



2009 Minerals Yearbook

CEMENT

CEMENT

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Combined production of portland and masonry cement in the United States in 2009 was 63.9 million metric tons (Mt). This was a 25.9% decline from production in 2008, a 35.6% decrease from the record output in 2005 (table 1), and the lowest level of output since 1983. Consumption of portland and masonry cement as measured by sales to domestic final customers decreased in 2009 by 26.7% to 71.0 Mt (table 9), also the lowest level since 1983 and nearly 57 Mt or 44.5% lower than the 2005 record. In contrast, the decline in sales prices (mill net valuation basis) in 2009 was comparatively modest (tables 1, 11–13). Overall, the value of cement sales totaled \$7.0 billion, down by about 30% from that of 2008. Based on typical portland cement mixing ratios in concrete, the delivered value of concrete (excluding mortar) in the United States was estimated to be at least \$47 billion in 2009.

Percentage or other changes expressed in this report compare activity in 2009 with that of 2008 unless specified otherwise. Except where otherwise indicated, activity levels in this report exclude those in Puerto Rico. Cements covered in this report are mainly limited to those hydraulic varieties broadly classified as portland cement (including blended cement and other varieties listed in table 15) and (or) masonry cement (including portland-lime and plastic cements); these are the binding agents in concrete and most mortars. A few other types of hydraulic cements and (or) clinker (notably aluminous cement) are included in some of the trade data (tables 16–18 and 21) and within the world production data (table 22). Except where incorporated as components within finished portland (blended) or masonry cements, this report's tables exclude supplementary cementitious materials (SCM), such as fly ash, other pozzolans, and ground granulated blast furnace slag (GGBFS). Sales data for blended (also called composite) cements listed separately from portland cement are available in the monthly Mineral Industry Surveys reports of the U.S. Geological Survey (USGS).

The bulk of this report is based on data compiled from USGS annual questionnaires sent to cement and clinker manufacturing plants and associated distribution facilities and import terminals, and some terminals that are independent of U.S. cement manufacturers. For 2009, questionnaires were received from 152 of 156 facilities canvassed, a response rate of 97%, which included all of the production sites. For 2008, questionnaires were received from 149 of 152 facilities canvassed, a response rate of 98%, including all of the production sites. If missing data could not be obtained by followup telephone inquiries, they were estimated based on monthly data or past annual reporting. For both years, the data exclude several importers that have yet to participate in the surveys. To the degree that they are independent of the participating companies, sales by the missing importers for 2008 and 2009 are estimated to be equivalent to an additional 1% of the total portland cement sales tonnages

shown in this report. Background information on cement and its manufacture and on the USGS cement canvasses can be found in van Oss (2005).

Government Programs and Environmental Issues

A number of ongoing Government programs provide funding and direction for public sector construction and were thus of importance to cement consumption levels. In 2009, stimulus program spending allotments, including those related to the American Recovery and Reinvestment Act (ARRA) of 2009, were being compared to individual State spending of the appropriated monies as a means to predict increases in cement demand. By late 2009, it was evident that very little of the stimulus spending during the year had been for cement (concrete) but it was anticipated that the concrete industry would significantly benefit from ARRA funding in 2010 (Sullivan, 2010).

Environmental issues associated with the cement industry mostly result from the manufacture of the intermediate product called clinker. In clinker manufacture, the burning of large amounts of raw materials and fuels leads to significant emissions of carbon dioxide (CO₂), and can yield significant emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), mercury and some other metals, volatile organic carbon compounds, and particulates. Increasingly, these emissions are regulated or are being considered for regulation or reregulation. The largest volume emissions are of CO₂; the cement industry is one of the leading industrial emitters of this greenhouse gas (GHG). Overall, generation of CO₂ by the U.S. cement industry in 2009 was calculated to be in the range of 0.87 to 0.92 metric ton (t) of CO₂ per ton of clinker produced; the high end incorporates fuel combustion emissions calculated using "standard" heat values for the fuels consumed (table 7), and the low end incorporates heat values actually reported by the individual plants. Both ratios include a standard emissions factor from calcination of limestone of 0.51 t of CO₂ per ton of clinker as detailed by the Intergovernmental Panel on Climate Change (Hanle and others, 2006), but exclude any correction for cement kiln dust (CKD) not recycled to the kiln (for which data are lacking). However, the standard calcination component of CO₂ emissions can be reduced in the calculation in proportion to the calcium oxide contributed by noncarbonate alternative raw materials such as ferrous slags and coal combustion ashes. This incorporation would allow a reduction of calcination-related emissions of about 2.4% (0.7 Mt of CO₂) in 2009 and 2.7% (nearly 1.1 Mt of CO₂) in 2008; relative reductions can be significantly larger for the subset of individual plants that actually burn these alternative raw materials. Certain fuels, including alternative or waste fuels, can either directly reduce plant-level CO₂ emissions or may lead to reductions in reported

emissions from combustion because the fuels are considered to be carbon-neutral (certain biofuels) or because credits may be allowed for their use (certain waste fuels). Plant-level emissions can be reduced through upgrading to more fuel-efficient kiln line technology. Unit emissions can also be reduced by use of SCM in finished cement and in concrete to reduce the clinker content of these products and (or) by allowing the addition of “inert” fillers to boost cement output without simultaneously boosting clinker output.

In past years, the U.S. Environmental Protection Agency (EPA) used methods similar to those used above to calculate and report overall U.S. levels of GHG emissions by various industries; for cement, these methods made use of national-level clinker production data published by the USGS. However, to more accurately determine U.S. emissions of GHG, in October, the EPA released a final rule for mandatory site/plant-specific reporting of GHG emissions (to begin in 2010) (U.S. Environmental Protection Agency, 2009b). For the cement industry’s CO₂ emissions, relevant calculation procedures for fuel combustion are covered under Part 98, subpart C (p. 56397–56411) and, for calcination and related process emissions, in subpart H (p. 56420–56422).

In May, the EPA proposed new, very low, limits on individual plant emissions of mercury, total hydrocarbons, particulate matter, and hydrochloric acid within a set of national emissions standards for hazardous air pollutants (NESHAP) for the U.S. cement industry (U.S. Environmental Protection Agency, 2009a). It was unclear how many U.S. cement plants would be able to comply with the new NESHAP limits for all four listed pollutants. The new standards for mercury were set so stringent (for existing plants, 43 pounds of mercury per million short tons of clinker produced; and for new plants, 14 pounds of mercury per million short tons of clinker produced) as to possibly preclude, absent the installation of mercury scrubbers, which could be very expensive, the use at many plants of their normal raw materials and of coal as a fuel. The NESHAP could end the use of fly ash as an alternative raw material for clinker manufacture; fly ash commonly has a high mercury content and this content was expected to increase as coal-fired powerplants installed their own scrubbers. The mercury-scrubbing technology most commonly discussed makes use of activated carbon, and this mercury-laden carbon (at a powerplant) would report to the fly ash. A discussion of the cement NESHAP is provided by O’Hare (2009).

The EPA was evaluating changing the regulatory classification of coal combustion byproducts, particularly fly ash, under conditions of long-term or permanent storage (disposal) and for various usage purposes. Concern in the construction sector was that if fly ash were to be reclassified as a hazardous waste, even under restricted circumstances, the material would be stigmatized and demand for it would decrease or cease altogether (Goss, 2010).

Production

Continued declining sales of cement, together with an apparent drawdown of cement stockpiles, and despite a major decline in cement imports, led to a 25.6% decrease in portland cement production in 2009 to just 62.0 Mt (table 3). This was

the lowest production since 1983 and was nearly 32 Mt less than the record output in 2005. Production fell in all districts except Indiana. Yearend stocks of portland cement fell by 28%. Owing to two plants coming online during the year (Florida and Missouri) and of some new mills at existing plants, overall grinding capacity increased by about 6%. The capacities and plant counts listed in table 3 for 2009 are, however, somewhat uncertain because of difficulties differentiating between plants reported as “idle” (or “indefinitely idle”) and those that were permanently “closed.” At least in terms of sales, some such plants continued to operate as distribution terminals. Likewise, plants that closed their kilns in late 2008 may have continued to grind remaining clinker stocks until they were exhausted in early 2009 after which the finish mills were closed as well. The USGS policy has been to count as active all plants having production for at least 1 day during the year, but this policy may not be realistic for plants idle all year and which offered few prospects of ever reopening. Thus, in a few locations, a decision was made for the 2009 tally to exclude plants that were “idle” throughout 2009–10 and for which a formal closure announcement was made in 2010. In one district, an ultimately closed plant was retained in the 2009 count because it made a small quantity of masonry cement early in the year, thus still having active grinding capacity. Another plant, seemingly closed, retained the possibility of restarting its finish mill. One plant in Florida that had been announced as closed in late 2008 was retained in the 2009 count despite no production during the year because its status was confirmed as idled, rather than closed.

For masonry cement, a stagnant housing construction sector during the year led to a decline in cement production of 35% to just 2.0 Mt, the lowest level since at least 1954.

With common parents combined under the larger subsidiary’s name and with joint ventures apportioned, the 10 leading companies at yearend 2009, in descending order of portland cement production, were Holcim (US) Inc., CEMEX, Inc., Lafarge North America Inc., Lehigh Cement Co., Buzzi Unicem USA Inc. (including Alamo Cement Co.), Ash Grove Cement Co., Texas Industries, Inc. (TXI), Essroc Cement Corp., CalPortland Co., and St. Marys Cement Inc. The listing was unchanged from that of 2008. The U.S. industry continued to be heavily consolidated—the leading 5 cement companies, combined, contributed 59% of total U.S. portland cement production, and the leading 10 companies accounted for 81% of total production. Of the above named companies, all except Ash Grove and TXI were foreign owned as of yearend, and for the industry overall, about 77% of total cement output was by foreign-owned companies.

Clinker output in 2009 fell by 28.4% to 56.1 Mt (tables 1, 5). This was the lowest level since 1982. Production fell in all months, and for the year overall in all districts. Owing to a new plant coming online, the commencement of production from a plant that was completed at yearend 2008, and upgrades at some existing plants, apparent annual capacity increased by 6.5%; this was despite the removal in the 2009 total of plants or kilns closed during 2008. Utilization of clinker production capacity was only about 49% in 2009, well down from the 73% of the previous year and the presumed “full practicable” capacity utilization of 85% or more experienced during years

of high cement sales volumes. The performance in 2009 reflected a combination of permanent kiln or plant closures and long-term idling of “extra” kilns at multikiln plants. However, the utilization statistic is dependent on the reported downtime for routine maintenance. Many plants reported much longer than normal downtimes for this purpose in 2009; where this was obvious, corrections were made after consultation with the plants to remove the extra downtime (a result of slow sales) from the statistic. Yearend clinker stockpiles decreased by nearly 30%, likely reflecting yet more kiln idlings late in the year.

Nonfuel raw materials consumed to make clinker and cement are listed in table 6. Ratios among clinker raw materials consumed in 2009 appear to be broadly similar to those in 2008. For fly ash and bottom ash, the data are similar to those published by the American Coal Ash Association (ACAA) for sales for use in making clinker and cement (combined), namely 2.210 Mt of fly ash and 0.654 Mt of bottom ash (American Coal Ash Association, 2010; Goss, 2010). The ACAA also noted sales of 0.382 Mt of synthetic gypsum to the cement industry; this is less than the 0.47 Mt or more of this material included within the “Gypsum and anhydrite” data in table 6, but could reflect the fact that the ACAA does not survey the cement plants’ own manufacture of this material.

Data on fuel consumption by the cement industry are listed in table 7. Data shifts can reflect activities at just a few plants. In terms of overall mass ratios among fuels in total and relative to clinker production, significant changes in 2009 were evident for several fuels but in part reflected closure and full-year idling of several wet kilns and some less efficient long dry kilns during the year. A much smaller percentage of clinker was contributed by wet kilns in 2009, for example. The significant increase in the consumption of natural gas reflects a combination of the incorporation of large amounts of landfill gas at two plants, and a shift from gas as a warm up fuel to a major use fuel reported at two facilities. Some of the other apparent shifts reflect upgrades, including conversions from wet to dry kiln technology at some plants.

Although not revealed in table 7, overall heat consumption (gross heat basis) in 2009 was about 3.9 billion joules (GJ) per metric ton of clinker, down by about 9% from that in 2008. The reduction reflected the closure or idling of wet kilns and less efficient dry kilns during the year. Heat energy consumption at the remaining operational wet kilns averaged 6.0 GJ per ton of clinker, down by nearly 8%. Dry kilns averaged 3.6 GJ per ton of clinker, down by 10%. Thus, efficiency apparently improved despite much longer and perhaps more frequent than normal total downtimes (for all reasons) on the operational kilns. It is possible that further reductions in unit energy consumption will be realized if and when the industry resumes more normal operating schedules. As in past years, coal supplied the largest share of the heat consumed (60%, down by about 7%), followed by petroleum coke (about 21%, unchanged), and waste fuels (13%, up by 22%). As noted above, natural gas, including landfill gas, use increased markedly; it contributed about 5% of total heat in 2009, up by 74%.

