



# 2014 Minerals Yearbook

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CEMENT [ADVANCE RELEASE]

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# CEMENT

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Production levels for portland and masonry cement in the United States continued to recover from the recession, with total cement output in 2014 up by 7.6% to 82.6 million metric tons (Mt) (table 1), still well below the record 99.3 Mt in 2005. Sales to final domestic customers, considered the measure for consumption, increased by 8.8% in 2014 to 89.0 Mt (table 9), but remained much lower than the 2005 record consumption level of 127.9 Mt. In terms of position on a sales growth curve, the 2014 sales were similar to those of 1995–96. The average, rounded, unit mill net value (“price”) for cement increased by 5.8% to \$100.50 per metric ton in 2014; in contrast to sales volumes, this was the highest unit price since 2008 and only \$3.50 below the record average price in 2007. The price increase resulted in the total value of cement sales increasing by 15.2% to \$8.9 billion and, based on typical portland cement mixing ratios in concrete, the delivered value of concrete (excluding mortar) in the United States was estimated to be about \$48 billion in 2014. World production of cement increased by about 2.7% to nearly 4.2 billion metric tons (Gt) (tables 1, 22).

Percentage or other changes expressed in this report compare activity in 2014 with that of 2013 unless otherwise specified and, except where otherwise indicated, data and trends in this report exclude those in Puerto Rico. Cements covered in this report are limited to those hydraulic varieties broadly classified as portland cement (including blended cements and other varieties listed in table 15) and masonry cement (including portland-lime and plastic cements). A few other types of hydraulic cement (notably aluminous cement) and (or) clinker are included in some of the trade data (tables 16–18, 21) and within the world production data (table 22). Except to the degree that they are incorporated within finished cement (especially blended varieties of portland cements and some masonry cements), or are used as raw feeds for making clinker, the tables in this report exclude supplementary cementitious materials (SCMs), such as fly ash, other pozzolans, and ground granulated blast furnace slag (GGBFS). Sales data for blended (also called composite) cements listed separately from portland cement are available in the monthly Mineral Industry Surveys reports of the U.S. Geological Survey (USGS). General background information on cement and its manufacture and on the USGS cement canvasses can be found in van Oss (2005).

The present report is largely based on data compiled from USGS annual questionnaires sent to cement and clinker manufacturing plants and associated distribution facilities and import terminals, including certain terminals that are independent of U.S. cement manufacturers. For 2014, questionnaires were received for 130 out of the 134 sites canvassed, a response rate of 97%, which included all active production sites. Not all forms were returned fully completed, but the data received included 100% reporting for production

of cement and clinker and all but 0.7% of the cement sales tonnages listed in the tables. Likewise, for 2013, questionnaires were received for 136 of 140 sites canvassed, including all the production sites and 100% of production data. Missing data were estimated based on monthly data (which supplied most of the “missing” annual sales data) or past annual reporting. The apparent decline in the number of forms in 2014 reflected consolidation of reporting by some companies for certain distribution terminals or accounting inventories that previously had been reported separately. For both years, the data exclude a few importers that did not participate in the surveys. To the degree that they were independent of the respondent companies, sales by the missing importers were estimated to be no more than an additional 0.4% of the total portland cement sales in both 2013 and 2014.

## Government Programs and Environmental Issues

A significant fraction of cement consumption (within concrete) is for public sector construction projects, and cement volumes sold for these projects are thus dependent on various Government funding sources, especially for new construction rather than repairs. Despite general agreement that the U.S. transportation infrastructure is in need of repair and upgrading, State and Federal government funding for public sector construction has been significantly constrained in recent years.

Environmental issues related to the cement industry come mainly from the manufacture of the intermediate product called clinker. Large quantities of raw materials, mainly carbonate rocks and fuels, are burned at high temperatures to make clinker, resulting in large emissions of carbon dioxide (CO<sub>2</sub>) and significant emissions (if not scrubbed out) of nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), mercury and some other metals, volatile organic carbon compounds, and particulates. Increasingly, these emissions are being stringently regulated. The cement industry is one of the leading industrial emitters of CO<sub>2</sub>, an important greenhouse gas (GHG). For 2014, overall emissions of CO<sub>2</sub> by the U.S. cement industry were calculated to be about 65.9 Mt or 0.89 metric ton (t) of CO<sub>2</sub> per ton of clinker produced. This calculation incorporates the average of two methodologies of estimating the emissions from the combustion of fuels: one that uses “standard” heat values for the fuel quantities consumed (table 7), and another, which yields a lower result, that incorporates heat values actually reported by the individual plants. For so-called process emissions from calcination of limestone, the emission factor incorporated is that of the Intergovernmental Panel on Climate Change (IPCC) (Hanle and others, 2006). The calculation omits any deductions from calcination for calcium oxide contributed by noncarbonate alternative raw materials such as ferrous slags and coal combustion ashes. Such a deduction would allow a reduction of

the calcination-related emissions by 3.0% (1.1 Mt) in 2014 and about 2.7% in 2013, equivalent to removing the total emissions (including from fuels and without adjustments) of 1.5 average-capacity U.S. cement plants for each year. Relative reductions can be significantly larger for the subset of individual plants that actually burn these alternative raw materials. Certain fuels, including alternative or waste fuels, can either directly reduce plant-level CO<sub>2</sub> emissions or may be allowed to be deducted from some reporting protocols for combustion emissions because they are lower in carbon content per unit heat, they are considered to be carbon-neutral (certain biofuels), or credits may be allowed for their use (certain waste fuels). Fuel deductions have not been made in the averages noted above. Apart from substitution of alternative raw materials, plant-level emissions from combustion can be reduced through upgrading to more fuel-efficient kiln line technology. Unit emissions on a finished product basis can also be reduced by use of SCMs and crushed limestone or other fillers in finished cement and in concrete to reduce the clinker content of these products.

The U.S. Environmental Protection Agency (EPA) continues to apply emissions factors similar to those noted above to the USGS published data on clinker production to calculate and formally report GHG emissions associated with the U.S. cement industry. The USGS and EPA calculations, being based on the IPCC methodology for cement, have about a 5% uncertainty. The EPA was comparing its calculations to the results of mandatory GHG reporting by major emitter industries; these data began for the 2010 (emissions) data year and are available for 2010–14 as summary spreadsheets for each year (U.S. Environmental Protection Agency, 2015). For 2014, the cement industry reported total CO<sub>2</sub> emissions of 67.6 Mt, equivalent to 0.91 t of CO<sub>2</sub> per ton of clinker (as applied to the USGS clinker total), excluding reported but insignificantly small CO<sub>2</sub>-equivalent emissions of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). All but 11 (12 including Puerto Rico) U.S. cement plants reported having a continuous emissions monitoring system (CEMS) in 2014. For plants lacking a CEMS, the CO<sub>2</sub> emissions were reported separately for calcination and combustion, whereas for plants that had a CEMS, the emissions were reported as grand totals.

A number of other emissions from cement plants have come under regulation in recent years. In 2010, the EPA issued rules pertaining to the national emissions standards for hazardous air pollutants (NESHAP), in which new, very low limits on individual plant emissions of mercury, total hydrocarbons, particulate matter (as a surrogate for nonvolatile metal pollutants), and hydrochloric acid were established for cement plants that do not burn hazardous wastes, and, separately, published performance standards and emissions guidelines for commercial and industrial waste incinerator (CISWI) units. In response to comments from the cement industry, CISWI operators, and the public, the NESHAP rules were revised several times, with the new “final” ruling being released on February 12, 2013 (U.S. Environmental Protection Agency, 2013b). The new ruling revised the 2010 rule’s particulate matter emissions limits and extended the overall compliance deadline to September 9, 2015. A list of the various environmental rules pertaining to the cement industry is available from the EPA (U.S. Environmental Protection Agency, 2013a).

## Production

During the recession, especially 2009–13, the U.S. cement industry operated at well below its output capacity, but although production levels have been steadily increasing since, levels have remained well below those of the so-called boom years. Production of portland cement increased by 7.5% in 2014 to 80.3 Mt and represented a utilization rate of nearly 68% (table 3). This was significantly higher than the 63% in 2013 but was far lower than the 82% utilization in 2005 (the record production and sales year); levels of 85% or higher are generally considered to represent operations at full practical capacity. Other than the decline in Puerto Rico and stagnant output in Iowa-Nebraska-South Dakota, all districts reported production increases in 2014 in response to improved sales in their respective market areas. In Illinois, market area improvements warranted the restart of a plant that had been on indefinite idle status since early 2009. Yearend stockpiles of portland cement fell by 6.5% to just 5.8 Mt. Although these stocks, along with those for masonry cement, are incorporated into the calculation of apparent consumption (table 1), they are as much affected by yearend weather conditions as by sales volumes, and they include stock buildups ahead of scheduled kiln shutdowns for routine maintenance, commonly scheduled for early in the following year.

Cement production capacity (as grinding capacity) data are reported directly by the individual plants and, despite being listed in table 3, include portland and masonry cements; the capacity utilization percentages listed, however, are with respect to portland cement only. Capacity changes reported from year to year can reflect a variety of factors, such as shifts in demand for cements of various degrees of fineness, grinding equipment upgrades, shifts of some capacity to other products (such as GGBFS), new plants, and plant closures. In 2014, overall capacity remained at 119 Mt (2013 being revised downward) but included an offsetting mix of generally small increases and decreases in various districts. Illinois’ capacity was unchanged as capacity of the idle plant that restarted production during the year had been retained during its idle years. The plant count dropped by one overall, reflecting the dropping of a small, long idle, grinding plant in southern Texas from the tally; the loss of its capacity was more than offset by higher reported capacities at some other plants in the district. In a number of districts, closed and idle production facilities continue to be operated as cement distribution terminals.

Strong growth in housing construction in 2014 contributed to an 8.0% increase in masonry cement production to 2.3 Mt (table 4); this followed a 9.7% increase in 2013. By comparison, however, the record output was 5.4 Mt in 2005.

With multiple subsidiaries of common parents combined under the larger subsidiary’s name and with joint ventures apportioned, the 10 leading cement companies in 2014 were, in descending order of portland cement production, Holcim (US) Inc.; CEMEX, Inc.; Lehigh Hanson, Inc.; Buzzi Unicem USA, Inc. (including Alamo Cement Co.); Ash Grove Cement Co.; Lafarge North America Inc.; Martin Marietta Materials Inc.; Eagle Materials Inc.; Essroc Cement Corp.; and Argos USA Corp. The U.S. industry continued to be heavily consolidated, with the 5 leading cement companies, combined,

contributing 54% of total U.S. portland cement production and the 10 leading companies accounting for nearly 79%. Of the above named companies, all except Ash Grove, Eagle Materials, and Martin Marietta were foreign owned as of yearend. For the U.S. industry overall, about 79% of total 2014 cement capacity was foreign owned.

In synch with cement output, production of clinker increased by 7.1% to 74.4 Mt (tables 1, 5), still well below the 2006 record output of 88.6 Mt. In terms of growth trends, the 2014 output was comparable to that of 1998. Most districts recorded at least modest increases in clinker output in 2014, including several that recorded increases in excess of 10%. Apparent annual capacity remained at 105 Mt (rounded), but individual districts recorded a mix of increases and decreases. Apparent annual capacity is a statistic sensitive to the survey respondents' apportionment of total downtime on the kilns between that for routine maintenance and that for all other reasons, including (continued) slow sales. In the absence of new kilns or closure of kilns, small district-level changes in annual capacity are thus likely of no statistical significance. The total plant count was unchanged from that in 2013, after the 2013 count was revised downward to remove an indefinitely idle dry (kiln technology) plant (in Iowa) that was unlikely to ever renew production. In terms of dry plants, the count remained at the pre-(Iowa) revision level (83) owing to the closure in 2013 of the wet kilns (idle for several years) at the former combination ("Both") technology plant in South Dakota; the wet kiln closures transformed the plant into a dry facility for 2014. The overall count for the "Both" category remained at one, however, owing to a semidry (dry) kiln that was brought online at a plant in northern Texas at midyear and the closure of its wet kilns at the same time (the facility thus operated both technologies during 2014 but will become a dry plant in 2015); the wet plant count dropped by one in that district for the same reason. Only nine wet plants were in operation at yearend 2014; they accounted for just 3.3% of the U.S. total clinker output (table 7).

Clinker production capacity utilization overall increased by 7.4% to nearly 71% (again, this statistic is sensitive to the downtime reporting). To some degree, the utilization percentage may have been constrained by an apparent drawdown of clinker stocks; yearend stocks fell by 11.0% to 4.5 Mt (table 1). Although not reported in table 5, most plants continued to report very high counts for total downtime, even though the reported subset for average days of routine maintenance did not change by much (up by 2.3 days) for the country overall. Many plants continued to report seemingly excessive total days for routine maintenance; these data were questioned as to their accuracy and, after consultation with the respondents, corrections were made to remove any extra downtime (generally a result of slow sales) from the statistic. The high total downtime count reflected both continued slow sales in many markets and, at many of the multikiln plants, ongoing reliance on a single (generally the newest, more energy efficient) kiln for most of the plants' clinker outputs. At a time of relatively modest unit costs for fuels, the continued idle or semi-idle status of many of the older kilns may also reflect other impediments to their restart, such as a lack of employees familiar with the operational quirks of these individual kilns, poor physical condition of the

kilns, and the possibility that these kilns may not be able to meet forthcoming, more stringent, emissions standards without extensive (expensive) upgrades. To the degree that these factors are valid, the kiln count and overall plant capacities in table 5 may ultimately need to be revised downward.

