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CEMENT [ADVANCE RELEASE]

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CEMENT

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Production of portland and masonry cement in the United States in 2007 fell by nearly 3% to 95.5 million metric tons (Mt) (table 1). Cement sales to final customers totaled 114.8 Mt in 2007, down by about 10% (table 9). Imports of cement totaled 21.5 Mt, fully one-third below the record imports in 2006. Despite lower sales volumes, cement prices on average increased modestly in 2007; sales overall totaled $11.8 billion for the year (tables 1, 11−13). Based on typical portland cement mixing ratios in concrete, the delivered value of concrete (excluding mortar) in the United States in 2007 was estimated to be at least $52 billion.

Percentage or other changes expressed in this report compare activity in 2007 with that of 2006 unless specified otherwise. Except where otherwise indicated, activity levels in this report exclude those in Puerto Rico. Except for some trade data, cements covered in this report are limited to those hydraulic varieties broadly classified as portland cement (including blended cement[1] 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. Other hydraulic cements (notably aluminous cement) are included only in the trade data in tables 16–18 and 21 (clinker) and within the world production data in table 22. Excluded are pure (unblended) supplementary cementitious materials (SCM), such as fly ash, other pozzolans, and ground granulated blast furnace slag (GGBFS).

The bulk of this report is based on data compiled from U.S. Geological Survey (USGS) annual questionnaires sent to cement and clinker manufacturing plants and associated distribution facilities and import terminals, some of which are independent of U.S. cement manufacturers. For 2007, forms were received from 151 of 153 facilities canvassed, a response rate of 99%, and which included all production sites. For 2006, forms were received from 151 of 156 facilities canvassed, including all but one of the production sites (the production data for this site were obtained by telephone). The data exclude several importers that have yet to participate in the surveys. To the degree that they are selling independently of the participating companies, sales by the missing importers for 2006–07 are estimated as being no more than 1% of the total portland cement sales tonnages shown in this report. Background information on cement and its manufacture, as well as on the USGS cement canvasses, is given in van Oss (2005).

[1]Sales data for blended cements (also called composite cements) listed separately from portland cement are available in the monthly cement reports of the U.S. Geological Survey Mineral Industry Surveys series, starting with January 1998.

Environmental Issues

Environmental issues associated with the cement industry mostly relate to the manufacture of the intermediate product called clinker. In clinker manufacture, the burning of large amounts of raw materials and fuels leads, or potentially leads, to significant emissions of carbon dioxide (CO_2), nitrogen oxides, 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. The largest volume emissions are of CO_2. Overall, generation of CO_2 by the U.S. cement industry in 2007 was in the range of 77 to 81 Mt or about 0.90 to 0.94 metric ton (t) of CO_2 per ton of clinker; the high end of the range reflects fuel combustion emissions derived using "standard" heat values for the fuels consumed (table 7) and the low end uses the heat values actually reported by the individual plants. The fuel combustion emissions exclude those associated with generation of the electricity purchased by the cement industry. Both ends of the range 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 (2006). However, using typical average calcium oxide (CaO) contents of slags, ashes, and similar alternative raw materials burned in the kilns (table 6), the emissions factor for 2007 is reduced by about 3% to 0.49 t of CO_2 per ton of clinker, and the total emissions of CO_2 are thus reduced by about 1.3 Mt. The comparable reduction in 2006 was about 1 Mt or 2.5%. Relative reductions can be significantly larger at the individual plants that actually burn these alternative raw materials. The fuel combustion component of emissions (0.39 to 0.43 t of CO_2 per ton of clinker; unchanged from that in 2006) represents a 9% to 10% unit reduction from the range in 2000 calculated by van Oss and Padovani (2003, p. 99). Strategies to reduce unit (per ton of product) emissions include encouraging the use of SCM in finished cement and in concrete to reduce the clinker content of these products and allowing the addition of "inert" fillers to boost cement output without simultaneously boosting clinker output. In regard to the latter, both the ASTM International standard for portland cement (ASTM C–150–05) and the similar American Association of State Highway and Transportation Officials (AASHTO) standard M85 now allow for the addition of up to 5% ground limestone in the finish mill. Other approaches to reducing emissions include utilization of alternative raw materials and fuels, and technological upgrading of plants.

Production

Weakness in sales of portland cement in 2007 continued a trend from at least mid-2006 but had relatively little effect on cement production in either year. The industry was able to accommodate reduced demand largely through drawing down on cement stockpiles and by reducing imports. Portland cement output in 2007 fell by just 1.8% (table 3). Production declines were fairly evenly distributed regionally; only five districts showed increases.

The market for masonry cement fared poorly in 2007. A continuing decline in residential construction resulted in a 20% drop in masonry cement production to just 4.3 Mt and a 5% increase in yearend stocks (table 4). The production decline was in contrast to 2006, when, despite a prolonged downturn in residential construction, production fell only slightly.

With common parents combined under the larger subsidiary's name and with joint ventures apportioned, the 10 leading companies at yearend 2007 were, in descending order of portland cement production, Holcim (US) Inc.; CEMEX, Inc.; Lafarge North America Inc.; Lehigh Cement Co.; Buzzi Unicem USA Inc. (including Alamo Cement Co.); Ash Grove Cement Co.; Texas Industries, Inc. (TXI); Essroc Cement Corp.; California Portland Cement Co.; and St. Marys Cement Inc. The U.S. industry continued to be heavily consolidated—the leading 5 cement companies, combined, had nearly 60% of total U.S. portland cement production, and the leading 10 companies accounted for almost 83% of total production. Of the above named companies, all except Ash Grove and TXI were foreign owned as of yearend, and for the industry overall, about 80% of total cement output was by foreign-owned companies.

Clinker production in 2007 fell by 2.7% (table 5). Overall, production of clinker fell in all months except April and May and for the year in all but four districts. Yearend stocks[2] rose by 22%. Apparent annual clinker production capacity for the country was unchanged at 101 Mt, although there were regional changes. Capacity utilization for the country fell modestly to about 85%, but this calculation is dependent on the reported breakout of downtime for scheduled routine maintenance and this is not always reported correctly. Most plants have total downtimes in excess of routine maintenance; thus an overall capacity utilization of 85% or higher is considered to indicate a plant (or district) operating more or less at full practicable capacity. Partial year operation of new or old kilns yields low capacity utilization ratios because, whereas the annual capacities for these kilns are fully counted, they will have relatively low comparative clinker outputs. Significant capacity declines in Illinois and southern Texas in 2007 were because of closures (one kiln per district) at yearend 2006. A large apparent capacity increase in Maryland appears to be the result of underreporting of daily capacity at one plant in recent years.

Nonfuel raw materials consumed to make clinker and cement are listed in table 6. The 2007 ratios among clinker raw materials (as contributors of major oxides) appear to be broadly similar to those in 2006. Direct comparison of ratios among raw materials should be done with caution; tonnage and tonnage ratio changes could reflect widespread raw material substitution, activities at just a few plants, or even errors in reporting.

For fly ash and bottom ash, a comparison can be made between the data in table 6 and those published for sales (by coal-fired electric utilities) of coal combustion products (for cement or as raw feed for clinker) by the American Coal Ash Association (ACAA). For fly ash, table 6 lists consumption of 3.17 Mt of fly ash for clinker and 0.08 Mt for cement; the corresponding ACAA number (both uses combined) is about 3.3 Mt (American Coal Ash Association, 2008). For bottom ash, consumption was about 1.05 Mt for clinker only (table 6), and the ACAA reported 0.55 Mt of bottom ash sales. The difference in the two datasets probably reflects a difference between consumption (table 6)—which is from a mix of ongoing purchases and drawdown of stockpiles—and sales (ACAA) and the fact that the ACAA data are extrapolated. The ACAA also reported minor sales (about 6,200 t) of boiler slag, but the host category in table 6 ("other slag") contains a number of slag types (mostly from various smelters), and the identity of the slags is poorly constrained. Consumption of gypsum by the cement industry was 5.16 Mt in 2007 (table 6). Of this amount, at least 0.45 Mt was synthetic gypsum (the differentiation from natural gypsum is not required on the USGS canvass). This was notably less than the ACAA reported sales of 0.6 Mt of flue gas desulfurization (FGD) gypsum to the cement industry, and this material would exclude that from SOx scrubbers at the cement plants themselves.

Data for fuel quantities consumed by the cement industry are listed in table 7. As with the nonfuel raw materials, data shifts can reflect activities at just a few plants. In terms of overall mass ratios among fuels (in total) and overall to clinker production, few significant changes in 2007 are evident. Wet kilns reported burning significantly more fuel oil and less liquid waste during the year, but this may reflect a component of waste oil being reported as fuel oil. Changes in natural gas consumption likely relate to maintenance issues, as the fuel is mainly used for preliminary heating of kilns after shutdowns. Although not revealed in table 7, overall heat consumption (gross heat basis) in 2006–07 was about 4.5 billion joules (GJ) per metric ton of clinker. Wet plants were unchanged at an average of about 6.5 GJ per ton of clinker, and dry kiln plants averaged about 4.0 GJ per ton of clinker, down by about 2%. The two remaining combination plants (operating both wet and dry kilns) averaged 6.1 GJ per ton in 2007, up by 24.5% from the three plants in this category in 2006. Overall, 2007 continued a multiyear trend of generally decreasing unit heat or fuel consumption by the industry;[3] this trend reflected a number of plant conversions from wet to dry technology and a variety of other energy-saving measures. Improved energy efficiency has led to reductions in unit fuel combustion emissions of CO_2. As in past years, the largest share of heat energy used in 2007 was from coal (about 65%) and petroleum coke (20%).

[2]Yearend stockpiles of clinker are an artifact of data collection convenience rather than a reflection of full-year market conditions or production capacity. Generally, if the clinker is not required for immediate cement production, a plant will try to build up its stocks of clinker prior to scheduled extended kiln shutdowns so as to provide continuity of clinker feed to the finish (cement) mill. These shutdowns can happen at any time of the year.

[3]For example, the overall unit heat consumption for 2007 was 11% lower than that in 2000 as reported by van Oss and Padovani (2002; table 4).

Overall unit electricity consumption increased in 2007 (table 8), likely related to maintenance issues or upgrades (total downtime, not just that for routine maintenance). Modern dry process plants have for many years reported higher average electricity consumption per ton of cement product than many wet process plants because of a complex array of blowers and fans associated with the modern kiln lines, but the difference has become very small in recent years, largely owing to increased consumption at the remaining wet plants.

In February, Vulcan Materials Co. announced that it would purchase Florida Rock Industries, Inc.; the acquisition was completed in November (Vulcan Materials Co., 2007a, b). Florida Rock had a number of concrete and aggregates facilities in Florida and adjacent States. In Florida itself, Florida Rock had an integrated cement plant at Newberry, a cement grinding plant at Port Manatee, and a cement and GGBFS grinding plant at Tampa.

In May, HeidelbergCement AG announced that it would purchase the worldwide assets of British construction materials company Hanson PLC. The purchase was completed in August (HeidelbergCement AG, 2007a, b). Apart from a variety of concrete and aggregates facilities in the United States, other U.S. assets of Hanson included the Permanente cement plant in California and a GGBFS grinding plant at Cape Canaveral, FL. The Hanson assets were to be operated by Heidelberg's U.S. subsidiary, Lehigh Cement.

In July, CEMEX, S.A. de C.V. announced that it had completed the purchase of the worldwide assets of Australian company Rinker Group Ltd (CEMEX, S.A. de C.V., 2007a). CEMEX's initial offer, made in October 2006, had been rejected, but the bid had been increased early in 2007. With this purchase, CEMEX acquired two cement plants in Florida (at Brooksville, near a cement plant already owned by CEMEX, and at Miami), and a large number of concrete plants. The approval process for this purchase required that CEMEX sell 39 ready-mixed concrete and aggregates operations in Arizona and Florida; these sales were completed in November (CEMEX, S.A. de C.V., 2007b).

At midyear, Holcim completed the purchase of the 21% of Canadian cement producer St. Lawrence Cement Group that it did not already own (International Cement Review, 2007). St. Lawrence had two integrated plants in the United States (Catskill, NY, and Hagerstown, MD); operational management of these two plants was expected to be transferred to Holcim beginning in 2008.

Construction of GCC Rio Grande, Inc.'s 1.0-million-metric-ton-per-year (Mt/yr) plant at Pueblo, CO, was completed late in the year but did not record any clinker production until January 2008. There were no other plant openings, and no plant closures, reported during the year.