The average unit electricity consumption increased again in 2009 (table 8); this most likely reflects operational disruptions (idlings and closures, repairs, plant upgrades) at many plants,

and a greater reliance on dry plants. Dry plants, commonly, have higher unit electricity consumption than do wet plants.

There were no significant ownership changes in the U.S. cement industry in 2009. Two new plants were brought into production during the year. American Cement Co., LLC began operations early in the year at its 1.0-million-metric-ton-per-year (Mt/yr) plant at Sumterville, FL; plant construction had been completed at yearend 2008. Initial cement production was from purchased clinker, but the plant started its own clinker production in May. American Cement was a joint venture between Oldcastle Materials, Inc. and New Jersey-based Trap Rock Industries, Inc. In July, Holcim fired the 4.0-Mt/yr precalciner kiln at its new plant in St. Genevieve County, MO; this kiln was said to have the largest annual capacity of any in the world and was expected, at full output levels, to put Missouri at or near the forefront of U.S. clinker production.

The litany of plant closures and long-term or indefinite idlings of plants that began in 2008 continued in 2009, although many of the facilities continued to operate as storage, packaging, and transshipment terminals for cement sourced elsewhere. At the end of January, Ash Grove indefinitely idled the wet kilns at its Inkom, ID, plant, but the facility continued to produce cement from clinker stockpiles and from clinker brought in from another Ash Grove plant. CalPortland idled the long dry kilns at its Colton, CA, plant during the course of the year but continued to make cement from clinker brought in from the company’s Mojave, CA, facility. CEMEX confirmed that its Brooksville “North” plant in Florida was on indefinite idle status in 2009, and had not been closed as had been reported in 2008. Essroc closed the wet kilns at its Bessemer, PA, plant at the end of April and shut the finish mill there at the end of September. At the end of April, Holcim shut its wet plants at Dundee, MI, and Clarksville, MO; the Clarksville plant’s kiln was the longest in the world. At the same time, the company indefinitely idled its wet plant at Artesia, MS, and in September, indefinitely idled its dry plant at Mason City, IA. In addition to these plant closures and (or) indefinite idlings, many multikiln plants had one or more kilns idle for all or part of the year.

Major kiln line upgrades were completed at three cement plants in 2009. In August, Buzzi Unicem fired the new 1.2 Mt/yr precalciner kiln at its River (also known as the Festus or Selma plant), at Festus, MO; the new kiln replaced the existing pair of long dry kilns (Buzzi Unicem, 2009). Also in November, Keystone Cement Co. fired its new precalciner kiln line at Bath, PA; the new 1.2-Mt/yr line replaced the plant’s pair of wet kilns, which were shut down at the same time. In August, Essroc closed the three wet kilns at its Martinsburg, WV, plant and in November fired the plant’s new 2.0-Mt/yr precalciner kiln that had been under construction.

Some ongoing upgrade projects were cancelled or postponed in light of poor cement sales. An example was the January announcement by TXI that it was postponing further work on the expansion project at its cement plant at Hunter, TX (Texas Industries, 2009); the project was expected to resume once market conditions improved.

Consumption

Cement consumption data for the United States were surveyed and reported monthly by the USGS in terms of sales to final customers and are summarized in table 9. Although the national sales totals in table 9 are similar to the shipments totals in tables 11, 12, and 14, only the table 9 breakout tonnages represent State-level consumption. The regional breakouts in tables 11, 12, and 14 simply pertain to the locations of the reporting entities (chiefly the production sites), not the locations of consumption. It is very common for shipments to cross State lines.

The U.S. cement market in 2009 continued a decline that began in early to mid-2006; this reflected ongoing stagnation in several construction sectors, particularly in housing, a tight loan market, and continued declines in State property tax revenues. Decreases in sales of cement were experienced in all months during the year. Total sales of portland cement to domestic final customers fell by 26.5% to 68.9 Mt, the lowest level since 1983. Sales declined in all districts; those into the three traditionally leading consuming States (California, Florida, and Texas) were down by about 32% in 2009. Although sensitive to the accuracy of the population data, per capita consumption of portland cement was just 220 kg in 2009, the lowest level since 1947; the amount in 2008 was 413 kg. Masonry cement consumption decreased by 31.0% to 2.1 Mt, the lowest level since 1949.

Sales by some importers that did not participate in the USGS monthly and annual surveys were not included in the portland cement consumption data in this report. An estimate of these missing importers' sales can be made by comparing official (U.S. Census Bureau) trade data (tables 17, 21) with the import origins of sales (table 9). The official cement imports were about 0.3 Mt higher than the foreign origin tonnages in 2009 and 1.5 Mt higher than those in 2008; however, the discrepancy in 2009 appears to be too small based on known missing data for cement from the Republic of Korea into the Philadelphia, PA, customs district (0.139 Mt), and of much of the material from Colombia into the Houston, TX, and Wilmington, NC, districts (0.369 Mt). It appears that part of the reason for the difference in 2009 is that the table 9 import origins of sales data include a large component of drawdown of stocks, as suggested by the large yearend stockpile decline for importers listed in table 3. Adjusting for both years for cement varieties that are in the trade tables but not covered by the USGS canvasses (chiefly aluminous cement) and for apparent drawdown of stocks, which cannot fully distinguish between imported and domestic cement, it becomes evident that the annual tables are missing about 0.5 Mt of cement sales in 2009 and about 1 Mt in 2008.

As the binder in concrete, cement consumption levels within a given category of construction will broadly reflect levels of construction spending, although significant time lags may exist between the onset or cutoff of spending and changes in the consumption of cement. In terms of 1996 constant dollars, overall construction spending in 2009 fell by 15% to \$552 billion (Portland Cement Association, 2011). Within this spending, public sector construction was the largest share, at \$184 billion, down by 0.8% only. Residential construction, which had been the dominant sector in 2008, fell in 2009 by 25% to \$168 billion. Nonresidential construction spending was \$133 billion, down by 21%.

Portland cement sales broken out by customer type are listed in table 14. Sales to ready-mixed concrete producers accounted for about 71% of total shipments, but the true tonnage for this type of concrete was larger because some of it was recorded under other customer categories, such as road paving contractors. As listed, the sales to ready-mixed customers declined by 27%, in line with the decrease in overall portland cement sales. The decline in residential construction spending noted above is in line with the 34% decline in sales tonnages of cement for brick and block; and the decline in nonresidential private and public sector spending noted is in line with reduced sales of cement for precast–prestressed concrete products (down by 28%), and for road paving (down by 22%). Sales of cement for oil well and gas well drilling fell by 45%, in line with sharply reduced oil and gas prices and drilling activities in 2009.

Sales of different types of portland cement are broken out in table 15. As in past years, sales were dominated by Types I and II cements and sulfate-resistant varieties of cement (Type V and Type II/V hybrids reported as Type V). Sales of these cements fell more or less proportionately to overall portland cement sales. Oil well cement sales fell by 42%, a result similar to that in table 14 noted above. White cement sales fell by 30%. As in past years, the white cement sales tonnage was significantly less than the imports of white cement (table 20) and would seemingly preclude any need for domestic production of the material. The discrepancy is partly explained by the use of some imported white cement for masonry cement (sales not included in table 15), and by the fact that some imported white cement is blended with domestically produced white cement.

Blended cement sales in table 15 fell by about 34% to 1.3 Mt, but this tonnage is significantly less than the blended cement sales reported for 2009 in the monthly reports of the USGS (1.6 Mt). It is unclear why this difference exists, except that there could be inconsistent reporting between the monthly and annual surveys of cement sold under the general performance standard ASTM C–1157, which at one time applied only to blended cements but which now applies to hydraulic cements in general.

Data on the mill net values for shipments to final customers by plants and import terminals (terminal nets) are provided in tables 11 to 13. Despite the large drop in sales tonnages, unit prices for portland and masonry cement declined relatively modestly.

Foreign Trade

Trade data from the U.S. Census Bureau are presented in tables 16–21. Although at the highest tonnage level since 1948, exports of cement and clinker continued to be small compared with imports. Canada remained by far the dominant destination of the exports, taking about 76% of the total in 2009.

Total imports of cement and clinker in 2009 fell by 40.5% to 6.8 Mt (table 17), the lowest total since 1992 and a decline of 28.8 Mt from the record level of 2006. The dominant share of imports was gray portland cement, imports of which fell by nearly 44% to 5.4 Mt (table 19). Canada continued to be the dominant source of U.S. imports. The tonnage of portland cement imported from Canada in 2009 fell by nearly 20%, but this was a small relative decline compared with those of most other countries. The relative regional sourcing of imports has

changed dramatically in recent years. For example, Canada's share of the U.S. cement and clinker import market was 50% in 2009, much higher than the 14% share it held in 2006. By comparison, Asia, which had accounted for 19.5 Mt or 54% of total imports in 2006, supplied just 1.8 Mt or 26% of the imports in 2009. China alone supplied nearly 30% of total U.S. imports in 2006 but accounted for only 9% of the imports in 2009.

Official imports of clinker fell by 10.5% to 0.56 Mt (table 21). The clinker data are incomplete, however, with regard to overland imports from Canada; the tonnages listed are insufficient to have fully supplied the grinding plants in Michigan and Washington, all of which imported their clinker from Canada. The unreported Canadian clinker appeared mostly to be coming in by truck, at a value of less than \$2,000 (customs value) per truckload; such shipments are classified as "informal entries" and data on them are not routinely transmitted by the U.S. Customs Service to the U.S. Census Bureau for recordation into the official trade data (reproduced in tables 17–21). This problem presumably does not exist for imports by rail or by ship because these shipments are larger. Clinker imports from Canada were estimated to be higher than those reported in tables 1 and 21 by about 0.7 Mt in 2008 and by about 0.2 Mt in 2009.

With the decline in imports, especially from Asia, several of the once-busiest import locations have fallen from prominence, and overland import locations have become relatively dominant. For cement and clinker combined, the 10 busiest customs districts of entry in 2009 were, in descending order of tonnage, Detroit, MI; Houston-Galveston, TX; Seattle, WA; Buffalo, NY; Cleveland, OH; Columbia-Snake, OR and WA; Honolulu, HI; El Paso, TX; Ogdensburg, NY; and Savannah, GA (table 18). These leading districts accounted for about 71% of the total imports for the year.

World Review

World hydraulic cement production data are listed in table 22. The data are intended to include all forms of hydraulic cement; however, the data for the United States are for portland and masonry cement only, and data for some other countries also may be incomplete. For some countries, the production data may include exports of clinker.

World cement output in 2009 was an estimated 3.04 billion metric tons (Gt), up by 6.7%. Production was from more than 150 countries. China was again the world's leading producer by far, with an output of 1.63 Gt or nearly 54% of the world total. The remaining top 20 producers were, in descending order of tonnage, India, the United States, Japan, Turkey, Brazil, the Republic of Korea, Iran, Vietnam, Egypt, Russia, Indonesia and Saudi Arabia (tied), Italy, Mexico, Pakistan, Thailand, Germany, Spain, and Malaysia. Cumulatively, the top 5 countries had about 66% of total world output, the top 10 countries, about 74%, and the top 20 countries, about 85%.

Regionally, Asia and the Pacific contributed about 71% of world production, included 9 of the 20 leading producing countries, and continued to experience the greatest growth rate of all regions. The Middle East (including Turkey), had 6.8% of world output; Western Europe, 6.1%; Africa, 4.3%; Central America and South America, combined, 3.8%; North America

(including Mexico), 3.7%; the Commonwealth of Independent States, 2.5%; and Eastern Europe, 1.5%.

Outlook

A modest increase in concrete construction in 2010 was expected, based on projected beneficial downstream effects of stimulus funding on the general economy and the housing construction sector in particular, and on expected access to ARRA funding. Relatively little ARRA funding had gone to public sector construction projects involving concrete in 2009 and many States still had significant fractions of their respective ARRA allotments as yet unspent at yearend 2009. However, low revenues to the States from property taxes were expected to continue to hamper State contributions to construction projects funded jointly by State governments and the Federal Government. It was recognized that a return to cement consumption levels approaching those of the peak 2005–06 period was many years away. Of great concern to the cement industry was the proposed portland cement NESHAP, which would impose very low, stringent, limits on mercury and certain other emissions by cement plants. The NESHAP would be difficult to comply with owing to high cost of emissions control equipment and potential problems of sufficient control equipment availability within the 3-year NESHAP compliance window. According to some industry analysts, a large number of plants—representing perhaps 25% of U.S. production capacity—might have to close as a result of the NESHAP, forcing the concrete industry to increasingly rely on imported cement. Further, should fly ash become stigmatized as a result of an EPA reclassification of it as a hazardous material, the construction sector might lose this material as an alternative raw material or SCM, and thus hamper efforts to reduce the GHG "footprint" associated with concrete construction.