Table 6 lists the nonfuel raw materials consumed by the U.S. cement industry to make clinker and cement, respectively. Cement plants commonly can substitute among a variety of raw materials to make clinker as long as the material mix used will yield the requisite oxide balance to make the key clinker compounds (minerals). For some of the smaller tonnage commodities, large relative changes may not be significant because they likely reflect activity at just a few plants and even small tonnage shifts manifest as large percentage changes. For 2013–14, most of the ratios of raw materials to the clinker or cement produced did not change by much. For example, although "limestone" (the dominant raw material for clinker) consumption for clinker rose by 7.5%, this (given variations in limestone compositions) merely parallels the increase in clinker production. Limestone for cement, however, went up by almost 22%, nearly triple the increase in cement output overall, and although some of this could reflect variation in the recipes for masonry cements (limestone is the main plasticizer used for such cements), it may reflect a long-awaited increase in limestone addition into finished "portland" cement, especially in varieties marketed under ASTM standard C1157 and allowed for in the 2013 revisions (introducing Types IL and IT) in the blended cement standard ASTM C595. This is supported by the 64% increase in the sales tonnage of blended cement characterized as containing "other pozzolans" (table 15). Among other materials, large apparent relative declines were reported in the consumption of cement kiln dust (which is, however, likely underreported) and lime for both clinker and cement. Fly ash consumption for clinker fell modestly, but this could reflect some misreporting of material as bottom ash, which increased by more than 50%; at least in part, the bottom ash increase likely also reflects a move to a lower mercury content material and some regional shortages of fly ash. Consumption of fly ash and granulated blast furnace slag for cement increased significantly, and although the tonnages are small, the fact of the increases is again supported by the trends in blended cement sales in table 15. Identification errors are common within the reporting of "other blast furnace slag," "steel slag," and "other slag" but a significant overall relative increase in slag (all forms) consumed for clinker is apparent. The 8.5% drop in steel slag consumed is supported by a 17% drop in steel slag sales tonnage for clinker in the 2014 USGS survey of slag processors. Table 6 also indicates a 9.5% increase in reliance on imported clinker to make cement. The data in table 6 for fly ash and other ash (for clinker and cement combined) may be compared with data for sales of fly ash and bottom ash for use in blended cement or raw material for clinker published by the American Coal Ash Association (ACAA). For 2014, the ACAA reported sales of fly ash were about 26% higher than the tonnage reported in table 6 (in 2013, the ACAA data had been 24% lower than table 6) and the bottom ash sales were 31% lower than the table 6 tonnage (the 2013 sales were 14% higher) (American Coal Ash Association, 2015). The differences likely

relate in part to a difference in timing between actual sales and consumption (including from stockpiles) and misidentification of the materials on some USGS canvasses. The “Gypsum and anhydrite” data in table 6 for 2014 include 1.22 Mt of synthetic gypsum, a 47% increase, but this likely underrepresents actual use of the synthetic material because the USGS canvass does not require that the two types of gypsum be differentiated. The ACAA reported 2014 sales of flue gas desulfurization gypsum to the cement industry of 1.30 Mt.

The U.S. cement industry’s fuel consumption is shown in table 7. As with nonfuel raw materials, data shifts can reflect activities at just a few plants. A significant increase was evident in 2014 in the use of fuel oil, and a decrease was evident in the consumption of liquid waste fuels; some of this apparent offset may, however, be due to variable reporting of used oils or substandard fuel oils. Natural gas usage declined, likely reflecting less advantageous prices, hence some return to more conventional fuels for the kilns. For kilns that primarily burn coal or petroleum coke, natural gas or oil are still commonly used for the warmup phase of kiln restarts, and thus are affected by the frequency and duration of kiln outages.

Although not revealed in table 7, overall unit heat consumption (gross heat basis) in 2014 was about 4.0 billion joules per metric ton (GJ/t) of clinker, slightly less than in 2013. Wet kiln plants averaged 7.1 GJ/t of clinker, up slightly and possibly reflecting a reduction in the kiln count. Dry kilns averaged about 3.9 GJ/t of clinker, unchanged from 2013. Overall, coal continued to supply the largest share of total heat consumed (59%, up from 57%), followed by petroleum coke (18%, unchanged), waste fuels (about 16%, unchanged), and natural gas (7%, down from 9%).

Consumption of electricity in 2014 is shown in table 8. Unit consumption increased significantly for the remaining operational wet kilns and increased slightly for dry plants and for the industry overall. The increase for dry plants may relate to an increased consumption of granulated slag (generally harder to grind than clinker) for cement but is as likely related to a variety of operational factors.

## Industry Structure Changes

In late January 2014, Martin Marietta Materials, Inc. announced that it would purchase Texas Industries, Inc. Apart from making Martin Marietta one of the country’s largest aggregates producers, the acquisition, completed in early July, represented a return of Martin Marietta to cement manufacturing after an absence of more than 30 years. The cement plants purchased were the Oro Grande integrated plant and the Crestmore (Riverside) grinding plant in southern California, the Midlothian integrated plant in northern Texas, and the Hunter integrated plant in southern Texas. The plants had a combined clinker capacity of nearly 6 million metric tons per year (Mt/yr) and a grinding capacity of about 6.6 Mt/yr.

In early March, Argos USA LLC purchased Florida Rock Industries, Inc. from Vulcan Materials Co. The cement facilities purchased (all in Florida) were the closed Port Manatee grinding plant (retained as a terminal), a cement and slag grinding plant at Tampa, the Newberry integrated plant, and sundry terminals. Total annual grinding capacity for these facilities was

approximately 2.5 Mt, depending on the capacity split at Tampa between portland cement and slag.

In April, two of the world’s largest international cement companies, Holcim and Lafarge, announced a proposal to merge as equals. Given that the two companies, combined, had facilities in about 90 countries, the proposed merger was subject to approval by many countries’ antitrust authorities and was certain to involve disposal of many plants worldwide. Proactively, both companies sold, or announced the sale, of various assets in various countries during the year. Approval of the merger by the European Union, subject to certain asset sales in Europe, was obtained in mid-December, but approval in the United States and Canada, where both companies had numerous plants and engaged in cross-border sales, was not expected until 2015. In the United States, disposals (2011 and 2012) of Lafarge’s plants in Alabama, Georgia, Missouri, Oklahoma, and South Carolina left no individual State with direct overlap in cement production between Holcim and Lafarge except for Iowa, where Holcim had an old integrated plant on indefinite idle status and Lafarge operated a modern integrated plant. In terms of overall production capacity, Holcim was dominant in the United States and Lafarge was dominant in Canada. In terms of where the merger might create U.S. market dominance, it seemed likely that, with both companies owning cement plants (Illinois, Iowa, and Missouri) convenient to waterborne transport on the Mississippi-Ohio River systems, the disposal of one or two plants in the midcontinent might be required. Also, both companies were major producers of GGBFS and overlap was more evident with this commodity. Lafarge owned two GGBFS facilities in Canada (Ontario) able to feed the U.S. market, as well as slag-grinding plants at four U.S. locations: Illinois, Indiana, Maryland, and Washington. Holcim produced GGBFS in Alabama, Illinois, and New Jersey; the Alabama facility, however, was dependent for feed on a blast furnace in precarious financial condition owing to a lackluster steel market.

No announcements were made during the year regarding new plants to be built in the United States. In Canada, however, McInnis Cement, a recently formed company, announced definitive plans at the end of January to build a 2.2-Mt/yr integrated plant at Port-Daniel-Gascons, Quebec, with much of its eventual output to be sold into coastal U.S. markets. Production from the plant was anticipated to start in mid-2016.

A number of plant upgrades were underway or completed during the year. At midyear, Ash Grove began production from the new semidry (dry) kiln at the company’s Midlothian, TX, plant. In anticipation of this, the plant had shut one of its three wet kilns in 2013 and then shut the remaining wet kilns in June and August 2014. Work commenced late in the year at Holcim’s Ada, OK, plant to build a preheater-precalfiner kiln to replace the facility’s two wet kilns. The new kiln was expected to increase the overall plant capacity by about 20% and was expected to be operational by late 2016. At Holcim’s Hagerstown, MD, plant, work began to convert the long dry kiln line to a preheater-precalfiner line; the work would include shortening the existing kiln. Commissioning of the upgraded kiln line was expected in mid-2016.

In April, Lafarge broke ground on its project to build a preheater-precalfiner kiln at its Ravena, NY, cement plant. The

new kiln line, with a capacity of about 2.5 Mt/yr, was expected to be completed in mid-2016 and would replace the facility's existing pair of wet kilns, which the company was under regulatory requirement to shut by the end of June 2016.

## Consumption

Data on cement consumption, as sales to final domestic customers, are derived from both the USGS annual canvass (tables 1, 11, 12, 14) and monthly surveys (table 9). Although the overall national totals are in close agreement among these tables, only table 9 regional breakout tonnages represent State-level consumption. In contrast, the regional breakouts in tables 11, 12, and 14 pertain to the locations of the reporting entities (chiefly the production sites), not the locations of consumption; it is very common for shipments to cross State lines. In both datasets, the sales include domestically produced cement (made from domestic and imported clinker) as well as imported cement.

Sales of portland cement increased by 8.8% in 2014 to 86.7 Mt (table 9). Monthly data revealed increases (year-over-year) in all months except January, February, and November; these exceptions showed changes of less than 1%. The stagnant sales levels in January and February followed a fairly strong (7.6%) increase in December 2013 and reflected a combination of a lack of weather-delay catch-up work from December and very cold conditions in January and February in the eastern half of the country. Sales in 2014 overall increased in all but 11 States. The leading consuming States in 2014 were, in descending order, Texas, California, Florida, Ohio, and Illinois; these accounted for 40% of the country's total portland cement consumption. Per capita consumption in 2014 rose by nearly 8% to 272 kilograms (kg), still much lower than the record 413 kg in 2005. Masonry cement sales increased in all months but August, October, and November, and were up by 9.0% to 2.3 Mt for the year overall. The increase reflected higher levels of residential construction in 2014, but the masonry cement volumes were still 58% below the record sales levels in 2005.

As noted earlier, a few importers do not participate in the USGS annual cement canvass and their sales to final customers are missing from the data in this report. An estimate of the missing sales volumes would include essentially all of the gray cement imports into the Philadelphia customs district and some of the white and specialty cement imports into various districts. Overall, it is estimated that the missing sales continued to total only about 0.3 Mt (0.3%) of total sales in both 2013 and 2014. However, the sales data in this report do capture a significant tonnage of imported cement that is absent from the official trade data (see "Foreign Trade" section).

Table 10 shows the intermediate flows and sales of portland cement by mode of transportation. Although the data in this table are rounded in line with significant uncertainties in the reported tonnages (particularly for flows from plants to terminals), it remains clear that the dominant transportation method for sales to final customers continued to be by truck. The data also show the continued dominance of bulk portland cement sales in the U.S. market.

Comparisons of cement consumption tonnages with levels of construction spending are constrained by the common lag

in time between the onset or cutoff of construction spending and the actual consumption of cement (within concrete), and because some types of construction require proportionately more concrete (are more cement intensive) than others. Correlation between spending trends and cement consumption would be expected to be better for the more cement-intensive forms of construction. The Portland Cement Association converts U.S. Census Bureau data on construction spending from current dollars to 2009 constant dollars, believing the constant dollar data to provide a more reliable basis for cement consumption analysis. In terms of 2009 constant dollars, overall construction spending increased by 3.4% in 2013 to \$846.3 billion (Portland Cement Association, 2016). Residential construction accounted for \$306.8 billion, up by 13.6%, and continued to account for the largest share of the total spending. New residential construction accounted for nearly \$192 billion of the 2014 total. Of this new construction, multifamily housing, which is cement intensive, was up by 32.6% to about \$30 billion, and single-family housing, although only moderately cement intensive, was up by 22.5% to \$162 billion. Public sector construction, generally highly cement intensive, was the dominant sector in terms of spending for many years but has been subdominant since 2011 and spending in this sector overall has declined steadily since that year. Total public sector construction spending fell by 6.5% in 2014 to \$212.2 billion and more than offset the 4.3% increase, to \$177.2 billion, in the cement-intensive nonresidential building sector. The important road construction subsector fell by 1.1% to \$73.9 billion. Again in constant 2009 dollar terms, the total cement "intensity" in 2014 was about 105 t of cement consumed per \$1 million of construction spending, up by 5%.

Table 14 breaks out regional sales of portland cement by type of customer. Ready-mixed concrete producers, as listed, accounted for 71% of total shipments, but the true percentage to this type of customer was larger (probably about 77%) because some sales were instead registered to other customer categories, especially airport and road paving contractors, that also make use of ready-mixed concrete. The ready-mixed customer category (as listed) increased by 9.4%. Sales to concrete product manufacturers increased by 9.6%; within this, sales to brick and block makers were up by 8.6%, sales to precast and prestressed slab makers were up by 14.9%, and those to pipe manufacturers were up by 8.3%; these increases may be understated because the subcategory "other or unspecified" rose by 4.0%. Sales to building material dealers fell by 23% but this category may be underreported. These shifts were broadly in line with those for residential and nonresidential building construction spending noted above. Sales to contractors increased by 20.7%, including a 12.5% increase in sales to road paving companies and nearly 39% in sales to soil cement contractors. These increases to contractors are contrary to the decline in public sector construction spending noted above but could represent a gain in the selection of concrete over competing construction materials.

Sales to the smaller categories of customers likely are underrepresented because some respondents seem to report only broad categories. As listed in table 14, sales into the mining sector fell by 9.4%, but represent only a few respondents. Sales of cement for oil (and gas) well drilling increased by 14.4%, in

seeming excess of the 5.7% increase in the average weekly rig count (Baker Hughes Inc., 2015), but possibly explained by the 11% increase in the subset count for oil well rigs, as opposed to a 13% decline in gas well drill rigs; the deeper (oil) wells would likely require more cement. The decline in gas well drilling reflected continued weak natural gas prices during the year.

Sales of portland cement are broken out by type in table 15. Sales continued to be dominated by Types I and II cements (undifferentiated in the data) and by sulfate-resistant varieties of cement (Type V and Type II/V hybrids reported as Type V); these also included equivalent cements sold under the specifications of ASTM C1157. Assignment between “General use and moderate heat” cements and “Sulfate resisting” categories is somewhat artificial because some hybrid cements are listed as meeting the standards for both Type II (or I/II) and Type V (such as II/V) cements; these are supposed to be included under the more restrictive category “Sulfate resisting” cements but may not always be so reported. As listed, “Type V” sales increased by 7.2%, largely reflecting higher sales into the western States. Sales of oil well cements (including non-API varieties) increased by 13.6% to 2.75 Mt; this was less than the 3.58 Mt noted as sold to oil and gas well drillers in table 14, but reflects the fact that some, generally shallower, wells can make use of ordinary grades of portland cement.

Sales of blended cements overall increased by nearly 23%; this was the first annual increase since that in 2010. Only the natural pozzolans category of blended cements showed a decrease in 2014, and all of the blended cement sales trends for the year were consistent with those for the consumption of the SCM additives (table 6).

## Prices

Price data (as mill net values) are given for the country overall in table 13 and this table also provides a breakout between white and gray portland cement. Tables 11 and 12 provide the price data by district for portland cement (gray and white combined) and masonry cement, respectively. As noted earlier, table 9 is a better indication of individual State-level consumption tonnages. Mill net values are ex-factory average values for all varieties of cement sold and include bagging and palletizing charges for cements sold in bags or packages. Most portland cement is sold in bulk (table 10), but most masonry cement is sold in bags or packages. Except for independently reporting terminals (which report on a “terminal net” basis), the valuations exclude charges for transportation to terminals from where, in fact, much of the cement was sold. Accordingly, mill net values are better viewed as price indexes rather than “shopping prices” for cement. They serve mainly to show general regional variations and trends over time, and small unit price differences are of little statistical significance.

Except for Pennsylvania, all districts showed unit price increases for portland cement in 2014 (table 11). The apparent decline in Pennsylvania may reflect the incorporation of estimates but may also reflect the eastern Pennsylvania producers’ significant reliance on sales into neighboring States; these States had some of the weaker consumption levels in 2014 (table 9). For the country overall, the average price for portland cement increased by 6.4% to \$99.50 per metric ton.