In March, Votorantim Cimento North America (a subsidiary of Votorantim Group of Brazil) reported that it was planning to construct an integrated cement plant near Perry, GA, under the operating name Houston American Cement Co. (Perkins, 2007); the plant was targeted to be operational in 2010. In September, CEMEX announced its intention to build a 1.7-Mt/yr integrated plant near Seligman, AZ (CEMEX, Inc., 2007b). The new plant, scheduled for completion in 2012, was to service the Phoenix, AZ, market, but would presumably be able to supply the Las Vegas, NV, market as well. The Seligman project announcement followed Ash Grove's late August announcement cancelling plans (announced in 2004) to build a large integrated cement plant on the Moapa Indian Reservation near Las Vegas, NV (Cement Americas, 2007).

Upgrades were underway at a number of existing plants, but most projects were still ongoing as of yearend. One completed project was that at TXI's Oro Grande, CA, plant, where a new precalciner kiln line was completed in December. The new line, which was to replace the plant's seven existing long dry kilns, was first fired in January 2008. In March, CEMEX broke ground for its project to add a new kiln line at its Balcones plant at New Braunfels, TX; the project had been announced in 2006 and was to double the plant's existing capacity (CEMEX, Inc., 2007a). The new kiln was expected to be operational in late 2008. In October, Ash Grove broke ground on its expansion project at its Foreman, AR, plant. The company was building a 1.5-Mt/yr preheater-precalciner kiln to replace the existing three wet kilns and which will more than double the plant's current capacity. The project was expected to be completed late in 2009 (Texarkana Gazette, 2007). In October, Lehigh announced that it planned to expand its Mitchell, IN, plant. The upgrade would replace the plant's existing three preheater kilns with a single preheater-precalciner kiln of approximately 1.5-Mt/yr capacity. Startup was anticipated in 2012 (Cement Newsline, 2007; Lehigh Cement Co., 2007). In August, TXI awarded contracts for a new 1.1-Mt/yr kiln line at its Hunter plant at New Braunfels, TX. The project was scheduled to be completed in late 2009 (Zachry Construction Corp., 2007). In November, Lafarge announced the start of a project to expand its Joppa plant at Grand Chain, IL, by approximately 1.8 Mt/yr; the new kiln was expected to be online in late 2010 (Lafarge North America Inc, 2007).

Consumption

The consumption data preferred by the cement industry for market analysis are monthly cement shipments (sales) tonnages to final domestic customers, by State; these data are published monthly by the USGS and have been summarized in table 9. Although the national sales totals in table 9 are similar to the shipments totals in tables 11, 12, and 14, only the table 9 breakout tonnages represent State-level consumption. The regional breakouts in tables 11, 12, and 14 simply pertain to the locations of the reporting entities (chiefly the production sites), not the locations of consumption. It is very common for shipments to cross State lines.

The severe decline in new homes construction that had characterized most of 2006 continued through all of 2007 and was accompanied by a tightening of the loan market. Housing prices fell and, together with rises in the number of home foreclosures, caused State property tax revenues to decline and general levels of consumer spending to fall. These factors threatened to reduce current and future year expenditures in a number of construction sectors. Overall, domestic portland cement consumption in 2007 fell by about 11.5 Mt or 9.4%.

Although overall consumption in 2006 was nearly a record high, the performance that year had been based on a very strong first quarter, followed by a steady decline thereafter. This trend continued throughout 2007; sales declined in every month during the year relative to the same months in 2006. For 2007 overall, consumption was lower in all but a few States; of the traditionally leading consuming States, only Texas showed an increase in consumption during the year. As noted earlier, the market decline was largely accommodated by large apparent drawdowns of cement stockpiles and very large reductions in cement imports rather than by a major drop in production. In contrast, consumption of masonry cement fell by nearly 21% and was accommodated mainly by reduced production.

The portland cement consumption (sales) data in 2007 do not include sales by some importers that have yet to participate in the USGS monthly and annual surveys. An estimate of these missing importers' sales can be made by comparing official (U.S. Census Bureau) trade data (tables 17 and 21) with the import origins of sales (table 9). The official cement imports were about 1.2 Mt higher than the foreign origins tonnages. Adjusting for the (estimated) imports of cement varieties not canvassed by the USGS (chiefly aluminous cement) and for drawdowns of imported cement stockpiles, the difference suggests that the table 9 data for 2007 underreport true overall portland cement sales by about 1 Mt or nearly 1%. It is difficult to estimate the breakout of these missing sales by State, although it is possible to do so for Texas because of the existence of a special tax on cement sales and associated public data on the sales tonnages (by company) through the Texas Comptroller of Public Accounts. Based on these records, it may be estimated that the USGS sales data for Texas overall (table 9) understate the consumption by approximately 0.28 Mt in 2007. Based on trade data (table 18), USGS consumption data for markets serviced by the Philadelphia, PA, customs district understate sales by about 0.31 Mt.

As a key construction material, cement consumption levels and trends within a given category of construction will broadly reflect levels of construction spending, although significant time lags may exist between the onset or cutoff of spending and changes in the consumption of cement. In terms of 1996 constant dollars, overall construction spending in 2007 fell by 5.6% to $710 billion (Portland Cement Association, 2009). The residential construction sector continued to be dominant at $308 billion, down by 20.2%. The decline was led by a 27.4% fall (to $190 billion) in single-family housing construction; multifamily construction spending declined by a more modest 7.9% to $31 billion. The private nonresidential construction sector was up by 12.4% overall to $163 billion, possibly owing to continued lag effects of the very strong housing sector in 2005 and early 2006. Public sector construction was up by 4.8% to about $181 billion; however, the road construction component fell by 1.6% to about $48 billion. Sewage and waste disposal construction rose by 2.2% to nearly $17 billion, but water supply construction fell by 2.8% to about $10 billion.

A breakout of portland cement sales by customer type is given in table 14. Sales to ready-mixed concrete producers accounted for about 74% of total shipments, but the true tonnage for this type of concrete was larger because some of it was recorded under other customer categories, such as road paving contractors. As listed, the sales to ready-mixed customers declined by 9%, in line with the overall decline in portland cement consumption. The decrease in residential funding is at least qualitatively reflected in a 12% fall in sales tonnages to brick and block manufacturers, as well as in the large relative drop in masonry cement sales. Residential funding declines would also appear to have influenced a nearly 14% decline in portland cement sales to pipe manufacturers and a 12% drop in sales to building materials suppliers. However, a nearly 7% decline in sales to precast-prestressed concrete contractors is not in accord with the overall increase in spending levels for private nonresidential construction and for public sector construction. Sales to road contractors fell by almost 7%; a significantly larger drop than that in road and highway construction funding. Sales to oil and gas well drillers and to mining companies were up by about 8% and 13%, respectively, both in line with high commodity prices and exploration and mining activity during the year.

Sales to final customers of different types of portland cement are listed in table 15. As in past years, sales were dominated by Types I and II cements and sulfate-resistant varieties of cement (Type V and Type II/V hybrids reported as Type V). Sales of Type V cement fell by 18.6%, reflecting large overall declines in the construction market in the southwestern States, including California. Sales of oil-well cements rose 4.1% but continued to represent a lower tonnage than portland cement sales to "oil well drillers" (table 14); relatively shallow oil and gas drilling can use standard types of portland cement.

After several years of generally steady growth, blended cement sales declined significantly in 2007. Total sales of blended cements fell by 25.5%, but the reason for this is unclear given that the percentage decline was much larger than that for sales of portland cement overall (-9.8%), of sales to any particular customer type (table 14), or of public sector construction spending (where blended cements would most likely be used). Sales of blended cement containing GGBFS fell by 33.5% to 1.09 Mt compared with the downwards revised (by 0.24 Mt) 2006 value. The revision for 2006 was to correct for Type I portland cement sold under ASTM standard C–1157; at one time, this performance standard was just for blended cements, but the standard was subsequently broadened to include both ordinary and blended hydraulic cements. The overall tonnage of blended cement containing GGBFS in 2007 is similar to that for the year (1.047 Mt) published by the Slag Cement Association (2008).

Data on the mill net values for shipments to final customers by plants and import terminals (terminal nets) are listed in tables 11 to 13. Despite significantly reduced sales tonnages, the average mill net values of portland and masonry cement rose modestly in 2007. The average mill net value for portland cement increased by $2.00 to about $101.50 per metric ton; this followed a nearly 28% unit value increase during the two years 2005–06.

Foreign Trade

Trade data from the U.S. Census Bureau are presented in tables 16–21. Exports continued to be very small compared with imports, and Canada continued to be the dominant recipient of the exports. Exports of hydraulic cement and clinker rose by 22.5% to 0.89 Mt, the highest tonnage since 1948; both the 2006 and 2007 data have been corrected to remove an apparent excess (of 0.74 Mt and 0.65 Mt, respectively) of aluminous cement exports to Mexico through Laredo, TX. Imports of cement and clinker in 2007 were 22.5 Mt, a drop of 36.8% from the record levels in 2006 (table 17). The cement component of the imports (table 1; table 17 minus table 21) fell by 33.1% to 21.5 Mt. Overall declines were seen every month during the year and continued a trend that began in August 2006. It was clear that most of the decline in cement sales in 2007 was accommodated by reducing imports. This, in turn, reflected high spot-shipping rates during the year and the fact that since the early 1990s, the majority of cement imports have been controlled by domestic cement producers, and they largely import only to make up for production shortfalls.

Imports of clinker (table 21) fell by 71.6% to just 0.97 Mt, the lowest level since 1983. As in previous years, however, the data were incomplete with regards to overland imports from Canada; the tonnages listed were insufficient to supply the grinding plants in Michigan and Washington (all of which imported their clinker from Canada). The unreported Canadian clinker appeared to be mostly coming in by truck, at a value of less than $2,000 (customs value) per truckload; such shipments are classified as "informal entries" and data on them are not routinely transmitted by the U.S. Customs Service to the U.S. Census Bureau for recordation into the official trade data (reproduced in tables 17–21). This problem presumably does not exist for imports by rail or by ship because these shipments are larger. Clinker imports from Canada were estimated to be higher than those reported in tables 1 and 21 by about 0.7 Mt in 2006 and 0.6 Mt in 2007.

For cement and clinker combined, the 10 busiest customs districts of entry in 2007 were, in descending order, Houston-Galveston, TX; Los Angeles, CA; Seattle, WA; San Francisco, CA; Tampa, FL; Columbia-Snake, OR and WA; New Orleans, LA; Miami, FL; Detroit, MI; and New York, NY (table 18). These leading districts accounted for about 70% of the total imports for the year. The rankings were very different from those of 2006.

As in 2006, the United States imported cement and/or clinker from 37 countries in 2007. The leading 10 country suppliers were, in descending order, China, Canada (not including informal imports), the Republic of Korea, Taiwan, Mexico, Colombia, Greece, Brazil, Sweden, and Peru. Together, these major sources accounted for about 92% of the total imports. Imports from China in 2007 were about one-half those in 2006. This reflected not only much lower cement consumption levels in California, but also unit price increases resulting from the Chinese Government's elimination at midyear of substantial export subsidies on cement. Other major import tonnage declines were from Thailand (-81%), and Greece (-64%). Notwithstanding almost insignificant antidumping tariffs, imports from Mexico fell by nearly 26% and were well below the agreed-upon annual quota of 3 Mt.

Gray portland cement (table 19) continued to be by far the dominant component of cement imports, although the official data understate the true total because some gray cement, typically, is misregistered by importers as white cement (table 20). In 2007, the misregistration was notable in the monthly data for "white" cement imports from Canada and China, but it occurred elsewhere as well. Generally, if the unit values (table 20) calculated on a cost-insurance-freight (c.i.f.) basis are below $90 to $100 per metric ton, the data likely include a component of gray portland cement or clinker. For 2007, although this value anomaly is not obvious in the table 20 data for Canada and China (owing to the data including significant valid white cement imports), the anomaly is present for the "white" cement from Taiwan.

After excluding the questionable "white" tonnages in table 20, remaining imports of white cement in 2007 (about 1.2 Mt) appear sufficient in themselves to fully supply the sales of white portland cement reported in table 15. However, given that the three U.S. white cement plants all produced clinker at 60% to 100% of capacity during the year and recorded no unduly large shifts in cement stockpiles, there would appear to be an estimated excess of about 0.3 Mt of white cement relative to the sales after accounting for white cement exports (28,411 t in 2007) and an estimate of white material incorporated within the overall sales of masonry cement (tables 9, 12). It is possible that the white cement component of total cement sales is being underreported (included within gray cement) by some respondents to the USGS annual canvass.

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 plus masonry cement only and data for some other countries also may be incomplete. For some countries, the production data may include their exports of clinker.