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GENERAL SOURCES OF INFORMATION

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TABLE 1
SALIENT CEMENT STATISTICS FOR THE UNITED STATES^{1, 2}

(Thousand metric tons unless otherwise specified)

	2005	2006	2007	2008	2009
Production:					
Cement ³	99,319	98,167	95,464	86,310	63,929
Clinker	87,405	88,555	86,130	78,382	56,116
Shipments from mills and terminals: ^{3, 4, 5}					
Quantity	128,000	127,000	114,000	96,700	71,100
Value ⁶ (thousands dollars)	11,700,000	12,900,000	11,900,000	9,990,000	7,020,000
Average value ⁶ (dollars per metric ton)	91.00	101.50	104.00	103.50	99.00
Stocks, yearend:					
Cement	7,450	9,380	8,890	8,360	6,080
Clinker	3,520	5,370	6,550	7,070	5,130
Exports	766	723 ⁷	886 ⁷	823	884
Imports: ⁸					
Cement	30,403	32,141	21,496	10,744	6,211
Clinker	2,858	3,425	972	621	556
Total ⁹	33,261	35,566	22,468	11,365	6,767
Consumption, apparent ¹⁰	128,250	127,660	116,550	96,760	71,530
World production ^{6, 11}	2,350,000	2,610,000	2,810,000	2,850,000 ^r	3,040,000

⁶Estimated. ^rRevised.

¹Unless otherwise indicated, data are for portland (including blended) and masonry cements only. Even where presented unrounded, data are thought to be accurate to no more than three significant digits.

²Excludes Puerto Rico.

³Includes cement made from imported clinker.

⁴Includes imported cement.

⁵Shipments to final domestic customers. Data are from an annual survey of plants and terminals and may differ from the totals in table 9, which are based on consolidated monthly surveys from companies.

⁶Value free on board mill or independently reporting terminal.

⁷Official export data have been corrected to remove an apparent excess of aluminous cement from Laredo, TX, of 943,939 metric tons in 2006 and 653,255 metric tons in 2007.

⁸All forms of hydraulic cement or clinker.

⁹Data may not add to totals shown because of independent rounding.

¹⁰Production (including that from imported clinker) of cement plus imports of hydraulic cement minus exports of hydraulic cement minus the change in yearend cement stocks.

¹¹Total hydraulic cement. May include clinker exports for some countries.

TABLE 2
COUNTY BASIS OF SUBDIVISION OF STATES IN CEMENT TABLES

State subdivision	Defining counties
California, northern	Alpine, Fresno, Kings, Madera, Mariposa, Monterey, Tulare, Tuolumne, and all counties farther north.
California, southern	Inyo, Kern, Mono, San Luis Obispo, and all counties farther south.
Illinois, metropolitan Chicago	Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will Counties in Illinois.
Illinois, excluding Chicago	All counties other than those in metropolitan Chicago.
New York, eastern	Delaware, Franklin, Hamilton, Herkimer, Otsego, and all counties farther east and south, except those within Metropolitan New York.
New York, western	Broome, Chenango, Lewis, Madison, Oneida, St. Lawrence, and all counties farther west.
New York, metropolitan	New York City (Bronx, Kings, New York, Queens, and Richmond), Nassau, Rockland, Suffolk, and Westchester.
Pennsylvania, eastern	Adams, Cumberland, Juniata, Lycoming, Mifflin, Perry, Tioga, Union, and all counties farther east.
Pennsylvania, western	Centre, Clinton, Franklin, Huntingdon, Potter, and all counties farther west.
Texas, northern	Angelina, Bell, Concho, Crane, Culberson, El Paso, Falls, Houston, Hudspeth, Irion, Lampasas, Leon, Limestone, McCulloch, Reagan, Reeves, Sabine, San Augustine, San Saba, Tom Green, Trinity, Upton, Ward, and all counties farther north.
Texas, southern	Brazos, Burnet, Crockett, Jasper, Jeff Davis, Llano, Madison, Mason, Menard, Milam, Newton, Pecos, Polk, Robertson, San Jacinto, Schleicher, Tyler, Walker, Williamson, and all counties farther south.

TABLE 3
 PORTLAND AND BLENDED CEMENT PRODUCTION, CAPACITY, AND STOCKS IN THE UNITED STATES, BY DISTRICT¹
 (Thousand metric tons unless otherwise specified)

District ²	2008					2009				
	Number of plants	Production	Grinding capacity ³	Percentage utilized ⁴	Yearend stocks ⁵	Number of plants	Production	Grinding capacity ³	Percentage utilized ⁴	Yearend stocks ⁵
Maine and New York	5	3,061	4,204	72.8	234 ⁶	5	2,118	4,341	48.8	219 ⁶
Pennsylvania, eastern	7	3,826	5,140 ⁶	74.5	285	7	3,064	5,420 ⁶	56.5	247
Pennsylvania, western	3	1,327	1,805	73.5	140	3	678	1,805	37.6	103
Illinois	4	2,655	3,390	78.3	268	3	1,487	3,390	43.9	237
Indiana	4	2,587	3,653	70.8	237	4	2,685	3,740 ⁶	71.7	188
Michigan	5	4,928	7,332	67.2	287	5	3,548	6,983	50.8	163
Ohio	2	762	1,166	65.4	64	2	550	1,166	47.2	25
Iowa, Nebraska, South Dakota	5	3,987	5,840 ⁶	68.3	458	5	2,991	5,840 ⁶	51.2	266
Kansas	4	2,396	3,230 ⁶	74.2	247	3	1,669	2,940 ⁶	56.8	166
Missouri	5	4,651	7,230	64.3	532	6	4,418	13,035	33.9	622
Florida ⁷	7	4,979	7,301	68.2	389 ⁶	7	3,145	7,610 ⁶	41.3	260
Georgia, Maryland, Virginia, West Virginia	7	5,057	6,780 ⁶	74.6	595 ⁶	6	3,859	7,180 ⁶	53.7	334
South Carolina	3	2,925	5,085	57.5	137 ⁶	3	1,868	5,085	36.7	77
Alabama	5	4,635	7,074	65.5	242	5	3,416	7,292	46.8	231 ⁶
Kentucky, Mississippi, Tennessee	4	3,045	3,702	82.3	282	4	1,958	3,702	52.9	147
Arkansas and Oklahoma	4	2,623	3,130 ⁶	83.9	198	4	2,067	3,127	66.1	182
Texas, northern	6	6,303	7,618	82.7	1,324	6	3,833	7,580 ⁶	50.5	609
Texas, southern	6	4,778	6,330 ⁶	75.5	260 ⁶	6	4,519	6,505	69.5	226 ⁶
Arizona and New Mexico	3	2,097	3,116	67.3	102	3	1,464	3,116	47.0	91
Colorado and Wyoming	4	2,610	4,449	58.7	173	4	2,165	4,517	47.9	149
Idaho, Montana, Nevada, Utah	6	2,727	3,728	73.1	221 ⁶	6	2,050	3,728	55.0	156
Alaska and Hawaii	--	--	--	--	82	--	--	--	--	55
California, northern	3	1,678	2,853	58.8	188	W ⁸	W ⁸	W ⁸	W ⁸	W ⁸
California, southern	8	8,201	10,855	75.6	310 ⁶	11 ⁸	7,153 ⁸	13,600 ^{6,8}	52.7 ⁸	417 ^{6,8}
Oregon and Washington	4	1,443	2,435	59.3	248 ⁶	4	1,254	2,435	51.4	275 ⁶
Importers ⁹	--	--	--	--	310 ⁶	--	--	--	--	182 ⁶
Total ¹⁰	114	83,283	117,000 ⁶	70.9	7,810 ⁶	112	61,961	124,000 ⁶	49.9	5,620 ⁶
Puerto Rico	2	1,301	1,898	68.5	44	2	936	1,780	52.6	47 ⁶
Grand total ¹⁰	116	84,584	119,000 ⁶	70.9	7,860 ⁶	114	62,897	126,000 ⁶	50.0	5,670 ⁶

See footnotes at end of table.

TABLE 3—Continued
 PORTLAND AND BLENDED CEMENT PRODUCTION, CAPACITY, AND STOCKS IN THE UNITED STATES, BY DISTRICT¹

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

¹Even where presented unrounded, data are thought to be accurate to no more than three significant digits. Includes data for white cement. Includes cement made from imported clinker.

²District assignment is the location of the reporting facilities. Specific districts include importers for which district assignments were possible.

³Grinding capacity is based on fineness needed to produce a plant's normal output mix, including masonry cement, and allowing for downtime for routine maintenance.

⁴Calculated relative to portland cement output; utilization would be higher if calculated to include output of masonry cement.

⁵Includes imported cement. Includes stocks at mills, terminals, and in transit.

⁶Data contain estimates for nonrespondent or incompletely reporting facilities and have been rounded to no more than three significant digits.

⁷Production and capacity data exclude a plant that produced only masonry cement.

⁸Data for Northern California for 2009 are included with those for Southern California.

⁹Data include only those importers or terminals for which district assignments were not possible.

¹⁰Data may not add to totals shown because of independent rounding.

TABLE 4
MASONRY CEMENT PRODUCTION AND STOCKS IN THE UNITED STATES, BY DISTRICT¹

(Thousand metric tons unless otherwise specified)

District ²	2008			2009		
	Number of active plants	Production ³	Yearend stocks ⁴	Number of active plants	Production ³	Yearend stocks ⁴
Maine and New York	4	69	17	4	41	12
Pennsylvania	9	254	56	9	176	46
Indiana and Ohio	6	332	73	6	244	52
Michigan	4	99	34	4	80	28
Iowa, Nebraska, South Dakota	2	W	W	2	W	W
Kansas	2	W	W	2	W	W
Missouri	1	W	W	1	W	W
Florida	5	310	65	6	123	38
Georgia, Maryland, Virginia, West Virginia	6	367	53	6	250	42
South Carolina	3	323	31	3	174	16
Alabama	4	303	63	4	208	61
Kentucky, Mississippi, Tennessee	3	W	W	3	W	W
Arkansas and Oklahoma	4	125	18	3	97	21
Texas	7	274	20	8	202	22
Arizona and New Mexico	3	W	W	3	W	W
Colorado and Wyoming	2	W	W	2	W	W
Idaho, Montana, Nevada, Utah	1	W	W	--	W	W
California, northern	3	59	19	W ⁵	W ⁵	W ⁵
California, southern	5	278	23	7	236	45 ⁶
Importers ⁷	--	--	3 ⁶	--	--	3 ⁶
Total ⁸	74	3,027	549 ⁶	73	1,968	456 ⁶

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

¹Includes masonry, portland-lime, plastic, and stucco cements. Even where presented unrounded, data are thought to be accurate to no more than three significant digits.

²District assignment is the location of the reporting facilities. Specific districts include importers for which district assignments were possible.

³Includes cement produced from imported clinker.

⁴Includes imported cement.

⁵Data for 2009 for Northern California is included with those for Southern California.

⁶Data contain estimates for nonrespondent or incompletely reporting facilities.

⁷Data include only those importers or terminals for which district assignments were not possible.

⁸Data may not add totals shown because of independent rounding.

