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CEMENT

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CEMENT

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Production of portland and masonry cement in the United States in 2010 totaled 66.4 million metric tons (Mt) (table 1). This was nearly 4% higher than production in 2009, but output in 2009 was the lowest since 1983. Measured by sales to domestic final customers, domestic consumption of cement in 2010 declined slightly to 70.5 Mt (table 9) and thereby replaced 2009 as the lowest sales volume year since 1983. However, the decline in 2010 was mostly because of very low sales volumes in the first 2 months of the year; sales for the remainder of the year showed a 3% increase overall. In perspective, consumption in 2010 was 57.5 Mt, or 45%, lower than the record level in 2005. Whereas the large (nearly 27%) decline in sales volumes in 2009 was accompanied by comparatively modest (4%) price decreases, prices fell substantially in 2010 and the overall value of sales fell by nearly 8% to about $6.5 billion (tables 1, 11–13). 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 $37 billion in 2010. World cement production increased by 9% to 3.31 billion metric tons (Gt).

Percentage or other changes expressed in this report compare activity in 2010 with that of 2009 unless specified otherwise. Except where otherwise indicated, data and trends 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 or as raw feed for clinker, 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 2010, questionnaires were received from 154 of 159 facilities canvassed, a response rate of 97%, which included all of the production sites. Not all forms were returned fully completed, but the data received included 100% of the 2010 cement and clinker production and 99% of the total cement sales tonnages tabulated in this report. For 2009, questionnaires were received from 152 of 156 facilities canvassed, a response rate of 97%, which included 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 2009 and 2010 are estimated to be no more than an additional 1% of the total portland cement sales tonnages shown in this report. General background information on cement and its manufacture and on the USGS cement canvasses is given in van Oss (2005).

Government Programs and Environmental Issues

Various Government programs provide funding and direction for public sector construction and are thus of importance to cement consumption levels when budgets are actually established. By comparison to some other construction materials, however, concrete can be less sensitive to rapid swings in construction spending levels, owing, in part, to lead times preparatory to concrete construction and the common need to coordinate between State and Federal agencies. Because of very low cement sales volumes, it was likely that very little of the 2009 Recovery and Reinvestment Act (ARRA) ("stimulus") funding was spent in 2009 on concrete construction projects, it had been widely anticipated that concrete projects would benefit from ARRA spending in 2010. By yearend 2010, continued lackluster cement consumption levels indicated that little stimulus spending had gone to concrete projects in that year either.

Environmental issues pertaining to the cement industry are mostly associated with the manufacture of the intermediate product called clinker. In making clinker, the consumption of large amounts of raw materials and fuels leads to large emissions of carbon dioxide (CO_2), and can yield significant emissions (if not scrubbed out) of nitrogen oxides (NOx), sulfur oxides (SOx), 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 CO_2; the cement industry is one of the leading industrial emitters of this greenhouse gas (GHG). Overall, generation of CO_2 by the U.S. cement industry in 2010 was calculated to be in the range of 0.87 to 0.92 metric ton (t) of CO_2 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 are unchanged from those of 2009, and include a standard emissions factor from calcination

of limestone of 0.51 t of CO_2 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). The standard calcination component of CO_2 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 2.5% (0.8 Mt) in 2010 and 2.4% (0.7 Mt of CO_2) in 2009; 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 CO_2 emissions or may be allowed to be deducted from reported combustion emissions because the fuels are considered to be carbon-neutral (certain biofuels) or because credits may be allowed for their use (certain waste fuels). Fuel deductions have not been made in the averages noted above. Plant-level emissions can be reduced through upgrading to more fuel-efficient kiln line technology. Unit emissions on a finished product basis 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.

The U.S. Environmental Protection Agency (EPA) has long 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 eventually refine the determination of U.S. emissions of GHG, the EPA released a final rule for mandatory site/plant-specific reporting of GHG emissions, with reporting to begin in 2010 (U.S. Environmental Protection Agency, 2009b). For the cement industry's CO_2 emissions, relevant calculation procedures were covered under Part 98, subpart C (p. 56397–56411) for fuel combustion, and in subpart H (p. 56420–56422) for calcination and related process emissions. The published results of the 2010 mandatory reporting (U.S. Environmental Protection Agency, 2012), combined with USGS data for clinker production, show an average emission of 0.90 t CO_2 per ton of clinker, excluding the EPA addition of minor CO_2-equivalent emissions of methane and nitrous oxide (N_2O); this is in close agreement with the USGS estimate noted above.

In September 2010, the EPA issued the final rule pertaining to the national emissions standards for hazardous air pollutants (NESHAP), in which new, very low, limits on individual plant emissions of mercury, total hydrocarbons, particulate matter (as a surrogate for nonvolatile metal pollutants), and hydrochloric acid were established for cement plants that do not burn hazardous wastes (U.S. Environmental Protection Agency, 2010c). The final rule revised the emissions limits in the 2009 proposed NESHAP (U.S. Environmental Protection Agency, 2009a); for mercury, the final rule's standards were 55 pounds of mercury per million short tons of clinker for existing plants (revised from 43 pounds); and 21 pounds of mercury (revised from 14 pounds) for new plants. It remained unclear how many plants could meet the standards using their current mix of raw materials and fuels without installing a mercury scrubber. Likewise, it was unclear how many, if any, plants could meet the NESHAP standards for all four pollutants. The rule provided for a 3-year compliance timeframe.

In June 2010, in response to a 2007 District of Columbia Circuit Court of Appeals decision vacating several of the definitions within the commercial and industrial solid waste incineration units (CISWI) sections of the Resource Conservation and Recovery Act (RCRA), the EPA issued proposed new definitions as to what nonhazardous secondary materials would be considered to be solid wastes (U.S. Environmental Protection Agency, 2010a). This ruling potentially would affect the regulatory status of a large number of cement plants because many of them routinely burn a variety of alternative raw materials and fuels instead of, or as partial substitution for, traditional geological raw materials and fuels.

In June, the EPA proposed options for modifying how coal combustion residuals (CCRs, also known as coal combustion products or byproducts), particularly fly ash, were to be regulated under RCRA. Under one option, CCRs would be classified as "special waste" and subject to regulation under subtitle C when destined to be landfilled but not when beneficially reused. Under the second option, disposal of the CCRs would essentially remain as currently regulated under subtitle D (U.S. Environmental Protection Agency, 2010b). 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

Output of portland cement increased by 4.2% to 64.5 Mt in 2010 (table 3), after a nearly 26% decline in 2009. Following a weak first quarter, production responded to modest increased sales demand thereafter, but, except for 2009, output for the year remained the lowest since 1991. Although most of the cement import terminals are controlled by the domestic cement producers, with import volumes mainly in response to production shortfalls, closure or idling of some independent import facilities may have stimulated some of the additional domestic production. Production increases and declines among districts were mixed, but most declines were small. A few districts (especially Missouri) showed substantial increases. Yearend stockpiles increased by about 2%.

Overall annual production capacity in 2010 was about 122 Mt, a slight decline resulting from the closure in 2009 of four plants; one each in California, Pennsylvania, Michigan, and Missouri. The plant count in 2010 reflects these closures, but that in California is somewhat artificial because the 2009 count retained an essentially idle facility that produced a small quantity of masonry cement (hence retained active grinding capacity) in that year but which was considered closed in 2010. In reality, both years show somewhat inflated plant counts and grinding capacities, because while certain plants remained officially idle for all of both years, no formal closure announcements for them had been made as of yearend 2010. Most of these idle facilities remained active as distribution terminals.

Continued weakness in the housing, especially multifamily units, construction sector led to a 3.4% decline in masonry cement production in 2010 to just 1.9 Mt (table 4), the lowest level since at least 1954. The percentage decline in 2010, however, was much lower than the 35% decrease in production in 2009 relative to that in 2008.

With multiple subsidiaries of common parents combined under the larger subsidiary's name and with joint ventures apportioned, the 10 leading companies at yearend 2010, in descending order of portland cement production, were CEMEX, Inc., Holcim (US) Inc., Lafarge North America Inc., Lehigh Cement Co., Buzzi Unicem USA Inc. (including Alamo Cement Co.), Ash Grove Cement Co., Essroc Cement Corp., Texas Industries, Inc. (TXI), Eagle Materials Inc., and St. Marys Cement Group. The U.S. industry continued to be heavily consolidated, with the 5 leading cement companies, combined, contributing nearly 60% of total U.S. portland cement production, and the 10 leading companies accounting for 82% of total production. Of the above named companies, all except Ash Grove and TXI were foreign owned as of yearend, and for the U.S. industry overall, about 81% of total cement output was by foreign-owned companies.

Clinker output in 2010 increased by 6.6% to 59.8 Mt (tables 1, 5) but, except for 2009, was still the lowest production since 1983. Clinker production actually increased significantly in nearly all months after March, but January through March showed a 13.3% decline overall. Apparent annual production capacity declined by about 4% to 109 Mt, reflecting kiln and (or) plant closures the previous year, but utilization of capacity increased modestly to about 55% from 49% in 2009. Utilization in 2010 was still well below the presumed "full practicable" capacity utilization rates of 85% or more experienced during years of high cement sales volumes. It should be noted that the utilization statistic is dependent on the reported downtime for routine maintenance. As in 2009, many plants reported much longer than normal downtimes for this purpose in 2010; where this was obvious, corrections were made in both years (after consultation with the plants) to remove the extra downtime (a result of slow sales) from the statistic. Yearend clinker stockpiles showed an overall decline of 7.2%. This apparent drawdown would appear to indicate production shortfalls relative to subsequent cement production, but the statistic is difficult to fully evaluate because of regional variation in the clinker stock changes and because many kilns continued idle for much or all of the year. In terms of kiln technology, the count for wet plants in 2010 fell by four because of the closure in 2009 of wet plants; one each in Michigan, Missouri, and Pennsylvania; and the replacement of the wet kilns with a precalciner (dry) kiln in 2010 (hence shift to "Both" status for the year) at a plant in Arkansas. The dry plant count increased by two because of the permanent shutdown in 2009 of the wet kilns at former combination ("Both") plants in Pennsylvania and West Virginia.

Nonfuel raw materials consumed to make clinker and cement are listed in table 6. Ratios among the raw materials and between them and the total cement and clinker produced in 2010 appear to be broadly similar to those in 2009; apparent changes or substitutions may reflect consumption at a relatively small number of plants. One apparently significant change is a 22% increase in the consumption of granulated blast furnace slag for cement; this is in accord with increased sales of blended cements that contain GGBFS, although the relative sales increase is even larger (table 15).