World cement output in 2007 was an estimated 2.8 billion metric tons (Gt), up by about 6.5%. Production was from more than 150 countries. China continued to be, by far, the world's leading producer, with an output of nearly 1.4 Gt (up by 9.5%) or about 49% of the world total. The remaining top 15 producing countries were, in descending order, India, the United States, Japan, the Republic of Korea, Russia, Spain, Turkey, Italy, Brazil, Mexico, Egypt, Vietnam, Indonesia, and Thailand. Cumulatively, the top 5 countries had about 63% of total world output; the top 10 countries, about 75%; and the top 15 countries, about 79%.

Regionally, Asia contributed about 67% of world production and included 9 of the 20 leading producing countries. Western Europe had about 8% of total output; the Middle East (including Turkey) and North America, nearly 6% each; Africa, Central America and South America (combined), and the Commonwealth of Independent States, about 4% each; and Eastern Europe, about 2%.

Outlook

The general economic downturn that characterized 2007 was expected to continue in 2008. Portland cement consumption was expected to decline by at least 10% in 2008, and masonry cement to decline by a higher percentage. Although imports of cement were expected to drop substantially in 2008, it was recognized that, unlike in 2007, the anticipated declines in cement consumption in 2008 and perhaps beyond would result in a significant drop in production of cement and clinker. It was unclear to what degree such a drop could be accomplished without closure of kilns or entire plants; some of the country's wet kiln plants were especially vulnerable in this regard. The continued viability of some of the new plant or plant expansion projects was likewise in doubt, especially for projects still far from completion. The August 1 catastrophic failure of the I–35W bridge in Minneapolis, MN, brought renewed attention at both State and Federal levels to the poor condition of many of the Nation's bridges and other transportation infrastructure, and it was widely agreed that major additional funding would be needed to address the infrastructure deficiencies. How this funding could be obtained at a time of greatly diminished tax revenues to the States remained an open question.

It was expected that States, and ultimately the Federal Government, would become more proactive in encouraging, and likely mandating, reductions in industrial emissions of greenhouse gases, and that there thus would be increasing incentive to use SCM in finished cement and concrete and alternative (noncarbonate, less energy-intensive) raw materials in clinker manufacture. In this regard, efforts to regulate the transportation, storage, and use of fly ash to help control mercury emissions by cement plants were viewed by the cement industry as counterproductive; fly ash is a popular alternative raw material and it is the most readily available SCM.

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TABLE 1

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

(Thousand metric tons unless otherwise specified)

		2003	2004	2005	2006	2007
United States:[2]						
Production:						
Cement[3]		92,843	97,434	99,319	98,167	95,464
Clinker		81,882	86,658	87,405	88,555	86,130
Shipments from mills and terminals:[3, 4, 5]						
Quantity		111,000	120,000	128,000	127,000	114,000
Value[6]	thousands dollars	8,340,000	9,520,000	11,700,000	12,900,000	11,800,000
Average value[6]	dollars per metric ton	75.00	79.50	91.00	101.50	103.00
Stocks at mills and terminals, yearend		6,610	6,740	7,450	9,380	8,900
Exports of cement and clinker		837	749	766	723 [7]	886 [7]
Imports for consumption:[8]						
Cement		21,015	25,396	30,403	32,141	21,496
Clinker		1,808	1,630	2,858	3,425	972
Total[9]		22,823	27,026	33,261	35,566	22,468
Consumption, apparent[10]		114,090	121,950	128,250	127,660	116,550
World production [11]		2,030,000	2,190,000	2,350,000	2,600,000 [r]	2,770,000 [e]

[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.

[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 at mill or independently reporting terminal of cement shipments to final domestic customers.

[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 portland and masonry 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, excepting 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, Lampass, 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 CEMENT PRODUCTION, CAPACITY, AND STOCKS IN THE UNITED STATES, BY DISTRICT[1]

(Thousand metric tons unless otherwise specified)

	2006					2007				
			Capacity[2]					Capacity[2]		
District[3]	Active plants	Production[4]	Finish grinding	Percentage utilized[5]	Yearend stocks[6]	Active plants	Production[4]	Finish grinding	Percentage utilized[5]	Yearend stocks[6]
Maine and New York	5	3,356	4,203	79.8	235	5	3,149	4,165	75.6	307 [7]
Pennsylvania, eastern	7	4,411	5,430 [r, 7]	81.3	277 [7]	7	4,070	5,520 [7]	73.8	304
Pennsylvania, western	3	1,605	1,770 [7]	90.7	117	3	1,591	1,805	88.1	135
Illinois	4	3,108	3,420 [7]	91.0	171 [7]	4	3,116	3,417	91.2	285
Indiana	4	3,025	3,720 [7]	81.3	234	4	2,981	3,740	79.7	254
Michigan	5	5,437	7,328	74.2	422 [7]	5	5,486	7,330 [7]	74.9	292 [7]
Ohio	2	966	1,304	74.1	60	2	916	1,198	76.5	35
Iowa, Nebraska, South Dakota	5	4,558	6,048	75.4	516	5	4,436	6,007	73.8	453
Kansas	4	3,003	3,329	90.2	249	4	2,757	3,230 [7]	85.4	242
Missouri	5	5,240	6,958	75.3	678	5	5,229	6,958	75.1	695
Florida[8]	7	5,876	7,301	80.5	591 [7]	7	5,512	7,301	75.5	520
Georgia, Virginia, West Virginia	4	2,446	3,440 [7]	71.2	280	4	2,294	3,324	69.0	286
Maryland	3	2,651	3,087	85.9	222 [7]	3	2,998	3,132	95.7	310
South Carolina	3	3,315	5,109	64.9	223	3	3,681	5,082	72.4	295 [7]
Alabama	5	5,201	6,036	86.2	403	5	5,061	7,075	71.5	348
Kentucky, Mississippi, Tennessee	4	3,492	3,700 [7]	94.3	348	4	3,420	3,736	91.5	330
Arkansas and Oklahoma	4	2,703	3,260 [7]	83.0	233	4	2,613	3,136	83.3	216
Texas, northern	6	6,467	7,594	85.2	903 [7]	6	6,294	7,600	82.8	682
Texas, southern	6	4,882	5,850 [7]	83.4	411	6	4,627	5,830 [7]	79.3	315
Arizona and New Mexico	3	2,549	3,310 [7]	77.0	163	3	2,633	3,116	84.5	136
Colorado and Wyoming	3	2,579	3,450 [7]	72.8	238	3	2,538	3,542	71.7	173
Idaho, Montana, Nevada, Utah	6	3,043	3,750 [7]	81.2	256	6	3,002	3,753	80.0	251
Alaska and Hawaii	--	--	--	--	97	--	--	--	--	59
California, northern	3	2,454	2,853	86.0	318 [7]	3	2,210	2,853	77.5	233
California, southern	8	8,495	11,047 [r]	76.9 [r]	435 [7]	8	8,623	11,047	78.1	311
Oregon and Washington	4	1,906	2,540	75.1	158 [7]	4	1,908	2,591	73.6	294 [7]
Importers[9]	--	--	--	--	456 [7]	--	--	--	--	413 [7]
Total or average[10]	113	92,768	116,000 [r, 7]	80.6	8,700 [7]	113	91,144	116,000 [7]	78.2	8,170 [7]
Puerto Rico	2	1,546	2,462	62.8	26 [7]	2	1,386	1,898	73.0	52
Grand total or average[10]	115	94,313	118,000 [7]	80.2	8,720 [7]	115	92,530	118,000 [7]	78.2	8,230 [7]

[r]Revised. -- Zero.

[1]Even when presented unrounded, data are thought to be accurate to no more than three significant digits. Includes data for white cement.

[2]Reported 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.

[3]District assignation is the location of the reporting facilities, including terminals. Includes independent importers for which district assignations were possible.

[4]Includes cement made from imported clinker.

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

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

[7]Data contains estimates for nonrespondent or incompletely reporting facilities.

[8]Production and grinding 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.

TABLE 4

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

	2006			2007		
District[4]	Active plants	Production[2] (thousand metric tons)	Stocks at yearend[3] (thousand metric tons)	Active plants	Production[2] (thousand metric tons)	Stocks at yearend[3] (thousand metric tons)
Maine and New York	4	119	20	4	101	20
Pennsylvania	9	384	63 [5]	9	304	61 [5]
Indiana and Ohio	6	529	75	6	462	74
Michigan	4	176	38 [5]	4	149	45
Iowa, Nebraska, South Dakota	2	W	W	2	W	W
Kansas	2	W	W	2	W	W
Missouri	2	W	W	1	W	W
Florida	5	900	45	5	524	40
Georgia, Maryland, Virginia, West Virginia	7 [r]	511	63	7	468	59
South Carolina	3	575	48	3	491	34
Alabama	4	526	67	4	450	75
Kentucky, Mississippi, Tennessee	3	W	W	3	W	W
Arkansas and Oklahoma	4	193	21	4	148	20
Texas	7	382	121	8	368	155
Arizona and New Mexico	3	W	W	3	W	W
Colorado and Wyoming	2	W	W	2	W	W
Idaho, Montana, Nevada, Utah	1	W	W	1	W	W
California, northern	3	92	12	3	76	10
California, southern	4	605	18	4	446	22
Importers[6]	--	--	3 [5]	--	--	3 [5]
Total[7]	75 [r]	5,399	689 [5]	75	4,320	724 [5]

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

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

[2]Includes cement produced from imported clinker.

[3]Includes imported cement.

[4]District assignation is the location of the reporting facilities, including importers for which district assignations were possible.

[5]Data contains 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 to totals shown because of independent rounding.

TABLE 5

CLINKER CAPACITY AND PRODUCTION IN THE UNITED STATES IN 2007, BY DISTRICT[1]

District	Active plants[2]				Number of kilns[4]	Daily capacity[3, 4] (thousand metric tons)	Average days of routine maintenance[4]	Apparent annual capacity[4, 5] (thousand metric tons)	Production (thousand metric tons)	Percentage of capacity utilized	Yearend stocks[6] (thousand metric tons)
	Process used										
	Wet	Dry	Both	Total							
Maine and New York	2	2	--	4	5	10.8 [7]	33.6	3,570 [7]	3,179	88.9 [7]	311
Pennsylvania, eastern	2	4	--	6	10	14.5	26.3	4,883	3,880	79.5	220
Pennsylvania, western	2	1	--	3	7	5.2	15.0 [7]	1,820 [7]	1,591	87.3 [7]	67
Illinois	--	4	--	4	7	9.6	12.2	3,361	2,869	85.4	138
Indiana	1	3 [8]	--	4	8	10.3	27.7	3,455	3,082	89.2	220
Michigan	1	2	--	3	8	14.1	22.6	4,804	4,112	85.6	428 [7]
Ohio	1	1	--	2	3	3.4	21.8	1,153	877	76.1	99
Iowa, Nebraska, South Dakota	--	4	1	5	9	14.1	19.3	4,824	4,191	86.9	352
Kansas	1	3	--	4	9	9.7	27.3	3,289	2,626	79.9	123
Missouri	2	3	--	5	6	16.1	26.5	5,415	4,927	91.0	426 [7]
Florida	--	6	--	6	7	17.7	22.1	6,033	5,229	86.7	442
Georgia, Virginia, West Virginia	1	2	--	3	5	8.3	15.9	2,869	2,336	81.4	181
Maryland	1	2	--	3	4	9.4 [7]	32.8	3,100 [7]	2,829	91.2 [7]	125
South Carolina	--	3	--	3	3	12.3	21.6	4,251	3,512	82.6	241
Alabama	--	5	--	5	5	16.5	25.5	5,586	4,898	87.7	183 [7]
Kentucky, Mississippi, Tennessee	1	3	--	4	4	10.5	13.9	3,689	3,317	89.9	251
Arkansas and Oklahoma	2	2	--	4	10	8.0 [7]	18.5	2,770 [7]	2,463	88.9 [7]	103
Texas, northern	2	3	1	6	16	22.6	15.9	7,777	6,031	77.5	613
Texas, southern	--	5	--	5	5	13.0	17.5	4,520	4,143	91.7	302
Arizona and New Mexico	--	3	--	3	7	8.6	21.3	2,940	2,500	85.0	347
Colorado and Wyoming	--	3	--	3	4	8.9	22.7	3,014	2,194	72.8	120
Idaho, Montana, Nevada, Utah	3	3	--	6	8	8.7	24.3	2,978	2,722	91.4	132
California, northern	--	3	--	3	3	8.8	25.9	2,970 [7]	2,217	74.6 [7]	140
California, southern	--	8	--	8	17	29.2	23.5 [7]	9,969	8,661	86.9	905 [7]
Oregon and Washington	1	2	--	3	3	6.4 [7]	38.2	2,070 [7]	1,743	84.3 [7]	78
Total or average[9]	23	80	2	105	173	297.0 [7]	21.8 [7]	101,000 [7]	86,130	85.2 [7]	6,550 [7]
Puerto Rico	--	2	--	2	2	5.5	39.8	1,797	1,336	74.3	123
Grand total or average[9]	23	82	2	107	175	302.0 [7]	22.0 [7]	103,000 [7]	87,466	85.0 [7]	6,670 [7]

-- 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 active for at least one day during the year.