TABLE 5
CLINKER CAPACITY AND PRODUCTION IN THE UNITED STATES IN 2009, BY DISTRICT¹

District	Number of active plants ²			Number of kilns ⁴	Daily capacity ^{4,5} (thousand metric tons)	Average days of routine maintenance ⁶	Apparent annual capacity ^{4,7} (thousand metric tons)	Production (thousand metric tons)	Percentage of capacity utilized	Yearend stocks (thousand metric tons)
	Process used									
	Wet	Dry	Both ³							
Total										
Maine and New York	2	2	--	4	11.3	26.8	3,817	1,856	48.6	100
Pennsylvania	3	5	1	9	22.8	13.9 ⁸	8,000 ⁸	3,523	44.2	271
Illinois	--	3	--	3	7.7	7.5	2,728	1,311	48.1	134 ⁸
Indiana	1	3 ⁹	--	4	10.2	25.8	3,430	2,578	75.2	198
Michigan	1	2	--	3	14.1	18.6	4,796	2,587	53.9	132
Ohio	1	1	--	2	3.3	25.8	1,159	467	40.3	23
Iowa, Nebraska, South Dakota	--	4	1	5	14.1	17.9 ⁸	4,850 ⁸	2,614	53.9	230
Kansas	1	2	--	3	8.2	18.5	2,746	1,682	61.3	63
Missouri	1	5	--	6	36.3	25.6 ⁸	12,400 ⁸	4,123	33.3	434
Florida	--	7	--	7	23.8	18.1 ⁸	8,350 ⁸	2,984	35.7	338
Georgia, Maryland, Virginia, West Virginia	--	4	1	5	22.1	19.3 ⁸	7,570 ⁸	3,611	47.7	261
South Carolina	--	3	--	3	12.3	26.6	4,185	1,770	42.3	325
Alabama	--	5	--	5	16.9	31.0	5,670 ⁸	3,240	57.1	196
Kentucky, Mississippi, Tennessee	1	3	--	4	10.5	17.5	3,635	1,773	48.8	47
Arkansas and Oklahoma	2	2	--	4	8.1	20.5	2,796	1,775	63.5	66
Texas, northern	2	4 ¹⁰	-- ¹⁰	6	19.0	18.6	6,586	3,480	52.8	649
Texas, southern	--	5	--	5	16.2	15.7	5,648	4,128	73.1	366
Arizona and New Mexico	--	3	--	3	8.6	11.6	3,022	1,125	37.2	136
Colorado and Wyoming	--	4	--	4	11.5	26.8	3,907	1,992	51.0	228
Idaho, Montana, Nevada, Utah	3	3	--	6	8.5	20.3	2,876	1,671	58.1	154 ⁸
California	--	9	--	9	40.4	26.0	13,667	6,612	48.4	717
Oregon and Washington	1	2	--	3	6.0	34.4	2,019	1,213	60.1	64
Total ¹¹	19	81	3	103	332.1	20.1 ⁸	114,000 ⁸	56,116	49.3	5,130 ⁸
Puerto Rico	--	2	--	2	5.3	42.5	1,731	802	46.3	75
Grand total ¹¹	19	83	3	105	337.4	20.4 ⁸	116,000 ⁸	56,918	49.3	5,210 ⁸

See footnotes at end of table.

TABLE 5—Continued
 CLINKER CAPACITY AND PRODUCTION IN THE UNITED STATES IN 2009, BY DISTRICT¹

-- Zero.

¹Even where presented unrounded, data are thought to be accurate to no more than three significant digits.

²Includes white cement plants. Includes all plants that produced clinker for at least one day during the year.

³Plants that can operate both wet and dry kilns, whether or not both types were active during the year.

⁴Includes kilns active for at least one day during the year. For kilns idle all year, excludes those that cannot be restarted, fully permitted, in less than 6 months.

⁵Sum of reported kiln capacities for each plant in a district.

⁶Total days of routine maintenance (summed for all kilns) divided by the number of kilns.

⁷Sum of apparent annual capacities for each kiln. For each kiln, the statistic is calculated as 366 days (leap year) minus days reported for routine maintenance and then multiplied by the unrounded daily capacity.

⁸Data contain estimates for nonrespondents and incompletely reporting facilities and have been rounded to no more than three significant digits.

⁹Includes one semiwet kiln.

¹⁰Includes as a dry operation one plant, formerly operating both wet and dry kilns, whose wet kilns were idle all year (2009) and which, in 2010, were declared permanently closed.

¹¹Data may not add to totals shown because of independent rounding.

TABLE 6
RAW MATERIALS USED TO PRODUCE CLINKER AND CEMENT IN THE UNITED STATES^{1,2}

(Thousand metric tons)

Materials	2008		2009	
	Clinker	Cement ³	Clinker	Cement ³
Calcareous:				
Limestone (aragonite, chalk, coral, marble)	101,000	1,920	73,600	1,510
Cement rock (includes marl)	10,900	50	6,560	--
Cement kiln dust (CKD) ⁴	425	304	288	156
Lime ⁴	248	15	17	5
Other	41	--	62	--
Aluminous:				
Clay	3,780	--	2,500	3
Shale and schist	3,290	20	2,540	--
Other ⁵	849	--	438	--
Ferrous:				
Iron ore	609	--	481	--
Mill scale	702	--	536	--
Other ⁶	65	--	40	--
Siliceous:				
Sand, calcium silicates	3,970	--	2,550	--
Sandstone, quartzite, soils, nonpozzolanic rocks	693	--	464	--
Fly ash	2,710 ^r	95 ^r	2,290	74
Other ash, including bottom ash	948	--	706	--
Granulated blast furnace slag ⁷	81	328	44	192
Other blast furnace slag	262	--	99	--
Steel slag	428	--	169	--
Other slag	67	30	38	--
Natural rock pozzolans ⁸	--	9	--	11
Other pozzolans ⁹	79	3	45	3
Other:				
Gypsum and anhydrite	--	4,620 ^r	--	3,367
Other ¹⁰	115	90	79	57
Total ¹¹	131,000	7,480 ^r	93,600	5,380
Clinker, imported, raw materials equivalent ¹²	--	1,810	--	1,250
Grand total ¹¹	131,000	9,290 ^r	93,600	6,630

^rRevised. -- Zero.

¹Excludes Puerto Rico.

²Data have been rounded to three significant digits to reflect inherent reporting accuracy and the incorporation of estimates for some facilities.

³Includes portland, blended, and masonry cements.

⁴Data are probably underreported.

⁵Includes alumina, aluminum dross, bauxite, spent catalysts, and other aluminous materials.

⁶Includes iron sludges, pyrite, and other ferrous materials.

⁷Includes both ground (GGBFS) and unground material.

⁸Includes pozzolana and burned clays or shales (except where directly reported as clay or shale).

⁹Includes diatomite, silica fume, other microcrystalline silica, and other pozzolans, even if not used as such.

¹⁰Includes fluorspar and all other materials not listed earlier.

¹¹Data may not add to totals shown because of independent rounding.

¹²Converted as the weight of foreign clinker consumed times 1.7.

TABLE 7
CLINKER PRODUCED AND FUEL CONSUMED BY THE U.S. CEMENT INDUSTRY, BY KILN PROCESS¹

Kiln process	Clinker production ²		Conventional fuels ³				Waste fuels ³			
	Number of plants	Quantity (thousand metric tons)	Percentage of total	Coal ⁴ (thousand metric tons)	Petcoke (thousand metric tons)	Oil ⁵ (thousand liters)	Natural gas ⁶ (thousand cubic meters)	Tires (thousand metric tons)	Solid (thousand metric tons)	Liquid (thousand liters)
2008:										
Wet	22	9,930	12.7	1,230	518	24,300	23,200	91	10	370,000
Dry	81	64,664	82.5	6,440	1,610	28,000	218,000	341	335	354,000
Both ⁷	3	3,788	4.8	561	--	--	38,900	6	9	67,200
Total ⁸	106	78,382	100.0	8,240	2,130	52,300	280,000	438	354	791,000
2009:										
Wet	19	4,866	8.7	569	157	7,310	96,200	50	16	256,000
Dry ⁹	81	50,112	89.3	4,690	1,300	26,500	247,000	263	307	493,000
Both ⁷	3	1,138	2.0	186	33	1,810	1,190	--	--	34,600
Total ⁸	103	56,116	100.0	5,450	1,490	35,600	344,000	313	324	784,000

-- Zero.

¹Excludes Puerto Rico.

²Clinker production data are all reported. Although unrounded, data are thought to be accurate to no more than three significant digits.

³All fuel data have been rounded to no more than three significant digits.

⁴Essentially all reported to be bituminous.

⁵Distillate and residual fuel oils. Excludes used oils that were reported under liquid wastes.

⁶Includes landfill gas and propane.

⁷Plants that can operate both wet and dry kilns, whether or not both types were active during the year. Includes plants that converted from wet to dry technology during the year. For 2009, excludes one plant as noted in footnote 9.

⁸Data may not add to totals shown because of independent rounding.

⁹Includes one plant that operated a dry kiln in 2009 that had wet kilns which, although technically idle all year, were deemed as closed.

TABLE 8
ELECTRICITY CONSUMED BY U.S. CEMENT PLANTS, BY KILN PROCESS¹

Plant process	Electricity consumed ²										Average consumption (kilowatthours per ton of cement produced)
	Generated			Purchased			Total ³			Cement produced ⁴ (thousand metric tons)	
	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Percentage of total		
2008:											
Integrated plants:											
Wet	--	--	22	1,530	22	1,530	12.4	10,598	145		
Dry	3	236	83 ⁵	9,960	83 ⁵	10,200	82.9	70,279	145		
Both ⁶	--	--	3	563	3	563	4.6	3,736	151		
Total or average ³	3	236	108 ⁵	12,100	108 ⁵	12,300	100.0	84,612	145		
Grinding plants ⁷	--	--	5	130	5	130	--	1,481	88		
Exclusions ⁸	--	--	3	XX	3	XX	--	216	XX		
2009:											
Integrated plants:											
Wet	--	--	19	815	19	815	8.8	5,804	140		
Dry ⁹	2	223	83 ⁵	8,000	83 ⁵	8,210	88.6	55,739	148		
Both ⁶	--	--	3	222	3	222	2.4	1,334	166		
Total or average ³	2	223	105 ⁵	9,030	105 ⁵	9,260	100.0	62,877	147		
Grinding plants ⁷	--	--	5	91	6	91	--	908	99		
Exclusions ⁸	--	--	3	XX	3	XX	--	143	XX		

XX Not applicable. -- Zero.

¹Excludes Puerto Rico.

²Electricity data are rounded to no more than three significant digits because they contain estimates.

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

⁴Portland and masonry cement. Data are all reported and are unrounded.

⁵Includes two grinding plants whose data were included with the integrated plants.

⁶Plants that can operate both wet and dry kilns, whether or not both types were active during the year. Includes plants that converted from wet to dry technology during the year. For 2009, excludes one plant as noted in footnote 9.

⁷Plants that did not produce clinker but ground clinker from outside sources. Excludes plants that only made masonry cement or just reground one type of portland cement into another, or which also reported a significant component of grinding of excess granulated blast furnace slag.

⁸Plants whose production of portland cement was by simply regrinding of one type into another, or which reported production only of masonry cement.

⁹Includes one plant that operated a dry kiln in 2009 that had wet kilns which, although technically idle all year, were deemed as closed.

TABLE 9
CEMENT SHIPMENTS TO FINAL CUSTOMER, BY DESTINATION AND ORIGIN^{1,2}

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	2008	2009	2008	2009
Destination:				
Alabama	1,559	1,140	122	85
Alaska ³	148	146	--	--
Arizona	2,778	1,727	44	26
Arkansas	902	732	49	40
California, northern	3,179	2,133	73	45
California, southern	6,189	4,395	238	170
Colorado	2,156	1,403	14	7
Connecticut ³	640	478	12	11
Delaware ³	217	159	7	5
District of Columbia ³	168	129	(4)	(4)
Florida	5,875	3,946	351	231
Georgia	3,112	1,887	235	131
Hawaii ³	397	306	4	2
Idaho	507	367	1	(4)
Illinois, excluding Chicago	1,656	1,397	13	10
Illinois, metropolitan Chicago ³	1,636	1,181	31	19
Indiana	1,719	1,454	56	39
Iowa	1,658	1,448	2	1
Kansas	1,430	1,133	10	7
Kentucky	1,085	870	68	49
Louisiana ³	2,477	2,135	62	49
Maine	239	185	3	2
Maryland	1,223	902	59	42
Massachusetts ³	919	702	15	11
Michigan	1,858	1,384	59	42
Minnesota ³	1,374	1,135	13	12
Mississippi	1,063	805	59	40
Missouri	2,079	1,728	26	19
Montana	349	256	1	1
Nebraska	1,134	1,018	3	2
Nevada	1,651	1,008	15	12
New Hampshire ³	269	198	4	7
New Jersey ³	1,594	1,152	59	43
New Mexico	709	534	9	7
New York, eastern	573	476	13	10
New York, western ³	748	652	23	16
New York, metropolitan ³	1,637	1,304	73	59
North Carolina ³	2,343	1,612	229	135
North Dakota ³	391	375	1	1
Ohio	2,817	2,232	99	78
Oklahoma	1,570	1,338	54	39
Oregon	923	663	1	(4)
Pennsylvania, eastern	1,722	1,270	48	37
Pennsylvania, western	1,082	913	42	33
Rhode Island ³	139	106	2	1
South Carolina	1,242	822	103	70
South Dakota	453	450	1	1
Tennessee	1,692	1,223	164	108
Texas, northern	6,580	4,255	123	79
Texas, southern	7,668	5,344	198	157
Utah	1,313	1,058	(4)	(4)

See footnotes at end of table.

TABLE 9—Continued
CEMENT SHIPMENTS TO FINAL CUSTOMER, BY DESTINATION AND ORIGIN^{1,2}

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	2008	2009	2008	2009
Destination—Continued:				
Vermont ³	116	95	3	2
Virginia	2,019	1,526	118	80
Washington	2,044	1,437	1	1
West Virginia	504	402	21	14
Wisconsin ³	1,729	1,410	13	10
Wyoming	497	348	(4)	(4)
Total ⁵	93,751	68,885	3,047	2,102
Foreign countries ⁶	564	502	(4)	(4)
Puerto Rico	1,397	979	--	(4)
Grand total ⁵	95,710	70,366	3,047	2,102
Origin:				
United States	83,178	63,486	2,995	2,070
Foreign countries ⁷	11,197	5,948	52	32
Puerto Rico	1,335	932	--	--
Total shipments ⁵	95,710	70,366	3,047	2,102

-- Zero.