This matched (within rounding parameters) the average price in 2006, and along with that year, represented the third highest average price on record (the record was \$102.50 per ton in 2007). Masonry cement prices in 2014 increased by 1.7% to \$145.50 per ton (table 12), a new record, but the average is sensitive to even small shifts in the proportion of bulk sales; most masonry cement is sold in bag or packaged form.

## Foreign Trade

Trade data from the U.S. Census Bureau are provided in tables 16 through 21. Exports have not been a large fraction of the U.S. cement industry’s sales in recent decades, but did increase modestly (in total tons) during the recent recession, and reached a record 1.75 Mt in 2012. Largely because of higher domestic sales, U.S. exports fell by 4.5% to 1.67 Mt in 2013 and by 16.3% to 1.40 Mt in 2014 (table 16). In terms of cement sales to foreign final customers, exports fell by 21.1% to 1.07 Mt (table 9). Exports continued to be very small by comparison with imports. The main destination of U.S. cement exports continued to be Canada, which took 73% of the total in 2014.

Total imports of cement and clinker increased by 17.0% to 8.3 Mt (tables 1, 17), but the data continue to be incomplete, as discussed below. As listed, the 2014 total remained well below the record 35.6 Mt (also incomplete) imported in 2006. About 78% of the total imports in 2014 were of gray portland cement (table 19). The major import sources were, in decreasing order of tonnage, Canada, the Republic of Korea, China, Greece, Sweden, Taiwan, Mexico, Egypt, France, and Denmark; Mexico would move into fifth place if informal entries of cement were included (see below).

Data for imports from Mexico were incomplete for both years, and all or most of the deficit related to gray portland cement entering the El Paso, TX, customs district (table 18); most of what is shown for this district in table 18 is white cement. The missing cement, estimated at about 0.2 Mt in both 2013 and 2014, was material coming in by truck where each truckload had a customs value of less than \$2,500 (prior to 2013, the threshold was \$2,000); such shipments are considered to be “informal entries” by the U.S. Customs Service and the data on these entries are not sent to the U.S. Census Bureau under the cement tariff code. However, because the importer is a respondent to the USGS cement canvasses, the missing imports are included in the sales data in this report (for example, tables 9, 11). It was unclear if any imports of cement from Canada were being similarly omitted from the import data.

White cement imports are listed in table 20. In many past years, and based on unexpectedly low unit values, the data appeared to have included some gray cement or clinker; the apparent errors likely were because of the use of the wrong tariff code by importers. None of the significant tonnage entries in 2014 appeared misidentified. Total imports of white cement rose by 15.8% to nearly 0.9 Mt. The total imports of white cement typically appear to be in excess of the sales listed in table 15, especially if domestically produced white cement is also considered. The apparent excess can be qualitatively explained by the fact that significant amounts of white cement

are used as the basis of colored portland cements (commonly reported as gray) and to lighten the color of some gray portland cement, and for making white masonry cement (color breakout not shown). Further, some domestic output of white cement is actually a blend of domestic and imported material.

Apparent imports of clinker fell by nearly 11% to 0.72 Mt (table 21); almost all of the decrease was of material from Canada. The data for Canada are underreported because of sub-\$2,500 truckloads that, as with cement from Mexico noted previously, were being registered as “informal entries.” The deficits were estimated at 0.2 Mt in 2013 and less than 0.1 Mt in 2014. The clinker imports from France were material into the Norfolk, VA, customs district for the manufacture of aluminous cement.

For cement and clinker combined, the 10 busiest customs districts of entry in 2014 were, in descending order of tonnage, Houston-Galveston, TX; Seattle, WA; Detroit, MI; Cleveland, OH; Buffalo, NY; Miami, FL; New York City, NY; Columbia-Snake, OR, and WA; Honolulu, HI; and Pembina, ND (table 18). These leading districts accounted for about 83% of the total imports for the year.

## World Review

Table 22 lists the production of hydraulic cement by country. For most countries, the data include all forms of hydraulic cement; however, the data for the United States are for portland and masonry cement only, and data for some other countries may be incomplete. For some countries, the production data may include exports of clinker.

World production of hydraulic cement in 2014 increased by a comparatively modest 2.7% (the increase in 2013 was 6.5%) to a new record of nearly 4.2 Gt. With an output of 2.49 Gt, up by 3.4%, China continued to be the world’s leading producer by a large margin and exceeded the second-leading producer (India) by about ninefold. China’s increase in 2014, however, was significantly lower than its 9.1% increase in 2013. The remaining top 20 producers in 2014 were, in descending order, the United States, Turkey, Brazil, Russia, Iran, Vietnam, Indonesia, Japan, Saudi Arabia, Egypt, the Republic of Korea, Mexico, Thailand, Germany, Pakistan, Malaysia, the Philippines, and Italy. Altogether, cement was produced in about 160 countries, but output was unevenly distributed. Cumulatively, the top 5 countries accounted for about 72% of total world output; the top 10 countries, about 79%; and the top 20 countries, about 88%.

Regionally, cement production in Asia and the Pacific in 2014 continued to account for 75.8% of the world total; the region included 9 of the 20 leading producing countries and had the highest growth rate of all regions. Within the region, China’s production in 2014 alone accounted for slightly less than 60% of the world total output for the year and was about 6% higher than the entire world output (including that of China) in 2005. Relative to the United States, China’s cement production in 2014 was equivalent to nearly 46% of the total U.S. production for 1900 through 2014, and China’s production for 2012 through 2014 was 30% higher than the entire U.S. output for 1900 through 2014. Comparable superlatives apply to China’s cement consumption levels.

Western Europe (including Turkey) was the next ranked producing region, with 4.9% of 2014 world output, and was followed by the Middle East, at 4.6%; Africa, at 4.2%; Central and South America (including the Caribbean), 3.6%; North America (including Mexico), 3.1%; the Commonwealth of Independent States, 2.7%; and Eastern Europe, 1.1%.

## Outlook

Sales of cement in the fourth quarter of 2014 were up by about 10% and although volumes benefitted from mild weather during the period, it was expected that cement sales in 2015 would continue to be strong, likely in the range of 5% to 8%. Growth in sales in 2015 was expected to continue to be dependent on private sector residential and nonresidential construction; public sector construction spending was not expected to improve. In the longer term, the poor overall (and deteriorating) condition of U.S. transportation infrastructure was expected to lead to a return to increased levels of public sector construction spending.

Many U.S. cement plants still had idle (or substantially idle) kilns at yearend and many of these were of older, less energy-efficient technology. Given the length of time that these kilns have been idle, many would require a lot of restorative work ahead of other than short-term restarts, and it was unclear if a restart of these kilns could be justified economically or if they would be able to meet, unless retrofitted with costly scrubbers, forthcoming stringent emissions restrictions. Thus, it was unclear if true operational capacity at a number of plants and regions was as high as indicated in tables 3 and 5. Although some plant upgrades were underway, the difficulty in securing environmental permits for new (greenfields) plants did not augur well for a major net increase in U.S. clinker production capacity in the near and intermediate future. Imports were already growing relatively faster than overall domestic cement sales or production and it seemed likely that imports would be required to supply a growing share of the U.S. cement market in the future.

In light of likely constraints on growth in capacity, recent revisions to cement standards to allow for more use of SCMs and ground limestone in finished cement were timely in that, if the resulting cements gained market share, cement plants would be able to boost their overall sales of cement without needing to increase their clinker production capacities. The trend of electric power utilities switching away from coal to natural gas, if sustained, will aggravate existing local shortages of fly ash and bottom ash; imports of fly ash were expected to increase to alleviate some of these shortages. Both ash types are significant raw materials for clinker production at a number of plants, and fly ash is an important SCM, especially for the concrete industry. The availability of domestic and imported GGBFS was expected to decline given closures or idlings of domestic blast furnaces; it was uncertain if sufficient other SCMs would be able to offset the anticipated fly ash shortage unless there was increased adoption of limestone additions to finished cement.

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## GENERAL SOURCES OF INFORMATION

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TABLE 1  
SALIENT CEMENT STATISTICS FOR THE UNITED STATES<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

	2010	2011	2012	2013	2014
<b>Production:</b>					
Cement <sup>3</sup>	66,447	67,895	74,151	76,804	82,600
Clinker	59,802	61,241	67,173	69,420	74,372
<b>Shipments from mills and terminals:</b> <sup>3,4,5</sup>					
Quantity	70,300	72,100	78,300	81,700	88,900
Value <sup>6</sup> thousand dollars	6,490,000	6,440,000	7,020,000	7,760,000	8,940,000
Average value <sup>6</sup> dollars per metric ton	92.00	89.50	89.50	95.00	100.50
<b>Stocks, yearend:</b>					
Cement	6,180	6,270	6,900	6,570	6,140
Clinker	4,760	4,620	4,870	5,090	4,530
Exports	1,178	1,414	1,749	1,670	1,397
<b>Imports:</b> <sup>7</sup>					
Cement	6,013	5,812	6,107	6,289	7,584
Clinker	613	606	786	806	720
Total <sup>8</sup>	6,626	6,418	6,893	7,095	8,303
Consumption, apparent <sup>9</sup>	71,180	72,200	77,880	81,750	89,220
World production <sup>e,10</sup>	3,280,000 <sup>r</sup>	3,630,000 <sup>r</sup>	3,820,000	4,070,000	4,180,000

<sup>e</sup>Estimated. <sup>r</sup>Revised.

<sup>1</sup>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.

<sup>2</sup>Excludes Puerto Rico.

<sup>3</sup>Includes cement made from imported clinker. Includes a double-counted component (less than 0.5% per year) of portland cement subsequently converted at the plants to masonry cement; because of the involvement of stockpiles, the precise amount converted from actual production cannot be determined.

<sup>4</sup>Includes imported cement.

<sup>5</sup>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.

<sup>6</sup>Free on board mill or independently reporting terminal.

<sup>7</sup>All forms of hydraulic cement or clinker.

<sup>8</sup>Data may not add to totals shown because of independent rounding.

<sup>9</sup>Production (including that from imported clinker) of cement plus imports of hydraulic cement minus exports of hydraulic cement minus the change in yearend cement stocks.

<sup>10</sup>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, excluding Chicago	All counties other than those in metropolitan Chicago.
Illinois, metropolitan Chicago	Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will Counties in Illinois.
New York, eastern	Delaware, Franklin, Hamilton, Herkimer, Otsego, and all counties farther east and south, except those within metropolitan New York.
New York, western	Broome, Chenango, Lewis, Madison, Oneida, St. Lawrence, and all counties farther west.
New York, metropolitan	New York City (Bronx, Kings, New York, Queens, and Richmond), Nassau, Rockland, Suffolk, and Westchester.
Pennsylvania, eastern	Adams, Cumberland, Juniata, Lycoming, Mifflin, Perry, Tioga, Union, and all counties farther east.
Pennsylvania, western	Centre, Clinton, Franklin, Huntingdon, Potter, and all counties farther west.
Texas, northern	Angelina, Bell, Concho, Crane, Culberson, El Paso, Falls, Houston, Hudspeth, Irion, Lampasas, Leon, Limestone, McCulloch, Reagan, Reeves, Sabine, San Augustine, San Saba, Tom Green, Trinity, Upton, Ward, and all counties farther north.
Texas, southern	Brazos, Burnet, Crockett, Jasper, Jeff Davis, Llano, Madison, Mason, Menard, Milam, Newton, Pecos, Polk, Robertson, San Jacinto, Schleicher, Tyler, Walker, Williamson, and all counties farther south.

TABLE 3  
PORTLAND AND BLENDED CEMENT PRODUCTION, CAPACITY, AND STOCKS IN THE UNITED STATES, BY DISTRICT<sup>1</sup>

(Thousand metric tons unless otherwise specified)

District <sup>2</sup>	2013					2014				
	Number of plants	Production <sup>3</sup>	Grinding capacity <sup>4</sup>	Percentage utilized <sup>5</sup>	Yearend stocks <sup>6</sup>	Number of plants	Production <sup>3</sup>	Grinding capacity <sup>4</sup>	Percentage utilized <sup>5</sup>	Yearend stocks <sup>6</sup>
Maine and New York	4	1,719	3,604	47.7	200	4	1,736	3,184	54.5	217
Pennsylvania	8	3,619	6,079	59.5	271 <sup>7</sup>	8	3,828	6,069	63.1	248 <sup>7</sup>
Illinois	3	1,104	2,532	43.6	194	3	1,223	2,532	48.3	142
Indiana	4	2,284	3,745	61.0	210	4	2,397	3,735	64.2	115
Michigan	3	3,855	5,224	73.8	581	3	3,951	5,224	75.6	319
Ohio	2	829	1,207	68.7	49	2	864	1,208	71.5	30
Iowa, Nebraska, South Dakota	4 <sup>r</sup>	3,176	4,453 <sup>r</sup>	71.3 <sup>r</sup>	416	4	3,170	4,453	71.2	372
Kansas	2	1,776	3,172	56.0	213	2	2,012	3,172	63.4	162
Missouri	5	8,223	10,929	75.2	537 <sup>7</sup>	5	8,782	11,218	78.3	519 <sup>7</sup>
Florida	8	4,680	9,620 <sup>7</sup>	48.6 <sup>7</sup>	279	8	4,987	9,770 <sup>7</sup>	51.1	360
Georgia, Maryland, Virginia, West Virginia	6	5,417	7,360 <sup>7</sup>	73.6 <sup>7</sup>	362	6	5,587	7,358	75.9	391
South Carolina	3	2,776	5,085	54.6	142	3	2,888	5,085	56.8	101
Alabama, Kentucky, Tennessee	8	5,760	10,141	56.8	582	8	6,596	10,100 <sup>7</sup>	65.0	510
Arkansas and Oklahoma	4	2,044	3,729	54.8	181	4	2,459	3,729	65.9	212
Texas, northern	6	4,453	7,674	58.0	266	6	4,675	7,830 <sup>7</sup>	59.7	291
Texas, southern	6	5,662	7,708	73.5	277	5	6,308	7,730	81.6	325
Arizona and New Mexico	4	1,784	3,715	48.0	120	4	2,030	3,715	54.6	104
Colorado and Wyoming	4	2,897	4,889	59.3	228	4	3,187	4,889	65.2	197
Idaho, Montana, Nevada, Utah	5	2,099	3,250	64.6	208	5	2,351	3,232	72.7	212
Alaska and Hawaii	--	--	--	--	68	--	--	--	--	54
California	9	9,264	12,080	76.7	402	9	9,812	12,080	81.2	542
Oregon and Washington	4	1,266	2,399	52.8	201 <sup>7</sup>	4	1,472	2,399	61.4	216 <sup>7</sup>
Importers <sup>8</sup>	--	--	--	--	185 <sup>7</sup>	--	--	--	--	129 <sup>7</sup>
Total <sup>9</sup>	102 <sup>r</sup>	74,689	119,000 <sup>r,7</sup>	63.0 <sup>r</sup>	6,170 <sup>7</sup>	101	80,315	119,000 <sup>7</sup>	67.6	5,770 <sup>7</sup>
Puerto Rico	2	610	1,780	34.2	54 <sup>7</sup>	2	588	1,780	33.2	41 <sup>7</sup>
Grand total <sup>9</sup>	104 <sup>r</sup>	75,298	121,000 <sup>r,7</sup>	62.6 <sup>r</sup>	6,230 <sup>7</sup>	103	80,904	121,000 <sup>7</sup>	67.1	5,810 <sup>7</sup>

<sup>r</sup>Revised. -- Zero.<sup>1</sup>Even where presented unrounded, data are thought to be accurate to no more than three significant digits. Includes data for white cement. Includes cement made from imported clinker.<sup>2</sup>District assignment is the location of the reporting facilities. Specific districts include importers where district assignments were possible.<sup>3</sup>Data include a small amount of portland cement subsequently consumed at the plant to make masonry cement; the amount thus double counted cannot be determined precisely because of the involvement of cement stockpiles, but is less than 0.5% of the grand totals listed.<sup>4</sup>Based on fineness needed to produce a plant's normal output mix, including masonry cement, and allowing for downtime for routine maintenance.<sup>5</sup>Calculated relative to portland cement output; utilization would be higher if calculated to include output of masonry cement.<sup>6</sup>Includes imported cement and stocks of domestic and imported cement at mills, and terminals, and in transit.<sup>7</sup>Includes estimates for nonrespondents or facilities that provided incomplete information.<sup>8</sup>Includes only those importers or terminals for which district assignments were not possible.<sup>9</sup>Data may not add to totals shown because of independent rounding.