[3]Sum of reported daily kiln capacities for each plant in district.

[4]Kilns active at least one day during the year. Excludes idle kilns (full year) that cannot be restarted, fully permitted, in less than 6 months.

[5]Sum of apparent annual kiln capacities: for each kiln, calculated as 365 days minus days reported as shut down for routine maintenance and then multiplied by the reported (unrounded) daily capacity.

[6]Includes imported clinker and clinker stockpiles at grinding plants.

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

[8]Includes one semidry kiln.

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

TABLE 6

RAW MATERIALS USED IN PRODUCING CLINKER AND CEMENT IN THE UNITED STATES[1, 2]

(Thousand metric tons)

Raw materials	2006		2007	
	Clinker	Cement[3]	Clinker	Cement[3]
Calcareous:				
Limestone (includes aragonite, chalk, coral, marble)	114,000	2,380	112,000	2,150
Cement rock (includes marl)	13,300	52	10,800	6
Cement kiln dust (CKD)[4]	178	364	629	336
Lime[5]	121	21	292	38
Other	22	19	23	--
Aluminous:				
Clay	4,770	--	4,300	--
Shale	3,010	37	3,670	16
Other[6]	637	--	712	--
Ferrous:				
Iron ore	752	--	584	--
Mill scale	754	--	1,080	--
Other[7]	55	--	47	--
Siliceous:				
Sand and calcium silicate	3,620	--	3,940	--
Sandstone, quartzite, soils, other	1,030	--	986	--
Fly ash	2,950	130	3,170	84
Other ash, including bottom ash	1,190	--	1,050	--
Granulated blast furnace slag[8]	207	678	323	540
Other blast furnace slag	324	--	73	--
Steel slag	490	--	547	--
Other slags	145	2	100	8
Natural rock pozzolans[9]	--	15	--	11
Other pozzolans[10]	139	14	98	6
Other:				
Gypsum and anhydrite	--	5,440	--	5,160
Other, n.e.c.[11]	66	92	131	98
Total[12]	148,000	9,240	145,000	8,450
Clinker, imported, raw materials equivalent[13]	--	4,210	--	2,650
Grand total[12]	148,000	13,500	145,000	11,100

-- 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 underreported.

[5]Data are probably underreported, especially regarding incorporation within masonry cements.

[6]Includes alumina, aluminum dross, bauxite, catalysts, staurolite, and other materials.

[7]Includes iron sludges, pyrite, and other materials.

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

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

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

[11]Not elsewhere classified. Includes fluorspar.

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

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

TABLE 7

CLINKER PRODUCED AND FUEL CONSUMED BY THE CEMENT INDUSTRY IN THE UNITED STATES, BY PROCESS[1]

	Clinker produced[3]			Conventional fuels consumed[2]					Waste fuel consumed[2]	
Kiln process	Active plants	Quantity (thousand metric tons)	Percentage of total	Coal[4] (thousand metric tons)	Petroleum coke (thousand metric tons)	Oil[5] (thousand liters)	Natural gas (thousand cubic meters)	Tires (thousand metric tons)	Solid (thousand metric tons)	Liquid (thousand liters)
2006:										
Wet	23	11,659	13.2	1,530	518	33,700	18,000	90	19	585,000
Dry	79	72,742	82.1	7,340	1,860	46,700	306,000	323	283	360,000
Both	3	4,154	4.7	661	13	--	44,800	5	--	42,600
Total[6]	105	88,555	100.0	9,540	2,390	80,400	369,000	418	302	988,000
2007:										
Wet	23	11,608	13.5	1,470	574	39,200	29,800	90	20	549,000
Dry	80	71,204	82.7	7,320	1,780 [7]	47,800	262,000	355	275	396,000
Both	2	3,318	3.9	529	--	--	38,900	--	--	38,600
Total[6]	105	86,130	100.0	9,310	2,360	87,000	331,000	446	296	984,000

-- Zero

[1] Data exclude Puerto Rico.

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

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

[4]Essentially all reported to be bituminous.

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

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

[7] Includes a minor quantity (less than 0.03 units) of metallurgical coke.

TABLE 8

ELECTRIC ENERGY USED AT CEMENT PLANTS IN THE UNITED STATES, BY PROCESS[1]

	Electric energy used[2]							Finished cement produced[4] (thousand metric tons)	Average consumption (kilowatthours per metric ton of cement produced)
	Generated at plant		Purchased		Total[3]				
Plant process	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Percentage		
2006:									
Integrated plants:									
Wet	1	(5)	23	1,770	23	1,770	13.1	12,741	139
Dry	5	476	79	10,600	79	11,100	82.3	79,014	141
Both[5]	--	--	3	622	3	622	4.6	4,098	152
Total or average[3]	6	476	105	13,000	105	13,500	100.0	95,854	141
Grinding plants[6]	--	--	6	160	6	160	--	1,962	81
Exclusions[7]	--	--	2	XX	2	XX	--	351	XX
2007:									
Integrated plants:									
Wet	1	(5)	23	1,750	23	1,750	13.2	12,446	141
Dry	4	435	80	10,600	80	11,100	83.1	77,702	142
Both	--	--	2	495	2	495	3.7	3,291	150
Total or average[3]	5	436	105	12,900	105	13,300	100.0	93,439	142
Grinding plants[6]	--	--	7	147	7	147	--	1,914	77
Exclusions[7]	--	--	2	XX	2	XX	--	111	XX

XX Not applicable. -- Zero.

[1]Data exclude 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]Include portland and masonry cements. Data are all reported and have not been rounded.

[5]Less than ½ unit.

[6]Excludes plants that reported production only of masonry cement.

[7]Plants that 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	
	2006	2007	2006	2007
Destination:				
Alabama	1,798	1,771	196	174
Alaska[3]	176	222	--	--
Arizona	4,611	3,822	103	77
Arkansas	1,187	1,074	87	68
California, northern	4,761	4,095	130	104
California, southern	9,549	8,273	530	373
Colorado	2,641	2,411	31	17
Connecticut[3]	814	756	18	15
Delaware[3]	247	233	12	10
District of Columbia[3]	210	177	(4)	1
Florida	11,180	7,886	1,015	616
Georgia	4,484	4,014	394	340
Hawaii[3]	462	441	6	6
Idaho	724	682	1	1
Illinois, excluding Chicago	1,921	1,919	27	19
Illinois, metropolitan Chicago[3]	2,634	2,074	71	53
Indiana	2,173	2,166	84	74
Iowa	1,920	1,803	3	3
Kansas	1,546	1,360	11	11
Kentucky	1,330	1,250	104	88
Louisiana[3]	2,546	2,470	72	72
Maine	334	299	5	4
Maryland	1,614	1,468	95	78
Massachusetts[3]	1,196	1,022	21	17
Michigan	2,505	2,189	101	74
Minnesota[3]	1,902	1,683	15	20
Mississippi	1,176	1,186	80	75
Missouri	2,626	2,376	44	35
Montana	396	404	1	1
Nebraska	1,306	1,222	5	4
Nevada	2,626	2,223	29	23
New Hampshire[3]	336	301	7	7
New Jersey[3]	1,923	1,740	96	74
New Mexico	900	843	8	7
New York, eastern	662	619	18	16
New York, western[3]	798	772	25	21
New York, metropolitan[3]	1,893	1,770	104	90
North Carolina[3]	3,109	2,969	357	337
North Dakota[3]	368	353	2	1
Ohio	3,727	3,357	154	121
Oklahoma	1,543	1,500	69	56
Oregon	1,318	1,240	1	1
Pennsylvania, eastern	2,172	1,977	67	57
Pennsylvania, western	1,107	1,160	54	45
Rhode Island[3]	212	169	3	2
South Carolina	1,851	1,617	177	157
South Dakota	588	463	2	1
Tennessee	2,259	2,214	284	251
Texas, northern	6,499	6,635	170	141
Texas, southern	8,122	8,245	268	239
Utah	1,697	1,683	(4)	(4)
Vermont[3]	158	132	3	3
Virginia	2,639	2,370	188	159
Washington	2,351	2,587	2	1
West Virginia	562	522	26	24

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	
	2006	2007	2006	2007
Destination—Continued:				
Wisconsin	2,171	1,892	22	18
Wyoming	466	460	--	(4)
Total[5]	122,026	110,563	5,401	4,282
Foreign countries[6]	471 [r, 7]	581	(4)	(4)
Puerto Rico	1,813 [r, 7]	1,704	--	--
Grand total[5]	124,310 [r]	112,848	5,401	4,282
Origin:				
United States	91,931 [r]	90,776	5,354	4,209
Foreign countries[8]	30,821 [r]	20,580	47 [r]	73
Puerto Rico	1,558 [r]	1,492	-- [r]	--
Total shipments[5]	124,310 [r]	112,848	5,401	4,282

[r]Revised. -- 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. Includes any revisions to monthly data available through February 27, 2009. 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]Data for 2006 for foreign countries and for Puerto Rico were inadvertently reversed in the previous edition of this report.

[8]Imported cement sold to final customers in the United States as reported by domestic producers and other importers. Data do match the imports in tables 17–20.

TABLE 10
SHIPMENTS OF PORTLAND CEMENT FROM MILLS IN THE UNITED STATES,
IN BULK AND IN CONTAINERS, BY TYPE OF CARRIER[1, 2]

(Thousand metric tons)

	Shipments from plant to terminal		Shipments to final domestic consumer				
			From plant to consumer		From terminal to consumer		Total shipments to consumer[4]
	In bulk	In bags[3]	In bulk	In bags[3]	In bulk	In bags[3]	
2006:							
Railroad	11,600	12	1,740	16	804	1	2,560
Truck	4,700	285	63,500	1,760	52,700	736	119,000
Barge and boat	7,870	--	67	--	558	--	625
Total[4]	24,100	297	65,300	1,780	54,000	737	122,000 [5]
2007:							
Railroad	11,100	19	1,830	--	725	4	2,560
Truck	5,420	210	56,700	1,470	48,400	605	107,000
Barge and boat	9,350	11	211	--	17	--	229
Total[4]	25,900	239	58,800	1,470	49,100	610	110,000 [5]

-- Zero.

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

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

[3]Includes packages, bags, jumbo bags, and supersacks.

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

[5]Shipments are based on 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 BY PRODUCERS AND IMPORTERS IN THE UNITED STATES, BY DISTRICT[1]

District[4, 5]	2006			2007		
		Value[2]			Value[2]	
	Quantity[3] (thousand metric tons)	Total (thousands)	Average (dollars per metric ton)	Quantity[3] (thousand metric tons)	Total (thousands)	Average (dollars per metric ton)
Maine and New York	4,420 [6]	$451,000 [6]	102.00 [6]	3,866	$412,000 [6]	106.50 [6]
Pennsylvania, eastern	4,629	463,000 [6]	100.00 [6]	4,222	423,000 [6]	100.00 [6]
Pennsylvania, western	1,520 [6]	147,000 [6]	97.00 [6]	1,458	147,000 [6]	100.50 [6]
Illinois	3,616	358,000 [6]	99.00 [6]	3,301	331,000 [6]	100.50 [6]
Indiana	3,075	271,264	88.23	2,958	260,849	88.18
Michigan and Wisconsin	6,050 [6]	596,000 [6]	99.00 [6]	5,660 [6]	554,000 [6]	98.00 [6]
Ohio	949	94,360	99.47	882	88,935	100.83
Iowa, Nebraska, South Dakota	5,208	518,164	99.49	4,843	508,000 [6]	105.00 [6]
Kansas	2,526	240,854	95.35	2,182	223,403	102.37
Missouri	5,896	562,930	95.47	5,411	533,000 [6]	98.50 [6]
Florida	10,591	1,084,593	102.41	7,693	786,380	102.22
Georgia, Virginia, West Virginia	3,259	324,928	99.69	2,596	273,404	105.33
Maryland	2,960 [6]	264,000 [6]	89.50 [6]	3,207	283,459	88.38
South Carolina	3,723	330,187	88.69	3,710	358,000 [6]	96.50 [6]
Alabama	5,718	515,186	90.10	5,089	489,000 [6]	96.00 [6]
Kentucky, Mississippi, Tennessee	3,305	327,267	99.02	3,197	328,018	102.61
Arkansas and Oklahoma	2,830	262,542	92.77	2,709	259,000 [6]	95.50 [6]
Texas, northern	7,877	746,000 [6]	94.50 [6]	7,359	723,000 [6]	98.00 [6]
Texas, southern	6,543	607,741	92.89	6,953	671,111	96.52
Arizona and New Mexico	4,610	524,592	113.79	4,158	509,493	122.54
Colorado and Wyoming	2,842	281,020	98.87	2,614	280,594	107.36
Idaho, Montana, Nevada, Utah	3,420	361,630	105.74	3,381	372,865	103.18
Alaska and Hawaii	591	82,662	139.81	576	98,284	170.61
California, northern	4,063	434,390	106.91	3,286	354,038	107.74
California, southern	10,964	1,197,612	109.23	9,755	1,080,000 [6]	110.50 [6]
Oregon and Washington	2,690 [6]	252,000 [6]	93.50 [6]	2,779	283,193	99.34
Importers[7]	7,950 [6]	848,000 [6]	106.50 [6]	6,160 [6]	576,000 [6]	93.50 [6]
Total or average[8]	122,000 [6]	12,100,000 [6]	99.50 [6]	110,000 [6]	11,200,000 [6]	101.50 [6]
Puerto Rico	1,820	W	W	1,597	W	W
Grand total[8]	124,000 [6]	W	W	112,000 [6]	W	W

W Withheld to avoid disclosing company proprietary data.