¹Includes cement produced from imported clinker and imported cement shipped by domestic producers and importers.

²Data are developed from consolidated monthly surveys of shipments by companies and may differ from data in tables 1, 10–12, and 14–15, which are from annual surveys of individual plants and importers. Although presented unrounded, data are thought to be accurate to no more than three significant digits.

³Has no cement plants.

⁴Less than ½ unit.

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

⁶Includes shipments to U.S. possessions and territories.

⁷Imported cement sold to final customers in the United States as reported by domestic producers and other importers. Data do not match the imports in tables 17–20.

TABLE 10
SHIPMENTS OF PORTLAND CEMENT IN THE UNITED STATES, BY TYPE OF CARRIER^{1,2}

(Thousand metric tons)

	Plant to terminal		Plant to customer		Terminal to customer		Total to customers ⁴
	In bulk	In bags ³	In bulk	In bags ³	In bulk	In bags ³	
2008:							
Railroad	10,700	108	1,870	3	438	2	2,310
Truck	5,350	308	49,000	1,310	39,900	644	90,900
Barge and boat	7,230	3	323	43	37	--	403
Total ⁴	23,300	419	51,200	1,360	40,400	647	93,600 ⁵
2009:							
Railroad	9,580	8	1,460	2	528	4	2,000
Truck	4,000	116	36,000	1,040	29,400	400	66,900
Barge and boat	7,120	--	55	--	--	--	55
Total ⁴	20,700	125	37,500	1,040	30,000	404	69,000 ⁵

-- Zero.

¹Includes imported cement and cement made from imported clinker. Excludes Puerto Rico.

²Data are rounded to no more than three significant digits because they contain estimates.

³Includes packages, bags, and supersacks.

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

⁵Shipments are based on an annual survey of plants and importers; may differ from totals in table 9, which are based on consolidated monthly data.

TABLE 11
PORTLAND CEMENT SHIPPED IN THE UNITED STATES, BY DISTRICT¹

District ⁴	2008			2009		
	Quantity ³ (thousand metric tons)	Value ²		Quantity ³ (thousand metric tons)	Value ²	
		Total (thousands)	Average (per metric ton)		Total (thousands)	Average (per metric ton)
Maine and New York	3,820 ⁵	\$403,000 ⁵	\$105.50 ⁵	2,580 ⁵	\$250,000 ⁵	\$97.00 ⁵
Pennsylvania, eastern	3,838	382,000 ⁵	99.50 ⁵	2,995	285,000 ⁵	95.00 ⁵
Pennsylvania, western	1,248	121,000 ⁵	97.00 ⁵	949	90,800 ⁵	95.50 ⁵
Illinois	2,810	279,000 ⁵	99.00 ⁵	2,014	191,586	95.11
Indiana	2,346	205,153	87.46	1,951	169,069	86.66
Michigan	4,986	508,000 ⁵	102.00 ⁵	4,114	406,143	98.72
Ohio	733	71,200	97.20	582	55,691	95.69
Iowa, Nebraska, South Dakota	4,366	453,124	103.79	3,382	365,298	108.01
Kansas	2,115	217,519	102.85	1,627	166,000 ⁵	102.00 ⁵
Missouri	5,058	490,008	96.89	4,219	414,000 ⁵	98.00 ⁵
Florida	5,763	599,000 ⁵	104.00 ⁵	3,790 ⁵	371,000 ⁵	98.00 ⁵
Georgia, Virginia, West Virginia	2,299	243,026	105.71	4,141 ⁶	367,335 ⁶	88.70 ⁶
Maryland	2,957	240,275	81.25	W ⁶	W ⁶	W ⁶
South Carolina	2,756	267,411	97.02	1,826	165,160	90.46
Alabama	4,444	432,000 ⁵	97.00 ⁵	3,515	315,408	89.72
Kentucky, Mississippi, Tennessee	2,673	268,412	100.43	1,885	187,660	99.53
Arkansas and Oklahoma	2,643	262,806	99.44	2,300	231,363	100.60
Texas, northern	7,316	733,000 ⁵	100.00 ⁵	4,557	453,000 ⁵	99.50 ⁵
Texas, southern	6,417	645,641	100.61	4,730	452,380	95.65
Arizona and New Mexico	3,106	391,316	125.97	2,173	255,708	117.68
Colorado and Wyoming	2,554	273,303	107.02	1,932	190,508	98.63
Idaho, Montana, Nevada, Utah	2,589	260,250	100.53	2,063	199,834	96.87
Alaska and Hawaii	497	86,882	174.79	406	66,690	164.27
California, northern	2,481	256,000 ⁵	103.00 ⁵	W ⁷	W ⁷	W ⁷
California, southern	7,540	784,938	104.10	6,835 ⁷	618,000 ^{5,7}	90.50 ^{5,7}
Oregon and Washington	2,196	212,013	96.53	1,651	150,011	90.85
Importers ⁸	4,060 ⁵	478,000 ⁵	117.50 ⁵	2,747	315,000 ⁵	115.00 ⁵
Total or average ⁹	93,600 ^{5,10}	9,560,000 ⁵	102.00 ⁵	69,000 ^{5,10}	6,730,000 ⁵	97.50 ⁵
Puerto Rico	1,381	W	W	978 ⁵	W	W
Grand total ⁹	95,000 ^{5,10}	W	W	69,900 ^{5,10}	W	W

W Withheld to avoid disclosing company proprietary data.

¹Includes gray and white portland cement. Includes cement made from imported clinker. Even where presented unrounded, data are thought to be accurate to no more than three significant digits.

²Values are mill net or ex-plant (free on board) valuations of total sales to final customers, including sales from plants' external distribution terminals. The data are ex-terminal for independently reporting terminals. Data include all varieties of portland cement and both bulk and bag shipments. Unless otherwise specified, data are presented unrounded. Unrounded or not, unit value data should be viewed as value indicators, good to no better than the nearest \$0.50 or \$1.00 per metric ton.

³Tonnages are those by reporting entities in the district but may include shipments into other districts. They differ from the data in table 9, which are the actual reported sales into the specific States.

⁴District is the location of the reporting entities, not necessarily the location of sales (see table 9 for sales data, by State). Specific districts include shipments by importers where district assignments were possible.

⁵Data are rounded (unit values to the nearest \$0.50) because they include estimates.

⁶For 2009, data for Maryland are included with Georgia, Virginia, West Virginia district.

⁷For 2009, data for Northern California are included with those for Southern California.

⁸Importers for which district assignments were not possible.

⁹Data may not add to totals shown because of independent rounding.

¹⁰Shipments are based on an annual survey of plants and importers; may differ from totals in table 9, which are based on consolidated monthly data.

TABLE 12
MASONRY CEMENT SHIPPED IN THE UNITED STATES, BY DISTRICT^{1,2}

District ⁵	2008			2009		
	Quantity ⁴ (thousand metric tons)	Value ³		Quantity ⁴ (thousand metric tons)	Value ³	
		Total (thousands)	Average (per metric ton)		Total (thousands)	Average (per metric ton)
Maine and New York	82	\$10,100 ⁶	\$124.50 ⁶	56	\$6,265	\$112.54
Pennsylvania	241	32,300 ⁶	134.00 ⁶	187	25,300 ⁶	135.00 ⁶
Illinois, Indiana, Ohio	335	47,725	142.55	230	33,900 ⁶	147.50 ⁶
Michigan	136	16,400 ⁶	121.00 ⁶	95	11,538	121.87
Iowa, Nebraska, South Dakota	19	2,161	114.53	15	1,921	128.09
Kansas and Missouri	84	13,427	159.64	51	6,353	124.50
Florida	282	42,800 ⁶	151.50 ⁶	192 ⁶	29,100 ⁶	151.50 ⁶
Georgia, Maryland, Virginia, West Virginia	320	57,900 ⁶	180.50 ⁶	214	36,547	170.78
South Carolina	305	39,409	129.07	169	21,376	126.43
Alabama	353	44,247	125.38	242	29,735	122.90
Kentucky, Mississippi, Tennessee	80	11,784	146.57	57	8,360	146.39
Arkansas and Oklahoma	125	15,070	120.65	93	11,100 ⁶	119.00 ⁶
Texas, northern	155	26,100 ⁶	168.00 ⁶	W ⁷	W ⁷	W ⁷
Texas, southern	146	18,300 ⁶	125.50 ⁶	221 ⁷	31,000 ⁷	140.40 ⁷
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	67	9,259	137.47	42	5,387	129.76
Alaska and Hawaii	3	946	279.55	2	620	289.54
California, northern; Oregon; Washington	51	6,511	128.31	W ⁸	W ⁸	W ⁸
California, southern	279	36,213	129.87	232 ^{6,8}	27,700 ^{6,8}	119.50 ^{6,8}
Importers ⁹	10 ⁶	1,950 ⁶	196.00 ⁶	6 ⁶	1,220 ⁶	191.50 ⁶
Total or average ¹⁰	3,070 ^{6,11}	433,000 ⁶	140.50 ⁶	2,100 ^{6,11}	287,000 ⁶	136.50 ⁶

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

¹Shipments are those by cement companies to final customers and include imported cement and cement made from imported clinker.

Sales are those by cement plants and exclude masonry cement made by portland cement customers from purchased portland cement and which was then resold and (or) consumed. Data exclude Puerto Rico, which did not record any masonry cement sales. Even where presented unrounded, data are thought to be accurate to no more than three significant digits.

²Data include true masonry, plastic, portland-lime, and stucco cements.

³Values are mill net or ex-plant (free on board) valuations of total sales to final customers, including sales from plants external distribution terminals.

The data are ex-terminal for independently reporting terminals. Data include both bulk and bag shipments. Unless otherwise specified, data are presented unrounded. Unrounded or not, unit value data should be viewed as value indicators, good to no better than the nearest \$0.50 or even \$1.00 per metric ton.

⁴Tonnages are those by reporting entities in the district but may include shipments into other districts. They differ from the data in table 9, which are the actual reported sales into the specific States.

⁵District is the location of the reporting entities, not necessarily the location of sales (see table 9 for sales data, by State). Specific districts include importers for which district assignments were possible.

⁶Data are rounded (unit values to the nearest \$0.50) because they include estimates.

⁷For 2009, data for Northern Texas are included with those for Southern Texas.

⁸For 2009, data for Northern California, Oregon, and Washington are included with those for Southern California.

⁹Importers for which district assignments were not possible.

¹⁰Data may not add to totals shown because of independent rounding.

¹¹Shipments are based on an annual survey of plants and importers; may differ from totals in table 9, which are based on consolidated monthly data.

TABLE 13
AVERAGE MILL NET VALUE OF CEMENT SOLD IN THE UNITED STATES^{1,2}

(Dollars per metric ton)

Year	Portland cement			Masonry cement	All cement
	Gray	White ³	Total		
2008	101.00	221.50	102.00	141.00	103.50
2009	96.50	211.00	97.50	136.50	99.00

¹Values are average of sales to final customers, free on board the plant or independently reporting terminal. Values include any bagging charges, but exclude delivery charges to customers or to external terminals. Data exclude Puerto Rico.

²Data are rounded to the nearest \$0.50 per metric ton because they contain estimates.

³Data for white cement include a component of resales showing significant price markups.

TABLE 14
PORTLAND CEMENT SHIPMENTS IN 2009, BY DISTRICT AND TYPE OF CUSTOMER¹

(Thousand metric tons)

District ²	Ready- mixed concrete	Concrete product manufacturers	Contractors	Building material dealers	Oil well, mining, waste stabilization	Government and other ³	Total ^{4,5}
Maine and New York	1,930	288	77	220	--	60	2,580
Pennsylvania, eastern	1,750	739	182	206	--	115	2,995
Pennsylvania, western	625	159	113	12	7	32	949
Illinois	1,390	182	164	25	164	91	2,014
Indiana	1,480	254	157	42	6	11	1,951
Michigan	3,300	387	309	80	14	29	4,114
Ohio	442	71	58	10	1	--	582
Iowa, Nebraska, South Dakota	2,520	301	418	32	51	62	3,382
Kansas	1,250	173	96	49	38	19	1,627
Missouri	3,080	390	579	56	64	47	4,219
Florida	2,640	783	261	98	--	6	3,790
Georgia, Maryland, Virginia, West Virginia	2,970	702	231	124	5	106	4,141
South Carolina	1,250	297	116	37	3	123	1,826
Alabama	2,460	458	370	111	15	99	3,515
Kentucky, Mississippi, Tennessee	1,480	220	90	61	23	14	1,885
Arkansas and Oklahoma	1,490	90	530	103	75	16	2,300
Texas, northern	2,870	367	662	114	456	84	4,557
Texas, southern	3,150	441	598	220	315	6	4,730
Arizona and New Mexico	1,680	310	125	38	18	2	2,173
Colorado and Wyoming	1,410	132	170	52	142	28	1,932
Idaho, Montana, Nevada, Utah	1,440	157	137	70	217	43	2,063
Alaska and Hawaii	317	61	9	18	--	--	406
California	4,930	1,150	346	306	89	20	6,835
Oregon and Washington	1,280	186	83	73	24	4	1,651
Importers ⁶	2,020	272	258	54	49	99	2,747
Total ⁵	49,100	8,570	6,140	2,210	1,780	1,120	69,000
Puerto Rico	504	91	5	377	--	--	978
Grand total ⁵	49,700	8,660 ⁷	6,150 ⁸	2,590	1,780 ⁹	1,120	69,900

-- Zero.