TABLE 4  
MASONRY CEMENT PRODUCTION AND STOCKS IN THE UNITED STATES, BY DISTRICT<sup>1</sup>

(Thousand metric tons unless otherwise specified)

District <sup>2</sup>	2013			2014		
	Number of active plants	Production <sup>3</sup>	Yearend stocks <sup>4</sup>	Number of active plants	Production <sup>3</sup>	Yearend stocks <sup>4</sup>
Maine and New York	4	26	14	4	31	13
Pennsylvania	7	143	38	7	217	44 <sup>5</sup>
Indiana and Ohio	6	274	49	6	273	39
Michigan	3	61	22	2	43	17
Iowa, Nebraska, South Dakota	1	W	W	1	W	W
Kansas	2	W	W	2	W	W
Missouri	1	W	W	1	W	W
Florida	6	342	57	6	365	51
Georgia, Maryland, Virginia, West Virginia	5	223	36	5	262	38
South Carolina	3	155	15	3	160	16
Alabama, Kentucky, Tennessee	7	287	59	6	255	56
Arkansas and Oklahoma	4	98	17	4	124	16
Texas	7	238	17	7	277	17
Arizona and New Mexico	3	48	6	3	48	6
Colorado and Wyoming	1	W	W	1	W	W
Idaho, Montana, Nevada, Utah	1	W	W	1	W	W
California	6	178	32	6	186	29
Importers <sup>6</sup>	--	--	2 <sup>5</sup>	--	--	5
Total <sup>7</sup>	67	2,116	393 <sup>5</sup>	65	2,285	375 <sup>5</sup>
Puerto Rico	1	(8)	--	--	--	--
Grand total <sup>7</sup>	68	2,116	393 <sup>5</sup>	65	2,285	375 <sup>5</sup>

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

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

<sup>2</sup>District assignment is the location of the reporting facilities. Specific districts include importers where district assignments were possible.

<sup>3</sup>Includes cement produced from imported clinker.

<sup>4</sup>Includes imported cement.

<sup>5</sup>Includes estimates for nonrespondents or facilities that provided incomplete information.

<sup>6</sup>Includes only those importers or terminals for which district assignments were not possible.

<sup>7</sup>Data may not add to totals shown because of independent rounding.

<sup>8</sup>Less than ½ unit.

TABLE 5  
CLINKER CAPACITY AND PRODUCTION IN THE UNITED STATES IN 2014 BY DISTRICT<sup>1</sup>

District	Number of active plants <sup>2</sup>				Number of kilns <sup>4</sup>	Daily capacity <sup>4,5</sup> (thousand metric tons)	Average days of routine maintenance <sup>6</sup>	Apparent annual capacity <sup>4,7</sup> (thousand metric tons)	Production (thousand metric tons)	Percentage of capacity utilized	Yearend stocks (thousand metric tons)
	Process used			Total							
	Dry	Wet	Both <sup>3</sup>								
Maine and New York	2	1	--	3	4	9.6 <sup>8</sup>	18.6 <sup>8</sup>	3,340 <sup>8</sup>	1,485	44.4 <sup>8</sup>	104 <sup>8</sup>
Pennsylvania	5	2	--	7	11	16.9	27.8 <sup>8</sup>	5,650 <sup>8</sup>	3,440	60.9 <sup>8</sup>	186
Illinois	3	--	--	3	6	7.7	12.5	2,658	1,092	41.1	86
Indiana	3 <sup>9</sup>	1	--	4	8	9.9	28.1	3,322	2,294	69.1	113
Michigan	2	--	--	2	6	11.2	43.7 <sup>8</sup>	3,580 <sup>8</sup>	2,824	78.8 <sup>8</sup>	51
Ohio	1	1	--	2	3	3.3	33.5	1,108	764	69.0	45
Iowa, Nebraska, South Dakota	4	--	--	4	5	10.3	28.2 <sup>8</sup>	3,480 <sup>8</sup>	2,876	82.6 <sup>8</sup>	187
Kansas	2	--	--	2	3	7.3	35.3	2,438	1,942	79.7	129
Missouri	5	--	--	5	5	29.8	31.1	9,900	8,056	81.4	342
Florida	7	--	--	7	10	25.8	18.5 <sup>8</sup>	8,910 <sup>8</sup>	4,848	54.4 <sup>8</sup>	348
Georgia, Maryland, Virginia, West Virginia	5	--	--	5	5	19.4	26.3	6,514	5,277	81.0	269
South Carolina	3	--	--	3	3	12.2	35.3 <sup>8</sup>	4,020 <sup>8</sup>	2,783	69.2 <sup>8</sup>	80
Alabama, Kentucky, Tennessee	8	--	--	8	8	26.5	25.9	9,016	6,135	68.0	312
Arkansas and Oklahoma	3	1	--	4	8	9.8	22.9	3,320	2,475	74.5	228
Texas, northern	4	1	1	6	12	20.8	17.1	7,290	4,335	59.5	234
Texas, southern	5	--	--	5	7	20.4	22.6	6,960	5,973	85.8	295
Arizona and New Mexico	4	--	--	4	8	10.4	17.3	3,591	2,098	58.4	192
Colorado and Wyoming	4	--	--	4	5	11.8	25.2	3,947	2,996	75.9	173
Idaho, Montana, Nevada, Oregon, Utah, Washington	5	2	--	7	8	12.6	28.3 <sup>8</sup>	4,230 <sup>8</sup>	3,501	82.7 <sup>8</sup>	396
California	8	--	--	8	9	34.6	27.6 <sup>8</sup>	11,700 <sup>8</sup>	9,181	78.4 <sup>8</sup>	764
Total <sup>10</sup>	83 <sup>9</sup>	9	1	93	134	310.0 <sup>8</sup>	25.1 <sup>8</sup>	105,000 <sup>8</sup>	74,372	70.8 <sup>8</sup>	4,530 <sup>8</sup>
Puerto Rico	2	--	--	2	2	5.0	36.5	1,664	639	38.4	129
Grand total <sup>10</sup>	85 <sup>9</sup>	9	1	95	136	315.0 <sup>8</sup>	25.2 <sup>8</sup>	107,000 <sup>8</sup>	75,012	70.3 <sup>8</sup>	4,660 <sup>8</sup>

-- Zero.

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

<sup>2</sup>Includes white cement plants and all plants (gray or white) that produced clinker for at least 1 day during the year.

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

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

<sup>5</sup>Sum of reported kiln capacities for all plants in a district.

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

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

<sup>8</sup>Contains estimates for some facilities and have been rounded to no more than three significant digits.

<sup>9</sup>Includes one semiwet kiln.

<sup>10</sup>Data may not add to totals shown because of independent rounding.

TABLE 6  
RAW MATERIALS USED TO PRODUCE CLINKER AND CEMENT IN THE UNITED STATES<sup>1,2</sup>

(Thousand metric tons)

Material	2013		2014	
	Clinker	Cement <sup>3</sup>	Clinker	Cement <sup>3</sup>
<b>Calcareous:</b>				
Limestone (aragonite, chalk, coral, marble)	90,500 <sup>r</sup>	1,930	97,300	2,350
Cement rock (includes marl)	9,410	23	9,340	15
Cement kiln dust (CKD) <sup>4</sup>	50	136	26	101
Lime <sup>4</sup>	73	38	30	13
Other	75	4	95	1
<b>Aluminous:</b>				
Clay	3,260	--	3,610	1
Shale and schist	2,130	39	2,010	43
Other <sup>5</sup>	545	--	612	--
<b>Ferrous:</b>				
Iron ore	671	--	812	--
Mill scale	656	--	649	--
Other <sup>6</sup>	84	--	25	--
<b>Siliceous:</b>				
Sand, calcium silicates	3,100	--	3,330	--
Sandstone, quartzite, soils, nonpozzolanic rocks	738	--	697	--
Fly ash	2,580	135	2,440	160
Other ash, including bottom ash	1,050	--	1,580	--
Granulated blast furnace slag <sup>7</sup>	--	237	--	287
Other blast furnace slag	35	--	56	--
Steel slag	390	--	357	--
Other slag	199	--	247	--
Natural rock pozzolans <sup>8</sup>	--	52	--	35
Other pozzolans <sup>9</sup>	1	3	10	8
<b>Other:</b>				
Gypsum and anhydrite	(10)	4,020	(10)	4,380
Miscellaneous <sup>11</sup>	38	27	46	29
Total <sup>12</sup>	116,000	6,640	123,000	7,430
Clinker, imported, raw materials equivalent <sup>13</sup>	--	1,260	--	1,380
Grand total <sup>12</sup>	116,000	7,890	123,000	8,810

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Excludes Puerto Rico.

<sup>2</sup>Data have been rounded to no more than three significant digits.

<sup>3</sup>Includes portland, blended, and masonry cements.

<sup>4</sup>Data are probably underreported.

<sup>5</sup>Includes alumina, aluminum dross, bauxite, spent catalysts, and other aluminous materials.

<sup>6</sup>Includes iron sludges, pyrite, and other ferrous materials.

<sup>7</sup>Includes both ground and unground material.

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

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

<sup>10</sup>Included with "Calcareous: Other."

<sup>11</sup>Includes fluorspar and all other materials not listed earlier.

<sup>12</sup>Data may not add to totals shown because of independent rounding.

<sup>13</sup>Converted as 1.7 times the weight of foreign clinker consumed.

TABLE 7  
CLINKER PRODUCED AND FUEL CONSUMED BY THE U.S. CEMENT INDUSTRY, BY KILN PROCESS<sup>1</sup>

Kiln process	Production <sup>2</sup>		Conventional fuels <sup>3</sup>				Waste fuels <sup>3</sup>			
	Number of plants <sup>4</sup>	Quantity (thousand metric tons)	Percentage of total	Coal <sup>5</sup> (thousand metric tons)	Petcoke (thousand metric tons)	Oil <sup>6</sup> (thousand liters)	Natural gas <sup>7</sup> (thousand cubic meters)	Tires (thousand metric tons)	Solid (thousand metric tons)	Liquid (thousand liters)
2013:										
Wet	10	3,293	4.7	450	108	1,430	65,600	50	7	158,000
Dry <sup>8,9</sup>	83	66,126	95.3	5,590	1,450	14,300	629,000	349	1,100	647,000
Both <sup>9,10</sup>	1	W	W	W	W	W	W	W	W	W
Total <sup>11</sup>	94	69,420	100.0	6,030	1,560	15,700	694,000	399	1,110	805,000
2014:										
Wet	9	2,458	3.3	340	87	3,770	45,200	20	7	146,000
Dry <sup>8,9</sup>	81	71,914	96.7	6,340	1,610	19,300	524,000	361	1,280	582,000
Both <sup>9,10</sup>	1	W	W	W	W	W	W	W	W	W
Total <sup>11</sup>	91	74,372	100.0	6,680	1,700	23,100	569,000	381	1,290	728,000

W Withheld to avoid disclosing company proprietary data.

<sup>1</sup>Excludes Puerto Rico.

<sup>2</sup>Data are all reported. Although unrounded, data are thought to be accurate to no more than three significant digits.

<sup>3</sup>All fuel data have been rounded to no more than three significant digits.

<sup>4</sup>Excludes idle plants that, although retained as active in terms of clinker capacity, had no production during 2013–14.

<sup>5</sup>All reported to be bituminous.

<sup>6</sup>Distillate and residual fuel oils. Excludes used oils that were reported under liquid wastes.

<sup>7</sup>Includes landfill gas and propane.

<sup>8</sup>Includes one semiwet plant.

<sup>9</sup>Data for the category “Both” have been included in those for “Dry” plants to protect company proprietary information.

<sup>10</sup>Plants that can operate both wet and dry kilns, whether or not both types were active during the year. Includes plants that converted from wet to dry technology during the year.

<sup>11</sup>May not add to totals shown because of independent rounding.

TABLE 8  
ELECTRICITY CONSUMED BY U.S. CEMENT PLANTS, BY PLANT PROCESS<sup>1</sup>

Plant process	Electricity consumed <sup>2</sup>						Cement produced <sup>4</sup> (thousand metric tons)	Average consumption (kilowatthours per ton of cement produced)	
	Generated		Purchased		Total <sup>3</sup>				
	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Number of plants	Quantity (million kilowatthours)	Percentage of total		
2013:									
Integrated plants:									
Wet	--	--	10	485	10	485	5	3,439	141
Dry <sup>5,6</sup>	4	230	82 <sup>r,7</sup>	9,630 <sup>r</sup>	82 <sup>r,7</sup>	9,860 <sup>r</sup>	95	72,000	137 <sup>r</sup>
Both <sup>6,8</sup>	--	--	1	W	1	W	W	W	W
Total or average <sup>3</sup>	4	230	93 <sup>r,7</sup>	10,100 <sup>r</sup>	93 <sup>r,7</sup>	10,300 <sup>r</sup>	100	75,439	137 <sup>r</sup>
Grinding plants <sup>9</sup>									
Exclusions <sup>10</sup>	--	--	3 <sup>r</sup>	XX	3 <sup>r</sup>	XX	--	105 <sup>r</sup>	XX
2014:									
Integrated plants:									
Wet	--	--	9	414	9	414	4	2,818	147
Dry <sup>5,6</sup>	4	215	82	10,700	82	10,900	96	78,382	139
Both <sup>6,8</sup>	--	--	1	W	1	W	W	W	W
Total or average <sup>3</sup>	--	215	92	11,100	92	11,300	100	81,200	139
Grinding plants <sup>9</sup>									
Exclusions <sup>10</sup>	--	--	2	XX	2	XX	--	116	XX

<sup>1</sup>Revised. W Withheld to avoid disclosing company proprietary data. XX Not applicable. -- Zero.