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

[2]Values represent mill net or ex-plant (free on board plant) valuations of total sales to final customers, including sales from plant distribution terminals. The data are ex-terminal for independent terminals. All varieties of portland cement, and both bag and bulk shipments, are included. Unless otherwise specified, data are presented unrounded but may include cases where value data (only) were missing from survey forms and so were estimated. Accordingly, unrounded value data should be viewed as cement value indicators, accurate to no better than the nearest $0.50 or even $1.00 per metric ton.

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

[4]District is the location of the reporting entity, not necessarily the location of sales (see table 9 for sales data, by State).

[5]Includes shipments by import terminals where district assignments 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 because of independent rounding.

TABLE 12

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

	2006			2007		
		Value[3]			Value[3]	
District[5]	Quantity[4] (thousand metric tons)	Total (thousands)	Average (dollars per metric ton)	Quantity[4] (thousand metric tons)	Total (thousands)	Average (dollars per metric ton)
Maine and New York	128 [6]	$15,200 [6]	118.50 [6]	109	$13,500 [6]	124.00 [6]
Pennsylvania	347	47,300 [6]	136.00 [6]	281	37,500 [6]	133.00 [6]
Illinois, Indiana, Ohio	520	70,762	136.14	455	65,359	143.68
Michigan	200 [6]	25,800 [6]	129.00 [6]	142	19,300 [6]	135.50 [6]
Iowa, Nebraska, South Dakota	17	2,055	120.85	24	2,823	115.27
Kansas and Missouri	149	20,257	135.73	123	16,827	136.83
Florida	913	148,507	162.69	525	86,200 [6]	164.00 [6]
Georgia, Maryland, Virginia, West Virginia	427	69,549	162.70	429	76,220	177.77
South Carolina	484	57,986	119.86	444	54,228	122.20
Alabama	538	68,100 [6]	126.50 [6]	470	62,000 [6]	131.50 [6]
Kentucky, Mississippi, Tennessee	137	18,802	137.04	111	16,365	147.71
Arkansas and Oklahoma	179	20,800	116.30	146	17,031	116.28
Texas, northern	202	31,600 [6]	156.50 [6]	179	28,500 [6]	159.50 [6]
Texas, southern	204	24,391	119.78	176	21,751	123.34
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	147	18,820	127.62	104	14,584	140.79
Alaska and Hawaii	4	1,135	264.55	4	1,114	260.45
California, northern; Oregon; Washington	93	11,421	123.44	74	9,464	127.14
California, southern	604	77,900 [6]	129.00 [6]	447	59,408	132.94
Importers[7]	17 [6]	2,730 [6]	169.50 [6]	14 [6]	2,520 [6]	178.50 [6]
Total or average[8]	5,310 [6]	733,000 [6]	138.00 [6]	4,260 [6]	605,000 [6]	142.00 [6]

[1]Shipments are to final customers and include imported cement and cement made from imported clinker. 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]Includes gray, white, and colored varieties of masonry, plastic, portland-lime cements, and stucco cements.

[3]Values represent ex-plant (free on board) valuations of total sales to final customers, including sales from distribution terminals. Even where presented unrounded, data should be viewed as cement value indicators, accurate to no better than the nearest $0.50 or even $1.00 per metric ton.

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

[5]District is the location of the reporting entity, not necessarily the location of sales (see table 9 for sales data, by State).

[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 because of independent rounding.

TABLE 13

AVERAGE MILL NET VALUE OF CEMENT IN THE UNITED STATES[1, 2]

(Dollars per metric ton)

Year	Gray portland cement	White portland cement[3]	All portland cement	Prepared masonry cement	All classes of cement
2006	99.00	191.00	99.50	138.00	101.50
2007	101.00	197.00	101.50	142.00	103.00

[1]Excludes Puerto Rico. Values are the average of sales to final customers, free on board the plant or import terminal. Values exclude any onward delivery charges, but include any bagging charges.

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

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

TABLE 14

PORTLAND CEMENT SHIPMENTS IN 2007, BY DISTRICT AND TYPE OF CUSTOMER[1]

(Thousand metric tons)

District[2, 3]	Ready-mixed concrete	Concrete product manufacturers	Contractors	Building material dealers	Oil well, mining, waste stabilization	Government and miscellaneous[4]	Total[5, 6]
Maine and New York	3,030	415	115	256	--	48	3,866
Pennsylvania, eastern	2,530	1,200	143	239	--	114	4,222
Pennsylvania, western	1,030	229	146	22	19	8	1,458
Illinois	2,480	289	165	9	266	92	3,301
Indiana	2,210	474	191	65	7	13	2,958
Michigan and Wisconsin	4,430	495	421	123	48	139	5,660
Ohio	685	146	19	28	2	3	882
Iowa, Nebraska, South Dakota	3,620	555	322	123	76	150	4,843
Kansas	1,650	174	211	59	74	10	2,182
Missouri	4,270	513	511	37	9	70	5,411
Florida	5,510	1,320	458	400	--	13	7,693
Georgia, Virginia, West Virginia	1,890	583	36	80	--	9	2,596
Maryland	2,380	466	169	88	3	100	3,207
South Carolina	2,690	562	124	114	5	218	3,710
Alabama	3,980	675	168	140	16	106	5,089
Kentucky, Mississippi, Tennessee	2,450	460	134	65	26	59	3,197
Arkansas and Oklahoma	1,810	123	471	115	87	99	2,709
Texas, northern	4,700	550	990	78	658	385	7,359
Texas, southern	4,840	648	746	220	486	15	6,953
Arizona and New Mexico	3,060	671	156	242	21	4	4,158
Colorado and Wyoming	1,930	192	144	28	228	89	2,614
Idaho, Montana, Nevada, Utah	2,630	273	96	76	235	73	3,381
Alaska and Hawaii	468	62	--	21	20	4	576
California, northern	2,730	406	76	73	--	2	3,286
California, southern	7,280	1,730	295	347	107	--	9,755
Oregon and Washington	2,120	341	150	122	34	12	2,779
Importers[7]	4,920	483	345	223	65	124	6,160
Total[6]	81,300	14,000	6,800	3,390	2,490	1,960	110,000
Puerto Rico	924	157	65	451	--	--	1,597
Grand total[6]	82,300	14,200 [8]	6,870 [9]	3,840	2,490 [10]	1,960	112,000

-- 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 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).

[3]Includes shipments by importers for which district assignations were possible.

[4]Includes shipments for which customer types were not specified.

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

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

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

[8]Grand total shipments to concrete product manufacturers include brick and block—5,630; precast and prestressed—3,520; pipe—1,690; and other or unspecified—3,340.

[9]Grand total shipments to contractors include airport—100; road paving—3,740; soil cement—1,390; and other or unspecified—6,870.

[10]Grand total shipments include oil well drilling—2,050; mining—271; and waste stabilization—176.

TABLE 15
PORTLAND CEMENT SHIPPED FROM PLANTS IN THE UNITED STATES TO DOMESTIC CUSTOMERS, BY TYPE[1, 2, 3]

(Thousand metric tons)

Type[4]	2006	2007
General use and moderate heat (Types I and II)[5]	94,000 [r, 6]	86,500
High early strength (Type III)	3,810	3,730
Sulfate resisting (Type V)[5]	17,700	14,400
Block	581	469
Oil well	1,480	1,540
White[7]	1,180	1,020
Blended:		
Portland, natural pozzolans	216	68
Portland, ground granulated blast furnace slag	1,640 [r, 6]	1,090
Portland, fly ash	306 [r]	243
Portland, other pozzolans[8]	741 [r]	756
Total blended[9]	2,900 [r, 6]	2,160
Expansive and regulated fast setting	42	29
Miscellaneous[10]	59	191
Grand total[9]	122,000	110,000

[r]Revised.

[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. Unless otherwise specified, the sales are of gray cement.

[5]Type II/V hybrid cements are included within Type V.

[6]Revised to include in Type I and II some ASTM C–1157 cement formerly reported as blended cement.

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

[8]Includes blends with cement kiln dust, silica fume, or other pozzolans. Also includes blends with multiple pozzolans.

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

[10]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	2006		2007	
	Quantity	Value[2]	Quantity	Value[2]
United States:				
Anguilla	(3)	9	2	259
Aruba	(3)	44	1	437
Australia	4	248	3	238
Bahamas	22	2,615	24	3,679
Belize	(3)	9	1	78
Brazil	2	112	(3)	24
British Virgin Islands	1	132	(3)	53
Brunei	--	--	1	57
Canada	601	52,845	729	75,088
Cayman Islands	1	118	1	107
China	3	403	3	564
Colombia	1	216	1	354
Cyprus	1	106	3	212
Dominican Republic	1	180	11	604
Ecuador	1	36	1	66
El Salvador	1	88	1	57
Finland	(3)	9	--	--
France	--	--	1	85
Greece	2	162	2	191
Guatemala	1	113	(3)	9
Hong Kong	3	183	3	224
India	(3)	104	1	80
Ireland	1	119	1	175
Israel	1	53	2	149
Italy	(3)	45	1	45
Jamaica	2	117	4	170
Japan	1	45	(3)	30
Korea, Republic of	3	164	1	61
Mexico	35 [4]	5,126 [4]	32 [4]	5,667 [4]
Netherlands Antilles	1	175	(3)	136
New Zealand	(3)	15	1	57
Oman	(3)	173	2	523
Panama	2	370	11	856
Peru	3	198	1	167
Saudi Arabia	(3)	21	1	144
Singapore	1	258	(3)	290
Spain	1	59	(3)	39
Sweden	1	52	1	81
Taiwan	6	427	3	241
Thailand	1	61	--	--
Tokelau Islands	1	47	--	--
Trinidad and Tobago	1	89	3	362
Turks and Caicos Islands	3	189	1	204
Ukraine	--	--	12	562
United Arab Emirates	4	350	16	753
Venezuela	4	241	(3)	47
Other	4	1,788 [r]	4	1,073
Total[5]	723 [4]	67,914 [4]	886 [4]	94,298 [4]

See footnotes at end of table.

TABLE 16—Continued

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

(Thousand metric tons and thousand dollars)

Country	2006		2007	
	Quantity	Value[2]	Quantity	Value[2]
Puerto Rico:				
Antigua and Barbuda	1	137	(3)	15
Aruba	5	326	2	134
Barbados	7	257	--	--
British Virgin Islands	4	568	8	901
Dominica	1	124	--	--
Guadeloupe	14	618	--	--
Guyana	--	--	5	206
Haiti	3	231	1	520
Jamaica	15	738	--	--
Martinique	7	2,594	--	--
Netherlands Antilles	18	805	1	112
St. Vincent and the Grenadines	1	627	--	--
Trinidad and Tobago	1	461	--	--
Turks and Caicos Islands	9	506	5	309
Other	(3)	34 r	10	790
Total[5]	86	8,025	33	2,986
Grand total[5]	809 [4]	75,877 [4]	919 [4]	97,284 [4]

rRevised. -- 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]Official export data have been corrected to remove an apparent excess of aluminous cement exports from Laredo, TX, of 743,939 metric tons and $38.253 million in 2006 and 653,255 metric tons and $28,829 million in 2007.