For fly ash and bottom ash, the table 6 data in the past have been similar to those published by the American Coal Ash Association (ACAA) for sales during the year for use in making clinker and cement (combined). For 2010, however, the ACAA tonnage for fly ash (1.856 Mt) was 26% lower than that in table 6, and the ACAA tonnage for bottom ash (0.861 Mt) was 18% higher (American Coal Ash Association, 2011). It is unclear if the differences represented an issue of actual sales (as reported by the ACAA) versus consumption, including from stockpiles (table 6), or problems with mischaracterization of the material in one or both surveys. The "Gypsum and anhydrite" data for 2010 in table 6 included 0.801 Mt of synthetic gypsum, but this may underrepresent actual use of the synthetic material because a split, if any, between natural and synthetic gypsum is not required by the USGS canvass. In recent years, the USGS data for synthetic gypsum have exceeded those reported by the ACAA, likely because the ACAA does not survey the cement plants' own production of the synthetic material. In 2010, however, the ACAA reported 1.03 Mt of synthetic gypsum sales to the cement industry.

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 declines in 2010 were especially evident for wet plants, reflecting the lower plant count. For dry plants, a decline in fuel oil consumption was likely because of escalating fuel oil prices and appears to have been more than offset by an increase in consumption of liquid waste fuels.

Although not shown in table 7, overall heat consumption (gross heat basis) in 2010 was about 4.1 billion joules (GJ) per metric ton of clinker, down slightly (2.6%) from the revised average for 2009. The reduction appears to reflect a combination of the closure of wet plants in 2009 and of wet kilns at two former combination plants (which were thus dry plants in 2010), and the addition of a dry kiln at a former wet plant. Heat consumption at the remaining operational wet plants averaged 6.7 GJ per ton of clinker, very slightly (probably of no statistical significance) higher than the revised average for 2009, and dry kilns averaged 4.0 GJ per ton of clinker, very slightly lower. It remained unclear whether or not the industry was experiencing any heat (efficiency) penalties for the common practice in 2009 and 2010 of operating kilns on an intermittent basis and with longer overall downtimes than customary in busy years. For the industry overall, coal continued to supply the largest share of total heat consumed (62%, up by about 3%), followed by petroleum coke (about 19%, down by nearly 10%), and waste fuels (14%, up by 8%).

Average unit electricity consumption was substantially unchanged in 2010 for the industry overall and for dry plants, but increased at the remaining wet plants (table 8). As with heat consumption, many plants operated on an intermittent basis in 2009 and 2010, and this has made it difficult to evaluate changes related to closures of older facilities and to technology upgrades.

The only significant ownership change in 2010 within the U.S. cement industry was the purchase in May of Continental Cement Co. by Summit Materials, LLC (2010). Continental was an independent company that operated a 1.0-million-metric-ton-per-year precalciner kiln plant at Hannibal, MO. Toward yearend, Drake Cement LLC completed construction of its new 1,800-metric-ton-per-day (t/d) integrated plant at Drake, AZ. Production of clinker and cement was expected to commence in early 2011. Drake Cement was a subsidiary of Peruvian company Cementos Lima SA.

The pace of plant closures and long-term idlings slowed in 2010 by comparison to 2008 and 2009. In March 2010, CEMEX closed the Wampum, PA, plant, which had been the oldest continuously operating cement plant in the country. In December, Buzzi Unicem announced that the "indefinite idle" status of its Oglesby, IL, plant, which had been idle since November 2008, would now be considered permanent. The company expected to service the Illinois market from its plant at Selma, MO. At the end of October, Lafarge permanently closed the kilns at its Seattle, WA, plant but announced that the facility would retain its grinding facilities, primarily to produce GGBFS from imported granules. In July, TXI announced that the wet kilns at its Midlothian, TX, plant would be closed; they had been on indefinite idle status since October 2008. The facility continued to operate its precalciner (dry) kiln. In addition to these plant closures, and as in 2009, many operating multikiln plants had one or more kilns idle for all or extended portions of 2010.

Although several plant upgrade or expansion projects remained on hold pending a recovery in cement sales, a few projects were completed in 2010. In March, Ash Grove fired its new precalciner kiln at its Foreman, AR, plant; the new kiln had an annual capacity of about 4,200 t/d and replaced the facility's three wet kilns (total capacity of 2,500 t/d) that shut down in February. The new kiln line also had new milling facilities. At its Newberry, FL, plant, Florida Rock Industries, Inc. (a subsidiary of Vulcan Materials Co.) brought a second precalciner kiln online in June. The new kiln had an annual capacity of about 0.74 Mt of clinker and was essentially identical to the existing kiln at the facility. Essroc brought a new finish mill online at its Martinsburg, WV, plant early in 2010; this followed the startup of the plant's precalciner kiln in November 2009.

Consumption

Cement consumption in the United States is reported monthly by the USGS in terms of sales to final customers, and the monthly data are summarized in table 9. Despite close agreement between the national domestic sales totals in table 9 and those in tables 11, 12, and 14, only the table 9 regional 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.

In the first 2 months of the year, the U.S. cement market continued a steep decline that began in early to mid-2006; this reflected continued stagnation in most construction sectors, continued tight credit, and ongoing shortfalls in State property tax revenues. Beginning in March, however, sales of portland cement began to improve, albeit erratically and relative to the weak levels seen in 2009. Thus, although sales for 2010 overall were down by 0.5% (table 9), those for March through December were up by 3.1%. Individual State changes in sales were mixed; of the three traditionally largest consuming States (California, Florida, and Texas), only Texas showed an increase in 2010. The single largest gain in sales volumes was in Louisiana. Per-capita consumption of portland cement was 222 kg in 2010, significantly unchanged from that of 2009, and was the lowest level since 1947. By comparison, during the record consumption year of 2005, per capita consumption was 413 kg. After declining by 31% in 2009, masonry cement consumption decreased by a further 9% in 2010 to just 1.9 Mt, the lowest level since 1946.

As noted earlier, the sales data in this report are missing some imported material. An estimate of cement sales volumes by importers that do not report to the USGS can be made by comparing U.S. Census Bureau trade data (tables 17 and 21) with the USGS data for import origins of sales (table 9). The U.S. Census Bureau cement imports (including into Puerto Rico) were about 0.35 Mt higher in 2010 than the foreign origin tonnages reported to the USGS and 0.49 Mt higher than those of 2009. These differences, however, appear to underestimate the missing sales of imported cement, based on known gaps in the USGS sales data relating to the imports (table 18) from the Republic of Korea into the Philadelphia, PA, customs district and of much of the material from Colombia into the Houston, TX, Savannah, GA, and Wilmington, NC, districts. Adjusting for these, and for stockpile changes at importers, it is estimated that the annual sales tables are missing at least about 0.4 Mt of sales in 2010 and about 0.6 Mt in 2009.

Although table 9 gives the better indication of regional consumption tonnages, regional breakouts of price data (as mill net values) are listed in tables 11 and 12. Unit prices fell only modestly in 2009 despite the very large decrease in sales volumes, but in 2010, prices for portland cement fell significantly almost everywhere in the country. Price changes commonly lag changes in sales volumes because of the common existence of long-term pricing contracts, and prices in 2010 appeared to have "caught up" to the oversupply of cement on the market. Price shifts for masonry cement (table 13) are difficult to evaluate because of the high but variable percentage of sales that are in bag or package form rather than the much cheaper bulk form; the split between bag and bulk sales is not reported to the USGS.

Table 10 lists sales of portland cement by mode of transportation. The major change evident was that a higher percentage of sales in 2010 were directly at or from the cement plants (as opposed to from terminals) than was the case in 2009.

Cement consumption levels within a given category of construction 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 2010 fell by nearly 9% to $503 billion (Portland Cement Association, 2012). Of this total, public sector construction was the largest share, at $182 billion, down by 2%, but included spending for road construction that increased by nearly 3%. Residential construction,

the second largest sector, was essentially stagnant at about $164 billion; within this sector, single-family construction spending increased by nearly 9%, and multifamily construction spending decreased by nearly 50%. Nonresidential construction spending decreased by nearly 29% to about $94 billion.

A breakout of 2010 portland cement sales by customer type is provided in table 14. Sales to ready-mixed concrete producers accounted for 69% of total shipments, but the true percentage to this type of customer was larger because some of the sales were reported under other customer categories, such as road paving contractors, that also make use of ready-mixed concrete. As listed, the sales to ready-mixed customers fell by 3.7%, but if combined with airport and road paving contractors (to better approximate true sales into the ready-mixed sector), the decline was just 1.9%. Within the contractor sales category, overall sales for road paving increased by nearly 28%, considerably higher than the overall spending increase noted above, and suggestive of a possible gain in concrete's market share in that subsector. Sales to brick and block makers declined by nearly 11%, and sales to precast and prestressed slab makers decreased by about 4%. Sales to oil (and gas) well drilling companies were up by 55%, in line with increased oil and gas prices during the year, and presumably would have been higher if there had not been a 6-month moratorium on offshore drilling in 2010.

Sales of various types included as portland cement by the USGS 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); these also included equivalent cements sold under the specifications of ASTM C–1157. Most of the decline in sales in 2010 was in the Types I and II grouping. Oil-well cement sales were up, as noted above. White cement sales increased by about 11%. Unlike the case in recent years, the white cement sales tonnage in 2010 was significantly higher than the imports of white cement (table 20). The relationship of white cement sales and imports has always been complicated by the use of some white cement in masonry cement (sales of which are not included in table 15), in colored cements that may have been reported with the gray varieties, and by the fact that some imported white cement is blended with domestically produced white cement. Because of the relatively low overall tonnages involved, sales versus imports of white cement may be particularly sensitive to changes in stockpile tonnages.

Blended cement sales were up by nearly 21%, especially of varieties containing GGBFS. As in 2009, the overall tonnage of blended cement sales in 2010 was significantly lower than the nearly 2.0 Mt listed in the monthly sales data for the year. It remains uncertain why this difference exists, but it most likely relates to continued inconsistencies in characterizing 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.

Foreign Trade

Trade data supplied by the U.S. Census Bureau are listed in tables 16–21. Exports (table 16) increased by about one-third in 2010 to nearly 1.2 Mt. Although this was the highest level in more than 60 years, exports remained a very small part of total sales by the U.S. industry and continued to be small compared to cement imports. Canada was the main destination for U.S. exports, accounting for 69% of the total.

Total imports of cement and clinker in 2010 fell slightly to 6.6 Mt (tables 1, 17), continuing, but at a much slower rate, a trend of decline since the record importation year of 2006 (35.6 Mt). As usual, most of the imports were of gray portland cement, and most of the decline in imports was of material from Colombia and Turkey. Imports from most other countries increased (table 19). As in 2009, Canada remained by far the leading source of cement imports. Imports from Asian countries, although growing slightly in 2010, had yet to even remotely recover their dominance of former years (such as 54% of total imports in 2006).