<sup>1</sup>Excludes Puerto Rico.

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

<sup>3</sup>May not add to totals shown because of independent rounding.

<sup>4</sup>Portland and masonry cement. Data are all reported and are unrounded but are thought to be accurate to no more than three significant digits.

<sup>5</sup>Includes one semiwet plant.

<sup>6</sup>Data for the category "Both" have been included in those for "Dry" plants to protect company proprietary information.

<sup>7</sup>Includes one grinding plant whose data were included with an integrated plant.

<sup>8</sup>Plants that can operate both wet and dry kilns, whether or not both types were active during the year. Includes plants that converted from wet to dry technology during the year.

<sup>9</sup>Plants that did not produce clinker but ground clinker from outside sources. Excludes plants that only made masonry cement or just reground one type of portland cement into another, or which reported a substantial component of grinding of excess granulated blast furnace slag. Excludes two plants that were reported under "Dry" as noted in footnote 6.

<sup>10</sup>Plants at which production of portland cement was by regrinding of one type into another or which reported production only of masonry cement.

TABLE 9  
CEMENT SHIPMENTS TO FINAL CUSTOMER, BY DESTINATION AND ORIGIN<sup>1,2</sup>

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	2013	2014	2013	2014
Destination:				
Alabama	993	962	71	69
Alaska <sup>3</sup>	172	169	--	--
Arizona	1,852	1,804	18	21
Arkansas	828	846	43	44
California, northern	2,950	3,078	44	39
California, southern	5,117	5,545	149	165
Colorado	1,806	2,071	6	5
Connecticut <sup>3</sup>	545	538	11	12
Delaware <sup>3</sup>	183	176	4	5
District of Columbia <sup>3</sup>	213	181	(4)	--
Florida	4,748	5,486	364	383
Georgia	1,842	2,249	122	137
Hawaii <sup>3</sup>	270	332	2	2
Idaho <sup>3</sup>	405	435	(4)	(4)
Illinois, excluding Chicago	1,328	1,378	8	8
Illinois, metropolitan Chicago <sup>3</sup>	1,266	1,519	17	18
Indiana	1,517	1,694	35	37
Iowa	1,696	1,928	(4)	1
Kansas	1,213	1,260	4	5
Kentucky	995	1,021	50	52
Louisiana <sup>3</sup>	2,049	2,052	49	51
Maine	181	190	1	1
Maryland	1,037	1,174	38	35
Massachusetts <sup>3</sup>	825	905	9	9
Michigan	1,624	1,840	46	53
Minnesota <sup>3</sup>	1,402	1,478	6	6
Mississippi <sup>3</sup>	737	788	32	35
Missouri	1,482	1,543	12	13
Montana	313	321	1	1
Nebraska	1,208	1,260	1	1
Nevada	1,064	1,111	6	7
New Hampshire <sup>3</sup>	185	190	6	7
New Jersey <sup>3</sup>	1,332	1,379	38	42
New Mexico	589	603	3	2
New York, eastern	494	484	9	7
New York, western <sup>3</sup>	660	654	12	12
New York, metropolitan <sup>3</sup>	1,251	1,413	49	69
North Carolina <sup>3</sup>	1,967	2,081	141	146
North Dakota <sup>3</sup>	972	1,112	(4)	--
Ohio	2,834	3,055	68	73
Oklahoma	1,557	1,747	23	26
Oregon	710	700	(4)	(4)
Pennsylvania, eastern	1,487	1,594	36	81
Pennsylvania, western	1,039	1,103	29	29
Rhode Island <sup>3</sup>	105	111	1	1
South Carolina	1,224	1,196	64	66
South Dakota	501	460	(4)	--
Tennessee	1,272	1,378	118	125
Texas, northern	5,719	6,561	101	117
Texas, southern	7,350	8,320	176	204
Utah	1,044	1,196	(4)	(4)
Vermont <sup>3</sup>	114	122	1	1
Virginia	1,605	1,653	72	71
Washington	1,500	1,678	(4)	(4)
West Virginia	481	490	13	12

See footnotes at end of table.

TABLE 9—Continued  
CEMENT SHIPMENTS TO FINAL CUSTOMER, BY DESTINATION AND ORIGIN<sup>1,2</sup>

(Thousand metric tons)

Destination and origin	Portland cement		Masonry cement	
	2013	2014	2013	2014
<b>Destination—Continued:</b>				
Wisconsin <sup>3</sup>	1,536	1,720	12	12
Wyoming	322	355	(4)	--
Total <sup>5</sup>	79,709	86,688	2,125	2,316
Puerto Rico	707	637	--	--
Foreign countries <sup>6</sup>	1,351	1,062	2	5
Grand total <sup>5</sup>	81,768	88,387	2,127	2,320
<b>Origin:</b>				
United States	74,760	80,424	2,107	2,299
Puerto Rico	630	595	--	--
Foreign countries <sup>7</sup>	6,377	7,368	20	21
Total shipments <sup>5</sup>	81,768	88,387	2,127	2,320

-- Zero.

<sup>1</sup>Includes cement produced from imported clinker and imported cement shipped by domestic producers and importers. Data include all revisions available as of February 27, 2016.

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

<sup>3</sup>Has no cement plants.

<sup>4</sup>Less than ½ unit.

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

<sup>6</sup>Includes shipments to U.S. possessions and territories.

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

TABLE 10  
SHIPMENTS OF PORTLAND CEMENT IN THE UNITED STATES, BY TYPE OF CARRIER<sup>1,2</sup>

(Thousand metric tons)

Type of carrier	Plant to terminal		Plant to customer		Terminal to customer		Total to customers <sup>4</sup>
	In bulk	In bags <sup>3</sup>	In bulk	In bags <sup>3</sup>	In bulk	In bags <sup>3</sup>	
<b>2013:</b>							
Railroad	11,500	42	1,440	--	249	6	1,700
Truck	3,680	151	41,500	858	34,900	351	77,600
Barge and boat	7,910	--	159	17	17	--	193
Total <sup>4</sup>	23,100	193	43,100	875	35,200	357	79,500 <sup>5</sup>
<b>2014:</b>							
Railroad	13,300	5	1,130	4	139	5	1,280
Truck	3,960	72	43,800	783	40,300	316	85,200
Barge and boat	9,450	--	121	--	--	--	121
Total <sup>4</sup>	26,700	77	45,000	787	40,400	322	86,600 <sup>5</sup>

-- Zero.

<sup>1</sup>Includes imported cement and cement made from imported clinker. Excludes Puerto Rico.

<sup>2</sup>Data are rounded to no more than three significant digits.

<sup>3</sup>Includes packages, bags, and supersacks.

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

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

TABLE 11  
PORTLAND CEMENT SHIPPED IN THE UNITED STATES, BY DISTRICT<sup>1</sup>

District <sup>4</sup>	2013			2014		
	Quantity <sup>3</sup> (thousand metric tons)	Value <sup>2</sup>		Quantity <sup>3</sup> (thousand metric tons)	Value <sup>2</sup>	
		Total (thousands)	Average (per metric ton)		Total (thousands)	Average (per metric ton)
Maine and New York	1,898	\$187,173	\$98.64	1,965	\$201,515	\$102.54
Pennsylvania	4,277	417,000 <sup>5</sup>	97.50 <sup>5</sup>	4,333	398,000 <sup>5</sup>	92.00 <sup>5</sup>
Illinois	1,489	142,432	95.67	1,631	167,644	102.78
Indiana	1,952	162,924	83.47	2,111	183,115	86.74
Michigan	4,070 <sup>5</sup>	391,000 <sup>5</sup>	96.00 <sup>5</sup>	4,694	473,980	100.97
Ohio	817	78,354	95.87	879	91,311	103.90
Iowa, Nebraska, South Dakota	3,716	393,248	105.81	3,966	435,321	109.76
Kansas	1,477	147,842	100.13	1,592	159,520	100.20
Missouri	6,390 <sup>5</sup>	546,000 <sup>5</sup>	85.50 <sup>5</sup>	6,945	667,650	96.13
Florida	4,620 <sup>5</sup>	397,000 <sup>5</sup>	86.00 <sup>5</sup>	5,250	476,566	90.77
Georgia, Maryland, Virginia, West Virginia	4,797	443,926	92.54	5,059	477,612	94.40
South Carolina	2,763	234,895	85.03	2,888	272,958	94.52
Alabama, Kentucky, Mississippi, Tennessee	6,070	522,000 <sup>5</sup>	86.00 <sup>5</sup>	6,838	640,150	93.61
Arkansas and Oklahoma	2,142	199,955	93.35	2,357	235,047	99.70
Texas, northern	5,389	548,985	101.88	6,377	691,000 <sup>5</sup>	108.50 <sup>5</sup>
Texas, southern	7,038	673,082	95.63	7,731	817,595	105.76
Arizona and New Mexico	2,147	221,738	103.28	2,202	228,832	103.92
Colorado and Wyoming	2,404	257,592	107.14	2,554	297,534	116.51
Idaho, Montana, Nevada, Utah	2,119	205,730	97.07	2,311	239,110	103.49
Alaska and Hawaii	377	57,005	151.17	448	68,204	152.12
California	8,683	669,076	77.06	9,301	785,881	84.50
Oregon and Washington	1,830	183,760	100.44	1,931	204,000 <sup>5</sup>	105.50 <sup>5</sup>
Importers <sup>6</sup>	3,060 <sup>5</sup>	365,000 <sup>5</sup>	119.50 <sup>5</sup>	3,200 <sup>5</sup>	385,000 <sup>5</sup>	120.50 <sup>5</sup>
Total or average <sup>7</sup>	79,500 <sup>5</sup>	7,450,000 <sup>5</sup>	93.50 <sup>5</sup>	86,600 <sup>5</sup>	8,600,000 <sup>5</sup>	99.50 <sup>5</sup>
Puerto Rico	698 <sup>5</sup>	W	W	631	W	W
Grand total <sup>7</sup>	80,200 <sup>5</sup>	W	W	87,200	W	W

W Withheld to avoid disclosing company proprietary data.

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

<sup>2</sup>Values are mill net or ex-plant (free on board) valuations of total sales to final customers, including sales from plants' external distribution terminals. The data are ex-terminal for independently reporting terminals. Data include all varieties of portland cement and both bulk and bag shipments.

Unless otherwise specified, data are presented unrounded. Unrounded or not, unit value data should be viewed as value indicators, accurate to no more than the nearest \$0.50 or \$1.00 per metric ton.

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

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

<sup>5</sup>Data are rounded to three significant digits (unit values to the nearest \$0.50) because they include estimates.

<sup>6</sup>Importers for which district assignments were not possible.

<sup>7</sup>Data may not add to totals shown because of independent rounding.

TABLE 12  
MASONRY CEMENT SHIPPED IN THE UNITED STATES, BY DISTRICT<sup>1,2</sup>

District <sup>5</sup>	2013			2014		
	Quantity <sup>4</sup> (thousand metric tons)	Value <sup>3</sup>		Quantity <sup>4</sup> (thousand metric tons)	Value <sup>3</sup>	
		Total (thousands)	Average (per metric ton)		Total (thousands)	Average (per metric ton)
Maine and New York	37	\$4,470 <sup>6</sup>	\$121.50 <sup>6</sup>	41	\$5,375	\$132.63
Pennsylvania	172	24,700 <sup>6</sup>	143.50 <sup>6</sup>	231	33,400 <sup>6</sup>	144.50 <sup>6</sup>
Illinois, Indiana, Ohio	217	32,800 <sup>6</sup>	151.00 <sup>6</sup>	240	37,325	155.76
Michigan	77	10,739	138.63	76 <sup>6</sup>	10,800 <sup>6</sup>	143.00 <sup>6</sup>
Iowa, Nebraska, South Dakota	1	72	101.15	(7)	45	105.08
Kansas and Missouri	30	4,840 <sup>6</sup>	159.50 <sup>6</sup>	33	5,303	162.84
Florida	329	40,858	124.36	363	47,400 <sup>6</sup>	130.50 <sup>6</sup>
Georgia, Maryland, Virginia, West Virginia	220	40,720	185.06	231	44,219	191.06
South Carolina	164	23,284	142.01	168	24,900 <sup>6</sup>	148.00 <sup>6</sup>
Alabama, Kentucky, Mississippi, Tennessee	311	42,830	137.78	327	47,380	144.69
Arkansas and Oklahoma	94	10,334	110.28	95	10,743	112.88
Texas	246	38,500 <sup>6</sup>	156.50 <sup>6</sup>	264	41,400 <sup>6</sup>	156.50 <sup>6</sup>
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	28	3,438	121.56	32	3,959	123.90
Alaska and Hawaii	2	527	323.10	2	490	322.09
California, Oregon, Washington	201	22,092	110.07	212	22,900 <sup>6</sup>	108.00 <sup>6</sup>
Importers <sup>8</sup>	39 <sup>6</sup>	9,670 <sup>6</sup>	247.00 <sup>6</sup>	20 <sup>6</sup>	4,200 <sup>6</sup>	214.00 <sup>6</sup>
Total or average <sup>9</sup>	2,170 <sup>6</sup>	310,000 <sup>6</sup>	143.00 <sup>6</sup>	2,330 <sup>6</sup>	340,000 <sup>6</sup>	145.50 <sup>6</sup>
Puerto Rico	(7)	W	W	--	--	--
Grand total or average <sup>9</sup>	2,170 <sup>6</sup>	W	W	2,330 <sup>6</sup>	340,000 <sup>6</sup>	145.50 <sup>6</sup>

W Withheld to avoid disclosing company proprietary data.

<sup>1</sup>Shipments are those by cement companies to final customers and include imported cement and cement made from imported clinker. Excludes sales of masonry cement by portland cement final customers who made masonry cement from purchased portland cement. Data exclude Puerto Rico. Even where presented unrounded, data are thought to be accurate to no more than three significant digits.

<sup>2</sup>Data include true masonry, plastic, portland-lime, and stucco cements.

<sup>3</sup>Values are mill net or ex-plant valuations of total sales to final customers, including sales from plants external distribution terminals. The data are ex-terminal for independently reporting terminals. Data include both bulk and bag shipments. Unless otherwise specified, data are presented unrounded. Unrounded or not, unit value data should be viewed as value indicators, accurate to no more than the nearest \$0.50 or even \$1.00 per metric ton.

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

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

<sup>6</sup>Data are rounded to no more than three significant digits (unit values to the nearest \$0.50) because they include estimates.

<sup>7</sup>Less than ½ unit.

<sup>8</sup>Importers for which district assignments were not possible.

<sup>9</sup>Data may not add to totals shown because of independent rounding.