¹Includes imported cement and cement made from imported clinker. Except for district totals, data have been rounded to three significant digits, but are likely accurate to only two significant digits. District totals are likely accurate to no more than three significant digits.

²District is the location of the reporting entity, not the location of sales (see table 9 for sales data, by State). Specific districts include shipments by importers for which district assignments were possible.

³Includes shipments to miscellaneous customer types and for which customer types were not specified.

⁴District totals are unrounded except in accord with table 11.

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

⁶Shipments by importers for which district assignments were not possible.

⁷Grand total shipments to concrete product manufacturers include brick and block—3,090; precast and prestressed—2,330; pipe—929; and other or unspecified—2,300.

⁸Grand total shipments to contractors include airport—156; road paving—2,910; soil cement—1,575; and other or unspecified—1,500.

⁹Grand total shipments include oil well drilling—1,380; mining—228; and waste stabilization—173.

TABLE 15
 PORTLAND CEMENT SHIPMENTS IN THE UNITED STATES,
 BY TYPE OF CEMENT^{1, 2, 3}

(Thousand metric tons)

Type ⁴	2008	2009
General use and moderate heat (Types I and II) ^{5, 6}	73,600	55,000
High early strength (Type III)	3,450	2,460
Sulfate resisting (Type V) ⁵	11,800	8,610
Block	509	167
Oil well	1,470	846
White ⁷	823	577
Blended: ⁸		
Portland, natural pozzolans	38	34
Portland, ground granulated blast furnace slag	981	580
Portland, fly ash	381	357
Portland, other pozzolans ⁹	563	325
Total blended ¹⁰	1,960	1,300
Expansive and regulated fast setting	36	13
Miscellaneous ¹¹	(12)	27
Grand total ¹⁰	93,600	69,000

¹Includes sales of imported cement. Excludes Puerto Rico.

²Data are rounded to no more than three significant digits.

³Gray portland-type cements unless otherwise specified.

⁴Sold mostly under specifications ASTM C-150, ASTM C-595, and ASTM C-1157.

⁵Type II/V and similar sulfate-resisting cement hybrids are included within Type V.

⁶Includes ASTM C-1157 general use cements that contain no pozzolans.

⁷White or colored portland-type cements. Most are Types I or II but may include Types III and V and block cements.

⁸Cements sold under ASTM C-590 and those under ASTM C-1157 that contain pozzolans.

⁹Includes blends with cement kiln dust, silica fume, or other pozzolans, and blends containing multiple pozzolans.

¹⁰Data may not add to totals shown because of independent rounding.

¹¹Includes low heat (Type IV), waterproof, and other portland-type cements.

¹²Less than ½ unit.

TABLE 16
U.S. EXPORTS OF HYDRAULIC CEMENT AND CLINKER, BY COUNTRY¹

(Thousand metric tons and thousand dollars)

Country	2008		2009	
	Quantity	Value ²	Quantity	Value ²
United States:				
Angola	1	183	2	323
Anguilla	1	42	4	255
Aruba	1	352	2	336
Bahamas	28	3,853	48	5,628
Barbados	1	153	(3)	61
Belize	1	224	36	1,513
Bermuda	16	1,430	(3)	224
Brazil	1	136	(3)	39
Canada	711	82,814	674	79,836
Cayman Islands	3	293	(3)	95
China	1	354	(3)	133
Colombia	1	675	1	680
Costa Rica	1	89	(3)	19
Dominica	--	--	1	12
Dominican Republic	3	322	2	219
Greece	7	352	15	729
Haiti	10	726	1	62
Hong Kong	(3)	98	1	326
Ireland	(3)	101	4	225
Jamaica	(3)	25	26	2,737
Japan	(3)	26	1	225
Mexico	23	4,540	23	5,915
Netherlands Antilles	1	187	1	196
Nicaragua	1	414	(3)	3
Niger	2	114	--	--
Pakistan	(3)	3	1	43
Panama	3	413	28	3,794
Peru	1	255	1	198
Russia	(3)	8	1	47
Saudi Arabia	1	259	1	844
St. Christopher and Nevis	(3)	133	2	102
Sweden	1	90	1	77
Taiwan	1	366	(3)	149
Turks and Caicos Islands	1	267	(3)	55
Other	5 ^r	3,169 ^r	5	2,230
Total ⁴	823	102,466	884	107,330
Puerto Rico:				
Anguilla	12	846	--	--
British Virgin Islands	13	1,778	15	1,807
Netherlands Antilles	1	332	(3)	5
Turks and Caicos Islands	8	545	1	152
Other	1 ^r	131 ^r	(3)	30
Total ⁴	34	3,631	16	1,994
Grand total ⁴	858	106,097	900	109,323

^rRevised. -- Zero.

¹Includes portland and masonry cements.

²Free alongside ship value. The value of exports at the U.S. seaport or border point of export is based on the transaction price, including inland freight, insurance, and other charges incurred in placing the merchandise alongside the carrier. The value excludes the cost of loading.

³Less than ½ unit.

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

Source: U.S. Census Bureau.

TABLE 17
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER,
BY COUNTRY¹

(Thousand metric tons and thousand dollars)

Country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States:						
Algeria	4	316	520	14	1,576	2,123
Brazil	36	2,780	3,225	--	--	--
Canada	4,104	338,225	356,325	3,426	272,829	291,298
China	2,020	103,055	164,401	608	35,251	50,161
Colombia	964	67,117	90,608	654	39,799	56,216
Croatia	34	10,048	13,061	15	5,687	6,890
Denmark	99	9,768	14,898	69	9,924	12,302
Dominican Republic	11	786	1,082	4	307	381
Egypt	57	4,873	7,331	55	6,345	7,965
France	108	22,266	24,999	65	20,373	21,607
Germany	1	464	564	(4)	265	340
Greece	213	11,717	18,514	186	10,705	12,429
India	1	98	153	1	151	209
Japan	6	773	1,038	1	523	654
Korea, Republic of	1,229	50,550	85,899	855	34,694	56,700
Mexico	1,071	84,714	99,673	366	35,342	39,132
Netherlands	4	3,894	4,800	2	1,925	2,539
Norway	20	897	897	--	--	--
Peru	92	4,727	7,509	--	--	--
Sweden	261	13,192	24,583	74	3,821	7,074
Taiwan	855	36,424	55,867	254	11,332	16,677
Thailand	77	5,165	7,909	21	2,594	3,801
Turkey	96	5,257	12,201	95	7,858	12,220
United Kingdom	4	1,712	2,076	1	153	281
Other	(4) ^r	69 ^r	74 ^r	(4)	138	148
Total⁵	11,365	778,888	998,208	6,767	501,592	601,148
Puerto Rico:						
China	78	3,270	5,701	(4)	5	7
Colombia	4	529	665	5	674	862
Korea, Republic of	54	3,861	5,812	27	1,350	2,322
Mexico	17	1,981	2,808	14	1,641	2,216
Spain	(4)	25	33	81	5,694	7,064
Other	(4)	14 ^r	18 ^r	(4)	169	174
Total⁵	153	9,681	15,037	127	9,532	12,645
Grand total⁵	11,519	788,569	1,013,244	6,894	511,125	613,793

^rRevised. -- Zero.

¹Includes portland, masonry, and other hydraulic cements.

²Customs value. The 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.

³Cost, insurance, and freight. The import value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry.

⁴Less than ½ unit.

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

Source: U.S. Census Bureau.

TABLE 18
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY¹

(Thousand metric tons and thousand dollars)

Customs district and country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States:						
Anchorage, AK:						
Canada	7	419	1,479	9	745	2,267
China	1	98	106	15	1,036	1,561
Japan	5	187	282	--	--	--
Korea, Republic of	102	4,471	8,689	72	3,165	5,658
Taiwan	--	--	--	16	1,047	1,066
Total⁴	114	5,175	10,556	112	5,994	10,552
Baltimore, MD:						
Germany	(5)	13	15	--	--	--
Netherlands	(5)	229	259	(5)	42	48
United Kingdom	--	--	--	(5)	20	21
Total⁴	(5)	242	274	(5)	62	70
Boston, MA, Canada	45	2,537	4,584	77	4,196	6,824
Buffalo, NY:						
Canada	707	57,564	60,681	574	48,103	52,028
France	(5)	60	61	--	--	--
Germany	(5)	3	3	--	--	--
Japan	--	--	--	(5)	13	13
Total⁴	708	57,627	60,744	574	48,116	52,041
Charleston, SC:						
China	--	--	--	(5)	5	9
Germany	--	--	--	(5)	12	13
Netherlands	--	--	--	(5)	41	47
Total⁴	--	--	--	(5)	59	70
Chicago, IL:						
Croatia	(5)	38	53	--	--	--
Denmark	(5)	15	16	--	--	--
France	(5)	3	25	--	--	--
Germany	(5)	2	3	--	--	--
Japan	(5)	220	259	(5)	107	117
Netherlands	(5)	231	296	(5)	92	141
Poland	(5)	41	44	(5)	19	22
Total⁴	1	551	696	(5)	218	280
Cleveland, OH:						
Canada	485	40,608	41,506	493	34,399	36,894
China	(5)	13	17	--	--	--
Croatia	1	261	354	--	--	--
Netherlands	(5)	37	57	(5)	137	158
Poland	--	--	--	(5)	21	24
Total⁴	485	40,919	41,935	494	34,558	37,077
Columbia-Snake, OR-WA						
Canada	135	8,012	8,756	55	4,256	4,503
China	653	26,857	44,713	237	13,016	19,757
Thailand	(5)	2	4	--	--	--
Total⁴	788	34,872	53,473	292	17,272	24,259

See footnotes at end of table.

TABLE 18—Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY¹

(Thousand metric tons and thousand dollars)

Customs district and country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States—Continued:						
Dallas, Fort Worth, TX:						
Italy	(5)	3	4	--	--	--
Netherlands	--	--	--	(5)	34	95
Total⁴	(5)	3	4	(5)	34	95
Detroit, MI:						
Canada	837	76,193	77,285	841	66,897	68,458
China	--	--	--	(5)	41	42
Germany	(5)	5	5	--	--	--
Netherlands	(5)	260	356	(5)	60	100
Total⁴	838	76,457	77,645	841	66,998	68,600
El Paso, TX, Mexico	384	31,680	35,277	275	23,449	25,875
Great Falls, MT:						
Canada	9	468 ^r	503	(5)	20	21
China	(5)	24 ^r	32	(5)	143	171
Germany	(5)	13	21	--	--	--
Japan	--	--	--	(5)	2	2
United Kingdom	--	--	--	(5)	23	33
Total⁴	9	505^r	556	(5)	189	227
Honolulu, HI:						
China	10	705	1,597	(5)	14	47
Korea, Republic of	--	--	--	84	3,569	7,329
Taiwan	373	16,848	25,388	188	8,281	12,233
Thailand	(5)	3	6	3	188	552
Total⁴	383	17,556	26,991	276	12,052	20,160
Houston-Galveston, TX:						
Algeria	1	94	122	6	728	1,022
China	93	4,219	6,940	2	186	274
Colombia	403	30,692	39,484	235	14,822	20,624
Croatia	(5)	11	12	--	--	--
Denmark	--	--	--	(5)	3	3
Egypt	22	1,892	2,774	28	3,230	3,988
France	(5)	69	79	(5)	44	50
Germany	(5)	109	133	(5)	78	93
Korea, Republic of	799	31,413	51,352	472	19,219	30,821
Sweden	108	6,076	8,957	--	--	--
Taiwan	449	16,972	27,229	49	1,968	3,198
Turkey	1	58	89	--	--	--
Total⁴	1,876	91,605	137,171	793	40,278	60,074
Laredo, TX, Mexico	133	15,994	16,939	85	11,467	12,646
Los Angeles, CA:						
Algeria	2	179	328	--	--	--
China	505	23,241	42,027	21	2,408	2,876
Colombia	(5)	28	43	--	--	--

See footnotes at end of table.