[5]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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States:						
Brazil	454	23,133	30,388	579	37,245	47,530
British Virgin Islands[4]	16	1,993	2,559	--	--	--
Bulgaria	295	16,297	19,634	53	3,261	3,862
Canada	5,059	325,217	345,126	5,326	386,922	410,735
China	10,542	469,112	734,103	5,337	243,760	389,869
Colombia[4]	1,862	110,909	139,797	1,552	104,506	134,402
Croatia	29	5,817	6,986	26	7,011	8,490
Denmark	270	20,369	31,185	239	19,441	28,735
Dominican Republic	24	1,295	1,788	12	837	1,116
Egypt	275	16,902	24,485	95	6,469	10,491
France	97	22,805	25,380	111	19,148	20,157
Greece	1,950	91,745	135,493	703	35,516	52,160
India	1	119	143	1	240	342
Indonesia	130	5,045	8,620	--	--	--
Japan	3	1,097	2,403	5	1,954	3,003
Korea, Republic of	2,544	106,553	157,391	2,505	113,076	162,474
Mexico	2,264	142,081	171,928	1,684	113,673	136,115
Netherlands	5	3,701	4,385	4	3,283	3,707
Norway	233	9,849	15,077	122	6,114	6,117
Peru	822	40,108	54,371	326	18,571	30,097
Romania	212	9,444	13,523	--	--	--
Spain	69	7,362	10,043	29	3,032	4,434
Sweden	889	37,760	57,483	457	25,005	39,364
Switzerland	--	--	--	42	2,119	3,327
Taiwan	2,180	93,516	148,997	2,168	98,841	166,729
Thailand	3,798	180,136	268,166	730	33,053	51,794
Turkey	591	30,801	46,815	138	9,366	13,828
United Arab Emirates	2	198	329	(6)	29	47
United Kingdom	7	2,943	3,037	5	2,002	2,462
Venezuela	943	48,907	66,850	218	13,621	18,080
Other	(6)	314	380	1	479	570
Total[5]	35,566	1,825,530	2,526,864	22,468	1,308,574	1,750,033
Puerto Rico:						
Brazil	--	--	--	2	1,380	2,335
China	78	2,891	4,686	40	1,977	3,086
Colombia	12	1,427	1,882	3	400	519
Denmark	27	1,508	2,337	--	--	--
Dominican Republic	--	--	--	18	1,469	1,621
Korea, Republic of	201	9,649	15,716	181	8,140	14,664
Mexico	12	1,281	1,816	16	1,846	2,570
Other	(6)	29	30	(6)	84	92
Total[5]	330	16,785	26,467	261	15,296	24,887
Grand total[5]	35,896	1,842,315	2,553,331	22,729	1,323,870	1,774,920

-- 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 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]Material from British Virgin Islands is thought to be from Colombia.

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

[6]Less than ½ unit.

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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States:						
Anchorage, AK:						
Canada	11	526	1,557	10	549	2,094
France	(4)	2	5	--	--	--
Korea, Republic of	120	4,624	8,430	91	4,380	7,947
Total[5]	131	5,152	9,992	101	4,929	10,040
Baltimore, MD:						
Canada	76	4,206	5,527	--	--	--
China	--	--	--	(4)	58	78
Colombia	--	--	--	25	1,818	1,818
Germany	--	--	--	(4)	18	19
India	--	--	--	(4)	9	12
Korea, Republic of	--	--	--	(4)	17	24
Netherlands	(4)	20	24	(4)	213	241
Romania	132	6,058	8,893	--	--	--
Sweden	(4)	176	212	(4)	368	400
Taiwan	35	1,225	1,225	--	--	--
United Kingdom	(4)	82	96	(4)	47	54
Venezuela	18	639	639	--	--	--
Total[5]	262	12,404	16,617	26	2,547	2,646
Boston, MA:						
Canada	29	1,654	2,328	110	6,066	8,697
China	4	132	267	--	--	--
Netherlands	(4)	22	24	--	--	--
Venezuela	42	1,922	2,929	3	212	300
Total[5]	74	3,730	5,547	114	6,278	8,996
Buffalo, NY:						
Canada	828	55,681	59,501	808	62,976	66,036
China	--	--	--	(4)	130	133
Japan	--	--	--	(4)	31	31
United Kingdom	4	1,159	1,196	--	--	--
Total[5]	832	56,841	60,697	809	63,137	66,200
Charleston, SC:						
China	9	327	696	--	--	--
Colombia	245	16,851	20,447	18	978	1,376
Greece	745	33,868	51,026	43	1,964	2,989
Japan	(4)	269	1,033	--	--	--
Netherlands	(4)	33	37	(4)	16	18
South Africa	--	--	--	(4)	13	17
Taiwan	--	--	--	269	10,544	23,836
United Kingdom	1	234	238	--	--	--
Total[5]	998	51,582	73,477	330	13,516	28,236
Chicago, IL:						
Belgium	--	--	--	(4)	18	25
France	(4)	53	56	(4)	--	--
Honduras	--	--	--	(4)	15	17
Japan	(4)	151	181	(4)	149	179
Netherlands	1	826	993	(4)	185	213
Poland	(4)	20	21	(4)	23	25
United Kingdom	(4)	3	5	--	--	--
Total[5]	2	1,053	1,255	(4)	390	458

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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States—Continued:						
Cleveland, OH:						
Canada	931	48,944	51,003	766	59,239	61,272
China	1	19	22	(4)	37	43
Croatia	--	--	--	(4)	43	62
Italy	--	--	--	(4)	14	15
Netherlands	(4)	348	405	(4)	253	285
Turkey	--	--	--	(4)	9	9
Total[5]	932	49,311	51,430	766	59,594	61,687
Columbia-Snake, OR-WA						
Canada	18	870	915	117	6,083	6,550
China	1,011	42,203	61,500	1,077	42,000	65,329
Thailand	3	129	208	(4)	5	7
Total[5]	1,032	43,202	62,623	1,194	48,088	71,887
Dallas, Fort Worth, TX:						
China	(4)	6	8	(4)	13	25
Norway	--	--	--	(4)	4	7
Total[5]	(4)	6	8	(4)	17	31
Detroit, MI:						
Canada	1,213	87,486	89,240	1,020	86,321	87,734
China	--	--	--	(4)	19	24
Croatia	--	--	--	1	288	317
France	--	--	--	(4)	28	28
Germany	--	--	--	(4)	--	--
Japan	(4)	2	2	--	--	--
Netherlands	(4)	358	409	(4)	244	272
South Africa	(4)	27	28	--	--	--
United Kingdom	(4)	159	159	--	--	--
Total[5]	1,214	88,032	89,837	1,021	86,902	88,378
El Paso, TX, Mexico	709	37,617	44,531	612	36,060	41,955
Great Falls, MT:						
Canada	25	1,425	1,495	8	447	466
China	--	--	--	(4)	27	27
Japan	--	--	--	(4)	2	2
Total[5]	25	1,425	1,495	8	476	495
Honolulu, HI:						
China	298	10,566	19,071	194	7,820	13,107
Japan	--	--	--	(4)	24	28
Taiwan	196	7,104	11,797	265	10,583	17,290
Thailand	--	--	--	18	841	1,116
Total[5]	495	17,671	30,868	477	19,267	31,542

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)

	2006			2007		
		Value			Value	
Customs district and country	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States—Continued:						
Houston-Galveston, TX:						
Belgium	--	--	--	(4)	3	3
Brazil	--	--	--	117	6,425	8,498
British Virgin Islands[6]	(4)	67	78	(4)	--	--
China	1,718	75,458	127,082	839	34,346	55,857
Colombia[6]	209	15,550	16,800	406	31,171	38,496
Croatia	(4)	6	8	(4)	8	16
Denmark	--	--	--	(4)	16	17
Egypt	49	4,549	6,323	33	2,674	4,607
France	(4)	72	83	(4)	110	123
Germany	(4)	84	110	(4)	81	102
Greece	81	3,591	5,751	--	--	--
India	--	--	--	(4)	6	7
Korea, Republic of	1,009	41,838	68,752	1,378	56,906	87,952
Mexico	--	--	--	39	2,352	3,449
Netherlands	(4)	42	47	(4)	20	24
Peru	--	--	--	31	2,015	2,989
Sweden	(4)	42	47	(4)	65	70
Taiwan	43	1,591	3,096	422	16,367	23,725
Thailand	259	10,001	18,590	84	4,148	9,280
Turkey	--	--	--	(4)	2	3
United Kingdom	1	563	563	(4)	17	20
Total[5]	3,371	153,455	247,330	3,350	156,732	235,239
Laredo, TX:						
Canada	(4)	2	2	(4)	--	--
Mexico	222	23,833	25,147	160	19,258	20,277
Total[5]	222	23,835	25,149	160	19,258	20,277
Los Angeles, CA:						
China	2,015	92,601	140,948	1,506	76,966	124,648
Colombia	(4)	39	54	1	87	128
Croatia	--	--	--	(4)	20	24
Germany	(4)	31	47	(4)	17	20
India	1	113	132	1	140	180
Indonesia	72	2,772	5,067	(4)	--	--
Japan	2	511	926	3	1,054	1,619
Korea, Republic of	(4)	5	5	(4)	--	--
Lithuania	--	--	--	(4)	29	30
Taiwan	41	2,190	3,020	183	9,339	14,159
Thailand	1,289	64,689	97,756	155	8,170	13,631
Turkey	(4)	8	9	(4)	--	--
United Arab Emirates	2	153	261	(4)	--	--
United Kingdom	(4)	77	78	(4)	14	14
Total[5]	3,422	163,188	248,302	1,848	95,836	154,452

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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States—Continued:						
Miami, FL:						
Argentina	(4)	3	4	(4)	3	5
Brazil	12	503	737	23	1,095	2,003
British Virgin Islands[6]	16	1,910	2,459	(4)	--	--
Canada	--	--	--	41	2,165	3,721
China	461	16,996	35,216	20	929	1,527
Colombia[6]	24	1,581	2,192	34	2,900	4,040
Denmark	42	3,061	4,960	23	1,704	2,791
Egypt	48	2,833	4,222	23	1,866	3,189
Greece	219	10,186	14,469	66	3,070	4,157
India	(4)	6	11	(4)	--	--
Mexico	85	8,972	11,268	106	11,147	14,022
Peru	--	--	--	12	463	942
Portugal	(4)	2	3	(4)	25	37
Spain	69	7,362	10,043	27	2,867	4,269
Sweden	882	35,729	54,958	445	22,044	35,937
Switzerland	--	--	--	42	2,119	3,327
Taiwan	66	2,392	4,726	148	4,878	12,245
Thailand	40	1,482	2,867	(4)	--	--
Turkey	186	8,440	12,075	36	1,763	2,733
United Kingdom	(4)	8	9	(4)	3	3
Venezuela	36	2,356	3,203	(4)	--	--
Total[5]	2,186	103,822	163,421	1,046	59,040	94,947
Minneapolis, MN, Canada	179	11,129	12,067	170	14,563	14,961
Mobile, AL:						
China	162	5,878	13,678	(4)	--	--
Greece	162	7,230	11,488	(4)	--	--
Peru	--	--	--	2	166	269
Thailand	168	7,878	13,072	(4)	--	--
Venezuela	29	1,900	2,160	(4)	--	--
Total[5]	521	22,885	40,398	2	166	269
New Orleans, LA:						
China	1,327	72,471	94,281	58	3,374	5,200
Colombia	321	14,871	18,299	146	6,411	8,518
Croatia	29	5,662	6,806	21	5,086	6,337
Germany	--	--	--	(4)	4	4
Korea, Republic of	1,024	42,114	57,984	729	36,155	44,165
Peru	822	40,108	54,371	36	2,235	2,253
Taiwan	464	18,048	33,155	(4)	--	--
Thailand	522	34,059	39,512	(4)	--	--
Turkey	119	9,814	13,915	79	6,170	8,945
United Kingdom	--	--	--	(4)	4	4
Total[5]	4,629	237,149	318,323	1,069	59,438	75,427

