CEMENT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2022, U.S. portland cement production increased slightly to an estimated 92 million tons, and masonry cement production increased to an estimated 2.5 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 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 2022, shipments of cement were estimated to have increased by about 3% from those in 2021 and were valued at $14.6 billion. In 2022, 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]	2018	2019	2020	2021	2022[e]
Production:					
Portland and masonry cement[2]	86,400	87,600	89,300	[e]93,000	95,000
Clinker	77,112	78,858	78,951	79,000	80,000
Shipments to final customers, includes exports	99,419	102,823	104,645	109,000	110,000
Imports for consumption:					
Hydraulic cement	13,693	14,836	15,531	19,937	24,000
Clinker	967	997	1,204	1,563	1,100
Exports of hydraulic cement and clinker	919	1,024	884	940	900
Consumption, apparent[3]	98,500	102,000	105,000	[e]110,000	120,000
Price, average mill unit value, dollars per metric ton	121	124	125	[e]130	130
Stocks, cement, yearend	8,580	7,990	7,180	[e]7,000	7,500
Employment, mine and mill, number[e]	12,300	12,500	12,200	12,300	13,000
Net import reliance[4] as a percentage of apparent consumption	14	15	15	18	21

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 (2018–21):[5] Canada, 30%; Turkey, 26%; Greece, 11%; Mexico, 8%; and other, 25%.

Tariff: Item	Number	Normal Trade Relations 12–31–22
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 11% during the first 9 months of 2022 compared with that in the same period in 2021. Residential construction spending increased more than nonresidential construction spending. Despite increased prices owing to increased costs of production, cement shipments increased by about 4% during the first 9 months of 2022 compared with those in the same period in 2021. The leading cement-consuming States continued to be Texas, California, and Florida, in descending order by tonnage.

Increased cement apparent consumption in 2022 resulted from continued economic recovery from the effects of the global coronavirus disease 2019 (COVID-19) pandemic, and the November 2021 passage of the Bipartisan Infrastructure Law. In 2022, regulators implemented new measures designed to aid industry decarbonization efforts, including green procurement strategies and research investments. However, cement industry growth continued to be constrained by increased costs for energy, material, and service inputs; labor and production shortages; and ongoing supply chain disruptions.

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CEMENT

Company merger-and-acquisition activity continued in 2022, including the sale of a United States-based cement company's plant in California to a Japan-based cement company. The Japanese cement company also entered into an agreement to purchase a second cement plant in California from the United States cement company, pending regulatory approval.

Upgrades at a cement plant in Alabama were completed and the facility restarted production in mid-2022. An upgrade of a cement plant in Indiana progressed toward its expected completion date in early 2023. A plant upgrade to increase cement production at a site in Arizona was completed in 2022. Plans to increase capacity at a cement plant in Texas were announced, with completion expected in mid-2025. Upgrades at a terminal in Florida were completed in 2022, and work began to increase capacity at a terminal in Virginia. Plans for new cement terminals in Georgia and Texas were announced. Several minor upgrades were ongoing at some other domestic plants and a few other cement terminals. A Spain-based company reported plans to open a specialty cement facility in Louisiana in 2023.

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. Following widespread acceptance of portland-limestone cement (PLC) blended cement by various authorities, several cement plants announced their transition to PLC (Type IL). Additionally, some plants reported increased alternative fuel substitution, new carbon capture, utilization and storage projects, usage of new technologies, and (or) business diversification efforts. 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, cement plant closures were announced at cement plants in California and New York.

World Production and Capacity:

	Cement production[e]		Clinker capacity[e]	
	2021	2022	2021	2022
United States (includes Puerto Rico)	93,000	95,000	100,000	100,000
Brazil	66,000	65,000	60,000	60,000
China	2,400,000	2,100,000	2,000,000	2,000,000
Egypt	50,000	51,000	48,000	48,000
India	350,000	370,000	280,000	290,000
Indonesia	65,000	64,000	79,000	79,000
Iran	62,000	62,000	81,000	81,000
Japan	50,000	50,000	54,000	54,000
Korea, Republic of	50,000	50,000	62,000	62,000
Mexico	52,000	50,000	42,000	42,000
Russia	61,000	62,000	80,000	80,000
Saudi Arabia	54,000	54,000	75,000	75,000
Turkey	82,000	85,000	92,000	92,000
Vietnam	110,000	120,000	90,000	100,000
Other countries (rounded)	850,000	850,000	600,000	600,000
World total (rounded)	4,400,000	4,100,000	3,700,000	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 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.