CEMENT

(Data in thousand metric tons unless otherwise specified)

Domestic Production and Use: In 2023, U.S. portland (including blended) cement production decreased slightly to an estimated 88 million tons, and masonry cement production decreased to an estimated 2.4 million tons. Cement was produced at 99 plants in 34 States and in Puerto Rico. Texas, Missouri, California, and Florida were, in descending order of production, the four leading cement-producing States and accounted for approximately 43% of U.S. production. Overall, the U.S. cement industry's growth continued to be constrained by closed or idle plants, underutilized capacity at others, production disruptions from plant upgrades, and relatively inexpensive imports. In 2023, shipments of cement were an estimated 110 million tons with an estimated value of $16 billion. In 2023, an estimated 70% to 75% of sales were to ready-mixed concrete producers, 11% to concrete product manufacturers, 8% to 10% to contractors, and 5% to 12% to other customer types.

Salient Statistics—United States:[1]	2019	2020	2021	2022	2023[e]
Production:					
Portland and masonry cement[2]	87,600	89,300	91,000	[e]93,000	91,000
Clinker	78,858	78,951	79,616	[e]80,000	77,000
Shipments to final customers, includes exports	102,823	104,580	108,969	[e]110,000	110,000
Imports for consumption:					
Hydraulic cement	14,836	15,531	19,937	24,984	26,000
Clinker	997	1,204	1,563	1,021	1,000
Exports, hydraulic cement and clinker	1,024	884	940	902	900
Consumption, apparent[3]	102,000	105,000	111,000	[e]120,000	120,000
Price, average mill unit value, dollars per metric ton	124	125	127	[e]140	150
Stocks, cement, yearend	7,990	7,180	6,280	[e]8,000	7,500
Employment, mine and mill, number[e]	12,500	12,200	12,300	12,800	13,000
Net import reliance[4] as a percentage of apparent consumption	15	15	19	22	22

Recycling: Cement is not recycled, but significant quantities of concrete are recycled for use as a construction aggregate. Cement kilns can use waste fuels, recycled cement kiln dust, and recycled raw materials such as slags and fly ash. Various secondary materials can be incorporated as supplementary cementitious materials (SCMs) in blended cements and in the cement paste in concrete.

Import Sources (2019–22):[5] Turkey, 31%; Canada, 25%; Greece, 10%; Mexico, 9%; and other, 25%.

Tariff: Item	Number	Normal Trade Relations 12–31–23
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 value of total construction put in place in the United States increased by 5% during the first 9 months of 2023 compared with that in the same period in 2022. Nonresidential construction spending increased, but residential construction spending decreased. Construction starts of new housing units through September 2023 decreased by 12% compared with those during the same period in 2022. Reported cement shipments decreased slightly during the first 9 months of 2023 compared with those in the same period in 2022. The leading cement-consuming States continued to be Texas, Florida, and California, in descending order by tonnage.

According to the Bureau of Economic Analysis, real gross domestic product (GDP) increased by 7% during the first 9 months of 2023 compared with GDP for full year 2022, and monetary policy actions focused on reducing inflation continued. Regulators continued to implement measures designed to aid industry decarbonization efforts, such as green procurement strategies and research investments. Additionally, funding from the November 2021 passage of the Bipartisan Infrastructure Law continued to be allocated. However, cement industry growth was constrained by increased costs for energy, material, and service inputs; labor and production shortages; and supply chain disruptions. Apparent consumption of cement in 2023 was estimated to be unchanged from that in 2022.

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Company merger-and-acquisition activity continued in 2023, including the sale of a United States-based cement company's plant in California to a Peru-based cement company. In 2022, a Japanese cement company had entered into an agreement to purchase the same cement plant in California from the United States cement company, but this transaction did not meet regulatory approval and was abandoned in May 2023. In September, a Colombia-based cement company and a United States-based cement company announced plans to combine their United States operations in order to expand their geographic footprint, and in November, an agreement to sell a United States-based company's plant in Texas to an Ireland-based company was announced—each pending regulatory approval.

The upgrade and capacity expansion of a cement plant in Indiana was completed in June 2023. Work progressed on plans to increase capacity at a cement plant in Texas and plans to expand capacity at a cement plant in Missouri were announced. Several minor upgrades to increase storage capacity and (or) transition to low-carbon cement were ongoing at some other domestic plants and terminals. A Turkey-based company announced plans to build a grey cement grinding plant in the United States by 2025.

Numerous companies continued to make announcements aligned with the industry's commitment to sustainability and decarbonization, including increased use of alternative fuels and alternative materials, carbon capture, utilization and storage projects, increased energy efficiency and digitalization, shifting to renewable energy sources, and other innovations. Several cement plants transitioned to portland-limestone blended cement (PLC) following its widespread acceptance by various authorities in 2022. In 2023, total blended shipments increased significantly and 97% of the blended shipments were estimated to be PLC (Type IL). In addition, development of other innovative low-carbon and (or) new blended cement product lines progressed. Many plants have installed emissions-reduction equipment to comply with the 2010 National Emissions Standards for Hazardous Air Pollutants (NESHAP). It remained possible that some kilns could be shut, idled, or used at reduced capacity to comply with NESHAP, which would constrain U.S. clinker capacity. In 2022 and 2023, cement plant closures were announced in California, Maine, and New York.

World Production and Capacity:

	Cement production[e]		Clinker capacity[e]	
	2022	2023	2022	2023
United States (includes Puerto Rico)	93,000	91,000	100,000	100,000
Brazil	64,000	63,000	60,000	60,000
China	2,100,000	2,100,000	2,000,000	2,000,000
Egypt	46,000	50,000	60,000	60,000
India	380,000	410,000	290,000	300,000
Indonesia	64,000	62,000	79,000	79,000
Iran	59,000	65,000	81,000	81,000
Japan	53,000	50,000	54,000	54,000
Korea, Republic of	51,000	50,000	62,000	62,000
Mexico	50,000	50,000	42,000	42,000
Russia	61,000	57,000	80,000	80,000
Saudi Arabia	52,000	53,000	75,000	75,000
Turkey	74,000	79,000	92,000	92,000
Vietnam	120,000	110,000	100,000	110,000
Other countries (rounded)	850,000	850,000	600,000	600,000
World total (rounded)	4,100,000	4,100,000	3,800,000	3,800,000

World Resources: See the Lime and Stone (Crushed) chapters for cement raw-material resources.

Substitutes: Most portland cement is used to make concrete, mortars, or stuccos, and competes in the construction sector with concrete substitutes, such as aluminum, asphalt, clay brick, fiberglass, glass, gypsum (plaster), steel, stone, and wood. Certain materials, especially fly ash and ground granulated blast furnace slag, develop good hydraulic cementitious properties by reacting with lime, such as that released by the hydration of portland cement. Where readily available (including as imports), these SCMs are increasingly being used as partial substitutes for portland cement in many concrete applications and are components of finished blended cements.

[e]Estimated.

[1]Portland cement plus masonry cement unless otherwise specified; excludes Puerto Rico unless otherwise specified.

[2]Includes cement made from imported clinker.

[3]Defined as production of cement (including from imported clinker) + imports (excluding clinker) – exports ± adjustments for stock changes.

[4]Defined as imports (cement and clinker) – exports.

[5]Hydraulic cement and clinker; includes imports into Puerto Rico.