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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States—Continued:						
New York, NY:						
Canada	--	--	--	153	8,050	8,050
China	143	5,490	9,040	42	1,606	3,768
Colombia	2	561	617	4	907	944
Croatia	(4)	142	162	2	597	686
Denmark	40	3,600	3,988	56	5,521	5,524
France	(4)	3	4	(4)	24	32
Germany	(4)	34	39	(4)	114	139
Greece	448	23,791	32,936	424	22,017	32,386
Japan	--	--	--	(4)	164	387
Mexico	--	--	--	38	3,369	3,369
Netherlands	(4)	264	291	(4)	375	415
Norway	233	9,849	15,077	122	6,111	6,111
Poland	(4)	52	56	(4)	16	17
Sweden	2	1,612	1,945	3	2,084	2,260
Taiwan	86	3,099	5,247	38	1,281	1,281
Thailand	42	1,773	3,807	(4)	--	--
Turkey	122	5,644	9,384	24	1,422	2,139
United Kingdom	(4)	52	52	--	--	--
Venezuela	89	6,012	6,964	26	2,106	2,106
Total[5]	1,207	61,978	89,609	933	55,763	69,614
Nogales, AZ, Mexico	1,080	59,042	76,311	716	40,502	52,046
Norfolk, VA:						
Brazil	--	--	--	127	9,086	10,597
Bulgaria	295	16,297	19,634	53	3,261	3,862
Canada	13	963	963	(4)	--	--
China	242	9,468	16,644	82	6,819	9,279
Colombia	--	--	--	28	1,762	2,138
France	97	22,675	25,232	111	18,978	19,965
Greece	--	--	--	5	252	383
Netherlands	(4)	124	145	(4)	338	386
Romania	80	3,384	4,627	(4)	--	--
South Africa	--	--	--	(4)	3	3
Sweden	(4)	31	34	--	--	--
United Kingdom	(4)	191	225	5	1,885	2,327
Venezuela	7	244	478	(4)	--	--
Total[5]	734	53,378	67,982	411	42,384	48,940
Ogdensburg, NY:						
Canada	418	33,199	33,502	460	46,216	46,678
France	--	--	--	(4)	9	9
Germany	(4)	3	3	(4)	--	--
South Africa	--	--	--	(4)	36	37
Total[5]	418	33,202	33,505	460	46,261	46,724
Pembina, ND, Canada	122	5,934	6,205	150	8,361	8,453
Philadelphia, PA:						
Belgium	(4)	29	31	(4)	14	17
Germany	(4)	15	23	(4)	13	17
Korea, Republic of	143	8,559	8,589	(4)	--	--
Netherlands	2	1,287	1,572	1	858	981
Thailand	460	13,695	16,028	314	12,152	14,558
United Kingdom	(4)	120	123	(4)	10	14
Total[5]	605	23,704	26,364	316	13,047	15,587

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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States—Continued:						
Portland, ME, Canada	84	10,307	11,042	105	13,834	14,804
Providence, RI:						
Brazil	--	--	--	26	1,557	2,621
Canada	32	2,119	2,854	89	6,015	8,682
China	55	2,104	4,385	44	1,628	4,268
Colombia	--	--	--	25	1,879	2,311
Peru	--	--	--	218	11,882	20,719
Turkey	164	6,895	11,431	(4)	--	--
Venezuela	400	18,577	26,573	150	8,818	12,266
Total[5]	652	29,695	45,243	553	31,780	50,866
San Diego, CA:						
China	--	--	--	15	861	1,186
Mexico	76	5,250	5,315	14	985	996
Taiwan	604	31,805	44,028	378	21,870	35,682
Thailand	40	2,221	3,215	(4)	--	--
Total[5]	720	39,277	52,559	407	23,715	37,864
San Francisco, CA:						
China	1,611	75,588	111,273	988	43,846	68,389
India	--	--	--	(4)	41	59
Indonesia	39	1,572	2,595	(4)	--	--
Japan	(4)	33	48	(4)	--	--
Netherlands	--	--	--	(4)	42	46
Taiwan	399	17,351	25,230	241	11,760	17,798
Thailand	750	33,936	55,304	157	7,601	12,856
United Arab Emirates	1	45	68	(4)	29	47
United Kingdom	1	266	266	(4)	12	14
Total[5]	2,800	128,793	194,784	1,387	63,332	99,210
Savannah, GA:						
China	1	85	175	(4)	42	57
Colombia	185	12,556	16,238	349	26,355	33,411
Finland	(4)	14	16	(4)	--	--
India	--	--	--	(4)	45	84
Netherlands	(4)	84	94	1	505	561
Romania	(4)	2	3	(4)	--	--
Thailand	--	--	--	(4)	21	46
United Kingdom	(4)	29	29	(4)	11	11
Total[5]	186	12,771	16,555	350	26,979	34,170
Seattle, WA:						
Canada	952	46,055	50,848	1,202	52,581	58,008
China	419	18,251	26,620	365	17,774	28,440
Japan	(4)	129	213	1	529	757
Korea, Republic of	248	9,413	13,631	220	8,693	13,428
Netherlands	(4)	78	92	(4)	93	103
Total[5]	1,619	73,925	91,404	1,788	79,671	100,736
St. Albans, VT, Canada	128	14,718	16,076	117	13,453	14,530
St. Louis, MO:						
Croatia	(4)	7	9	3	969	1,047
Netherlands	(4)	216	253	(4)	141	161
Total[5]	(4)	224	262	3	1,110	1,208

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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States—Continued:						
Tampa, FL:						
Brazil	442	22,630	29,651	286	19,082	23,810
British Virgin Islands[6]	(4)	17	22	(4)	--	--
China	1,053	40,990	72,176	107	5,466	8,484
Colombia[6]	551	29,248	40,165	246	11,642	17,402
Denmark	187	13,709	22,237	160	12,200	20,403
Egypt	179	9,521	13,939	38	1,930	2,695
Greece	295	13,080	19,823	164	8,213	12,244
Korea, Republic of	--	--	--	86	6,924	8,959
Mexico	51	4,440	5,383	(4)	--	--
Peru	--	--	--	27	1,810	2,925
Sweden	5	171	287	9	444	697
Taiwan	244	8,711	17,472	223	12,220	20,712
Thailand	226	10,273	17,807	1	115	299
Venezuela	265	14,173	19,954	38	2,485	3,407
Total[5]	3,499	166,961	258,917	1,385	82,529	122,037
U.S. Virgin Islands:						
Barbados	--	--	--	(4)	18	19
Colombia	--	--	--	8	910	925
Dominican Republic	--	--	--	12	837	1,116
Spain	--	--	--	2	165	165
Venezuela	56	3,083	3,951	(4)	--	--
Total[5]	56	3,083	3,951	22	1,931	2,225
Wilmington, NC:						
China	13	479	1,021	(4)	--	--
Colombia	324	19,650	24,985	263	17,687	22,896
Dominican Republic	24	1,295	1,788	(4)	--	--
Indonesia	18	700	958	(4)	--	--
Mexico	42	2,927	3,973	(4)	--	--
Total[5]	421	25,051	32,726	263	17,687	22,896
U.S. total[5]	35,566	1,825,530	2,526,864	22,468	1,308,574	1,750,033
Puerto Rico (San Juan):						
Brazil	--	--	--	2	1,380	2,335
Canada	(4)	21	22	(4)	--	--
China	78	2,891	4,686	40	1,977	3,086
Colombia	12	1,427	1,882	3	400	519
Denmark	27	1,508	2,337	(4)	--	--
Dominion Republic	--	--	--	18	1,469	1,621
France	(4)	4	4	(4)	--	--
Germany	--	--	--	(4)	68	74
Korea, Republic of	201	9,649	15,716	181	8,140	14,664
Mexico	12	1,281	1,816	16	1,846	2,570
Spain	(4)	4	4	(4)	16	18
Total[5]	330	16,785	26,467	261	15,296	24,887
Grand total[5]	35,896	1,842,315	2,553,331	22,729	1,323,870	1,774,920

-- 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]Less than ½ unit.

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

[5]Data may not add to totals shown because of independent rounding.
[6]Material from the British Virgin Islands is thought to be from Colombia.

Source: U.S. Census Bureau.

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

(Thousand metric tons and thousand dollars)

	2006			2007		
					Value	
Country	Quantity	Customs[1]	C.i.f.[2]	Quantity	Customs[1]	C.i.f.[2]
United States:						
Brazil	454	23,133	30,388	578	37,245	47,530
Bulgaria	295	16,297	19,634	53	3,261	3,862
Canada	4,089	243,292	261,558	4,323 [3]	298,595	320,694
China	9,260	397,302	641,665	4,835 [4]	206,564	329,663
Colombia	1,598	90,910	116,940	1,457	95,891	123,916
Egypt	215	11,010	16,540	38	1,930	2,695
Greece	1,950	91,745	135,493	703	35,516	52,160
Indonesia	130	5,045	8,620	--	--	--
Korea, Republic of	2,307	92,336	143,143	2,406	106,272	155,671
Mexico	1,875	97,221	122,203	1,297	68,224	86,086
Norway	233	9,849	15,077	122	6,114	6,117
Peru	431	17,791	28,132	290	16,336	27,844
Romania	212	9,442	13,520	--	--	--
Sweden	886	35,900	55,245	454	22,488	36,634
Taiwan	2,180	93,516	148,997	2,126	97,106	162,964
Thailand	3,255	142,552	223,448	689	28,532	44,603
Turkey	487	22,015	34,587	59	3,193	4,880
Venezuela	795	39,210	55,213	162	9,468	13,176
Other	5	568 [r]	586 [r]	68	4,509	6,029
Total[5]	30,655 [6]	1,439,133	2,070,990	19,662 [6]	1,041,245	1,424,522
Puerto Rico:						
China	78	2,891	4,686	40	1,977	3,086
Denmark	18	661	911	--	--	--
Korea, Republic of	201	9,649	15,716	181	8,140	14,664
Other	2	4	4	2	1,380	2,335
Total[5]	299	13,205	21,317	223	11,497	20,085
Grand total[5]	30,952 [6]	1,452,338	2,092,307	19,885 [6]	1,052,742	1,444,607

[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]Data for Canada for 2007 do not include approximately 81,000 metric tons, imported into the Columbia-Snake, OR-WA district, that was misregistered by the importer under the white cement tariff code and which has been included in table 20.

[4]Data for China for 2007 do not include approximately 350,000 metric tons, imported into the Los Angeles, CA district, that was misregistered by the importer under the white cement tariff code and which has been included in table 20.

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

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

Source: U.S. Census Bureau.

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

(Thousand metric tons and thousand dollars)

Country	2006			2007		
		Value			Value	
	Quantity	Customs[1]	C.i.f.[2, 3]	Quantity	Customs[1]	C.i.f.[2, 3]
United States:						
British Virgin Islands[4]	16	1,993	2,559	--	--	--
Canada	347	42,832	43,938	407 [5]	45,164	46,399
China	38	3,577	5,752	403 [6]	30,284	50,747
Colombia[4]	25	3,638	4,461	69	6,993	8,559
Denmark	265	19,916	30,732	227	18,211	27,501
Dominican Republic	24	1,295	1,788	--	--	--
Egypt	60	5,893	7,945	57	4,539	7,796
India	1	119	143	1	240	342
Mexico	305	36,126	40,150	269	33,422	37,201
Spain	69	7,362	10,043	27	2,865	4,266
Taiwan	--	--	--	43	1,735	3,765
Thailand	41	4,896	7,441	41	4,521	7,191
Turkey	104	8,779	12,220	79	6,172	8,947
United Arab Emirates	2	198	329	(7)	29	47
Venezuela	4	379	395	--	--	--
Other	1 [r]	25 [r]	36 [r]	1	55	75
Total[8]	1,302 [9]	137,027	167,929	1,622 [9]	154,230	202,836
Puerto Rico:						
Colombia	12	1,427	1,882	3	400	519
Denmark	8	847	1,426	--	--	--
Mexico	12	1,281	1,816	16	1,846	2,570
Other	--	--	--	(7)	23	26
Total[8]	33	3,555	5,124	19	2,269	3,115
Grand total[8]	1,335 [9]	140,582	173,053	1,641 [9]	156,500	205,951

[r]Revised. -- 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]Material from British Virgin Islands is thought to be from Colombia.

[5]The official import data for white cement from Canada in 2007 include approximately 81,000 metric tons (t) of gray portland cement, imported into the Columbia-Snake, OR-WA district, that was misregistered by the importer under the white cement tariff code.

[6]Approximately 350,000 tons of the white cement from China in 2007 represents gray portland cement, imported into the Los Angeles, CA district, that was misregistered by the importer under the white cement tariff code.

[7]Less than ½ unit.