Official imports of white cement are listed in table 20. In many past years, and based on unexpectedly low unit values, the data appeared to have included some gray cement or clinker; the apparent errors were because of the use of the wrong tariff code by importers. For 2010, the average unit value for imports from China indicates the possible inclusion of some tonnage of gray cement. For 2009, the value data for the Republic of Korea suggest that most of the material was gray cement.

Imports of clinker increased by 10% to 0.61 Mt (table 21), but the data are incomplete with regard to overland imports from Canada; the tonnages listed are insufficient to have fully supplied the three grinding plants in Michigan and Washington. The annual deficit is estimated to be about 0.2 Mt in both 2009 and 2010. The unreported Canadian clinker appears mostly to have come 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.

For cement and clinker combined, the 10 busiest customs districts of entry in 2010 were, in descending order of tonnage, Detroit, MI; Seattle, WA; Houston-Galveston, TX; Buffalo, NY; Cleveland, OH; Columbia-Snake, ID, OR, and WA; Honolulu, HI; El Paso, TX; New York, NY; and San Francisco, CA (table 18). These leading districts accounted for about 72% 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 may be incomplete. For some countries, the production data may include exports of clinker.

World cement output in 2010 was an estimated 3.31 Gt, up by about 9%. Production was from more than 150 countries. China was again the world's leading producer by far, with an output of 1.88 Gt or nearly 57% of the world total.

The remaining top 20 producers in 2010 were, in descending order of tonnage, India, the United States, Turkey, Brazil, Japan, Russia, Iran, Vietnam, Egypt, the Republic of Korea, Saudi Arabia, Thailand, Italy, Mexico, Pakistan, Germany,

Spain, Indonesia, and Algeria. Cumulatively, the top 5 countries accounted for 69% of total world output; the top 10 countries, about 76%; and the top 20 countries, about 86%.

Regionally, Asia and the Pacific contributed nearly 73% of world production, including 9 of the 20 leading producing countries, and had the highest growth rate of all regions; the region had accounted for 58% of world output in 2000 and 65% in 2005. Because of this rapid growth in Asia (particularly in China), most other regions, although increasing output tonnage, have had generally diminishing shares of total world output. For example, North America (including Mexico) contributed 8% of world output in 2000 and 6.5% in 2005 but only 3.5% in 2010. Central and South America (including the Caribbean) accounted for about 5% of world production in 2000 but less than 4% in 2010. Western Europe contributed 12% of world output in 2000 but only 9% in 2005 and just 5% in 2010. Eastern Europe produced nearly 2% of world output in 2000 but just 1.4% in 2010. Other regions have held fairly constant world shares during the past decade, at about 4% for Africa, nearly 7% for the Middle East, and about 3% for the Commonwealth of Independent States.

Outlook

The general increase in cement sales that began in March 2010 was expected to continue in 2011, with sales for 2011 anticipated to be about 3% higher for the year and with further modest increases expected for the next few years thereafter. High rates of growth were not expected until the housing market and tax revenues to States recovered significantly. Absent improvement to the latter, State contributions to public sector construction projects would likely continue to be hampered.

Given the significant underutilization of production capacity in 2010, domestic production normally would be favored instead of imports to meet all or most increases in short-term cement demand. However, given that much of the underutilized capacity was in the form of year- or multiyear-long idlings of extra kilns (or even of entire plants), and because many of the idle kilns were old or of energy-inefficient technology, many of the older facilities may be unable to meet or justify upgrades to meet NESHAP emissions limits. Because many plants have experienced significant and extended layoffs of personnel, it was unclear how quickly domestic production could recover should demand increase faster than expected. Thus, while imports were not expected to increase in 2011, these production-related issues offered the possibility of imports gaining market share in the medium term. In the long-term, should the cement market recover to high (such as 2005) consumption levels, and if NESHAP or other new regulations lead to a large number of plant closures, it is unclear if current importation capacity will be adequate to compensate for the production shortfalls.

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TABLE 1

SALIENT CEMENT STATISTICS FOR THE UNITED STATES [1, 2]

(Thousand metric tons unless otherwise specified)

		2006	2007	2008	2009	2010
Production:						
Cement[3]		98,167	95,464	86,310	63,907 r	66,421
Clinker		88,555	86,130	78,382	56,116	59,802
Shipments from mills and terminals:[3, 4, 5]						
Quantity		127,000	114,000	96,700	71,000 r	70,300
Value[6]	thousand dollars	12,900,000	11,900,000	9,990,000	7,020,000	6,470,000
Average value[6]	dollars per metric ton	101.50	104.00	103.50	99.00	92.00
Stocks, yearend:						
Cement		9,380	8,890	8,360	6,080	6,180
Clinker		5,370	6,550	7,070	5,130	4,760
Exports		723 [7]	886 [7]	823	884	1,178
Imports:[8]						
Cement		32,141	21,496	10,744	6,211	6,013
Clinker		3,425	972	621	556	613
Total[9]		35,566	22,468	11,365	6,767	6,626
Consumption, apparent[10]		127,660	116,550	96,760	71,510 r	71,160
World production[e, 11]		2,620,000 r	2,810,000	2,850,000	3,030,000 r	3,310,000

[e]Estimated. [r]Revised.

[1]Unless 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.

[2]Excludes Puerto Rico.

[3]Includes cement made from imported clinker. Includes a double-counted component (less than 0.3% per year) of portland cement subsequently converted by the cement plants to masonry cement; because of the involvement of stockpiles, the precise amount converted from actual production cannot be determined.

[4]Includes imported cement.

[5]Shipments 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.

[6]Value free on board mill or independently reporting terminal.

[7]Official 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.

[8]All forms of hydraulic cement or clinker.

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

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

[11]Total 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 DISTRICT[1]

(Thousand metric tons unless otherwise specified)

	2009					2010				
District[2]	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	2,118	4,341	49	219 [6]	5	2,122	4,236	50	198
Pennsylvania, eastern	7	3,042 [r]	5,420 [6]	57	247	7	3,382 [7]	6,790 [6, 7]	50 [6, 7]	346 [7]
Pennsylvania, western	3	678	1,805	38	103	2	W [7]	W [7]	W [7]	W [7]
Illinois	3	1,487	3,390	44	237	3	1,620	2,755	59	235
Indiana	4	2,685	3,740 [6]	72	188	4	2,473	3,745	66	219
Michigan	5	3,548	6,983	51	163	4	3,482	5,530	63	230
Ohio	2	550	1,166	47	25	2	627	1,166	54	56
Iowa, Nebraska, South Dakota	5	2,991	5,840 [6]	51	266	5	2,677	5,840 [6]	46 [6]	257
Kansas	3	1,669	2,940 [6]	57	166	3	1,824	2,937	62	240
Missouri	6	4,418	13,035	34	622	5	6,469	10,817	60	661
Florida[8]	7	3,145	7,610 [6]	41	260	7	3,354	9,380 [6]	36 [6]	306
Georgia, Maryland, Virginia, West Virginia	6	3,859	7,180 [6]	54	334	6	4,305	7,906	54	418
South Carolina	3	1,868	5,085	37	77	3	2,048	5,085	40	114
Alabama	5	3,416	7,292	47	231 [6]	5	3,286	7,292	45	266
Kentucky, Mississippi, Tennessee	4	1,958	3,702	53	147	4	2,193	3,702	59	268
Arkansas and Oklahoma	4	2,067	3,127	66	182	4	2,012	4,078	49	165
Texas, northern	6	3,833	7,580 [6]	51	609	6	3,867	7,765	50	176
Texas, southern	6	4,519	6,505	69	226 [6]	6	5,000	6,185	81	214
Arizona and New Mexico	3	1,464	3,116	47	91	3	1,244	3,116	40	98
Colorado and Wyoming	4	2,165	4,517	48	149	4	2,333	4,517	52	114
Idaho, Montana, Nevada, Utah	6	2,050	3,728	55	156	6	2,055	3,725	55	146
Alaska and Hawaii	--	--	--	--	55	--	--	--	--	66
California	11	7,153	13,600 [6]	53	417 [6]	10	6,945	12,851	54	422 [6]
Oregon and Washington	4	1,254	2,435	51	275 [6]	4	1,200	2,435	49	269
Importers[9]	--	--	--	--	182 [6]	--	--	--	--	269 [6]
Total[10]	112	61,939 [r, 11]	124,000 [6]	50	5,620 [6]	108	64,520 [11]	122,000 [6]	53	5,750 [6]
Puerto Rico	2	936	1,780	53	47 [6]	2	755	1,780	42	49
Grand total[10]	114	62,875 [r, 11]	126,000 [6]	50	5,670 [6]	110	65,275 [11]	124,000 [6]	53	5,800 [6]

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

[1]Even 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.

[2]District assignation is the location of the reporting facilities. Specific districts include importers for which district assignations were possible.

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

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

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

[6]Data contain estimates for nonrespondents or incompletely reporting facilities.

[7]For 2010, data for Western Pennsylvania are included with those for Eastern Pennsylvania.

TABLE 3—Continued

PORTLAND AND BLENDED CEMENT PRODUCTION, CAPACITY, AND STOCKS IN THE UNITED STATES, BY DISTRICT[1]

[8]Production and capacity data exclude a plant that produced only masonry cement.

[9]Data include only those importers or terminals for which district assignations were not possible.

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

[11]The production totals include a small amount of portland cement subsequently consumed to make masonry cement; the amount thus double-counted cannot be determined precisely because of the involvement of stockpiles, but is less than 0.5% of the totals listed.

TABLE 4

MASONRY CEMENT PRODUCTION AND STOCKS IN THE UNITED STATES, BY DISTRICT[1]

(Thousand metric tons unless otherwise specified)

	2009			2010		
District[2]	Number of active plants	Production[3]	Yearend stocks[4]	Number of active plants	Production[3]	Yearend stocks[4]
Maine and New York	4	41	12	4	40	14
Pennsylvania	9	176	46	8	147	41
Indiana and Ohio	6	244	52	6	260	59
Michigan	4	80	28	3	83	24
Iowa, Nebraska, South Dakota	2	W	W	1	W	W
Kansas	2	W	W	2	W	W
Missouri	1	W	W	1	W	W
Florida	6	123	38	6	198	42
Georgia, Maryland, Virginia, West Virginia	6	250	42	6	251	42
South Carolina	3	174	16	3	152	17
Alabama	4	208	61	4	191	47
Kentucky, Mississippi, Tennessee	3	W	W	3	W	W
Arkansas and Oklahoma	3	97	21	4	92	17
Texas	8	202	22	8	199	22
Arizona and New Mexico	3	W	W	3	W	W
Colorado and Wyoming	2	W	W	2	W	W
Idaho, Montana, Nevada, Utah	--	W	W	1	W	W
California	7	236	45 [5]	6	178	32 [5]
Importers[6]	--	--	3 [5]	--	--	9 [5]
Total[7]	73	1,968	456 [5]	71	1,901	427 [5]

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

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

[2]District assignation is the location of the reporting facilities. Specific districts include importers for which district assignations were possible.

