1992	1993	1994 e/
Israel	2,870	3,550 e/	3,500	3,500 e/	3,500
Italy	40,000	40,800	41,300	42,000 e/	40,000
Jamaica	442	395	481	451 r/	446 4/
Japan	84,400	89,600	88,300	88,000 r/	91,500 4/
Jordan	1,820	1,750	2,730	681 r/	680
Kazakhstan e/	XX	XX	6,000	5,000	4,000
Kenya	1,510	1,420	1,510	1,500	1,500
Korea, North e/	16,000	16,000	17,000	17,000	17,000
Korea, Republic of	33,600	35,000	44,400 r/	47,300 r/	52,100 4/
Kuwait	900	300	500	500 e/	800
Kyrgyzstan e/	XX	XX	1,000	800	600
Latvia e/	XX	XX	400	300	300
Lebanon e/	900	900	1,000	1,000	1,000
Liberia	49	2	8	8 e/	--
Libya	2,700	2,370	2,300	2,300 e/	2,300
Lithuania e/	XX	XX	2,000	1,500	1,500
Luxembourg	636	688	600 e/	600 e/	620
Macedonia e/	XX	XX	500	500	560
Madagascar e/	60	60	60	60	60
Malawi	99	120	112	127 r/	130
Malaysia	5,880	7,450	8,370	8,800 r/	9,970 4/
Mali e/	20	20	20	20	20
Martinique e/	250	245	240	220	225
Mauritania	104 r/	105 r/	122 r/	111 r/	374 4/
Mexico	23,800	25,100	26,900	27,100	29,700 4/
Moldova e/	XX	XX	1,700	1,500	1,000
Mongolia	441	227	133	82 r/	86 4/
Morocco e/	4,200	5,770	6,340 4/	6,300	6,300
Mozambique e/	79 4/	80	30	20	20
Nepal	107	136	196	190 r/	190
Netherlands	3,730	3,550	3,300 r/	3,400 e/	3,400
New Caledonia	65 e/	90	90	90 e/	90
New Zealand	750 e/	576	579	600 e/	605
Nicaragua	1,200 r/	219 r/	239 r/	277 r/	275
Niger	20	20	29	29 e/	30
Nigeria e/	3,500	3,500	3,500	3,500	3,500
Norway	1,260	1,150	1,270	1,340 r/	1,440 4/
Oman	1,000	995	970	1,000 r/	1,000
Pakistan	7,490	7,760	7,790	8,320 r/	8,300
Panama e/	300 4/	300	250	300	350
Paraguay e/	326	326	326	326	326
Peru	2,190	2,200 e/	2,090	2,090	2,100
Philippines	6,360	6,910	6,730	7,960 r/	9,600 4/
Poland	12,500	12,000	11,900	12,200	13,900 4/
Portugal e/	7,280	7,470	7,640	7,600	7,500
Qatar	267	527	544	544 e/	545
Romania	9,470 r/	6,690 r/	6,270 r/	6,240 r/	8,000
Russia e/	XX	XX	64,000	60,000	50,000
Rwanda e/	60 4/	60	60	60	10
Saudi Arabia	12,000	11,400	15,300	15,300 e/	16,000
Senegal	470	503	601	590 r/	589
Serbia and Montenegro	XX	XX	2,040	1,090 r/	1,610 4/
Singapore e/	1,850 4/	2,000	1,900	1,900	1,900
Slovakia e/	XX	XX	XX	2,500	2,500
Slovenia e/	XX	XX	950	950	1,000
Somalia e/	40	10	25	25	25
South Africa, Republic of	7,810	7,430 r/	7,030 r/	7,360 r/	7,910 4/
Spain (including Canary Islands)	28,100	28,000	25,100	26,000 e/	26,000
Sri Lanka	400 e/	400 e/	817	676 r/	925 4/
Sudan e/	167 4/	170	250	250	250
Suriname e/	50	50	50	50	50
Sweden	2,480	2,400	2,290 r/	2,200	2,100
Switzerland	5,210	4,700	4,260	4,000 e/	4,000

See footnotes at end of table.

TABLE 21--Continued
HYDRAULIC CEMENT: WORLD PRODUCTION BY COUNTRY 1/ 2/

(Thousand metric tons)

Country	1990	1991	1992	1993	1994 e/
Syria	3,500	3,500	3,700	3,800 e/	3,800
Taiwan	18,500 r/	19,400	21,600 r/	24,000	22,700 4/
Tajikistan e/	XX	XX	300	250	200
Tanzania e/	540	540	540	540	540
Thailand	18,100	18,100	21,800	26,900 r/	28,000
Togo	399	388	350	350 e/	350
Trinidad and Tobago	438	485	482	527 r/	583 4/
Tunisia e/	3,300	3,300	3,300	3,300	3,300
Turkmenistan e/	XX	XX	700	500	400
Turkey	24,500 r/	26,100	28,600	31,400 r/	30,600
Uganda e/	27 4/	50	50	5	5
Ukraine e/	XX	XX	20,000	17,000	13,000
U.S.S.R. 6/	137,000	127,000 e/	XX	XX	XX
United Arab Emirates	3,260	3,470	3,800	3,500 e/	3,600
United Kingdom	14,700 r/	12,200 r/	11,000 r/	11,200 r/	11,500
United States (including Puerto Rico)	71,400	66,800	71,400	75,100	77,900 4/
Uruguay e/	500	500	500	500	500
Uzbekistan e/	XX	XX	6,000	5,000	5,000
Venezuela	5,230	6,340	6,590	6,840 r/	6,900
Vietnam e/	2,500	3,000	5,000 r/	6,500 r/	7,200
Yemen	828	850	800	800 e/	800
Yugoslavia 7/	7,950	7,500 e/	XX	XX	XX
Zaire	461	250 e/	174	149 r/	150
Zambia	437	367	347 e/	350 e/	350
Zimbabwe	700	865	900 e/	1,000 e/	900
Total	1,160,000 r/	1,180,000 r/	1,240,000 r/	1,300,000 r/	1,370,000

e/ Estimated. r/ Revised. XX Not applicable.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Table includes data available through July 13, 1995.

3/ Data are for the year ending June 30 of that stated.

4/ Reported figure.

5/ Dissolved Dec. 31, 1992.

6/ Dissolved in Dec. 1991.

7/ Dissolved in Apr. 1992.