CEMENT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: About 94 million tons of portland cement and almost 6 million tons of masonry cement were produced in 2006 at 113 plants in 37 States; total cement capacity was about 115 million tons. Cement was also produced at two plants in Puerto Rico. Sales prices increased significantly during the year and implied a value of cement production, excluding that of Puerto Rico, of about $9.8 billion. The value of total sales, including imported cement, was about $12.6 billion. Most of the cement was used to make concrete, worth at least $54 billion. About 74% of cement sales went to ready-mixed concrete producers, 14% to concrete product manufacturers, 6% to contractors (mainly road paving), 3% to building materials dealers, and 3% to other users. Total imports of cement and clinker (especially clinker) rose owing to continued high demand; imported cement accounted for about 24% of the total cement sales. Texas, California, Pennsylvania, Florida, Michigan, and Alabama, in descending order, were the six leading cement-producing States and accounted for about 48% of U.S. production.

Salient Statistics—United States:[1]	2002	2003	2004	2005	2006[e]
Production:					
Portland and masonry cement[2]	89,732	92,843	97,434	99,319	99,800
Clinker	81,517	81,882	86,658	87,405	90,000
Shipments to final customers, includes exports	108,778	112,929	120,731	127,361	129,000
Imports of hydraulic cement for consumption	22,198	21,015	25,396	30,403	32,000
Imports of clinker for consumption	1,603	1,808	1,630	2,858	3,500
Exports of hydraulic cement and clinker	834	837	749	766	800
Consumption, apparent[3]	110,020	114,090	121,980	128,280	131,000
Price, average mill value, dollars per ton	76.00	75.00	79.50	91.00	98.00
Stocks, cement, yearend	7,680	6,610	6,710	7,390	8,500
Employment, mine and mill, number[e]	16,400	16,500	16,200	16,300	16,300
Net import reliance[4] as a percentage of apparent consumption	20	20	21	23	24

Recycling: Cement kiln dust is routinely recycled to the kilns, which also can burn a variety of waste fuels and recycled raw materials such as slags and fly ash. Certain secondary materials can be incorporated in blended cements and in the cement paste in concrete. Cement is not directly recycled, but there is recycling of some concrete for use as aggregate.

Import Sources (2002-05):[5] Canada, 20%; Thailand, 12%; China, 10%; Venezuela, 8%; and other, 50%.

Tariff: Item	Number	Normal Trade Relations 12-31-06
Cement clinker	2523.10.0000	Free.
White portland cement	2523.21.0000	Free.
Other portland cement	2523.29.0000	Free.
Aluminous cement	2523.30.0000	Free.
Other hydraulic cement	2523.90.0000	Free.

Depletion Allowance: Not applicable. Certain raw materials for cement production have depletion allowances.

Government Stockpile: None.

Events, Trends, and Issues: Delays to new projects and damage to existing property and infrastructure from hurricanes that hit the Gulf States in August, September, and October 2005 constrained cement consumption in the fourth quarter of that year, but helped to generate very high levels of cement and concrete consumption in the first quarter of 2006. This was also true for imports, which rose dramatically through May 2006. Thereafter in 2006, overall U.S. cement consumption and imports began to decline in response to a significant falloff in new home construction, and consumption for the full year was only modestly higher than in 2005. The public sector component of construction demand, especially for transportation infrastructure, remained strong, owing in part to the August 2005 signing of the $244.1 billion SAFETEA-LU bill, which was the successor to the expired TEA-21 bill.

Negotiations, begun in 2005 to reduce or eliminate antidumping duties on imported Mexican cement, culminated in a January 2006 agreement that reduced tariffs on Mexican cement to a nominal amount but established a 3-year import quota. Imports of cement from Mexico, which even with full tariffs had increased dramatically in 2004-05, grew only modestly in 2006 and remained well below the agreed-upon quota level at yearend.

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CEMENT

A number of environmental issues, especially carbon dioxide emissions, can potentially affect the cement industry. Carbon dioxide reduction strategies by the cement industry were aimed at lowering emissions per ton of cement product rather than by plant. These strategies included installation of more fuel-efficient kiln technologies, partial substitution of noncarbonate sources of calcium oxide in the kiln raw materials, and partial substitution of supplementary cementitious materials (SCM) additives, such as pozzolans, for portland cement in the finished cement products and in concrete. The United States lags behind many foreign countries in the use of SCM. Because SCM do not require the energy-intensive clinker manufacturing (kiln) phase of cement production, their use, or the use of inert additives or extender, reduces the unit monetary and environmental costs of the cement component of concrete. A recent revision of the major portland cement standard ASTM-C150 allows for the incorporation of up to 5% ground limestone as an inert extender, but has yet to lead to widespread adoption of this practice, mainly because the limestone addition had yet to be adopted into the otherwise similar AASHTO standard that governs most cement and concrete specifications for public transportation sector construction projects.

Fossil fuel cost increases were of continued concern to the cement industry; even in times of cement shortages, the industry found it difficult to fully pass on the cost increases to the customers. Some cement companies burn waste materials in their kilns as a low-cost substitute for fossil fuels. Cement kilns can be an effective and benign way of destroying such wastes. The viability of the practice and the type of waste burned hinge on current and future environmental regulations and their associated costs. The trend appears to be toward increased use of waste fuels.

World Production and Capacity:

	Cement production		Yearend clinker capacity[e]	
	2005	2006[e]	2005	2006
United States (includes Puerto Rico)	101,000	101,000	104,000	104,000
Brazil	36,700	37,000	45,000	45,000
China	1,040,000	1,100,000	950,000	980,000
Egypt	[e]29,000	29,000	35,000	35,000
France	21,300	21,000	22,000	22,000
Germany	30,600	30,000	31,000	31,000
India	[e]145,000	155,000	150,000	150,000
Indonesia	[e]37,000	40,000	42,000	42,000
Iran	32,700	33,000	34,000	35,000
Italy	46,400	46,000	46,000	46,000
Japan	69,600	68,000	74,000	74,000
Korea, Republic of	51,400	52,000	62,000	62,000
Mexico	[e]36,000	40,000	40,000	40,000
Russia	48,700	54,000	65,000	65,000
Saudi Arabia	26,100	26,000	24,000	27,000
Spain	50,300	50,000	42,000	42,000
Thailand	37,900	40,000	50,000	50,000
Turkey	42,800	45,000	40,000	41,000
Vietnam	29,000	33,000	17,000	20,000
Other countries (rounded)	[e]400,000	500,000	327,000	389,000
World total (rounded)	2,310,000	2,500,000	2,200,000	2,300,000

World Resources: Although individual company reserves are subject to exhaustion, cement raw materials, especially limestone, are geologically widespread and abundant, and overall shortages are unlikely in the future.

Substitutes: Virtually all portland cement is used either in making concrete or mortars and, as such, competes in the construction sector with concrete substitutes such as aluminum, asphalt, clay brick, rammed earth, fiberglass, glass, steel, stone, and wood. A number of materials, especially fly ash and ground granulated blast furnace slag, develop good hydraulic cementitious properties (the ability to set and harden under water) by reacting with the lime released by the hydration of portland cement. These SCM are increasingly being used as partial substitutes for portland cement in some concrete applications.

[e]Estimated.

[1]Portland plus masonry cement unless otherwise noted. Excludes Puerto Rico.

[2]Includes cement made from imported clinker.

[3]Production of cement (including from imported clinker) + imports (excluding clinker) – exports – changes in stocks.

[4]Defined as imports (revised to include clinker) – exports + adjustments for Government (nil) and industry stock changes.

[5]Hydraulic cement and clinker.