TABLE 18—Continued
 U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
 AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY¹

(Thousand metric tons and thousand dollars)

Customs district and country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States—Continued:						
Los Angeles, CA—Continued:						
Croatia	(5)	109	180	(5)	220	273
Egypt	11	964	1,667	1	68	72
Germany	(5)	188	206	(5)	53	72
India	--	--	--	(5)	24	25
Japan	(5)	36	51	--	--	--
Lithuania	(5)	13	13	(5)	26	28
Thailand	19	2,285	3,521	12	1,629	2,202
United Kingdom	(5)	12	12	(5)	80	194
Total ⁴	538	27,055	48,048	35	4,508	5,741
Miami, FL:						
Algeria	1	43	70	7	848	1,101
China	(5)	23	36	(5)	41	73
Colombia	11	1,464	1,837	6	790	997
Denmark	3	414	529	--	--	--
Egypt	23	1,971	2,811	19	2,197	2,807
Italy	(5)	2	2	--	--	--
Mexico	98	9,869	12,580	5	410	590
Sweden	239	10,596	20,770	73	3,270	6,455
Turkey	--	--	--	74	6,618	9,585
Total ⁴	375	24,382	38,636	185	14,174	21,609
Minneapolis, MN:						
Canada	154	17,524	17,541	113	12,105	12,117
China	--	--	--	(5)	15	15
Denmark	(5)	6	6	--	--	--
United Kingdom	(5)	11	11	(5)	15	15
Total ⁴	154	17,541	17,558	113	12,136	12,148
Mobile, AL, Mexico	--	--	--	(5)	7	12
New Orleans, LA:						
China	26	5,076	6,461	5	1,062	1,269
Croatia	27	7,929	9,887	15	5,410	6,542
Korea, Republic of	45	1,506	2,412	34	1,273	1,961
Peru	62	3,205	4,652	--	--	--
Taiwan	--	--	--	1	36	180
Turkey	95	5,199	12,112	21	1,240	2,634
Total ⁴	256	22,915	35,525	75	9,021	12,586
New York, NY:						
Colombia	16	777	1,650	(5)	68	116
Croatia	(5)	9	11	(5)	57	75
Denmark	38	4,440	6,564	24	2,804	3,655
France	--	--	--	3	107	110
Germany	(5)	14	19	(5)	22	23

See footnotes at end of table.

TABLE 18—Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY¹

(Thousand metric tons and thousand dollars)

Customs district and country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States—Continued:						
New York, NY—Continued:						
Greece	213	11,717	18,514	186	10,705	12,429
Netherlands	(5)	336	398	(5)	79	105
Norway	20	897	897	--	--	--
Portugal	--	--	--	(5)	34	35
Sweden	3	1,670	1,856	--	--	--
United Kingdom	(5)	41	72	--	--	--
Total ⁴	291	19,902	29,982	214	13,876	16,550
Nogales, AZ, Mexico	348	21,095	25,919	(5)	9	10
Norfolk, VA:						
Canada	113	8,044	8,940	53	5,003	5,373
China	(5)	9	11	--	--	--
Egypt	--	--	--	3	389	482
France	108	22,121	24,818	63	20,222	21,447
Germany	(5)	14	17	--	--	--
Netherlands	(5)	353	464	(5)	34	39
Sweden	(5)	79	89	1	551	619
United Kingdom	4	1,647	1,980	--	--	--
Total ⁴	225	32,267	36,319	120	26,198	27,961
Ogdensburg, NY:						
Canada	399	41,749	42,237	248	23,489	23,989
Germany	--	--	--	(5)	3	3
South Africa	--	--	--	(5)	2	2
Total ⁴	399	41,749	42,237	248	23,494	23,994
Pembina, ND						
Canada	173	10,174	10,293	162	12,370	12,455
France	(5)	5	5	--	--	--
Total ⁴	173	10,179	10,298	162	12,370	12,455
Philadelphia, PA:						
Belgium	(5)	6	7	(5)	5	5
China	(5)	33	33	--	--	--
Germany	(5)	104	143	(5)	92	131
Korea, Republic of	137	5,032	11,590	139	4,988	7,063
Netherlands	1	1,275	1,463	1	814	937
Thailand	48	1,629	2,379	--	--	--
United Kingdom	--	--	--	(5)	14	17
Total ⁴	187	8,079	15,616	140	5,913	8,153
Portland, ME, Canada	75	9,765	10,410	37	4,469	4,954
Providence, RI:						
Canada	80	4,572	8,488	62	4,069	6,273

See footnotes at end of table.

TABLE 18—Continued
 U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
 AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY¹

(Thousand metric tons and thousand dollars)

Customs district and country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States—Continued:						
Providence, RI—Continued:						
Colombia	48	2,502	3,909	--	--	--
Peru	29	1,522	2,857	--	--	--
Total ⁴	158	8,596	15,253	62	4,069	6,273
San Diego, CA, Taiwan	13	515	517	--	--	--
San Francisco, CA:						
China	370	16,786	27,248	211	10,114	13,216
Egypt	1	46	79	1	108	173
France	(5)	9	12	--	--	--
India	1	98	153	1	127	184
Netherlands	(5)	18	37	--	--	--
Taiwan	20	1,036	1,679	--	--	--
Thailand	9	1,150	1,806	6	777	1,047
Total ⁴	400	19,143	31,013	219	11,126	14,620
Savannah, GA:						
China	(5)	10	12	--	--	--
Colombia	258	17,005	23,652	221	12,861	18,609
Egypt	--	--	--	3	354	443
Japan	--	--	--	(5)	2	2
Netherlands	1	537	713	(5)	223	364
Portugal	--	--	--	(5)	31	31
Thailand	1	96	194	--	--	--
Total ⁴	259	17,649	24,570	224	13,471	19,450
Seattle, WA:						
Canada	757	45,848	48,079	611	42,802	44,572
China	362	25,961	35,167	117	7,158	10,833
Japan	1	331	447	1	398	519
Korea, Republic of	123	6,170	9,308	54	2,480	3,869
Netherlands	(5)	188	257	(5)	40	61
Taiwan	(5)	1,053	1,055	--	--	--
Total ⁴	1,243	79,551	94,312	783	52,879	59,853
St. Albans, VT:						
Canada	126	14,748	15,543	89	9,904	10,571
Germany	--	--	--	(5)	4	4
Total ⁴	126	14,748	15,543	89	9,907	10,575
St. Louis, MO:						
China	--	--	--	(5)	11	18
Croatia	6	1,690	2,564	--	--	--
Netherlands	(5)	430	500	(5)	329	442
Total ⁴	6	2,120	3,064	(5)	340	459

See footnotes at end of table.

TABLE 18—Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY¹

(Thousand metric tons and thousand dollars)

Customs district and country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States—Continued:						
Tampa, FL:						
Brazil	36	2,780	3,225	--	--	--
Colombia	39	2,103	2,865	58	3,225	4,557
Denmark	58	4,893	7,782	45	7,117	8,644
Korea, Republic of	24	1,958	2,548	--	--	--
Spain	(5)	4	4	--	--	--
Sweden	19	847	1,868	--	--	--
Total ⁴	175	12,584	18,292	103	10,342	13,201
U.S. Virgin Islands:						
Colombia	2	213	219	--	--	--
Dominican Republic	11	786	1,082	4	307	381
Total ⁴	13	998	1,300	4	307	381
Wilmington, NC, Colombia	186	12,333	16,952	134	8,033	11,313
U.S. total ⁴	11,365	778,888	998,208	6,767	501,592	601,148
Puerto Rico (San Juan):						
China	78	3,270	5,701	(5)	5	7
Colombia	4	529	665	5	674	862
Dominican Republic	--	--	--	(5)	169	174
Korea, Republic of	54	3,861	5,812	27	1,350	2,322
Mexico	17	1,981	2,808	14	1,641	2,216
Peru	(5)	14	18	--	--	--
Spain	(5)	25	33	81	5,694	7,064
Total ⁴	153	9,681	15,037	127	9,532	12,645
Grand total ⁴	11,519	788,569	1,013,244	6,894	511,125	613,793

¹Revised. -- Zero.

¹Includes all varieties of hydraulic cement and clinker.

²Customs value. The 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.

³Cost, insurance, and freight. The import value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry.

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

⁵Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 19
U.S. IMPORTS FOR CONSUMPTION OF GRAY PORTLAND CEMENT, BY COUNTRY

(Thousand metric tons and thousand dollars)

Country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ¹	C.i.f. ²		Customs ¹	C.i.f. ²
United States:						
Brazil	36	2,780	3,225	--	--	--
Canada	3,294	259,073	275,818	2,642	205,197	222,340
China	1,906	81,907	137,987	573	30,463	44,369
Colombia	891	60,180	81,614	636	37,333	52,800
Dominican	11	786	1,082	4	307	381
France	(3)	27	34	3	107	110
Greece	213	11,717	18,514	186	10,705	12,429
Japan	5	187	282	(3)	5	5
Korea, Republic of	1,227	50,410	85,539	854	34,641	56,563
Mexico	744	45,002	55,076	185	11,770	13,305
Norway	20	897	897	--	--	--
Peru	92	4,727	7,509	--	--	--
Sweden	257	11,443	22,638	73	3,270	6,455
Taiwan	855	35,371	54,813	254	11,332	16,677
Thailand	48	1,629	2,379	3	188	552
United Kingdom	1	65	96	(3)	46	50
Other	(3) ^r	106 ^r	126 ^r	(3)	164	269
Total ^{4,5}	9,599	566,307	747,629	5,414	345,529	426,307
Puerto Rico:						
China	78	3,270	5,701	--	--	--
Korea, Republic of	54	3,861	5,812	27	1,350	2,322
Spain	(3)	6	8	81	5,694	7,064
Total ^{4,5}	132	7,137	11,521	108	7,044	9,386
Grand total ^{4,5}	9,731	573,443	759,150	5,521	352,572	435,693

^rRevised. -- Zero.

¹The 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.

²Cost, insurance, and freight. The import value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry.

³Less than ½ unit.

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

⁵Total imports do not include gray portland cement that was misregistered by importers under the white cement tariff code and which has been included in table 20.

Source: U.S. Census Bureau.

TABLE 20
U.S. IMPORTS FOR CONSUMPTION OF WHITE CEMENT, BY COUNTRY

(Thousand metric tons and thousand dollars)

Country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ¹	C.i.f. ^{2,3}		Customs ¹	C.i.f. ^{2,3}
United States:						
Algeria	4	316	520	14	1,576	2,123
Canada	296	40,213	41,086	251	33,932	34,681
China	88	15,869	19,697	29	3,396	4,125
Colombia	58	6,491	8,276	18	2,466	3,415
Denmark	99	9,747	14,875	69	9,921	12,300
Egypt	55	4,724	7,087	53	6,028	7,628
India	1	98	153	1	130	178
Korea, Republic of	2	140	360	2	53	137
Mexico	237	29,222	32,871	113	15,822	17,357
Thailand	29	3,536	5,530	18	2,406	3,249
Turkey	96	5,257	12,201	95	7,858	12,220
United Kingdom	--	--	--	1	99	219
Other	(4) ^r	1,056 ^r	1,058 ^r	(4)	7	7
Total⁵	964⁶	116,669	143,715	664⁶	83,693	97,638
Puerto Rico:						
Colombia	4	529	665	5	674	862
Mexico	17	1,981	2,808	14	1,641	2,216
Other	(4) ^r	14 ^r	18 ^r	--	--	--
Total⁵	21	2,525	3,491	19	2,315	3,078
Grand total⁵	985⁶	119,194	147,206	683⁶	86,008	100,715

^rRevised. -- Zero.

¹Customs value. The 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.

²Cost, insurance, and freight. The import value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry.

³Values of less than \$90.00 (c.i.f.) per metric ton likely indicate the mistaken total or partial inclusion of data for gray portland or similar cement or clinker. This error happens when the importer records the wrong tariff number with the U.S. Customs Service. Values that exceed \$200 per ton likely indicate misidentified specialty cement, not white cement.

⁴Less than ½ unit.

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

⁶Total imports of white cement include substantial quantities of gray cement that were misregistered by importers under the white cement tariff code.

Source: U.S. Census Bureau.

TABLE 21
U.S. IMPORTS FOR CONSUMPTION OF CLINKER, BY COUNTRY¹

(Thousand metric tons and thousand dollars)

Country	2008			2009		
	Quantity	Value		Quantity	Value	
		Customs ²	C.i.f. ³		Customs ²	C.i.f. ³
United States:						
Canada	477	35,048	35,310	489	30,192	30,459
China	19	3,414	4,285	3	709	855
Colombia	16	446	718	--	--	--
Egypt	2	149	244	3	318	337
France	107	20,976	23,550	62	19,571	20,732
Other	(4)	21	33	--	--	--
Total ⁵	621	60,054	64,141	556	50,789	52,383

-- Zero.