TABLE 13  
AVERAGE MILL NET VALUE OF CEMENT SOLD IN THE UNITED STATES<sup>1,2</sup>

(Dollars per metric ton)

Year	Portland cement			Masonry cement	All cement
	Gray	White <sup>3</sup>	All		
2013	92.50	198.50	93.50	143.00	95.00
2014	98.50	202.00	99.50	145.50	100.50

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

<sup>2</sup>Data are rounded to the nearest \$0.50 per metric ton.

<sup>3</sup>Data for white cement include a component of resales showing significant price markups.

TABLE 14  
PORTLAND CEMENT SHIPMENTS IN 2014, BY DISTRICT AND TYPE OF CUSTOMER<sup>1</sup>

(Thousand metric tons)

District <sup>2</sup>	Ready-mixed concrete	Concrete product manufacturers	Contractors	Building material dealers	Oil well, mining, waste stabilization	Government and other <sup>3</sup>	Total <sup>4,5</sup>
Maine and New York	1,440	283	41	138	6	52	1,965
Pennsylvania	2,540	961	360	244	67	166	4,333
Illinois	990	104	86	5	323	123	1,631
Indiana	1,520	258	202	30	36	69	2,111
Michigan	3,580	423	466	182	28	10	4,694
Ohio	622	62	51	9	133	1	879
Iowa, Nebraska, South Dakota	3,030	372	345	15	199	3	3,966
Kansas	1,240	156	91	34	70	--	1,592
Missouri	5,830	355	557	90	73	36	6,945
Florida	3,570	1,080	311	58	--	225	5,251
Georgia, Maryland, Virginia, West Virginia	3,630	860	264	117	5	182	5,059
South Carolina	2,380	284	122	82	3	14	2,888
Alabama, Kentucky, Mississippi, Tennessee	4,970	780	663	287	56	80	6,838
Arkansas and Oklahoma	1,690	169	338	16	139	6	2,357
Texas, northern	3,420	438	1,210	84	1,160	59	6,377
Texas, southern	5,170	667	673	218	1,000	4	7,731
Arizona and New Mexico	1,490	485	115	58	27	22	2,202
Colorado and Wyoming	1,930	142	209	59	169	43	2,554
Idaho, Montana, Nevada, Utah	1,550	210	127	81	297	45	2,311
Alaska and Hawaii	433	8	--	--	--	7	448
California	6,970	1,220	512	386	137	80	9,301
Oregon and Washington	1,450	246	113	65	44	9	1,931
Importers <sup>6</sup>	2,360	333	203	51	123	137	3,200 <sup>7</sup>
Total <sup>5</sup>	61,800	9,900	7,060	2,310	4,100	1,360	86,600 <sup>7</sup>
Puerto Rico	343	51	10	228	--	(8)	631 <sup>7</sup>
Grand total <sup>5</sup>	62,200	9,950 <sup>9</sup>	7,070 <sup>10</sup>	2,540	4,100 <sup>11</sup>	1,360	87,200 <sup>7</sup>

-- Zero.

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

<sup>2</sup>The location of the reporting entity, not the location of sales (see table 9 for sales data, by State). Specific districts include shipments by importers where district assignments were possible.

<sup>3</sup>Includes shipments to miscellaneous customer types and for which customer types were not specified.

<sup>4</sup>Except where noted, district totals are unrounded but are thought to be accurate to no more than three significant digits.

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

<sup>6</sup>Shipments by importers where district assignments were not possible.

<sup>7</sup>District totals are rounded to three significant digits because they include estimates.

<sup>8</sup>Less than ½ unit.

<sup>9</sup>Includes brick and block—2,900; precast and prestressed—3,480; pipe—977; and other or unspecified—2,590.

<sup>10</sup>Includes airport—116; road paving—3,590; soil cement—2,330; and other or unspecified—1,030.

<sup>11</sup>Includes oil well drilling—3,580; mining—183; and waste stabilization—1,290.

TABLE 15  
 PORTLAND CEMENT SHIPMENTS IN THE UNITED STATES,  
 BY TYPE OF CEMENT<sup>1,2,3</sup>

(Thousand metric tons)

Type of cement <sup>4</sup>	2013	2014
General use and moderate heat (Types I and II) <sup>5,6</sup>	61,000	66,400
High early strength (Type III)	2,670	3,030
Sulfate resisting (Type V) <sup>5</sup>	11,100	11,900
Block	165	177
Oil well	2,420	2,750
White <sup>7</sup>	794	799
Blended: <sup>8</sup>		
Portland, natural pozzolans	96	44
Portland, ground granulated blast furnace slag	519	652
Portland, fly ash	396	442
Portland, other pozzolans <sup>9</sup>	256	420
Total blended <sup>10</sup>	1,270	1,560
Expansive and regulated fast setting	--	--
Miscellaneous <sup>11</sup>	37	37
Grand total <sup>10</sup>	79,500	86,600

--Zero.

<sup>1</sup>Includes sales of imported cement. Excludes Puerto Rico.

<sup>2</sup>Data are rounded to no more than three significant digits.

<sup>3</sup>Gray portland-type cements unless otherwise specified.

<sup>4</sup>Sold mostly under specifications ASTM C150, ASTM C595, and ASTM C1157.

<sup>5</sup>Type II/V and similar sulfate-resisting hybrids are included within Type V, as are Type HS and similar cements in ASTM C1157.

<sup>6</sup>Includes ASTM C1157 general use and moderate heat cements that contain no pozzolans.

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

<sup>8</sup>Cements sold under ASTM C595 and those under ASTM C1157 that contain pozzolans.

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

<sup>10</sup>Data may not add to totals shown because of independent rounding.

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

TABLE 16  
U.S. EXPORTS OF HYDRAULIC CEMENT AND CLINKER, BY COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country	2013		2014	
	Quantity	Value <sup>2</sup>	Quantity	Value <sup>2</sup>
Argentina	(3)	254	3	1,495
Australia	5	1,640	4	1,530
Bahamas, The	164	14,097	64	7,416
Brazil	64	6,633	6	3,562
Canada	1,119	157,494	1,024	156,402
Cayman Islands	3	397	(3)	101
Chile	1	384	3	734
China	1	355	1	279
Colombia	11	1,980	10	1,672
Dominica	1	197	(3)	14
Dominican Republic	3	1,008	2	774
Germany	(3)	271	1	337
Greece	1	94	(3)	31
Guyana	6	613	18	1,784
Haiti	112	8,140	79	6,994
India	(3)	212	1	1,075
Israel	1	289	1	436
Jamaica	62	6,864	77	8,577
Japan	1	192	7	1,574
Korea, Republic of	1	510	1	627
Mexico	79	17,568	57	16,023
Nicaragua	3	823	(3)	31
Nigeria	(3)	61	1	418
Norway	1	264	(3)	53
Panama	4	1,071	9	1,470
Peru	(3)	64	1	205
Qatar	1	65	(3)	7
Saudi Arabia	1	285	1	581
Taiwan	(3)	270	1	553
Thailand	(3)	90	1	475
Trinidad and Tobago	2	408	1	331
Turks and Caicos Islands	7	585	14	1,400
United Arab Emirates	1	421	2	385
United Kingdom	1	280	(3)	198
Uruguay	1	205	(3)	74
Venezuela	8	2,535	(3)	132
Other	5	3,420	7	5,505
Total <sup>4</sup>	1,670	230,041	1,397	223,253
Puerto Rico:				
British Virgin Islands	12	1,589	9	1,465
Curacao	9	1,181	8	892
Guadeloupe	--	--	3	3,002
Martinique	--	--	6	5,672
Netherlands Antilles	--	--	6	840
Other	(3)	14	2	488
Total <sup>4</sup>	21	2,784	35	12,359
Grand Total <sup>4</sup>	1,691	232,825	1,432	235,612

-- Zero

<sup>1</sup>Includes portland and masonry cements. Data are unrounded but are thought to be accurate to no more than three significant digits.

<sup>2</sup>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 the carrier.

<sup>3</sup>Less than ½ unit.

<sup>4</sup>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<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3</sup>		Customs <sup>2</sup>	C.i.f. <sup>3</sup>
Canada <sup>4</sup>	3,615	285,881	294,823	3,769	300,709	310,090
China	514	30,255	43,738	856	47,706	67,847
Colombia	2	183	243	36	1,532	1,663
Croatia	22	8,752	10,293	24	9,533	11,207
Curacao	3	301	303	--	--	--
Denmark	36	3,748	6,756	72	10,455	12,479
Egypt	89	10,209	13,472	95	10,323	14,288
France	93	34,623	35,942	95	35,056	37,436
Germany	1	712	886	1	357	401
Greece	686	30,314	44,009	773	38,152	49,265
Hong Kong	1	134	174	--	--	--
Italy	116	5,371	8,265	(5)	17	24
Jamaica	--	--	--	6	2,108	2,170
Japan	2	1,142	1,380	1	686	858
Korea, Republic of	1,244	55,289	84,609	1,375	62,621	94,484
Malta and Gozo <sup>6</sup>	--	--	--	15	790	1,298
Mexico <sup>4</sup>	308	37,465	40,635	354	44,482	48,582
Netherlands	2	2,637	2,806	3	3,705	3,931
Poland	1	702	889	1	478	582
Sweden	46	3,101	4,932	357	18,772	26,953
Taiwan	270	13,718	19,224	356	18,383	25,547
Thailand	14	1,853	2,898	14	1,828	2,809
Turkey <sup>6</sup>	26	3,401	5,620	79	7,285	11,814
United Kingdom	4	223	314	1	365	443
Vietnam	--	--	--	18	1,008	1,256
Other	(5)	127 <sup>r</sup>	150 <sup>r</sup>	(5)	199	226
Total <sup>4,7</sup>	7,095	530,141	622,361	8,303	616,551	725,650
Puerto Rico:						
Mexico	11	1,279	1,896	17	2,487	2,675
Portugal	4	699	763	(5)	30	42
Spain	132	9,031	11,116	71	5,457	6,862
Other	1 <sup>r</sup>	109 <sup>r</sup>	144 <sup>r</sup>	(5)	105	126
Total <sup>7</sup>	148	11,117	13,919	89	8,080	9,705
Grand total <sup>4,7</sup>	7,243	541,258	636,280	8,392	624,631	735,355

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Includes portland, masonry, and other hydraulic cements. Data are unrounded but are thought to be accurate to no more than three significant digits.

<sup>2</sup>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.

<sup>3</sup>Cost, insurance, and freight. The value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry, but excludes costs of offloading, other U.S. port handling charges, and demurrage.

<sup>4</sup>Data are underreported with respect to clinker from Canada, and cement from Mexico, owing to additional material coming in as "informal entries."

<sup>5</sup>Less than ½ unit.

<sup>6</sup>Malta and Gozo have no cement plants; material is believed to be from Turkey.

<sup>7</sup>Data may not add to totals shown because of independent rounding.

Source: U.S. Census Bureau.

TABLE 18  
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Customs district and country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3</sup>		Customs <sup>2</sup>	C.i.f. <sup>3</sup>
<b>Anchorage, AK:</b>						
Canada	8	612	1,928	8	583	1,547
Germany	(4)	10	11	--	--	--
Korea, Republic of	83	4,271	8,015	119	5,335	8,775
Total <sup>5</sup>	91	4,894	9,953	127	5,918	10,322
<b>Baltimore, MD:</b>						
China	2	78	90	2	101	116
Sweden	2	595	736	1	343	398
Other	(4)	9	9	(4)	53	58
Total <sup>5</sup>	3	682	835	3	497	572
Boston, MA: Other	--	--	--	(4)	165	165
<b>Buffalo, NY:</b>						
Canada	457	42,619	43,925	538	49,351	51,684
Germany	--	--	--	(4)	3	3
Total <sup>5</sup>	457	42,619	43,925	538	49,354	51,687
<b>Charleston, SC:</b>						
China	(4)	8	8	(4)	9	11
United Kingdom	(4)	82	100	1	300	340
Total <sup>5</sup>	(4)	91	108	1	310	351
Chicago, IL: Other	(4)	464	508	(4)	426	474
<b>Cleveland, OH:</b>						
Canada	518	37,243	38,892	631	39,906	40,947
Netherlands	(4)	313	332	1	861	910
Poland	1	702	889	1	478	582
Other	(4)	302	346	(4)	199	273
Total <sup>5</sup>	519	38,558	40,459	633	41,445	42,673
<b>Columbia-Snake, OR, WA:</b>						
Canada	42	2,606	2,766	28	1,728	1,798
China	457	21,341	32,462	383	19,332	26,715
Korea, Republic of	35	1,437	2,403	30	1,773	2,569
Thailand	--	--	--	--	5	6
Total <sup>5</sup>	534	25,385	37,632	441	22,839	31,088
Dallas-Fort Worth, TX: China	(4)	32	32	(4)	11	19
<b>Detroit, MI:</b>						
Canada <sup>6</sup>	1,061	79,169	81,139	1,013	79,760	81,958
Other	(4)	188	197	--	324	335
Total <sup>5,6</sup>	1,061	79,357	81,335	1,013	80,084	82,294
<b>El Paso, TX:</b>						
China	(4)	99	111	1	119	120
Mexico <sup>6</sup>	107	13,259	14,404	100	13,982	15,250
Total <sup>5,6</sup>	107	13,358	14,515	101	14,101	15,370
<b>Great Falls, MT:</b>						
Canada	8	276	300	1	86	98
Other	(4)	29	30	--	--	--
Total <sup>5</sup>	8	305	330	1	86	98
<b>Honolulu, HI:</b>						
Korea, Republic of	--	--	--	5	237	328
Taiwan	270	13,704	19,202	313	16,263	22,352
Vietnam	--	--	--	18	1,008	1,256
Other	(4)	3	3	(4)	16	18
Total <sup>5</sup>	270	13,707	19,205	336	17,524	23,953
<b>Houston-Galveston, TX:</b>						
China	9	1,004	1,048	350	17,375	26,165
Colombia	--	--	--	35	1,397	1,469
Egypt	50	5,411	7,065	51	5,526	7,575
Germany	1	475	555	(4)	144	168
Greece	338	15,014	23,473	384	17,609	27,217

See footnotes at end of table.