[3]Includes cement produced from imported clinker.

[4]Includes imported cement.

[5]Data contain estimates for nonrespondents or incompletely reporting facilities.

[6]Data include only those importers or terminals for which district assignations were not possible.

[7]Data may not add totals shown because of independent rounding.

TABLE 5

CLINKER CAPACITY AND PRODUCTION IN THE UNITED STATES IN 2010, BY DISTRICT[1]

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	5	11.3	32.8	3,748	1,971	52.6	115
Pennsylvania	2	6	--	8	14	19.2	18.9 [8]	6,500 [8]	3,198	49.2 [8]	244
Illinois	--	3	--	3	6	7.7	10.9	2,677	1,474	55.0	122
Indiana	1	3 [9]	--	4	8	10.2	21.1 [8]	3,470 [8]	2,326	67.1 [8]	108
Michigan	--	2	--	2	6	11.2	32.3	3,679	2,703	73.5	159
Ohio	1	1	--	2	3	3.4	9.7	1,202	680	56.6	89
Iowa, Nebraska, South Dakota	--	4	1	5	9	14.1	15.7 [8]	4,870 [8]	2,351	48.3 [8]	131
Kansas	1	2	--	3	5	8.5	21.6	2,956	1,937	65.5	90
Missouri	--	5	--	5	5	28.5	30.0 [8]	9,620 [8]	5,909	62.1 [8]	340
Florida	--	7	--	7	10	25.9 [8]	15.3 [8]	9,090 [8]	3,303	36.3 [8]	394
Georgia, Maryland, Virginia, West Virginia	--	5	--	5	5	19.5	29.6 [8]	6,500 [8]	4,090	63.0 [8]	264
South Carolina	--	3	--	3	3	12.3	26.8	4,180	1,906	45.6	265
Alabama	--	5	--	5	5	16.9	21.0 [8]	5,790 [8]	3,185	55.0 [8]	223
Kentucky, Mississippi, Tennessee	1	3	--	4	4	11.0	15.5 [8]	3,810 [8]	2,193	57.6 [8]	134
Arkansas and Oklahoma	1	2	1	4	11	12.5	24.9	4,125	1,803	43.7	105
Texas, northern	2	4 [10]	(10)	6	12	19.0	23.2	6,552	3,374	51.5	383
Texas, southern	--	5	--	5	6	16.2	19.4	5,606	4,536	80.9	222
Arizona and New Mexico	--	3	--	3	7	8.6	3.6	3,091	1,205	39.0	174
Colorado and Wyoming	--	4	--	4	5	11.5	27.5	3,829	2,162	56.5	252
Idaho, Montana, Nevada, Utah	3	3	--	6	8	8.5	22.9 [8]	2,880 [8]	1,770	61.6 [8]	174
California	--	9	--	9	11	37.9 [8]	17.9	12,900 [8]	6,634	51.2	734
Oregon and Washington	1	2	--	3	3	6.0	30.0	2,033	1,091	53.6	47
Total[11]	15	83	2	100	151	321.0 [8]	20.8 [8]	109,000 [8]	59,802	54.8 [8]	4,760
Puerto Rico	--	2	--	2	2	5.3	42.5 [8]	1,730 [8]	642	37.1 [8]	64
Grand total[11]	15	85	2	102	153	326.0 [8]	21.0 [8]	111,000 [8]	60,444	54.6 [8]	4,830

-- Zero.

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

[2]Includes white cement plants. Includes all plants that produced clinker for at least 1 day during the year.

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

[4]Includes kilns active for at least 1 day during the year. For kilns idle all year, excludes those that cannot be restarted, fully permitted, in less than 6 months.

[5]Sum of reported kiln capacities for all plants in a district.

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

[7]Sum of apparent annual capacities for all kilns. For each kiln, the statistic is calculated as 365 days minus days reported for routine maintenance and then multiplied by the unrounded daily capacity.

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

[9]Includes one semiwet kiln.

[10]Includes 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.

[11]Data 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	2009		2010	
	Clinker	Cement[3]	Clinker	Cement[3]
Calcareous:				
Limestone (aragonite, chalk, coral, marble)	73,600	1,510	78,500	1,550
Cement rock (includes marl)	6,560	--	7,500	30
Cement kiln dust (CKD)[4]	288	156	256	141
Lime[4]	17	5	20	17
Other	62	--	47	13
Aluminous:				
Clay	2,500	3	2,830	--
Shale and schist	2,540	--	2,370	13
Other[5]	438	--	478	--
Ferrous:				
Iron ore	481	--	501	--
Mill scale	536	--	522	--
Other[6]	40	--	19	--
Siliceous:				
Sand, calcium silicates	2,550	--	2,830	--
Sandstone, quartzite, soils, nonpozzolanic rocks	464	--	506	--
Fly ash	2,290	74	2,430	85
Other ash, including bottom ash	706	--	727	--
Granulated blast furnace slag[7]	44	192	70	235
Other blast furnace slag	99	--	30	--
Steel slag	169	--	238	--
Other slag	38	--	165	2
Natural rock pozzolans[8]	--	11	--	20
Other pozzolans[9]	45	3	9	1
Other:				
Gypsum and anhydrite	(10)	3,367	(10)	3,550
Other[11]	79	57	62	61
Total[12]	93,600	5,380	100,000	5,720
Clinker, imported, raw materials equivalent[13]	--	1,250	--	1,190
Grand total[12]	93,600	6,630	100,000	6,910

-- Zero.

[1]Excludes Puerto Rico.

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

[3]Includes portland, blended, and masonry cements.

[4]Data are probably underreported.

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

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

[7]Includes both ground (GGBFS) and unground material.

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

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

[10]Included with Calcareous: Other.

[11]Includes fluorspar and all other materials not listed earlier.

[12]Data may not add to totals shown because of independent rounding.

[13]Converted as 1.7 times the weight of foreign clinker consumed.

TABLE 7

CLINKER PRODUCED AND FUEL CONSUMED BY THE U.S. CEMENT INDUSTRY, BY KILN PROCESS[1]

	Clinker production[2]			Conventional fuels[3]				Waste fuels[3]		
Kiln process	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)
2009:										
Wet	19	4,866	8.7	569	157	7,310	96,200	50	16	256,000
Dry[7]	81	50,112	89.3	4,690	1,300	26,500	247,000	263	307	493,000
Both[8]	3	1,138	2.0	186	33	1,810	1,190	--	--	34,600
Total[9]	103	56,116	100.0	5,450	1,490	35,600	344,000	313	324	784,000
2010:										
Wet	15	3,918	6.6	498	148	6,480	27,200	52	59	229,000
Dry[7]	83	54,600	91.3	5,110	1,320	24,100	252,000	270	351	639,000
Both[8]	2	1,285	2.1	194	--	--	7,260	--	--	41,300
Total[9]	100	59,802	100.0	5,810	1,470	30,500	287,000	322	411	909,000

-- Zero.

[1]Excludes Puerto Rico.

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

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

[4]All reported to be bituminous.

[5]Distilliate and residual fuel oils. Excludes used oils that were reported under liquid wastes.

[6]Includes landfill gas and propane.

[7]Includes one semiwet plant. Also includes one plant that operated a dry kiln, but also had wet kilns which, although technically idle all year, were officially closed in 2010.

[8]Plants 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. Excludes one plant as noted in footnote 7.

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

TABLE 8

ELECTRICITY CONSUMED BY U.S. CEMENT PLANTS, BY KILN PROCESS [1]

Plant process	Electricity consumed[2]							Cement produced[4] (thousand metric tons)	Average consumption (kilowatthours per ton of cement produced)
	Generated		Purchased		Total[3]				
	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Percentage of total		
2009:									
Integrated plants:									
Wet	--	--	19	815	19	815	8.8	5,804	140
Dry[5]	2	223	83 [6]	7,980	83 [6]	8,200	88.6	55,601	148
Both[7]	--	--	3	222	3	222	2.4	1,334	166
Total or average[3]	2	223	105 [6]	9,020	105 [6]	9,250	100.0	62,738	147
Grinding plants[8]	--	--	6	103	5 [r]	103	--	1,047	99
Exclusions[9]	--	--	3	XX	3	XX	--	143	XX
2010:									
Integrated plants:									
Wet	--	--	15	621	15	621	6.5	4,277	145
Dry[5]	3	226	85 [6]	8,470	85 [6]	8,700	91.3	59,654	146
Both[7]	--	--	2	205	2	205	2.2	1,377	149
Total or average[3]	3	226	102 [6]	9,300	102 [6]	9,520	100.0	65,309	146
Grinding plants[8]	--	--	4	96	4	96	--	965	100
Exclusions[9]	--	--	3	XX	3	XX	--	147	XX

[r]Revised. XX Not applicable. -- Zero.

[1]Excludes Puerto Rico.

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

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

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

[5]Includes one plant that operated a dry kiln but that had wet kilns which, although technically idle all year, were officially closed early in 2010.

[6]Includes two grinding plants whose data were included with the integrated plants.

[7]Plants 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. Excludes one plant as noted in footnote 5.

[8]Plants 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 substantial component of grinding of excess granulated blast furnace slag.

[9]Plants at which production of portland cement was by simply regrinding of one type into another, or which reported production only of masonry cement.

