CEMENT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2021, U.S. portland cement production increased slightly to an estimated 90 million tons, and masonry cement production continued to remain steady at 2.4 million tons. Cement was produced at 96 plants in 34 States, and at 2 plants in Puerto Rico. Texas, Missouri, California, and Florida were, in descending order of production, the four leading cement-producing States and accounted for nearly 44% 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 2021, shipments of cement were estimated to have increased slightly from those of 2020 and were valued at $13.4 billion. In 2021, 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]	2017	2018	2019	2020	2021[e]
Production:					
Portland and masonry cement[2]	86,356	86,368	87,233	[e]89,000	92,000
Clinker	76,678	77,112	78,858	79,000	79,000
Shipments to final customers, includes exports	97,935	99,419	102,823	105,000	107,000
Imports for consumption:					
Hydraulic cement	12,288	13,693	14,674	15,201	19,000
Clinker	1,209	967	1,160	1,534	2,000
Exports of hydraulic cement and clinker	1,035	919	1,024	888	1,000
Consumption, apparent[3]	97,160	98,400	101,600	[e]103,000	109,000
Price, average mill value, dollars per ton	117	121	123	[e]124	125
Stocks, cement, yearend	7,870	8,580	7,890	[e]7,750	8,000
Employment, mine and mill, number[e]	12,500	12,300	12,500	12,200	12,300
Net import reliance[4] as a percentage of apparent consumption	13	14	15	15	18

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 (2017–20):[5] Canada, 32%; Turkey, 20%; Greece, 13%; China,[6] 8%; and other, 27%.

Tariff: Item	Number	Normal Trade Relations 12–31–21
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 about 7% during the first 9 months of 2021 compared with that in the same period in 2020. Residential construction spending increased, but nonresidential construction spending decreased. Despite weather-related declines in the beginning of the year, cement shipments increased slightly during the first 9 months of 2021 compared with those in the same period in 2020. The leading cement-consuming States continued to be Texas, California, and Florida, in descending order by tonnage.

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The increase in cement shipments was attributed to economic recovery from the global COVID-19 pandemic. However, growth continued to be constrained by increased costs for material and service inputs, labor and production shortages, ongoing logistical and shipping issues, and supply chain disruptions. The November 2021 passage of the Infrastructure Investment and Jobs Act was projected to support increased cement consumption.

Company merger-and-acquisition activity continued in 2021, with the final approval to combine the North American cement operations of a Brazilian cement company and a Canadian cement company into a joint venture. One United States cement company completed its purchase of a European cement company's western United States operations, and a Swiss cement company acquired a United States building products company. In 2019, one European cement company entered into an agreement to purchase a Mexican cement company's plant in Pennsylvania, but the transaction was abandoned after being challenged by regulatory authorities in 2021.

Cement plant upgrades were well underway at cement plants in Alabama and Indiana, with completion expected in 2022 and 2023, respectively. Several minor upgrades were ongoing at some other domestic plants, and upgrades also were announced for a few cement terminals. Numerous companies continued to make announcements aligned with the industry's commitment to sustainability, such as new blended cement product lines, renewable energy plans, decarbonization research initiatives, and other innovations. Many plants have installed emissions-reduction equipment to comply with the 2010 National Emissions Standards for Hazardous Air Pollutants (NESHAP). It remains possible that some kilns could be shut, idled, or used in a reduced capacity to comply with NESHAP, which would constrain U.S. clinker capacity.

World Production and Capacity:

	Cement production[e]		Clinker capacity[e]	
	2020	2021	2020	2021
United States (includes Puerto Rico)	89,000	92,000	100,000	100,000
Brazil	61,000	65,000	60,000	60,000
China	2,400,000	2,500,000	2,000,000	2,000,000
Egypt	42,000	40,000	48,000	48,000
India	295,000	330,000	280,000	280,000
Indonesia	65,000	66,000	78,000	79,000
Iran	68,000	62,000	81,000	81,000
Japan	51,000	52,000	53,000	54,000
Korea, Republic of	48,000	48,000	50,000	60,000
Mexico	48,000	50,000	42,000	42,000
Russia	56,000	56,000	80,000	80,000
Saudi Arabia	53,000	55,000	75,000	75,000
Turkey	72,000	76,000	92,000	92,000
Vietnam	98,000	100,000	90,000	90,000
Other countries (rounded)	760,000	810,000	600,000	600,000
World total (rounded)	4,200,000	4,400,000	3,700,000	3,700,000

World Resources: Not applicable. See Crushed Stone 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 noted; excludes Puerto Rico unless otherwise noted.

[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.

[6]Includes Hong Kong.