¹For all types of hydraulic cement.

²Customs value. The 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 in the merchandise to the United States.

³Cost, insurance, and freight. The import value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry.

⁴Less than ½ unit.

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

Source: U.S. Census Bureau.

TABLE 22
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2005	2006	2007	2008	2009 ^e
Afghanistan ^c	60	50	50	50	50
Albania	489	525	889	737 ^r	740
Algeria	12,800	14,702	15,886	17,398 ^r	18,000
Angola	1,315	1,373	1,400 ^c	1,780 ^r	1,800
Argentina	7,595	8,929	9,602	9,703	10,000
Armenia	605	625	722	770	750
Australia ^c	8,475 ^{r,3}	9,000	9,500 ^r	9,000 ^r	8,500
Austria	4,560	4,852	5,203	5,309	4,600
Azerbaijan	1,538	1,622	1,691 ^r	1,595 ^r	1,283 ³
Bahrain	400	400	400	438 ^r	800
Bangladesh ^c	5,100	5,100	5,100	5,000	5,000
Barbados	341	338	294	300 ^c	300
Belarus	3,131	3,495	3,820 ^e	4,219	4,350 ³
Belgium	7,594	8,192	8,200 ^e	8,200 ^e	8,200
Benin ^c	250	1,489 ³	1,550 ³	1,500 ^r	1,500
Bhutan ^c	170	180	180	180 ^r	180
Bolivia	1,440	1,636	1,739	1,985 ^r	2,292 ³
Bosnia and Herzegovina	1,026	1,226	1,283	1,406	1,074 ³
Brazil	38,705 ^r	41,895 ^r	46,551 ^r	51,970 ^r	51,748 ^{p,3}
Brunei ^c	266 ³	240	200	240 ^r	220
Bulgaria	3,618	4,093	4,413	4,903 ^r	2,662 ³
Burkina Faso ^c	30	30	30	30	30
Burma ⁴	543	570	608	676	670 ³
Cambodia	--	--	87	772 ^r	774 ³
Cameroon ^c	1,000	1,000	1,000	1,000	1,000
Canada	14,179	14,336	15,078	13,672	10,985 ³
Chile	3,999	4,112	4,440	4,622	3,876 ³
China	1,068,850	1,236,770	1,361,170	1,400,000 ^r	1,629,000 ^{p,3}
Colombia	9,959	10,038 ⁵	11,068 ⁵	10,456 ⁵	10,000
Congo (Brazzaville) ^c	100 ³	100	100	100 ^r	100
Congo (Kinshasa)	521 ^r	519 ^r	530 ^r	411 ^r	444 ³
Costa Rica	2,000 ^{r,e}	1,900 ^r	2,300 ^r	2,500 ^r	2,500
Côte d'Ivoire ^c	650	650	650	650	650
Croatia	3,481	3,598	3,587 ^r	3,637 ^r	2,800
Cuba	1,567	1,705	1,805	1,707 ^r	1,700
Cyprus	1,805	1,786	1,873	1,870 ^e	1,800
Czech Republic	3,978	4,239	4,899	4,710 ^r	3,637 ³
Denmark	2,120	2,115	2,100 ^e	2,100 ^e	2,000
Dominican Republic	2,779	3,777	4,100 ^e	4,000 ^e	3,000
Ecuador	3,690	4,110	4,420	5,493 ^r	5,000
Egypt	32,458	36,200	38,400	40,000 ^e	46,500
El Salvador	1,131	1,311	1,300 ^e	1,300 ^e	1,300
Eritrea ^c	45	45	45	45	45
Estonia	726	849	937	808	326 ³
Ethiopia	1,569	1,731 ^r	1,626 ^r	1,834 ^r	2,300
Fiji ^c	143 ³	143	145	143	110
Finland	1,357	1,685	1,743	1,745	1,750
France	21,277	22,540	22,300 ^e	21,700	18,300
French Guiana ^c	60	60	60	62	62
Gabon ^c	260	260	229 ³	230	230
Georgia ^c	450	450	450	450	450

See footnotes at end of table.

TABLE 22—Continued
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2005	2006	2007	2008	2009 ^e
Germany	31,009	33,630	33,382	33,581	30,441 ³
Ghana ^e	1,800 ^r	1,800 ^r	1,800 ^r	1,800 ^r	1,800
Greece	15,166	15,674	16,667	16,500 ^e	16,000
Guadeloupe ^e	240	230	230	230	230
Guatemala ^e	2,400	2,500	2,500	2,500	1,500
Guinea ^e	-- ^r	-- ^r	-- ^r	-- ^r	--
Haiti ^e	300	300	300	300	300
Honduras ^e	1,384 ³	1,800	1,800	1,800	1,800
Hong Kong ^e	1,005 ³	1,010	1,000	1,000	1,000
Hungary	3,371	3,724	3,552	3,544	3,200
Iceland	132	141	90 ^e	100 ^e	100
India ^e	145,000	160,000	170,000	185,000 ^r	205,000
Indonesia ^e	33,917 ³	35,000	36,000	36,000 ^r	40,000
Iran ^e	32,650 ³	35,300	41,000 ^r	44,400 ³	50,000
Iraq ^e	3,000	3,500	4,500	6,453 ^{r,3}	8,000
Ireland	5,083	4,981	5,000	5,000 ^e	5,000
Israel	5,093	5,089	5,000 ^e	4,819 ^r	4,759 ³
Italy	40,284	47,814	47,542	43,030	36,317 ³
Jamaica	845	761	592	725 ^r	700
Japan	69,629	69,942	67,685	62,810	54,800 ³
Jordan	4,046	3,967	4,051	4,375 ^r	5,000
Kazakhstan	3,975	4,880	5,699	5,223	5,000
Kenya	2,123	2,174	2,546	2,829 ^r	3,320 ³
Korea, North ^e	5,700	6,160	6,130	6,415 ^{r,3}	6,400
Korea, Republic of	51,391	53,971	52,182 ^r	51,653 ^r	50,127 ³
Kosovo ⁶	450	450 ^e	470	590	600
Kuwait ^e	2,145 ³	2,200	2,200	2,200	2,000
Kyrgyzstan	973 ^r	1,060 ^r	1,230 ^r	1,218 ^r	1,100
Laos ^e	250	400	400	400	400
Latvia ^e	280	280	300	310	300
Lebanon	4,600	4,400	4,900 ^e	5,000 ^e	5,000
Liberia	144	155	157	94 ^r	95
Libya	3,621	5,300 ^e	5,206	5,509 ^r	6,000
Lithuania	832	1,065	1,105	1,100 ^e	1,100
Luxembourg ^e	760 ³	800	780	780	780
Macedonia	887 ^r	924 ^r	945 ^r	916 ^r	909 ³
Madagascar ^e	150	150	270 ³	270	240
Malawi	166	188	185	240 ^e	240
Malaysia	17,860	18,400 ^e	19,480	19,000 ^{r,e}	18,500
Martinique ^e	220	220	220	220	220
Mauritania	300 ^e	374	410	446 ^r	500
Mexico	37,452	40,362	40,670	47,609	35,160 ³
Moldova	641	837	800 ^e	750 ^e	700
Mongolia	112	141	180 ^r	269 ^r	140
Morocco ^e	11,000	11,000	11,000	11,000	12,000
Mozambique ^e	490	600	800	730	830
Nepal ^{e,4}	290	295	300	295 ^r	300
Netherlands	2,496	2,790	2,700 ^e	2,700 ^e	2,700
New Caledonia	119	133	134 ^e	134 ^e	130
New Zealand ^e	1,100	1,120 ³	1,100	1,100	1,100
Nicaragua ^e	530 ³	530	530	530	530

See footnotes at end of table.

TABLE 22—Continued
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2005	2006	2007	2008	2009 ^e
Niger ^e	59 ^r	83 ^r	62 ^r	42 ^r	40
Nigeria ^e	2,700	3,300	4,700	5,000	4,500
Norway	1,613	1,695	1,700 ^e	1,700 ^e	1,650
Oman	2,686	3,611	3,880	3,991 ^r	4,000
Pakistan ^e	17,000	20,652 ³	27,000 ^r	31,000 ^r	32,000
Panama ^e	1,050 ³	1,050	1,050	1,050	1,050
Paraguay ^e	550	600	600	600	600
Peru	5,107	5,782	6,231	6,922	6,862 ³
Philippines	15,494	12,033	13,048	13,369 ^r	14,865 ³
Poland	12,646	14,688	17,120	17,207	15,537 ³
Portugal	8,438	8,340	12,631	12,650 ^r	12,700
Qatar	1,500	1,568	2,500 ^e	3,500 ^e	4,150
Réunion ^e	380	400	400	400	375
Romania	7,032	8,253	10,000 ^{r,e}	11,000 ^{r,e}	7,800
Russia	48,500	54,700	59,900	53,600	44,300 ³
Rwanda	101	103	103	103 ^r	100
Saudi Arabia	26,064	27,056	30,369	31,823	40,000
Senegal	2,623	2,884	3,152	3,084 ^r	3,000
Serbia ⁷	2,276 ⁸	2,565	2,677	2,843	2,232 ³
Sierra Leone	172	234	236	254 ^r	250
Slovakia	3,499	3,593	3,718	4,157	3,011 ³
Slovenia	1,114	1,269	1,300 ^e	1,300 ^e	1,000
South Africa, sales ⁹	11,464	12,658	13,651	13,341	11,500
Spain, including Canary Islands	50,347	54,033	54,720	42,088	29,505 ³
Sri Lanka ^e	1,500	1,600	1,700	1,800	1,900
Sudan	331	202	326	370 ^{r,e}	1,000
Suriname ^e	65	65	65	65	65
Sweden	2,709	2,952	2,950	2,900 ^e	2,950
Switzerland	4,022	4,040	4,000 ^e	4,000 ^e	4,000
Syria	4,700 ^e	4,804	5,104	5,336	5,605 ³
Taiwan	19,891	19,294	18,957	17,330	15,918 ³
Tajikistan	253	282	313	190 ^r	190
Tanzania	1,366	1,370 ^r	1,630 ^r	1,756 ^r	1,700
Thailand	37,872	39,408	35,668	31,651 ^r	31,181 ³
Togo ^e	800	800	800	800	800
Trinidad and Tobago	686	883	1,992 ^r	958 ^r	950
Tunisia	6,691	6,932	7,052	7,559	8,000
Turkey	42,787	47,499	49,553	54,027 ^r	53,973 ³
Turkmenistan ^e	650	800	900	900	900
Uganda ^e	630	630	650	650	650
Ukraine	12,183	13,732	15,000	14,918	9,496 ³
United Arab Emirates ^e	10,000 ^r	11,000 ^r	12,000 ^r	13,200 ^r	16,000
United Kingdom	11,216	11,471 ^r	11,887 ^r	10,071 ^r	7,622 ³
United States, including Puerto Rico ¹⁰	100,903	99,712	96,850	87,610	64,864 ³
Uruguay ^e	620	620	620	620	620
Uzbekistan	5,068	5,700 ^e	6,500	6,600 ^e	6,600
Venezuela ^e	5,800	7,200	9,000	9,000	9,000
Vietnam	30,808	32,690	37,102 ^r	40,009 ^r	47,900
Yemen	1,550	1,470	1,728	3,000 ^e	4,000
Zambia ^e	435	650	650	700	600

See footnotes at end of table.

TABLE 22—Continued
 HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2005	2006	2007	2008	2009 ³
Zimbabwe ⁴	600	700	400	400	300
Total	2,350,000	2,610,000	2,810,000	2,850,000 ⁵	3,040,000

³Estimated. ⁴Preliminary. ⁵Revised. -- Zero.

¹World totals and estimated data are rounded to no more than three significant digits; may not add to totals shown. Even where presented unrounded, reported data are thought to be accurate to no more than three significant digits. Data are from a variety of sources, including the European Cement Association.

²Table includes data available through July 23, 2010. Data may include clinker exports for some countries.

³Reported figure.

⁴Data are for fiscal year ending March 31 of the following year.

⁵Data for 2006–08 are for gray cement only; white cement output was likely to have been an additional 50,000 to 100,000 tons per year.

⁶Not included in Serbia data.

⁷Excludes Kosovo data.

⁸Montenegro and Serbia formally declared independence in June 2006 from each other and dissolved their union. Montenegro has no cement plants.

⁹Data have been adjusted to remove sales of cementitious materials other than finished cement. Material sales removed (mostly fly ash and ground granulated blast furnace slag) amounted, in metric tons, to: 2005—1,511,716; 2006—1,599,505; 2007—1,664,304; 2008—1,395,124; and 2009—1,200,000 (estimated).

¹⁰Portland and masonry cements only.