TABLE 9

CEMENT SHIPMENTS TO FINAL CUSTOMER, BY DESTINATION AND ORIGIN[1, 2]

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	2009	2010	2009	2010
Destination:				
Alabama	1,140	1,009	85	77
Alaska[3]	146	137	--	--
Arizona	1,727	1,477	26	22
Arkansas	732	757	40	38
California, northern	2,133	2,081	45	35
California, southern	4,395	4,137	170	145
Colorado	1,403	1,467	7	6
Connecticut[3]	478	469	11	11
Delaware[3]	159	172	5	4
District of Columbia[3]	129	109	(4)	(4)
Florida	3,946	3,486	231	211
Georgia	1,887	1,685	131	116
Hawaii[3]	306	262	2	3
Idaho	367	387	(4)	(4)
Illinois, excluding Chicago	1,397	1,413	10	10
Illinois, metropolitan Chicago[3]	1,181	1,020	19	14
Indiana	1,454	1,482	39	34
Iowa	1,448	1,431	1	1
Kansas	1,133	1,172	7	5
Kentucky	870	852	49	45
Louisiana[3]	2,135	2,742	49	48
Maine	185	185	2	2
Maryland	902	888	42	42
Massachusetts[3]	702	679	11	10
Michigan	1,384	1,554	42	40
Minnesota[3]	1,135	1,200	12	12
Mississippi	805	774	40	39
Missouri	1,728	1,563	19	17
Montana	256	259	1	(4)
Nebraska	1,018	988	2	1
Nevada	1,008	897	12	6
New Hampshire[3]	198	185	7	7
New Jersey[3]	1,152	1,123	43	40
New Mexico	534	604	7	4
New York, eastern	476	456	10	9
New York, western[3]	652	657	16	14
New York, metropolitan[3]	1,304	1,189	59	50
North Carolina[3]	1,612	1,581	135	127
North Dakota[3]	375	408	1	1
Ohio	2,232	2,352	78	71
Oklahoma	1,338	1,432	39	39
Oregon	663	609	(4)	(4)
Pennsylvania, eastern	1,270	1,436	37	37
Pennsylvania, western	913	979	33	32
Rhode Island[3]	106	93	1	1
South Carolina	822	931	70	61
South Dakota	450	447	1	(4)
Tennessee	1,223	1,230	108	103
Texas, northern	4,255	4,713	79	73
Texas, southern	5,344	5,392	157	153
Utah	1,058	1,023	(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	
	2009	2010	2009	2010
Destination—Continued:				
Vermont[3]	95	103	2	1
Virginia	1,526	1,368	80	76
Washington	1,437	1,322	1	(4)
West Virginia	402	426	14	12
Wisconsin[3]	1,410	1,431	10	9
Wyoming	348	322	(4)	(4)
Total[5]	68,885	68,544	2,102	1,913
Puerto Rico	979	808	(4)	3
Foreign countries[6]	502	707	(4)	(4)
Grand total[5]	70,366	70,059	2,102	1,918
Origin:				
United States	63,486	63,627	2,070	1,897
Puerto Rico	932	731	--	(4)
Foreign countries[7]	5,948	5,701	32	21
Total shipments[5]	70,366	70,059	2,102	1,918

-- Zero.

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

[2]Data 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.

[3]Has no cement plants.

[4]Less than ½ unit.

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

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

[7]Imported 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
	In bulk	In bags[3]	In bulk	In bags[3]	In bulk	In bags[3]	customers[4]
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	29,900 [r]	404	68,900 [r, 5]
2010:							
Railroad	8,980	6	1,660	10	467	4	2,140
Truck	3,570	83	37,600	966	27,200	307	66,100
Barge and boat	6,270	15	67	--	93	58	218
Total[4]	18,800	105	39,300	977	27,800	370	68,400 [5]

[r]Revised. -- Zero.

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

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

[3]Includes packages, bags, and supersacks.

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

[5]Shipments 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 DISTRICT[1]

District[4]	2009			2010		
		Value[2]			Value[2]	
	Quantity[3] (thousand metric tons)	Total (thousands)	Average (per metric ton)	Quantity[3] (thousand metric tons)	Total (thousands)	Average (per metric ton)
Maine and New York	2,560 r, 5	$248,000 r, 5	$97.00 5	2,459	$225,563	$91.72
Pennsylvania, eastern	2,995	285,000 5	95.00 5	3,887 6	369,000 5, 6	95.00 5, 6
Pennsylvania, western	949	90,800 5	95.50 5	W 6	W 6	W 6
Illinois	2,014	191,586	95.11	2,016	179,580	89.07
Indiana	1,951	169,069	86.66	1,907	153,623	80.55
Michigan	4,114	406,143	98.72	3,920 5	393,000 5	100.50 5
Ohio	582	55,691	95.69	598	55,111	92.18
Iowa, Nebraska, South Dakota	3,382	365,298	108.01	3,017	311,194	103.13
Kansas	1,627	166,000 5	102.00 5	1,596	155,919	97.66
Missouri	4,219	414,000 5	98.00 5	6,253	517,000 5	82.50 5
Florida	3,790 5	371,000 5	98.00 5	3,260 5	295,000 5	90.50 5
Georgia, Maryland, Virginia, West Virginia	4,141	367,335	88.70	3,978	334,768	84.16
South Carolina	1,826	165,160	90.46	1,894	164,338	86.78
Alabama	3,515	315,408	89.72	3,024	252,000 5	83.00 5
Kentucky, Mississippi, Tennessee	1,885	187,660	99.53	1,740	162,965	93.65
Arkansas and Oklahoma	2,300	231,363	100.60	2,254	219,468	97.38
Texas, northern	4,557	453,000 5	99.50 5	4,511	412,000 5	91.00 5
Texas, southern	4,730	452,380	95.65	5,300	455,862	86.01
Arizona and New Mexico	2,173	255,708	117.68	1,786	182,539	102.20
Colorado and Wyoming	1,932	190,508	98.63	2,090 5	194,000 5	93.00 5
Idaho, Montana, Nevada, Utah	2,063	199,834	96.87	1,971	182,061	92.36
Alaska and Hawaii	406	66,690	164.27	357	57,700 5	162.00 5
California	6,835	618,000 5	90.50 5	6,880 5	543,000 5	79.00 5
Oregon and Washington	1,651	150,011	90.85	1,244	111,988	90.05
Importers[7]	2,747	315,000 5	115.00 5	2,480 5	289,000 5	116.50 5
Total or average[8]	68,900 r, 5	6,730,000 5	97.50 5	68,400 5	6,220,000 5	91.00 5
Puerto Rico	978 5	W	W	830	W	W
Grand total[8]	69,900 5	W	W	69,300 5	W	W

[r]Revised. W Withheld to avoid disclosing company proprietary data.

[1]Includes 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.

[2]Values 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, accurate to no more than the nearest $0.50 or $1.00 per metric ton.

[3]Tonnages 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.

[4]District 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 assignations were possible.

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

[6]For 2010, data for Western Pennsylvania are included with those for Eastern Pennsylvania.

[7]Importers for which district assignations were not possible.

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

TABLE 12

MASONRY CEMENT SHIPPED IN THE UNITED STATES, BY DISTRICT [1, 2]

District[5]	2009 Quantity[4] (thousand metric tons)	2009 Value[3] Total (thousands)	2009 Value[3] Average (per metric ton)	2010 Quantity[4] (thousand metric tons)	2010 Value[3] Total (thousands)	2010 Value[3] Average (per metric ton)
Maine and New York	56	$6,265	$112.54	46	$4,712	$101.96
Pennsylvania	187	25,300 [6]	135.00 [6]	172	20,600 [6]	120.00 [6]
Illinois, Indiana, Ohio	230	33,900 [6]	147.50 [6]	213	30,800 [6]	145.00 [6]
Michigan	95	11,538	121.87	78	9,680 [6]	123.50 [6]
Iowa, Nebraska, South Dakota	15	1,921	128.09	1	98	100.88
Kansas and Missouri	51	6,353	124.50	92 [6]	12,000 [6]	129.50 [6]
Florida	192 [6]	29,100 [6]	151.50 [6]	191	25,230	131.92
Georgia, Maryland, Virginia, West Virginia	214	36,547	170.78	199	34,143	171.68
South Carolina	169	21,376	126.43	163	19,536	120.19
Alabama	242	29,735	122.90	192	24,448	127.48
Kentucky, Mississippi, Tennessee	57	8,360	146.39	55	8,033	144.87
Arkansas and Oklahoma	93	11,100 [6]	119.00 [6]	93	11,286	121.14
Texas	221	31,000	140.40	187	25,100 [6]	134.50 [6]
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	42	5,387	129.76	32	4,200	129.81
Alaska and Hawaii	2	620	289.54	3	796 [6]	286.50 [6]
California, Oregon, Washington	232 [6]	27,700 [6]	119.50 [6]	185	20,177	109.34
Importers[7]	6 [6]	1,220 [6]	191.50 [6]	6 [6]	1,070 [6]	174.00 [6]
Total or average[8]	2,100 [6]	287,000 [6]	136.50 [6]	1,910 [6]	252,000 [6]	132.00 [6]

[1]Shipments 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 sales of masonry cement made by portland cement customers from purchased portland cement. 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.

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

[3]Values 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, accurate to no more than the nearest $0.50 or even $1.00 per metric ton.

[4]Tonnages 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.

[5]District 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 district assignations were possible.

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

[7]Importers for which district assignations were not possible.

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

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		
2009	96.50	211.00	97.50	136.50	99.00
2010	90.00	199.00	91.00	132.00	92.00

[1]Values 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.

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

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

TABLE 14

PORTLAND CEMENT SHIPMENTS IN 2010, BY DISTRICT AND TYPE OF CUSTOMER[1]

(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	1,750	256	216	213	--	64	2,459
Pennsylvania	2,260	874	390	205	24	139	3,887
Illinois	1,390	101	185	31	224	92	2,016
Indiana	1,340	214	234	38	12	71	1,907
Michigan	2,840	426	527	110	13	7	3,920
Ohio	471	66	39	11	12	--	598
Iowa, Nebraska, South Dakota	2,300	249	345	20	94	14	3,017
Kansas	1,260	141	97	51	50	1	1,596
Missouri	4,510	619	739	79	126	182	6,253
Florida	2,340	625	155	110	3	26	3,260
Georgia, Maryland, Virginia, West Virginia	2,790	767	217	96	2	103	3,978
South Carolina	1,270	251	154	82	2	134	1,894
Alabama	2,110	466	291	95	19	44	3,024
Kentucky, Mississippi, Tennessee	1,400	173	81	50	21	19	1,740
Arkansas and Oklahoma	1,340	92	583	106	122	9	2,254
Texas, northern	2,480	290	847	105	706	84	4,511
Texas, southern	3,570	443	595	233	442	21	5,300
Arizona and New Mexico	1,350	274	98	39	16	14	1,786
Colorado and Wyoming	1,440	148	256	56	187	1	2,090
Idaho, Montana, Nevada, Utah	1,350	173	155	65	203	29	1,971
Alaska and Hawaii	277	55	8	17	--	--	357
California	4,830	880	444	565	106	49	6,880
Oregon and Washington	934	144	81	55	20	10	1,244
Importers[6]	1,710	257	188	46	159	125	2,480
Total[5]	47,300	7,980	6,920	2,480	2,560	1,240	68,400
Puerto Rico	429	69	31	300	--	--	830
Grand total[5]	47,700	8,050 [7]	6,950 [8]	2,780	2,560 [9]	1,240	69,300

-- Zero.

