

LIME¹

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2022, an estimated 17 million tons of quicklime and hydrated lime was produced (excluding independent commercial hydrators²), valued at about \$2.3 billion. Lime was produced by 28 companies—18 with commercial sales and 10 that produced lime strictly for internal use (for example, sugar companies). These companies had 73 primary lime plants (plants operating quicklime kilns) in 28 States and Puerto Rico. One primary lime plant was idle in 2022. Of the 28 companies, 5 operated only hydrating plants in nine States. In 2022, the five leading U.S. lime companies produced quicklime or hydrated in 22 States and accounted for about 79% of U.S. lime production. Principal producing States were Kentucky, Missouri, Ohio, and Texas. Major markets for lime were, in descending order of consumption, steelmaking, chemical and industrial applications (such as the manufacture of fertilizer, glass, paper and pulp, and precipitated calcium carbonate, and in sugar refining), flue gas treatment, construction, water treatment, and nonferrous-metal mining.

Salient Statistics—United States:

	2018	2019	2020	2021	2022^e
Production ^{2, 3}	18,000	16,900	15,800	16,800	17,000
Imports for consumption	370	342	308	323	350
Exports	424	347	266	335	300
Consumption, apparent ⁴	18,000	16,900	15,900	16,800	17,000
Price, average value, dollars per ton at plant:					
Quicklime	125.2	128.3	131.4	133.4	140
Hydrated	151.6	154.6	156.0	159.6	160
Net import reliance ⁵ as a percentage of apparent consumption	E	E	<1	E	<1

Recycling: Large quantities of lime are regenerated by paper mills. Some municipal water-treatment plants regenerate lime from softening sludge. Quicklime is regenerated from waste hydrated lime in the carbide industry. Data for these sources were not included as production in order to avoid double counting.

Import Sources (2018–21): Canada, 90%; Mexico, 7%; and other, 3%.

Tariff:	Item	Number	Normal Trade Relations 12–31–22
	Calcined dolomite	2518.20.0000	3% ad valorem.
	Quicklime	2522.10.0000	Free.
	Slaked lime	2522.20.0000	Free.
	Hydraulic lime	2522.30.0000	Free.

Depletion Allowance: Limestone produced and used for lime production, 14% (domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: In 2022, domestic lime production was estimated to be essentially unchanged from that in 2021. In 2020, a decline in lime production was a result of plants temporarily closing owing to the global coronavirus disease 2019 (COVID-19) pandemic. As the economy continues to rebound from the effects of the pandemic, so does the lime industry. However, some of the lime producers have increased product pricing owing to increased costs of production. In 2022, a total of 73 quicklime plants were in operation along with 10 hydrating plants. Hydrated lime is a dry calcium hydroxide powder made from reacting quicklime with a controlled amount of water in a hydrator. It is used in chemical and industrial, construction, and environmental applications.

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World Lime Production and Limestone Reserves:

	Production ⁶		Reserves ⁷
	<u>2021</u>	<u>2022^e</u>	
United States	16,800	17,000	Adequate for all countries listed.
Australia	2,000	2,000	
Belgium ⁸	1,500	1,500	
Brazil	8,400	8,400	
Bulgaria	1,520	1,500	
Canada (shipments)	1,590	1,600	
China	310,000	310,000	
France	2,600	2,600	
Germany	5,600	5,600	
India	16,000	16,000	
Iran	3,900	3,900	
Italy ⁸	3,600	3,600	
Japan (quicklime only)	6,650	7,000	
Korea, Republic of	5,200	5,200	
Malaysia	1,500	1,500	
Poland (hydrated and quicklime)	1,700	1,700	
Romania	1,430	1,400	
Russia (industrial and construction)	11,400	11,000	
Slovenia	1,120	1,200	
South Africa	1,000	1,000	
Spain	1,800	1,800	
Turkey	4,800	4,800	
Ukraine	2,350	2,000	
United Kingdom	1,500	1,500	
Other countries	<u>15,600</u>	<u>16,000</u>	
World total (rounded)	430,000	430,000	

World Resources:⁷ Domestic and world resources of limestone and dolomite suitable for lime manufacture are very large.

Substitutes: Limestone is a substitute for lime in many applications, such as agriculture, fluxing, and sulfur removal. Limestone, which contains less reactive material, is slower to react and may have other disadvantages compared with lime, depending on the application; however, limestone is considerably less expensive than lime. Calcined gypsum is an alternative material in industrial plasters and mortars. Cement, cement kiln dust, fly ash, and lime kiln dust are potential substitutes for some construction uses of lime. Magnesium hydroxide is a substitute for lime in pH control, and magnesium oxide is a substitute for dolomitic lime as a flux in steelmaking.

^eEstimated. E Net exporter.

¹Data are for quicklime, hydrated lime, and refractory dead-burned dolomite. Includes Puerto Rico.

²To avoid double counting quicklime production, excludes independent commercial hydrators that purchase quicklime for hydration.

³Sold or used by producers.

⁴Defined as production + imports – exports. Includes some double counting based on nominal, undifferentiated reporting of company export sales as U.S. production.

⁵Defined as imports – exports.

⁶Only countries that produced 1 million tons of lime or more are listed separately.

⁷See Appendix C for resource and reserve definitions and information concerning data sources.

⁸Includes hydraulic lime.