TABLE 18—Continued  
U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Customs district and country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3</sup>		Customs <sup>2</sup>	C.i.f. <sup>3</sup>
<b>Houston-Galveston, TX—Continued:</b>						
Italy	116	5,364	8,257	--	--	--
Korea, Republic of	619	28,786	43,160	670	30,332	47,152
Taiwan	(4)	--	--	43	2,120	3,195
Turkey	5	490	895	12	1,171	2,251
Other	(4)	135	149	(4)	58	69
Total <sup>5</sup>	1,137	56,679	84,603	1,546	75,731	115,261
<b>Laredo, TX:</b>						
China	(4)	12	12	--	--	--
Mexico	115	15,346	15,477	146	19,093	19,514
Total <sup>5</sup>	115	15,357	15,488	146	19,093	19,514
<b>Los Angeles, CA:</b>						
China	24	2,694	3,619	27	2,993	4,465
Croatia	(4)	112	168	--	--	--
Egypt	5	562	826	9	941	1,341
Hong Kong	1	59	63	--	--	--
Thailand	9	1,172	1,829	8	977	1,503
Turkey	10	1,167	2,125	13	1,489	2,716
Other	(4)	225	262	1	354	413
Total <sup>5</sup>	49	5,991	8,892	57	6,753	10,438
<b>Miami, FL:</b>						
China	--	--	--	18	896	1,467
Egypt	20	2,136	3,069	20	2,178	3,049
Mexico	81	8,259	10,092	104	10,685	13,023
Sweden	43	1,823	3,367	355	17,687	25,675
Turkey	6	925	1,407	9	1,470	2,158
Other	(4)	107	131	(4)	16	17
Total <sup>5</sup>	150	13,249	18,066	506	32,933	45,390
<b>Minneapolis, MN:</b>						
Canada	141	16,920	16,932	135	16,502	16,534
Other	(4)	35	40	--	--	--
Total <sup>5</sup>	141	16,955	16,972	135	16,502	16,534
<b>Mobile, AL: China</b>						
	(4)	176	202	(4)	79	91
<b>New Orleans, LA:</b>						
China	12	2,834	3,577	6	1,585	1,776
Croatia	22	8,640	10,125	24	9,436	11,069
Other	(4)	87	106	(4)	17	24
Total <sup>5</sup>	34	11,562	13,808	30	11,038	12,868
<b>New York City, NY:</b>						
Denmark	28	2,871	3,937	14	1,400	2,101
Greece	348	15,300	20,536	389	20,543	22,048
Malta and Gozo <sup>7</sup>	--	--	--	15	790	1,298
Turkey <sup>7</sup>	2	344	506	43	2,821	4,192
Other	(4)	493	601	(4)	305	385
Total <sup>5</sup>	379	19,007	25,581	461	25,858	30,025
<b>Norfolk, VA:</b>						
China	1	271	351	2	1,137	1,287
Egypt	3	292	377	4	397	535
France	93	34,317	35,614	95	34,942	37,311
Jamaica	--	--	--	6	2,108	2,170
Sweden	1	457	546	(4)	214	245
Other	(4)	10	11	(4)	91	104
Total <sup>5</sup>	97	35,346	36,899	108	38,890	41,652

See footnotes at end of table.

TABLE 18—Continued

U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Customs district and country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3</sup>		Customs <sup>2</sup>	C.i.f. <sup>3</sup>
<b>Ogdensburg, NY:</b>						
Canada	232	22,507	22,885	239	23,014	23,550
Other	(4)	23	24	(4)	8	9
Total <sup>5</sup>	232	22,530	22,908	239	23,022	23,559
<b>Pembina, ND: Canada</b>						
	259	18,780	18,918	295	20,726	20,877
<b>Philadelphia, PA:</b>						
Korea, Republic of	189	7,773	9,623	192	8,334	11,534
Netherlands	1	1,134	1,228	1	1,432	1,342
Other	1	38	98	1	29	33
Total <sup>5</sup>	191	8,945	10,949	193	9,796	13,109
<b>Portland, ME: Canada</b>						
	17	1,816	2,038	21	2,328	2,618
<b>San Diego, CA: Mexico</b>						
	5	602	662	5	722	794
<b>San Francisco, CA:</b>						
China	8	874	1,154	34	2,310	3,214
Egypt	1	89	119	5	542	757
Hong Kong	1	75	111	--	--	--
Thailand	5	630	1,000	6	819	1,259
Other	(4)	331	428	1	234	279
Total <sup>5</sup>	15	1,998	2,811	46	3,905	5,510
<b>Savannah, GA:</b>						
Egypt	11	1,719	2,017	7	738	1,031
Other	(4)	367	385	(4)	366	383
Total <sup>5</sup>	11	2,085	2,402	7	1,104	1,413
<b>Seattle, WA:</b>						
Canada <sup>6</sup>	783	53,722	54,791	733	49,987	50,741
China	(4)	6	7	33	1,596	2,196
Japan	1	499	634	1	305	405
Korea, Republic of	316	12,922	21,300	359	16,418	23,917
United Kingdom	4	126	194	(4)	42	75
Other	(4)	149	179	(4)	64	81
Total <sup>5,6</sup>	1,104	67,424	77,105	1,126	68,413	77,415
<b>St Albans, VT: Canada</b>						
	89	9,609	10,310	126	16,737	17,737
<b>St Louis, MO: Other</b>						
	--	380	403	1	455	512
<b>Tampa, FL:</b>						
Denmark	9	872	2,814	58	9,035	10,355
Sweden	(4)	33	41	(4)	12	15
Turkey	2	295	448	2	292	422
Total <sup>5</sup>	11	1,200	3,303	60	9,339	10,792
<b>U.S. Virgin Islands:</b>						
Colombia	1	128	179	1	135	193
Curacao	3	301	303	--	--	--
Total	5	429	483	1	135	193
<b>Wilmington, NC:</b>						
China	1	511	662	(4)	131	154
Other	(4)	59	61	(4)	98	106
Total <sup>5</sup>	1	570	723	(4)	229	260
<b>U.S. total<sup>5,6</sup></b>						
	7,095	530,141	622,361	8,303	616,551	725,650
<b>San Juan, PR:</b>						
Mexico	11	1,279	1,896	17	2,487	2,675
Portugal	4	699	763	(4)	30	42
Spain	132	9,031	11,116	71	5,457	6,862
Other	1	109	144	(4)	105	126
Total <sup>5</sup>	148	11,117	13,919	89	8,080	9,705
<b>Grand total<sup>5,6</sup></b>						
	7,243	541,258	636,280	8,392	624,631	735,355

See footnotes at end of table.

TABLE 18—Continued

U.S. IMPORTS FOR CONSUMPTION OF HYDRAULIC CEMENT AND CLINKER, BY CUSTOMS DISTRICT AND COUNTRY<sup>1</sup>

-- Zero.

<sup>1</sup>Includes all varieties of hydraulic cement and clicker. Data are unrounded but are thought to be accurate to no more than three significant digits.<sup>2</sup>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.<sup>3</sup>Cost, insurance, and freight. The value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry, but excludes costs of offloading, other U.S. port handling charges, and demurrage.<sup>4</sup>Less than ½ unit.<sup>5</sup>Data may not add to totals shown because of independent rounding.<sup>6</sup>Data are underreported with respect to clinker from Canada and cement from Mexico owing to additional material coming in as "informal entries."<sup>7</sup>Malta and Gozo have no cement plants; material is believed to be from Turkey.

Source: U.S. Census Bureau.

TABLE 19  
U.S. IMPORTS FOR CONSUMPTION OF GRAY PORTLAND CEMENT, BY COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3</sup>		Customs <sup>2</sup>	C.i.f. <sup>3</sup>
Canada	2,558	202,313	209,468	2,757	215,879	223,083
China	457	21,349	32,471	803	39,837	57,599
Colombia	1	138	190	36	1,532	1,663
Curacao	3	301	303	--	--	--
Greece	686	30,312	44,006	773	38,152	49,265
Italy	116	5,324	8,214	--	--	--
Korea, Republic of	1,243	55,195	84,508	1,370	62,264	93,934
Malta and Gozo <sup>4</sup>	--	--	--	15	790	1,298
Mexico <sup>5</sup>	22	1,514	1,791	27	2,589	2,881
Sweden	43	1,823	3,367	355	17,687	25,675
Taiwan	270	13,704	19,202	356	18,383	25,547
Vietnam	--	--	--	18	1,008	1,256
Other	(6)	131	211	(6)	95	104
Total <sup>5, 7, 8</sup>	5,400	332,104	403,732	6,511	398,216	482,305
Puerto Rico:						
Guatemala	--	--	--	(6)	7	9
Spain	132	9,031	11,116	71	5,457	6,862
Other	(6)	43	58	--	--	--
Total <sup>7, 8</sup>	132	9,074	11,174	71	5,464	6,871
Grand total <sup>5, 7, 8</sup>	5,532	341,178	414,906	6,582	403,679	489,175

-- Zero.

<sup>1</sup>Data are unrounded but are thought to be accurate to no more than three significant digits.<sup>2</sup>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.<sup>3</sup>Cost, insurance, and freight. The value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry, but excludes costs of offloading, other U.S. port handling charges, and demurrage.<sup>4</sup>Malta and Gozo have no cement plants; material is believed to be from Turkey.<sup>5</sup>Data are underreported with respect to imports into the El Paso, TX, customs district owing to additional material coming in as "informal entries."<sup>6</sup>Less than ½ unit.<sup>7</sup>Total imports do not include gray portland cement that was misregistered by importers under the white cement tariff code; these quantities are included in table 20.<sup>8</sup>Data may not add to totals shown because of independent rounding.

Source: U.S. Census Bureau.

TABLE 20  
U.S. IMPORTS FOR CONSUMPTION OF WHITE CEMENT, BY COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3,4</sup>		Customs <sup>2</sup>	C.i.f. <sup>3,4</sup>
Canada	329	43,800	44,875	325	42,351	43,502
China	39	4,340	5,568	41	4,531	6,458
Denmark	36	3,748	6,756	72	10,435	12,456
Egypt	89	10,209	13,472	95	10,323	14,288
Hong Kong	1	134	174	--	--	--
Mexico	222	27,858	30,097	253	32,153	35,124
Thailand	14	1,837	2,882	14	1,820	2,800
Turkey	26	3,262	5,475	79	7,239	11,759
United Kingdom	4	119	180	(5)	7	14
Other	1	159	193	(5)	59	70
Total <sup>6</sup>	761	95,465	109,672	881	108,917	126,470
Puerto Rico:						
Mexico	11	1,241	1,843	17	2,487	2,675
Portugal	3	699	763	(5)	30	42
Other	1	86	114	(5)	5	7
Total <sup>6</sup>	15	2,026	2,720	17	2,522	2,724
Grand total <sup>6</sup>	776	97,491	112,392	898	111,439	129,194

-- Zero.

<sup>1</sup>Data are unrounded but are thought to be accurate to no more than three significant digits.

<sup>2</sup>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.

<sup>3</sup>Cost, insurance, and freight. The value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry, but excludes costs of offloading, other U.S. port handling charges, and demurrage.

<sup>4</sup>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.

<sup>5</sup>Less than ½ unit.

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

Source: U.S. Census Bureau.

TABLE 21  
U.S. IMPORTS FOR CONSUMPTION OF CLINKER, BY COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country	2013			2014		
	Quantity	Value		Quantity	Value	
		Customs <sup>2</sup>	C.i.f. <sup>3</sup>		Customs <sup>2</sup>	C.i.f. <sup>3</sup>
Canada <sup>4</sup>	702	34,144	34,486	614	29,313	29,626
China	12	2,485	3,174	7	1,267	1,421
France	92	33,251	34,482	94	33,709	36,008
Korea, Republic of	--	--	--	5	165	341
Other	(5)	123	187	(5)	98	138
Total <sup>4,6</sup>	806	70,003	72,329	720	64,552	67,534

-- Zero.

<sup>1</sup>For all types of hydraulic cement. Data are unrounded but are thought to be accurate to no more than three significant digits. Excludes Puerto Rico, which had no imports of clinker for the years shown.

<sup>2</sup>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.

<sup>3</sup>Cost, insurance, and freight. The value represents the customs value plus insurance, freight, and other delivery charges to the first port of entry, but excludes costs of offloading, other U.S. port handling charges, and demurrage.

<sup>4</sup>Data are underreported with respect to additional material coming in as "informal entries."

<sup>5</sup>Less than ½ unit.

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

Source: U.S. Census Bureau.

TABLE 22  
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Thousand metric tons)

Country	2010	2011	2012	2013	2014
Afghanistan	36	38	37	52 <sup>r</sup>	102
Albania <sup>c</sup>	1,300	1,800	2,200 <sup>r</sup>	2,300 <sup>r</sup>	2,200
Algeria <sup>c</sup>	19,100 <sup>3</sup>	19,000	19,000	18,500 <sup>r</sup>	21,000
Angola <sup>c</sup>	1,500	1,500	1,600	2,000 <sup>r</sup>	2,500
Argentina	10,423	11,592	10,716	11,892	11,408
Armenia	488	422	438	431	427
Australia <sup>c</sup>	8,300	8,600	8,500	8,400	9,000
Austria	4,254	4,427	4,455	4,385	4,400 <sup>e</sup>
Azerbaijan	1,279	1,425	1,966	2,296	2,867
Bahrain <sup>c</sup>	1,200 <sup>r</sup>	1,300 <sup>r</sup>	1,350 <sup>r</sup>	1,350 <sup>r</sup>	1,500
Bangladesh <sup>4</sup>	13,770	14,690	15,250 <sup>r</sup>	16,780 <sup>r</sup>	17,000 <sup>e</sup>
Barbados	229	223	176	160	160 <sup>e</sup>
Belarus	4,531	4,604	4,906	5,057	5,618
Belgium	6,095	6,954	6,280	6,119	6,100 <sup>e</sup>
Benin	1,305	1,460	1,390	1,422	1,396
Bhutan <sup>c</sup>	200	544 <sup>3</sup>	521 <sup>3</sup>	570 <sup>r,3</sup>	690
Bolivia	2,414	2,658	2,714	3,100 <sup>r</sup>	3,500 <sup>e</sup>
Bosnia and Herzegovina	949	893	846	882	840
Botswana <sup>c</sup>	260	300 <sup>r</sup>	367 <sup>r,3</sup>	370 <sup>r</sup>	370
Brazil	59,118	64,093	69,323	69,975	71,254
Brunei <sup>c</sup>	270	290	330 <sup>r,3</sup>	340 <sup>r,3</sup>	350
Bulgaria	1,961	1,868 <sup>r</sup>	1,491 <sup>r</sup>	1,812 <sup>r</sup>	1,850 <sup>e</sup>
Burkina Faso	587	590 <sup>e</sup>	659	580	403
Burma <sup>5</sup>	534 <sup>r</sup>	538 <sup>r</sup>	922 <sup>r</sup>	1,121 <sup>r</sup>	1,317
Burundi	--	35	71	100	70 <sup>e</sup>
Cambodia <sup>c</sup>	789 <sup>3</sup>	907 <sup>3</sup>	980	1,060 <sup>r,3</sup>	1,400
Cameroon <sup>e</sup>	1,000	1,146 <sup>3</sup>	1,275 <sup>3</sup>	1,400	1,300 <sup>3</sup>
Canada	12,431	12,001	12,465	11,611	11,879
Chad	--	--	140	180	200 <sup>e</sup>
Chile	3,871	4,406	4,722	4,880 <sup>r</sup>	5,000 <sup>e</sup>
China	1,822,000	2,099,000	2,210,000	2,411,000 <sup>r</sup>	2,492,000 <sup>p</sup>
Colombia	9,505 <sup>r</sup>	10,779 <sup>r</sup>	10,925	11,252	12,384
Congo (Brazzaville) <sup>c</sup>	80	70	150 <sup>3</sup>	250 <sup>r,3</sup>	460
Congo (Kinshasa)	490	458	413	447	330
Costa Rica <sup>3</sup>	1,276 <sup>3</sup>	1,400	1,400	1,460 <sup>r,3</sup>	1,500
Côte d'Ivoire <sup>c</sup>	1,800 <sup>r</sup>	1,800 <sup>r</sup>	1,900 <sup>r</sup>	2,300 <sup>r</sup>	2,600
Croatia	2,488 <sup>r</sup>	2,467 <sup>r</sup>	2,154 <sup>r</sup>	2,333 <sup>r</sup>	2,345
Cuba	1,631 <sup>r</sup>	1,736 <sup>r</sup>	1,825 <sup>r</sup>	1,659	1,580
Cyprus	1,329	1,207	1,026	855	735
Czech Republic	3,379	3,931	3,434	3,211	3,691
Denmark, grey and white	1,553	1,811	1,798	1,830	1,876
Djibouti	--	--	--	150	350 <sup>e</sup>
Dominican Republic	4,106	3,997	4,130	4,246 <sup>r</sup>	4,800 <sup>e</sup>
Ecuador	5,287	5,706	6,025	6,670 <sup>r</sup>	6,600 <sup>e</sup>
Egypt <sup>c</sup>	44,592 <sup>3</sup>	43,384 <sup>3</sup>	55,200 <sup>3</sup>	50,000	49,000
El Salvador	1,290	1,320	1,380	1,200 <sup>r</sup>	1,000 <sup>e</sup>
Eritrea <sup>c</sup>	45	190	260	260	300
Estonia	375	451	482	457 <sup>r</sup>	447
Ethiopia <sup>c,6</sup>	1,639 <sup>3</sup>	2,082 <sup>3</sup>	3,500	5,000	5,400
Fiji	163 <sup>r</sup>	170 <sup>r</sup>	150 <sup>r</sup>	181 <sup>r</sup>	190 <sup>e</sup>
Finland	1,215	1,387	1,293	1,300	1,250 <sup>e</sup>
France	17,733	19,270	17,810	18,018	17,000 <sup>e</sup>
French Guiana <sup>c</sup>	89 <sup>3</sup>	90 <sup>r</sup>	100	92 <sup>3</sup>	86 <sup>3</sup>
Gabon <sup>c</sup>	223 <sup>3</sup>	226 <sup>3</sup>	200 <sup>r</sup>	170 <sup>r</sup>	170
Georgia	857	1,502 <sup>r</sup>	1,546 <sup>r</sup>	1,619 <sup>r</sup>	1,626
Germany	29,203	33,540 <sup>r</sup>	32,432 <sup>r</sup>	31,308	32,099
Ghana, from imported clinker <sup>c</sup>	2,100	2,500	3,000	3,000	3,000
Greece	9,268 <sup>r</sup>	5,553 <sup>r</sup>	5,005 <sup>r</sup>	5,990 <sup>r</sup>	5,128
Guadeloupe <sup>c</sup>	300	300	300	300	300
Guatemala	2,794	2,850	2,880	2,970 <sup>r</sup>	3,500 <sup>e</sup>