[1]Includes 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.

[2]District 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 assignations were possible.

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

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

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

[6]Shipments by importers for which district assignations were not possible.

[7]Grand total shipments to concrete product manufacturers include brick and block—2,760; precast and prestressed—2,230; pipe—889; and other or unspecified—2,170.

[8]Grand total shipments to contractors include airport—166; road paving—3,710; soil cement—1,900; and other or unspecified—1,180.

[9]Grand total shipments include oil well drilling—2,140; mining—221; and waste stabilization—201.

TABLE 15

PORTLAND CEMENT SHIPMENTS IN THE UNITED STATES, BY TYPE OF CEMENT [1, 2, 3]

(Thousand metric tons)

Type[4]	2009	2010
General use and moderate heat (Types I and II)[5, 6]	54,900 r	53,500
High early strength (Type III)	2,460	2,590
Sulfate resisting (Type V)[5]	8,610	8,630
Block	167	154
Oil well	846	1,300
White[7]	577	638
Blended:[8]		
Portland, natural pozzolans	34	48
Portland, ground granulated blast furnace slag	580	953
Portland, fly ash	357	304
Portland, other pozzolans[9]	325	263
Total blended[10]	1,300	1,570
Expansive and regulated fast setting	13	18
Miscellaneous[11]	27	30
Grand total[10]	68,900 r	68,400

rRevised.

[1]Includes sales of imported cement. Excludes Puerto Rico.

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

[3]Gray portland-type cements unless otherwise specified.

[4]Sold mostly under specifications ASTM C–150, ASTM C–595, and ASTM C–1157.

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

[6]Includes ASTM C–1157 general use cements that contain no pozzolans.

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

[8]Cements sold under ASTM C–590 and those under ASTM C–1157 that contain pozzolans.

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

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

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

TABLE 16

U.S. EXPORTS OF HYDRAULIC CEMENT AND CLINKER, BY COUNTRY[1]

(Thousand metric tons and thousand dollars)

Country	2009		2010	
	Quantity	Value[2]	Quantity	Value[2]
United States:				
Angola	2	323	1	1,153
Anguilla	4	255	(3)	3
Aruba	2	336	1	157
Australia	(3)	106	1	404
Bahamas, The	48	5,628	99	9,063
Belize	36	1,513	7	693
Brazil	(3)	39	3	213
Canada	674	79,836	807	113,598
Cayman Islands	(3)	95	1	103
China	(3)	133	2	955
Colombia	1	680	2	715
Costa Rica	(3)	19	3	135
Dominican Republic	2	219	1	483
Greece	15	729	14	637
Haiti	1	62	13	1,056
Hong Kong	1	326	1	402
India	(3)	97	2	264
Ireland	4	225	6	367
Israel	(3)	92	1	262
Jamaica	26	2,737	66	6,556
Japan	1	225	11	2,526
Madagascar	--	--	1	60
Mexico	23	5,915	39	8,914
Netherlands Antilles	1	196	2	366
Pakistan	1	43	(3)	82
Panama	28	3,794	67	8,051
Peru	1	198	1	364
Russia	1	47	(3)	90
St. Christopher and Nevis	2	102	(3)	57
Suriname	(3)	39	1	108
Sweden	1	77	(3)	81
Taiwan	(3)	149	1	3,099
Trinidad and Tobago	(3)	98	1	346
Turks and Caicos Islands	(3)	55	8	759
United Kingdom	(3)	75	9	1,614
Other	6 r	2,868 r	7	4,629
Total[4]	884	107,330	1,178	168,308
Puerto Rico:				
British Virgin Islands	15	1,807	4	664
Netherlands Antilles	(3)	5	3	231
Turks and Caicos Islands	1	152	--	--
Other	(3)	30	(3)	3
Total[4]	16	1,994	7	898
Grand total[4]	900	109,323	1,185	169,206

See footnotes at end of table.

TABLE 16—Continued

U.S. EXPORTS OF HYDRAULIC CEMENT AND CLINKER, BY COUNTRY [1]

[r]Revised. -- Zero.

[1]Includes portland and masonry cements.

[2]Free 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.

[3]Less than ½ unit.

[4]Data 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 COUNTRY[1]

(Thousand metric tons and thousand dollars)

Country	2009			2010		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States:						
Algeria	14	1,576	2,123	9	811	1,135
Canada	3,426	272,829	291,298	3,410	265,248	283,314
China	608	35,251	50,161	655	34,975	51,111
Colombia	654	39,799	56,216	315	19,652	27,367
Croatia	15	5,687	6,890	24	9,459	11,346
Denmark	69	9,924	12,302	54	9,653	13,262
Dominican Republic	4	307	381	(4)	10	11
Egypt	55	6,345	7,965	56	5,160	7,097
France	65	20,373	21,607	91	31,318	32,960
Greece	186	10,705	12,429	191	9,173	11,918
India	1	151	209	1	68	102
Japan	1	523	654	28	2,348	2,552
Korea, Republic of	855	34,694	56,700	1,018	39,214	61,801
Mexico	366	35,342	39,132	370	36,703	40,138
Netherlands	2	1,925	2,539	3	3,363	3,735
Sweden	74	3,821	7,074	83	3,524	6,804
Taiwan	254	11,332	16,677	265	11,242	17,825
Thailand	21	2,594	3,801	16	2,159	3,382
Trinidad and Tobago	--	--	--	8	544	551
Turkey	95	7,858	12,220	21	1,881	2,637
United Kingdom	1	153	281	1	171	290
Venezuela	--	--	--	8	2,648	3,405
Other	1 r	403 r	488 r	1	436	544
Total[5]	6,767	501,592	601,148	6,626	489,762	583,288
Puerto Rico:						
Colombia	5	674	862	7	898	1,172
Korea, Republic of	27	1,350	2,322	27	1,350	2,322
Mexico	14	1,641	2,216	12	1,393	1,970
Spain	81	5,694	7,064	109	7,206	9,166
Other	(4)	174 r	181 r	(4)	80	92
Total[5]	127	9,532	12,645	155	10,927	14,721
Grand total[5]	6,894	511,125	613,793	6,781	500,689	598,009

[r]Revised. -- Zero.

[1]Includes portland, masonry, and other hydraulic cements.

[2]Customs value. The price actually paid or payable for merchandise when sold for exportation to the United States, excluding insurance, and other charges incurred in bringing the merchandise to the United States.

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

[4]Less than ½ unit.

[5]Data 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 COUNTRY[1]

(Thousand metric tons and thousand dollars)

Customs district and country	2009			2010		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States:						
Anchorage, AK:						
Canada	9	745	2,267	5	298	1,017
China	15	1,036	1,561	12	842	842
Korea, Republic of	72	3,165	5,658	95	3,968	7,676
Taiwan	16	1,047	1,066	--	--	--
Total[4]	112	5,994	10,552	112	5,108	9,536
Baltimore, MD:						
China	--	--	--	1	18	22
Other	(5)	62	70	(5)	39	43
Total[4]	(5)	62	70	1	57	64
Boston, MA:						
Canada	77	4,196	6,824	23	1,010	1,693
Other	--	--	--	(5)	36	37
Total[4]	77	4,196	6,824	23	1,046	1,731
Buffalo, NY:						
Canada	574	48,103	52,028	590	49,366	52,718
Other	(5)	13	13	(5)	24	24
Total[4]	574	48,116	52,041	590	49,390	52,742
Charleston, SC, Other	(5)	59	70	(5)	71	82
Chicago, IL, Other	(5)	218	280	1	744	865
Cleveland, OH:						
Canada	493	34,399	36,894	554	40,960	44,235
Other	(5)	159	183	1	800	950
Total[4]	494	34,558	37,077	555	41,759	45,185
Columbia-Snake, ID, OR, WA:						
Canada	55	4,256	4,503	56	3,802	4,007
China	237	13,016	19,757	277	12,893	20,154
Other	--	--	--	(5)	8	8
Total[4]	292	17,272	24,259	332	16,703	24,169
Dallas-Fort Worth, TX, Netherlands	(5)	34	95	--	--	--
Detroit, MI:						
Canada	841	66,897	68,458	939	72,812	78,669
Other	(5)	101	142	(5)	175	192
Total[4]	841	66,998	68,600	939	72,988	78,862
Duluth, MN, France	--	--	--	(5)	3	3
El Paso, TX:						
Canada	--	--	--	(5)	33	36
Mexico	275	23,449	25,875	266	23,407	25,705
Total[4]	275	23,449	25,875	266	23,440	25,741
Great Falls, MT, Other	(5)	189	227	(5)	79	109

See footnotes at end of table.

TABLE 18—Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY[1]

(Thousand metric tons and thousand dollars)

Customs district and country	2009			2010		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
Honolulu, HI:						
China	(5)	14	47	(5)	15	24
Korea, Republic of	84	3,569	7,329	165	7,278	10,421
Taiwan	188	8,281	12,233	112	4,928	7,537
Thailand	3	188	552	--	--	--
Total[4]	276	12,052	20,160	277	12,221	17,983
Houston-Galveston, TX:						
Algeria	6	728	1,022	--	--	--
China	2	186	274	4	390	402
Colombia	235	14,822	20,624	9	1,239	1,514
Egypt	28	3,230	3,988	28	2,591	3,543
Korea, Republic of	472	19,219	30,821	571	21,418	34,614
Taiwan	49	1,968	3,198	--	--	--
Other	(5)	124	146	1	404	484
Total[4]	793	40,278	60,074	612	26,041	40,558
Laredo, TX, Mexico	85	11,467	12,646	88	11,887	12,441
Los Angeles, CA:						
China	21	2,408	2,876	26	2,926	3,149
Egypt	1	68	72	3	255	349
Thailand	12	1,629	2,202	10	1,322	2,064
Other	1	404	592	1	203	303
Total[4]	35	4,508	5,741	39	4,706	5,864
Miami, FL:						
Algeria	7	848	1,101	9	811	1,135
Colombia	6	790	997	5	735	877
Egypt	19	2,197	2,807	15	1,402	1,954
Mexico	5	410	590	15	1,372	1,915
Sweden	73	3,270	6,455	82	3,057	6,230
Turkey	74	6,618	9,585	21	1,871	2,628
Other	(5)	41	73	(5)	27	30
Total[4]	185	14,174	21,609	147	9,276	14,769
Minneapolis, MN:						
Canada	113	12,105	12,117	118	13,923	13,937
Other	(5)	31	31	(5)	5	6
Total[4]	113	12,136	12,148	118	13,929	13,943
Mobile, AL, Mexico	(5)	7	12	--	--	--
New Orleans, LA:						
China	5	1,062	1,269	9	1,990	2,165
Croatia	15	5,410	6,542	22	8,891	10,567
Korea, Republic of	34	1,273	1,961	47	1,533	3,056
Taiwan	1	36	180	--	--	--
Turkey	21	1,240	2,634	--	--	--
Other	--	--	--	(5)	25	28
Total[4]	75	9,021	12,586	78	12,438	15,816

See footnotes at end of table.