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

[9]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	2006			2007		
		Value			Value	
	Quantity	Customs[2]	C.i.f.[3]	Quantity	Customs[2]	C.i.f.[3]
United States:						
Canada	608	36,110	36,471	576	40,021	40,323
China	1,240	67,499	85,729	97	6,483	8,938
Colombia	239	16,361	18,396	24	801	1,106
Croatia	(4)	36	48	--	--	--
France	96	21,697	24,138	109	17,681	18,523
Germany	--	--	--	--	11	13
Korea, Republic of	237	14,213	14,243	99	6,803	6,803
Netherlands	--	--	--	--	8	9
Peru	391	22,317	26,239	36	2,235	2,253
Thailand	502	32,688	37,278	--	--	--
Venezuela	111	5,899	7,824	30	2,047	2,798
Total[5]	3,425	216,821	250,365	972	76,089	80,766
Puerto Rico, Dominican Republic	--	--	--	18	1,446	1,596
Grand total[5]	3,425	216,821	250,365	990	77,535	82,362

-- 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	2003	2004	2005	2006	2007[e]
Afghanistan[e]	70	70	60	50	50
Albania	578	573	530 [r]	600 [e]	600
Algeria	9,000 [e]	11,000 [e]	11,296	14,702 [r]	15,899 [3]
Angola	700	754	1,315	1,373	1,400
Argentina	5,217	6,254	7,595	8,929	9,602 [3]
Armenia	384	501	605	625 [r]	722 [3]
Australia[e]	8,000	8,000	9,000	9,000	9,000
Austria	3,886	3,976	4,736	4,700 [e]	4,700
Azerbaijan	1,013	1,428	1,538 [r]	1,622 [r]	1,731 [3]
Bahrain	129	153	191	190 [e]	190
Bangladesh[e]	5,000	5,000	5,100	5,100	5,100
Barbados	325	322	320 [e]	320	320
Belarus	2,472	2,731	3,131	3,495	3,820 [3]
Belgium	6,550	6,715	7,594	8,192	8,200
Benin[e]	250	250	250	1,489 [r, 3]	1,550 [3]
Bhutan[e]	160	170	170	180	180
Bolivia	1,138	1,276	1,440	1,636	1,739 [3]
Bosnia and Herzegovina	891	1,045	1,026	1,226	1,300
Brazil	34,010	34,413	36,673	39,540	46,406 [3]
Brunei	236	242	266	270 [e]	270
Bulgaria[e]	2,100	2,100	2,100	2,000	2,000
Burkina Faso[e]	30	30	30	30	30
Burma[4]	572	519	543	570	608 [3]
Cambodia	--	--	--	--	87 [3]
Cameroon	949	1,032	1,000 [e]	1,000	1,000
Canada	13,416	13,863	14,179	14,336 [r]	15,078 [3]
Chile	3,622	3,798	3,999	4,112	4,440 [3]
China	862,080	970,000	1,068,850	1,236,770 [r]	1,354,120 [p, 3]
Colombia	7,337	7,822	9,959	10,038 [5]	11,068 [3, 5]
Congo (Brazzaville)	--	--	100	100 [e]	100
Congo (Kinshasa)	331	403	511	530	550
Costa Rica[e]	1,130 [r]	1,500 [r]	1,400 [r]	1,400 [r, 3]	1,400
Côte d'Ivoire[e]	650	650	650	650	650
Croatia	3,654	3,811	3,481	3,633	3,700
Cuba	1,346	1,401	1,567	1,705	1,805 [3]
Cyprus	1,637	1,689	1,805	1,786	1,873 [3]
Czech Republic	3,502 [r]	3,829	3,978	4,239 [r]	4,889 [3]
Denmark	1,953	2,150	2,120	2,115	2,100
Dominican Republic	2,907	2,654	2,779	2,800 [e]	2,800
Ecuador[e]	3,100	3,000	3,000	3,000	3,000
Egypt	26,639	28,763	32,458 [r]	36,200 [r]	38,400 [3]
El Salvador	1,391	1,265	1,131	1,311	1,350
Eritrea[e]	45	45	45	45	45
Estonia	506	615	726 [r]	750 [r, e]	750
Ethiopia	1,130	1,316	1,569 [r]	1,700 [e]	1,700
Fiji[e]	120	120	143 [3]	143 [r]	145
Finland	1,493 [r]	1,295	1,357	1,685	1,743 [3]
France	19,655	20,962	21,277	22,540 [r]	22,300
French Guiana[e]	60	60	60	60	60
Gabon[e]	260	260	260	260	229 [3]
Georgia[e]	345 [3]	425 [3]	450	450	450
Germany	32,749	31,854	31,009 [r]	33,630 [r]	33,382 [3]
Ghana[e]	1,900	1,900	1,900	1,900	1,900
Greece	14,638	15,039	15,166	15,674	16,667 [3]

See footnotes at end of table.

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

(Thousand metric tons)

Country	2003	2004	2005	2006	2007[e]
Guadeloupe[e]	230 [3]	230	240 [r]	230	230
Guatemala[e]	2,000	2,200	2,400	2,500	2,500
Guinea[e]	360	360	360	360	360
Haiti[e]	290 [3]	300	300	300	300
Honduras	1,268	1,392	1,384	1,400 [e]	1,400
Hong Kong	1,189	1,039	1,005	1,010 [e]	1,000
Hungary	3,573	3,349	3,371	3,349 [r]	3,350
Iceland	90	100 [r]	132 [r]	141 [r]	90
India[e]	123,000 [3]	130,000	145,000	160,000	170,000
Indonesia	35,500	33,230	33,917	35,000 [e]	36,000
Iran	30,460	32,198	32,650	33,000 [e]	35,000
Iraq[e]	1,901 [3]	2,500	3,000	3,500	3,500
Ireland	3,830	5,000 [e]	5,083	4,981	5,000 [3]
Israel	4,632	4,494	5,093	5,089	5,000
Italy	43,580	45,343	40,284	47,814	47,541 [3]
Jamaica	608	808	845	761	592 [3]
Japan	68,766	67,376	69,629	69,942	67,685 [3]
Jordan	3,515	3,908	4,046	3,967	3,969 [3]
Kazakhstan	2,570	3,662	3,975	4,880 [r]	5,699 [3]
Kenya	1,658	1,789	2,123	2,174 [r]	2,314 [3]
Korea, North[e]	5,540	5,630	5,700	6,160 [r]	6,130
Korea, Republic of	60,725 [r]	56,955 [r]	51,391	53,971 [r]	57,042 [3]
Kuwait	1,863	2,635	2,145	2,200 [e]	2,200
Kyrgyzstan	757	870	900	1,211	1,300
Laos[e]	250	250	250	400 [r]	400
Latvia[e]	295 [3]	284 [3]	280	280	300
Lebanon	3,900 [r]	4,400 [r]	4,600 [r]	4,400 [r]	4,900
Liberia	25 [e]	121	144	155	157 [3]
Libya[e]	3,500 [3]	3,600	3,621 [3]	3,600	3,700
Lithuania	597	753	832	1,065 [r]	1,105 [3]
Luxembourg	714	797	760	800 [e]	780
Macedonia	768	820	800	800 [e]	800
Madagascar[e]	200	170	150	150	270 [3]
Malawi	161	120	166 [r]	188 [r]	185 [3]
Malaysia	17,243	15,690	17,860	18,000 [e]	18,000
Martinique[e]	220	220	220	220	220
Mauritania	200 [e]	300	300 [e]	357 [r]	410 [3]
Mexico	33,593	34,992	37,452	40,362 [r]	40,670 [3]
Moldova	255	440	641	837	800
Mongolia	162	62	112	141	221 [3]
Morocco[e]	10,400	11,000	11,000	11,000	11,000
Mozambique	600	570	560	720	850
Nepal[e, 4]	295	285	290	295	300
Netherlands	2,450	2,380	2,496	2,790	2,700
New Caledonia	100	115	119	133 [r]	122 [3]
New Zealand[e]	1,080	1,110 [3]	1,100	1,100	1,100
Nicaragua	890	521	530	530 [e]	530
Niger[e]	54	54	54	54	54
Nigeria[e]	2,300	2,300	2,400	3,000	6,500
Norway	1,650	1,420	1,613	1,695	1,700
Oman	2,500 [r]	2,621 [r]	2,686 [r]	3,611 [r]	3,880 [3]
Pakistan[e]	13,000	15,000	17,000	20,652 [r, 3]	21,000
Panama	889	1,042	1,050	1,050 [e]	1,100

See footnotes at end of table.

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

(Thousand metric tons)

Country	2003	2004	2005	2006	2007[e]
Paraguay[e]	520	470	550	600	600
Peru[e]	4,000 [3]	4,590 [3]	4,600	5,000	5,000
Philippines	13,067 [r]	13,346	15,494	12,033	13,048 [3]
Poland	11,653	12,566	12,646	14,688	16,964 [3]
Portugal	8,567	8,843	8,438	8,340	8,500
Qatar[e]	1,400	1,400	1,500 [3]	1,568 [r, 3]	2,500
Réunion[e]	380	380	380	400	400
Romania	5,992	6,239	7,032	8,253 [r]	10,061 [3]
Russia	41,000	45,700	48,500	54,700	59,900 [3]
Rwanda	105 [r]	104	101	103 [r]	103 [3]
Saudi Arabia	24,147	25,380	26,064	27,053	30,369 [3]
Senegal	1,694	2,391	2,623	2,884	3,152 [3]
Serbia	XX [6]	XX [6]	XX [6]	2,565 [r]	2,677 [3]
Serbia and Montenegro	2,075 [6]	2,240 [6]	2,276 [6]	XX [r]	XX
Sierra Leone	169	180	172	234	236 [3]
Singapore[e]	150 [3]	--	--	--	--
Slovakia	3,147	3,158	3,499	3,593	3,718 [3]
Slovenia	1,370	1,186	1,114	1,269	1,270
South Africa, sales[7]	8,973 [r]	10,297 [r]	11,464 [r]	12,658 [r]	13,651 [3]
Spain, including Canary Islands	44,747	45,593 [r]	50,347	54,033	54,500
Sri Lanka[e]	1,164 [3]	1,400	1,500	1,600	1,700
Sudan	272	307	331	202	200
Suriname[e]	65	65	65	65	65
Sweden	2,476	2,588	2,709	2,952	2,950
Switzerland	3,613	3,851	4,022	4,040	4,000
Syria[e]	4,824 [3]	4,757 [3]	4,700	4,700	4,700
Taiwan	18,474	19,050	19,891	19,294	18,957 [3]
Tajikistan	166	194	253	282	300
Tanzania	1,186	1,281	1,366	1,432 [r]	1,513 [3]
Thailand	32,530	35,626	37,872	39,408	35,668 [3]
Togo[e]	800	800	800	800	800
Trinidad and Tobago	766	768	686	883	890
Tunisia	6,038	6,662	6,691	6,932	7,052 [3]
Turkey	35,077	38,796	42,787	47,499	49,553 [3]
Turkmenistan[e]	450	550	650	800	900
Uganda[e]	507 [3]	559 [3]	630	630	650
Ukraine	8,923 [r]	10,635 [r]	12,183	13,732	15,000 [3]
United Arab Emirates[e]	8,000	9,000	9,800 [3]	9,800	12,500
United Kingdom	11,215	11,405	11,216	12,119	11,900
United States, including Puerto Rico[8]	94,329	99,015	100,903	99,712	96,850 [3]
Uruguay[e]	1,050	1,050	1,050	1,050	1,050
Uzbekistan	4,805 [r]	5,068 [r]	5,068	5,000 [e]	5,000
Venezuela[e]	7,700	9,000	10,000	11,000	11,000
Vietnam	24,127	26,153	30,808	32,690	36,400
Yemen	1,541	1,546	1,550 [r]	1,470 [r]	1,728 [3]
Zambia[e]	350	390 [r]	435	650 [r]	650
Zimbabwe[e]	400	500	600	700	400
Total	2,030,000	2,190,000	2,350,000	2,600,000 [r]	2,770,000

[e]Estimated. [p]Preliminary. [r]Revised. XX Not applicable. -- 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 believed 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 11, 2008. Data may include clinker exports for some countries.

[3]Reported figure.

TABLE 22—Continued

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

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

[5]Data for 2006 and 2007 are for gray cement only; white cement output was likely to have been and additional 50,000 to 100,000 tons per year.

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

[7]Data have been adjusted to remove sales of cementitious materials other than finished cement. Material sales removed (mostly fly ash and ground granulated blast furnace slag) amounted, in metric tons, to: 2003—1,189,739 (revised); 2004—1,438,567 (revised); 2005—1,511,716 (revised); 2006—1,599,505 (revised); and 2007—1,664,304.

[8]Portland and masonry cements only.