See footnotes at end of table.

TABLE 22—Continued  
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Thousand metric tons)

Country	2010	2011	2012	2013	2014
Guinea	237	365	317	377	500 <sup>e</sup>
Guyana	--	--	--	--	2 <sup>e</sup>
Haiti <sup>e</sup>	300	300	300	300	300
Honduras <sup>c</sup>	1,600	1,620 <sup>3</sup>	1,730 <sup>3</sup>	1,700	1,700
Hong Kong	1,461	1,537	1,675	1,768	1,900 <sup>e</sup>
Hungary	2,136	1,694	1,870	2,022	2,100 <sup>e</sup>
Iceland	140 <sup>e</sup>	140 <sup>e</sup>	-- <sup>r</sup>	-- <sup>r</sup>	--
India <sup>c</sup>	220,000	240,000 <sup>r</sup>	270,000	280,000	275,000
Indonesia	39,480	45,238	52,350 <sup>r</sup>	56,690 <sup>r</sup>	58,000 <sup>e</sup>
Iran <sup>e</sup>	61,000	66,000	70,250 <sup>r,3</sup>	68,700 <sup>r,3</sup>	66,000
Iraq <sup>e</sup>	8,000	10,000	10,000	12,000	13,000
Ireland <sup>e</sup>	2,379 <sup>3</sup>	2,103 <sup>3</sup>	1,198 <sup>3</sup>	2,000	2,000
Israel	5,139	5,480	5,892	6,398	6,603
Italy	34,408	33,120	26,240 <sup>r</sup>	23,100 <sup>r</sup>	21,400
Jamaica	723	766	760	825	830
Japan	51,526	51,291	54,737	57,962 <sup>r</sup>	57,913
Jordan	3,929	2,816	4,060 <sup>r</sup>	4,200 <sup>r</sup>	4,500 <sup>e</sup>
Kazakhstan	6,686	7,642	7,050 <sup>r</sup>	7,072	7,977
Kenya	3,710	4,478	4,640 <sup>r</sup>	5,059	5,583
Korea, North <sup>c</sup>	6,100 <sup>r</sup>	6,300 <sup>r</sup>	6,500 <sup>r</sup>	7,100	7,200
Korea, Republic of	47,420	48,249	46,862 <sup>r</sup>	47,291	47,048
Kosovo <sup>e,7</sup>	420 <sup>r</sup>	420 <sup>r</sup>	535	560 <sup>r</sup>	630
Kuwait <sup>e</sup>	2,000	2,250	2,400 <sup>r</sup>	3,000 <sup>r</sup>	3,800
Kyrgyzstan	760	1,022	1,239	1,675 <sup>r</sup>	1,727
Laos <sup>e</sup>	1,200	1,300	1,500	1,500	2,400
Latvia <sup>e</sup>	635 <sup>3</sup>	752 <sup>3</sup>	901 <sup>3</sup>	1,000	1,200
Lebanon	5,227	5,550	5,309	5,831	5,517
Liberia	72	81	122	194 <sup>r</sup>	295
Libya <sup>c</sup>	7,000	3,500	2,000	2,000	2,000
Lithuania	834	996	1,015	1,070	903
Luxembourg	1,078	1,319	1,177	980 <sup>r</sup>	1,100 <sup>e</sup>
Macedonia	820	981	683	762	687
Madagascar <sup>e</sup>	160	200 <sup>r</sup>	230 <sup>r</sup>	230 <sup>r</sup>	240
Malawi	188	203	172	320	450 <sup>e</sup>
Malaysia	19,762	21,198	21,726	21,457	22,000 <sup>e</sup>
Martinique <sup>c</sup>	150	150	150	150	150
Mauritania	552	565	644	690 <sup>r</sup>	770 <sup>e</sup>
Mexico	34,503	35,400 <sup>r</sup>	36,184	34,612	35,000 <sup>e</sup>
Moldova <sup>e</sup>	900	1,000	1,200	1,150 <sup>r</sup>	1,300
Mongolia	323	426	349	259 <sup>r</sup>	411
Morocco <sup>c</sup>	14,000	14,000	16,270 <sup>r,3</sup>	16,870 <sup>r,3</sup>	15,710 <sup>3</sup>
Mozambique <sup>8</sup>	884	976	1,184	1,299	1,502
Namibia	5 <sup>e</sup>	390	501	662	731
Nepal <sup>e</sup>	1,360 <sup>3</sup>	2,100	2,720 <sup>r</sup>	2,990 <sup>r</sup>	3,100
Netherlands <sup>e</sup>	2,138 <sup>3</sup>	2,318 <sup>3</sup>	2,056 <sup>3</sup>	2,000 <sup>r</sup>	2,000
New Caledonia <sup>9</sup>	160	146 <sup>r</sup>	125 <sup>r</sup>	119 <sup>r</sup>	106
New Zealand <sup>c</sup>	1,100	1,200	1,140 <sup>r</sup>	1,160 <sup>r</sup>	1,100
Nicaragua	600	700	620 <sup>r</sup>	650 <sup>r</sup>	700 <sup>e</sup>
Niger	32	73	73 <sup>r</sup>	29 <sup>r</sup>	21
Nigeria <sup>c</sup>	10,000 <sup>r</sup>	12,000 <sup>r</sup>	16,000 <sup>r</sup>	20,000 <sup>r</sup>	20,000
Norway <sup>e</sup>	1,298 <sup>3</sup>	1,387 <sup>3</sup>	1,659 <sup>3</sup>	1,700	1,700
Oman <sup>c</sup>	4,500 <sup>r</sup>	5,000 <sup>r</sup>	5,100 <sup>r</sup>	4,472 <sup>3</sup>	5,000
Pakistan <sup>c</sup>	30,000	29,000 <sup>r</sup>	30,000 <sup>r</sup>	31,000	32,000
Panama	1,491	1,766	2,310 <sup>r</sup>	2,366 <sup>r</sup>	2,188
Papua New Guinea <sup>c</sup>	200	200	200	200	200
Paraguay <sup>e</sup>	650	650	800 <sup>r</sup>	960 <sup>r</sup>	1,000
Peru	8,396	8,500 <sup>e</sup>	10,100 <sup>r</sup>	10,527	10,676
Philippines	15,900	16,063	18,907	20,150	22,000 <sup>e</sup>
Poland	15,521	18,552	15,919	14,538	15,358

See footnotes at end of table.

TABLE 22—Continued  
HYDRAULIC CEMENT: WORLD PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Thousand metric tons)

Country	2010	2011	2012	2013	2014
Portugal <sup>e</sup>	4,587 <sup>3</sup>	5,069 <sup>3</sup>	4,090 <sup>3</sup>	5,000	5,500
Qatar <sup>e</sup>	3,780 <sup>r,3</sup>	5,000	5,500	5,335 <sup>3</sup>	6,000
Reunion <sup>e</sup>	300	250	350	400	400
Romania	6,909 <sup>r</sup>	7,307 <sup>r</sup>	8,223	7,451	7,900 <sup>e</sup>
Russia	50,400	56,200	61,700	66,503 <sup>r</sup>	68,545
Rwanda <sup>e</sup>	95 <sup>3</sup>	94 <sup>3</sup>	106 <sup>r,3</sup>	110 <sup>r</sup>	140
Saudi Arabia	42,833 <sup>r</sup>	48,450 <sup>r</sup>	53,332 <sup>r</sup>	56,238 <sup>r</sup>	57,223
Senegal	4,066	4,677	4,689	5,191	4,899
Serbia <sup>10</sup>	2,130	2,095	1,831	1,592	1,605
Sierra Leone	301	311	335	313	336
Slovakia	2,888	3,219	2,915	3,121	3,319
Slovenia	799	620	953	1,139	1,326
South Africa, sales	10,870	11,234	11,560	12,170 <sup>r</sup>	12,070
Spain, including Canary Islands	26,217	22,178	15,939	13,736 <sup>r</sup>	14,587
Sri Lanka	1,737 <sup>r</sup>	1,984 <sup>r</sup>	2,006 <sup>r</sup>	1,929 <sup>r</sup>	1,885
Sudan	1,930	3,002	3,511	3,538 <sup>r</sup>	3,478
Suriname	45	74	114	131 <sup>r</sup>	130 <sup>e</sup>
Sweden	1,796	2,064	2,141	2,560 <sup>r</sup>	2,500 <sup>e</sup>
Switzerland	4,527	4,577	4,539 <sup>r</sup>	4,540 <sup>r</sup>	4,290
Syria <sup>e</sup>	6,000	5,000	6,000	4,000	3,800 <sup>3</sup>
Taiwan	16,301	16,852	15,808 <sup>r</sup>	16,554 <sup>r</sup>	14,592
Tajikistan	288	299	251	384	1,150
Tanzania	2,312	2,409	2,581	2,346 <sup>r</sup>	2,809
Thailand	28,840 <sup>r</sup>	30,290 <sup>r</sup>	31,760 <sup>r</sup>	35,854 <sup>r</sup>	34,980
Togo <sup>11</sup>	1,185	1,160	1,605 <sup>r</sup>	1,795 <sup>r</sup>	1,677
Trinidad and Tobago	791	827	654	802	837
Tunisia, grey and white	8,070	7,055	7,241	7,504	9,127
Turkey	62,737	63,405	63,879	71,337	71,329
Turkmenistan	1,150	1,950	2,370	2,650	2,900 <sup>e</sup>
Uganda	1,347	1,666	1,780	2,023	2,141
Ukraine	9,457	10,515	9,843 <sup>r</sup>	9,857 <sup>r</sup>	9,636
United Arab Emirates <sup>e</sup>	18,000	18,000	15,400 <sup>r</sup>	15,700 <sup>r</sup>	16,000
United Kingdom	7,882	8,529	7,952	8,203	8,958
United States, including Puerto Rico <sup>12</sup>	67,202	68,639	74,934	77,415	83,188
Uruguay	834	968	872	850 <sup>r</sup>	820
Uzbekistan	6,872	6,698	6,800	6,990	7,350
Venezuela <sup>e</sup>	7,120	7,760	8,110 <sup>r</sup>	8,460 <sup>r</sup>	8,000
Vietnam	55,801	58,271	55,531	57,516 <sup>r</sup>	60,507
Yemen <sup>e</sup>	1,864 <sup>3</sup>	951 <sup>3</sup>	2,760 <sup>r,3</sup>	3,300 <sup>r</sup>	2,800
Zambia <sup>e</sup>	1,127 <sup>3</sup>	1,230 <sup>r</sup>	1,580 <sup>r</sup>	1,810 <sup>r</sup>	2,200
Zimbabwe <sup>e</sup>	800	1,000	1,480 <sup>r</sup>	1,190 <sup>r</sup>	1,300
Total <sup>e</sup>	3,280,000 <sup>r</sup>	3,630,000 <sup>r</sup>	3,820,000	4,070,000	4,180,000

<sup>e</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Includes data available through May 13, 2016. May include clinker exports for some countries.

<sup>3</sup>Reported figure.

<sup>4</sup>Data are for fiscal year ending June 30 of the following year.

<sup>5</sup>Data are for fiscal year ending March 31 of the following year.

<sup>6</sup>Data are for fiscal year ending July 7 of the current year.

<sup>7</sup>Not included in Serbia data.

<sup>8</sup>Cement sales from Cimentos de Moçambique S.A.R.L. (Sociedade Anónima de Responsabilidade Limitada) only.

<sup>9</sup>Data for New Caledonia are for sales of domestically produced cement as a proxy for production.

<sup>10</sup>Does not include Kosovo data.

<sup>11</sup>Calculated based on reported production of clinker and imports and exports of cement and clinker.

<sup>12</sup>Portland and masonry cements only. Includes a small (less than 0.3% per year) component of double-counting where portland cement (not clinker) is consumed to make masonry cement; the precise amount of double-counting cannot be determined because of the involvement of portland cement stockpiles.