TABLE 18—Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY[1]

(Thousand metric tons and thousand dollars)

Customs district and country	2009			2010		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
New York City, NY:						
Denmark	24	2,804	3,655	21	2,137	2,758
France	3	107	110	(5)	39	45
Greece	186	10,705	12,429	191	9,173	11,918
Other	1	260	355	1	299	378
Total[4]	214	13,876	16,550	213	11,648	15,099
Nogales, AZ, Mexico	(5)	9	10	--	--	--
Norfolk, VA:						
Canada	53	5,003	5,373	13	1,366	1,454
Egypt	3	389	482	1	122	177
France	63	20,222	21,447	91	31,175	32,792
Sweden	1	551	619	1	342	421
Other	(5)	34	39	8	2,663	3,420
Total[4]	120	26,198	27,961	113	35,667	38,264
Ogdensburg, NY:						
Canada	248	23,489	23,989	174	14,839	15,398
Other	(5)	5	5	(5)	13	14
Total[4]	248	23,494	23,994	174	14,852	15,412
Pembina, ND, Canada	162	12,370	12,455	167	10,701	10,787
Philadelphia, PA:						
Korea, Republic of	139	4,988	7,063	139	5,018	6,033
Netherlands	1	814	937	1	1,261	1,400
Other	(5)	111	153	(5)	59	105
Total[4]	140	5,913	8,153	141	6,337	7,538
Portland, ME:						
Canada	37	4,469	4,954	26	2,372	2,676
Japan[6]	--	--	--	27 [6]	1,332	1,332
Total[4]	37	4,469	4,954	53	3,705	4,009
Providence, RI, Canada	62	4,069	6,273	40	2,290	3,404
San Francisco, CA:						
China	211	10,114	13,216	42	2,555	3,168
Egypt	1	108	173	2	182	265
India	1	127	184	1	68	102
Taiwan	--	--	--	153	6,314	10,288
Thailand	6	777	1,047	6	799	1,260
Total[4]	219	11,126	14,620	203	9,919	15,083
Savannah, GA:						
Colombia	221	12,861	18,609	149	8,447	12,201
Egypt	3	354	443	7	608	809
Other	(5)	256	398	(5)	255	282
Total[4]	224	13,471	19,450	156	9,310	13,292
Seattle, WA:						
Canada	611	42,802	44,572	630	43,279	44,627
China	117	7,158	10,833	285	13,170	20,940
Japan	1	398	519	1	550	703
Korea, Republic of	54	2,480	3,869	--	--	--
Other	(5)	40	61	(5)	116	139
Total[4]	783	52,879	59,853	916	57,115	66,410

See footnotes at end of table.

TABLE 18—Continued
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT
AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY[1]

(Thousand metric tons and thousand dollars)

Customs district and country	2009			2010		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
St. Albans, VT:						
Canada	89	9,904	10,571	75	8,181	8,640
Other	(5)	4	4	(5)	7	7
Total[4]	89	9,907	10,575	75	8,188	8,647
St. Louis, MO:						
Croatia	--	--	--	1	371	508
Other	(5)	340	459	(5)	501	571
Total[4]	(5)	340	459	1	872	1,079
Colombia	58	3,225	4,557	22	1,640	2,089
Denmark	45	7,117	8,644	34	7,510	10,497
Total[4]	103	10,342	13,201	56	9,150	12,586
U.S. Virgin Islands:						
Colombia	--	--	--	13	291	302
Dominican Republic	4	307	381	--	--	--
Trinidad and Tobago	--	--	--	8	544	551
Total[4]	4	307	381	21	835	853
Wilmington, NC:						
Colombia	134	8,033	11,313	117	7,270	10,343
Netherlands	--	--	--	(5)	19	20
Total[4]	134	8,033	11,313	117	7,289	10,363
U.S. total[4]	6,767	501,592	601,148	6,626 [6]	489,762	583,288
Puerto Rico (San Juan):						
Colombia	5	674	862	7	898	1,172
Korea, Republic of	27	1,350	2,322	27	1,350	2,322
Mexico	14	1,641	2,216	12	1,393	1,970
Spain	81	5,694	7,064	109	7,206	9,166
Other	(5)	174	181	(5)	80	92
Total[4]	127	9,532	12,645	155	10,927	14,721
Grand total[4]	6,894	511,125	613,793	6,781 [6]	500,689	598,009

-- Zero.

[1]Includes all varieties of hydraulic cement and clicker.

[2]Customs 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.

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

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

[5]Less than ½ unit.

[6]Material (27,070 metric tons in August 2010) from Japan into Portland, ME, is granulated blast furnace slag, not hydraulic cement as recorded in error by the importer.

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	2009			2010		
		Value			Value	
	Quantity	Customs[1]	C.i.f.[2]	Quantity	Customs[1]	C.i.f.[2]
United States:						
Canada	2,642	205,197	222,340	2,626	199,772	216,660
China	573	30,463	44,369	606	28,532	44,096
Colombia	636	37,333	52,800	274	15,638	22,335
Dominican Republic	4	307	381	(3)	10	11
France	3	107	110	--	--	--
Greece	186	10,705	12,429	191	9,173	11,918
Korea, Republic of	854	34,641	56,563	1,017	39,169	61,707
Mexico	185	11,770	13,305	184	12,311	13,833
Sweden	73	3,270	6,455	82	3,057	6,230
Taiwan	254	11,332	16,677	265	11,242	17,825
Thailand	3	188	552	(3)	11	13
Other	(3)	216 r	324 r	9	750	820
Total[4, 5]	5,414	345,529	426,307	5,254	319,665	395,448
Puerto Rico:						
Dominican Republic	--	--	--	(3)	2	2
Korea, Republic of	27	1,350	2,322	27	1,350	2,322
Spain	81	5,694	7,064	109	7,186	9,146
Total[4, 5]	108	7,044	9,386	136	8,539	11,470
Grand total[4, 5]	5,521	352,572	435,693	5,390	328,204	406,918

[r]Revised. -- Zero.

[1]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.

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

[3]Less than ½ unit.

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

[5]Total imports do not include gray portland cement that was misregistered by importers under the white cement tariff code; these quantities are 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	2009			2010		
		Value			Value	
	Quantity	Customs[1]	C.i.f.[2, 3]	Quantity	Customs[1]	C.i.f.[2, 3]
United States:						
Algeria	14	1,576	2,123	9	811	1,135
Canada	251	33,932	34,681	252	34,814	35,573
China	29	3,396	4,125	38	4,105	4,407
Colombia	18	2,466	3,415	20	2,792	3,278
Denmark	69	9,921	12,300	54	9,647	13,255
Egypt	53	6,028	7,628	56	5,160	7,097
India	1	130	178	1	68	102
Korea, Republic of	2	53	137	(4)	45	94
Mexico	113	15,822	17,357	121	16,560	17,832
Thailand	18	2,406	3,249	16	2,149	3,369
Turkey	95	7,858	12,220	21	1,871	2,628
United Kingdom	1	99	219	(4)	121	235
Other	(4)	7	7	(4)	30	33
Total[5]	664 [6]	83,693	97,638	588	78,173	89,038
Puerto Rico:						
Colombia	5	674	862	7	898	1,172
Mexico	14	1,641	2,216	12	1,393	1,970
Other	--	--	--	(4)	51	54
Total[5]	19	2,315	3,078	19	2,342	3,195
Grand total[5]	683 [6]	86,008	100,715	607	80,515	92,233

-- Zero.

[1]Customs 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.

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

[3]Values 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.

[4]Less than ½ unit.

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

[6]Total 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 COUNTRY [1]

(Thousand metric tons and thousand dollars)

Country	2009			2010		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
Canada	489	30,192	30,459	501	27,512	27,799
China	3	709	855	1	175	231
Colombia	--	--	--	21	1,222	1,754
Egypt	3	318	337	--	--	--
France	62	19,571	20,732	89	29,595	31,090
United Kingdom	--	--	--	(4)	7	7
Total[5]	556	50,789	52,383	613	58,511	60,882

-- Zero.

[1]For all types of hydraulic cement.

[2]Customs 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.

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

[4]Less than ½ unit.

[5]Data 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	2006	2007	2008	2009	2010[e]
Afghanistan	50	50 [e]	37 [r]	32 [r]	36 [3]
Albania	525	889	918 [r]	1,108 [r]	1,300
Algeria	14,702	15,886	17,398	19,100 [r]	20,000
Angola[e]	1,373 [3]	1,400	1,780	1,800	1,500
Argentina	8,929	9,602	9,703	10,000 [e]	10,000
Armenia	625	722	770	467 [r]	488 [3]
Australia[e]	9,000	9,200 [r]	9,400 [r]	9,200 [r]	9,000
Austria	4,852	5,203	5,309	4,646 [r]	4,254 [3]
Azerbaijan	1,622	1,693 [r]	1,595	1,286 [r]	1,279 [3]
Bahrain	400	400	438	700 [r, e]	1,200
Bangladesh[e]	5,100	5,100	5,000	5,000	5,000
Barbados	338	294	316 [r]	301 [r]	300
Belarus	3,495	3,821 [r]	4,219	4,350	4,531 [3]
Belgium	8,192	9,571 [r]	6,225 [r]	9,403 [r]	8,722 [3]
Benin[e]	1,489 [3]	1,550	1,500	1,500	1,500
Bhutan[e]	180	180	180	180	180
Bolivia	1,636	1,739	1,985	2,292	2,414 [3]
Bosnia and Herzegovina	1,226	1,283	1,406	1,074	949 [3]
Brazil	41,895	46,551	51,970	51,748	59,118 [3]
Brunei[e]	240	200	240	220	220
Bulgaria	4,093	4,413	4,903	2,662	3,000
Burkina Faso[e]	30	30	30	30	30
Burma[4]	570	608	676	670	534 [3]
Cambodia	--	87	772	774	775
Cameroon[e]	1,000	1,150 [3]	1,000	1,000	1,000
Canada	14,336	15,078	13,672	10,985	12,431 [3]
Chile	4,112	4,440	4,622	3,876	3,871 [3]
China	1,236,770	1,361,170	1,400,000	1,644,000 [r]	1,880,000 [p, 3]
Colombia[5]	10,038	11,068	10,456	9,232 [r]	9,488 [3]
Congo (Brazzaville)[e]	100	100	105 [r]	110 [r]	100
Congo (Kinshasa)	519	530	411	444	530
Costa Rica	1,400 [r]	2,300	2,500	1,498 [r]	1,276 [3]
Côte d'Ivoire	360 [r]	469 [r]	360 [r]	283 [r]	280
Croatia	3,598	3,587	3,637	2,838 [r]	2,664 [3]
Cuba	1,705	1,805	1,707	1,626 [r]	1,600
Cyprus	1,786	1,873	1,870 [e]	1,481 [r]	1,329 [3]
Czech Republic	4,239	4,899	4,710	3,637	3,345 [3]
Denmark	2,937 [r]	2,871 [r]	2,539 [r]	1,578 [r]	2,000
Dominican Republic[e]	3,777 [3]	4,100	4,000	3,000	3,000
Ecuador	4,110	4,420	5,493	5,000 [e]	5,000
Egypt	36,100 [r]	38,469 [r]	39,844 [r]	46,500	48,000
El Salvador	1,311	1,300 [e]	1,300 [e]	1,212 [r]	1,200
Eritrea[e]	45	45	45	45	45
Estonia	849	937	808	326	375
Ethiopia	1,731	1,626	1,834	2,300 [e]	2,700
Fiji[e]	143	145	143	110	110
Finland	1,685	1,743	1,745	1,052 [r]	1,050
France	22,540	22,300 [e]	21,700	18,300	18,300
French Guiana[e]	62 [r]	62 [r]	62	62	62
Gabon[e]	260	229 [3]	230	230	230

