CEMENT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2020, U.S. portland cement production increased slightly to an estimated 87 million tons, and masonry cement production decreased slightly to 2.3 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 45% 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 2020, shipments of cement were essentially unchanged from those of 2019 and were valued at $12.7 billion. In 2020, it was estimated that 70% to 75% of sales were to ready-mixed concrete producers, 10% to concrete product manufactures, 8% to 10% to contractors, and 5% to 12% to other customer types.

Salient Statistics—United States:[1]	2016	2017	2018	2019	2020[e]
Production:					
Portland and masonry cement[2]	84,695	86,356	86,368	[e]88,000	89,000
Clinker	75,633	76,678	77,112	79,000	79,000
Shipments to final customers, includes exports	95,397	97,935	99,419	103,000	103,000
Imports for consumption:					
Hydraulic cement	11,742	12,288	13,764	14,690	15,000
Clinker	1,496	1,209	967	1,160	1,400
Exports of hydraulic cement and clinker	1,097	1,035	919	1,002	1,000
Consumption, apparent[3]	95,150	97,160	98,500	[e]103,000	102,000
Price, average mill value, dollars per ton	111	117	121	[e]123	124
Stocks, cement, yearend	7,420	7,870	8,580	[e]7,140	7,800
Employment, mine and mill, number[e]	12,700	12,500	12,300	12,500	12,500
Net import reliance[4] as a percentage of apparent consumption	13	13	14	14	15

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 (2016–19):[5] Canada, 33%; Turkey, 16%; Greece, 15%; China, 12%; and other, 24%.

Tariff: Item	Number	Normal Trade Relations 12–31–20
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: In 2020, production of cement was temporarily idled in many countries and localities in response to national lockdowns imposed to limit the spread of the global COVID-19 pandemic. The duration of the lockdowns and the return to full production following the restart of operations, varied by geographic region. Disruptions to construction activities corresponded with reduced cement demand, and some regions experienced increased fuel and freight costs. Additionally, several planned cement plant openings and expansions were delayed.

Prepared by **Ashley K. Hatfield [(703) 648–7751, ahatfield@usgs.gov]**

CEMENT

Despite the economic disruptions owing to the COVID-19 pandemic, the value of total construction put in place in the United States increased by about 4% during the first 9 months of 2020 compared with that of the same period in 2019. Residential construction spending increased more than nonresidential construction spending. A cement plant in New York was idled in April because of decreased demand resulting from restrictions put in place to mitigate the spread of the virus. However, the U.S. cement industry has shown no prolonged or widespread negative effects from the pandemic. The leading cement-consuming States continued to be Texas, California, and Florida, in descending order by tonnage. Company merger-and-acquisition activity continued in 2020, with the completion of the sale of a cement company in Kentucky. In 2019, one European cement company entered into an agreement to purchase a Mexican cement company's plant in Pennsylvania and the transaction was still pending regulatory approval in 2020.

Cement plant upgrades were announced at cement plants in Alabama and Texas. Several minor upgrades were ongoing at some other domestic plants, and upgrades were also announced for a few cement terminals. However, one cement company delayed work on an upgrade to one of its plants in Indiana. Another company secured its final air permit for a new cement plant in Georgia. Numerous companies made announcements aligned with the industry's commitment to sustainability, such as new 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]	
	2019	2020	2019	2020
United States (includes Puerto Rico)	89,000	90,000	103,000	103,000
Brazil	54,000	57,000	60,000	60,000
China	2,300,000	2,200,000	1,970,000	1,970,000
Egypt	47,000	50,000	48,000	48,000
India	340,000	340,000	280,000	280,000
Indonesia	70,000	73,000	78,000	78,000
Iran	60,000	60,000	81,000	81,000
Japan	53,000	53,000	53,000	53,000
Korea, Republic of	50,000	50,000	50,000	50,000
Russia	56,000	56,000	80,000	80,000
Turkey	57,000	66,000	92,000	92,000
Vietnam	97,000	96,000	90,000	90,000
Other countries (rounded)	880,000	890,000	720,000	720,000
World total (rounded)	4,100,000	4,100,000	3,700,000	3,700,000

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

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 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.