

CEMENT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2007, about 91 million tons of portland cement and about 4 million tons of masonry cement were produced at 113 plants in 37 States; total cement production capacity was about 127 million tons. Cement also was produced at two plants in Puerto Rico. Sales prices were similar or slightly higher than those in 2006 and implied a value of cement production, excluding that of Puerto Rico, of about \$9.7 billion. The value of total sales, including imported cement, was about \$11.8 billion. Most of the cement was used to make concrete, worth at least \$60 billion. About 75% of cement sales went to ready-mixed concrete producers, 13% to concrete product manufacturers, 6% to contractors (mainly road paving), 3% to building materials dealers, and 3% to other users. Lower overall sales volumes, as in the second half of 2006, reflected declines in the housing market. The bulk of the decline in demand in 2007 was at the expense of import volumes, which dropped sharply. California, Texas, Pennsylvania, Florida, Alabama, and Michigan, in descending order, were the six leading cement-producing States and accounted for about 48% of U.S. production.

Salient Statistics—United States: ¹	2003	2004	2005	2006	2007^e
Production:					
Portland and masonry cement ²	92,843	97,434	99,319	98,167	95,500
Clinker	81,882	86,658	87,405	88,555	87,200
Shipments to final customers, includes exports	112,929	120,731	127,361	127,898	116,000
Imports of hydraulic cement for consumption	21,015	25,396	30,403	32,141	21,300
Imports of clinker for consumption	1,808	1,630	2,858	3,425	900
Exports of hydraulic cement and clinker	837	749	766	1,510	1,850
Consumption, apparent ³	114,090	121,980	128,280	126,810	115,000
Price, average mill value, dollars per ton	75.00	79.50	91.00	101.50	102.00
Stocks, cement, yearend	6,610	6,710	7,390	9,380	8,900
Employment, mine and mill, number ^e	16,500	16,200	16,300	16,300	16,000
Net import reliance ⁴ as a percentage of apparent consumption	20	21	23	23	17

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 (2003-06):⁵ Canada, 18%; China, 16%; Thailand, 11%; Republic of Korea, 7%; and other, 48%.

Tariff: Item	Number	Normal Trade Relations
		12-31-07
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: The dominant issue during the year was a major decline in residential construction related to the combined effect of the severe decline in the housing market (especially in speculative purchasing of homes), escalating mortgage rates on subprime loans and related increases in foreclosures, and tighter credit overall. Nonresidential buildings and public sector construction were less affected. Spending on transportation infrastructure remained strong, funded in part by the \$244.1 billion SAFETEA-LU bill. Notwithstanding the virtual elimination in early 2006 of antidumping duties on imported Mexican cement, imports from that country fell in 2007, although to a lesser degree than from most other countries.

A number of environmental issues, especially carbon dioxide emissions, affect the cement industry. Carbon dioxide reduction strategies by the cement industry largely aim at reducing emissions per ton of cement product rather than by plant. These strategies include 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

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cementitious materials (SCM), 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 extenders, 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 has 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 has found it difficult to fully pass on energy cost increases to 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	
	2006	2007 ^e	2006	2007
United States (includes Puerto Rico)	99,700	96,400	101,000	102,000
Brazil	39,500	40,000	45,000	45,000
China	1,200,000	1,300,000	1,000,000	1,100,000
Egypt	^e 29,000	29,000	35,000	35,000
France	^e 21,000	21,000	22,000	22,000
Germany	33,400	34,000	31,000	31,000
India	^e 155,000	160,000	150,000	160,000
Indonesia	^e 34,000	35,000	42,000	42,000
Iran	^e 33,000	34,000	35,000	35,000
Italy	43,200	44,000	46,000	46,000
Japan	69,900	70,000	70,000	70,000
Korea, Republic of	55,000	55,000	62,000	62,000
Mexico	40,600	41,000	40,000	40,000
Russia	54,700	59,000	65,000	65,000
Saudi Arabia	27,100	28,000	29,000	29,000
Spain	^e 54,000	50,000	42,000	42,000
Thailand	39,400	40,000	50,000	50,000
Turkey	47,500	48,000	41,000	43,000
Vietnam	32,000	32,000	20,000	20,000
Other countries (rounded)	^e 442,000	390,000	470,000	470,000
World total (rounded)	2,550,000	2,600,000	2,400,000	2,500,000

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.

^eEstimated.

¹Portland plus masonry cement unless otherwise noted; excludes Puerto Rico.

²Includes cement made from imported clinker.

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

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

⁵Hydraulic cement and clinker.