See footnotes at end of table.

TABLE 22—Continued

HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Thousand metric tons)

Country	2006	2007	2008	2009	2010[e]
Georgia[e]	450	450	450	870 [r, 3]	857 [3]
Germany	33,630	33,382	33,581	30,441	29,894 [3]
Ghana[e]	1,800	1,800	1,800	1,800	1,800
Greece	15,674	16,667	16,500 [e]	16,000 [e]	15,000
Guadeloupe[e]	230	230	230	230	230
Guatemala[e]	2,400 [r]	2,500	2,500	1,500	1,500
Haiti[e]	290 [r]	290 [r]	290 [r]	290 [r]	290
Honduras	1,668 [r]	1,776 [r]	1,784 [r]	1,800 [e]	1,800
Hong Kong[e]	1,010	1,000	1,000	1,000	1,000
Hungary	3,724	3,552	3,544	3,200 [e]	3,200
Iceland[e]	141 [3]	140 [r]	138 [r]	138 [r]	138
India[e]	160,000	170,000	185,000	205,000	210,000
Indonesia[e]	35,000	36,000	36,000	22,195 [r, 3]	22,000
Iran[e]	35,300	41,000	44,400 [3]	50,000	50,000
Iraq[e]	3,500	4,500	6,453 [3]	8,500	10,000
Ireland[e]	4,981 [3]	4,700 [r]	3,900 [r]	2,600 [r]	2,600
Israel	5,089	5,000 [e]	4,819	4,759	5,139 [3]
Italy	47,814	47,542	43,030	36,317	36,300
Jamaica	761	592	725	737 [r]	723 [3]
Japan	69,942	67,685	62,810	54,800	51,526 [3]
Jordan	3,967	4,138 [r]	4,284 [r]	3,799 [r]	4,000
Kazakhstan	4,880	5,699	5,837 [r]	5,694 [r]	6,686 [3]
Kenya	2,174	2,546	2,829	3,320	3,730
Korea, North[e]	6,160	6,130	6,415 [3]	6,400	6,400
Korea, Republic of	53,971	52,182	51,653	50,127	47,236 [3]
Kosovo[6]	450 [e]	470	590	600 [e]	600
Kuwait[e]	2,200 [3]	2,200	2,600 [r]	2,000	2,000
Kyrgyzstan	1,060	1,230	1,218	579 [r]	600
Laos[e]	400	400	400	400	400
Latvia[e]	280	300	310	650 [r]	1,100
Lebanon	3,348 [r]	3,945 [r]	4,250 [r]	4,900 [r]	5,227 [3]
Liberia	155	157	94	71 [r]	67 [3]
Libya	5,300 [e]	5,206	5,509	6,500	6,000
Lithuania	1,065	1,105 [r]	1,076 [r]	583 [r]	834 [3]
Luxembourg	901 [r]	1,081 [r]	1,091 [r]	1,000 [r]	1,078 [3]
Macedonia	924	945	916	909	910
Madagascar[e]	150	270 [3]	270	240	270
Malawi	188	185	240 [e]	240 [e]	240
Malaysia	18,400 [e]	19,480	19,629 [r]	19,457 [r]	19,500
Martinique[e]	220	220	220	220	220
Mauritania	374	410	322 [r]	340 [r]	350
Mexico	40,362	38,757 [r]	37,139 [r]	35,160	34,502 [3]
Moldova[e]	837 [3]	800	750	700	700
Mongolia	141	180	269	235 [r]	323 [3]
Morocco	11,352 [r]	12,792 [r]	14,047 [r]	14,519 [r]	14,000
Mozambique[7]	605 [r]	665 [r]	744 [r]	777 [r]	884 [3]
Nepal[e, 4]	295	300	295	295 [r]	295
Netherlands[e]	2,790 [3]	2,700	2,700	2,700	2,700
New Caledonia	119 [r]	122 [r]	137 [r]	138 [r]	160 [3]

See footnotes at end of table.

TABLE 22—Continued
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Thousand metric tons)

Country	2006	2007	2008	2009	2010[e]
New Zealand[e]	1,120 [3]	1,100	1,100	1,100	1,200
Nicaragua[e]	530	530	530	530	530
Niger[e]	62 [r]	42 [r]	40 [r]	40	40
Nigeria	3,300	4,700	5,000	5,000 [r]	5,400
Norway[e]	1,695 [3]	1,700	1,700	1,650	1,650
Oman	3,611	3,880	3,991	4,000 [e]	4,200
Pakistan	20,652	25,745 [r]	26,000 [r, e]	28,000 [r, e]	30,000
Panama	1,050 [e]	1,050 [e]	1,843 [r]	1,679 [r]	1,700
Paraguay[e]	600	600	600	600	600
Peru	5,782	6,231	6,922	6,862	6,865 [p, 3]
Philippines[8]	12,033	13,048	13,369	14,865	15,900 [3]
Poland	14,688	17,120	17,207	15,537	15,521 [3]
Portugal	8,340	12,631	12,650	12,700	12,750 [3]
Qatar	1,568	2,400 [r, e]	3,800 [r, e]	4,095 [r]	3,780 [3]
Réunion[e]	400	400	400	375	375
Romania	8,253	10,060 [r]	10,660 [r]	7,902 [r]	7,008 [3]
Russia	54,731 [r]	59,939 [r]	53,548 [r]	44,266 [r]	50,400
Rwanda	103	103	103	92 [r]	100
Saudi Arabia	27,056	30,369	31,823	36,500 [r]	42,300 [3]
Senegal	2,884	3,152	3,084	3,327 [r]	3,000
Serbia[9]	2,565	2,677	2,843	2,232	2,300
Sierra Leone	234	236	254	236 [r]	230
Slovakia	3,593	3,718	4,157	3,011	2,888 [3]
Slovenia[e]	1,269 [3]	1,300	1,300	1,000	1,000
South Africa, sales	12,658	13,651	13,473 [r]	11,784 [r]	13,000
Spain, including Canary Islands	54,033	54,720	42,088	29,505	23,473 [3]
Sri Lanka[e]	1,600	1,700	1,800	1,900	2,000
Sudan	202	326	247 [r]	622 [r]	962 [3]
Suriname[e]	65	65	65	65	65
Sweden	2,952	2,950	2,900 [e]	2,950 [e]	2,900
Switzerland[e]	4,040 [3]	4,000	4,000	4,000	4,000
Syria	4,804	5,104	5,336	5,605	6,000 [3]
Taiwan	19,294	18,957	17,330	15,918	16,301 [3]
Tajikistan	282	313	190	195 [r]	288 [3]
Tanzania	1,370	1,630	1,756	1,941 [r]	2,000
Thailand	39,408	35,668	31,651	33,562 [r]	36,496 [3]
Togo[e]	800	800	800	800	800
Trinidad and Tobago	883	902 [r]	958	870 [r]	800
Tunisia	6,932	7,052	7,559	7,511 [r]	7,500
Turkey	47,499	49,553	54,027	53,973	62,737 [3]
Turkmenistan	921 [r]	941 [r]	1,026 [r]	1,100 [r]	1,100
Uganda[e]	630	650	650	650	650
Ukraine	13,732	15,000	14,918	9,496	9,457 [3]
United Arab Emirates	13,000 [r, e]	16,000 [r, e]	21,885	18,997	18,000
United Kingdom	11,471 [r]	11,887	10,071	7,623 [r]	7,600
United States, including Puerto Rico[10]	99,712	96,850	87,610	64,843 [r]	67,176 [3]
Uruguay[e]	620	620	620	620	620
Uzbekistan[e]	5,700	6,500 [3]	6,600	6,850 [r]	6,872 [3]

See footnotes at end of table.

TABLE 22—Continued

HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Thousand metric tons)

Country	2006	2007	2008	2009	2010[e]
Venezuela[e]	11,000 [r]	11,000 [r]	11,000 [r]	11,000 [r]	11,000
Vietnam	32,690	37,102	40,009	47,900	50,000
Yemen	1,470	1,728	2,111 [r]	2,118 [r]	3,000
Zambia[e]	550 [r]	540 [r]	560 [r]	880 [r]	1,000
Zimbabwe[e]	700	400	400	700 [r]	700
Total[e]	2,620,000 [r]	2,810,000	2,850,000	3,030,000 [r]	3,310,000

[e]Estimated. [p]Preliminary. [r]Revised. -- Zero.

[1]World 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.

[2]Table includes data available through July 23, 2011. Data may include clinker exports for some countries.

[3]Reported figure.

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

[5]Data 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.

[6]Not included in Serbia data.

[7]Cement sales from Cimentos de Moçambique SARL (Sociedade Anónima de Responsabilidade Limitada) only.

[8]Philippines reports cement production, in bags: 2006—300,822,821; 2007—334,228,355; 2008—378,214,634; 2009—371,628,730; and 2010—375,000,000 (estimated).

[9]Excludes Kosovo data.

[10]Portland and masonry cements only. Includes a small (less than 0.3% per year) component of double-counting where portland cement (not clinker) is consumed to make masonary cement; the precise amount of double-counting can not be determined because of the involvement of portland cement stockpiles.