

LIME¹(Data in thousand metric tons, unless otherwise noted)²

Domestic Production and Use: In 2003, 18.2 million metric tons (20.1 million short tons) of quicklime and hydrate was produced (excluding commercial hydrators) in 34 States and Puerto Rico. Production was valued at about \$1.17 billion, a slight increase from 2002 levels. Five companies accounted for more than 70% of the total output. Principal producing States, each with production over 1 million tons, were Alabama, Kentucky, Missouri, Nevada, Ohio, Pennsylvania, and Texas. These seven States produced about 11.9 million tons (13.1 million short tons), or 65% of the total output. Major markets for lime were steelmaking, flue gas desulfurization, mining, construction, pulp and paper, precipitated calcium carbonate, and water treatment.

Salient Statistics—United States:	1999	2000	2001	2002	2003^e
Production ³	19,700	19,600	18,900	17,900	18,200
Imports for consumption	140	113	115	157	131
Exports	59	73	96	106	103
Consumption, apparent	19,800	19,600	19,000	17,900	18,200
Quicklime average value, dollars per ton at plant	57.30	57.50	58.10	59.20	61.40
Hydrate average value, dollars per ton at plant	80.20	85.00	80.70	88.50	91.50
Stocks, yearend	NA	NA	NA	NA	NA
Employment, mine and plant, number	5,600	5,600	5,500	5,400	5,350
Net import reliance ⁴ as a percentage of apparent consumption	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)

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 duplication.

Import Sources (1999-2002): Canada, 87%; and Mexico, 13%.

Tariff: Item	Number	Normal Trade Relations 12/31/03
Quicklime	2522.10.0000	Free.
Slaked lime	2522.20.0000	Free.
Hydraulic lime	2522.30.0000	Free.
Calcined dolomite	2518.20.0000	3% ad. val.

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

Government Stockpile: None.

LIME

Events, Trends, and Issues: The U.S. Environmental Protection Agency, as authorized by the Clean Air Act, issued a final rule to reduce toxic air pollutant emissions from lime plants. The rule applies to commercial or captive lime plants, excluding those at pulp and paper mills (regulated under another air toxics rule) and sugar mills (not considered major sources of toxic air pollutants). The final rule sets emissions limits for particulate matter (PM) from existing lime kilns and lime coolers at 0.12 pound of PM per short ton of feed to the kiln, from existing kilns and coolers with wet scrubbers at 0.60 pound per short ton of PM, and from new lime kilns and coolers at 0.10 pound per short ton of PM. The rule also sets limits on PM from certain types of materials handling operations, and it sets requirements for testing, monitoring, and recordkeeping. The rule will reportedly reduce nonvolatile and semivolatile metal hazardous air pollutants by approximately 6.5 short tons per year and PM emissions by 5,900 short tons per year.

Vulcan Materials Co. closed its McCook and Manteno lime plants in Illinois as a result of environmental compliance problems. The McCook plant produced high-calcium quicklime, and the Manteno plant produced dolomitic quicklime; the two plants had a combined capacity of about 380,000 tons per year.⁶

World Lime Production and Limestone Reserves and Reserve Base:

	Production		Reserves and reserve base ⁷
	2002	2003 ^e	
United States	17,900	18,200	Adequate for all countries listed.
Austria	2,000	2,000	
Brazil	6,300	6,500	
Canada	2,220	2,250	
China	22,500	23,500	
France	2,500	2,500	
Germany	7,000	6,800	
Iran	2,000	2,000	
Italy ⁸	3,000	3,000	
Japan (quicklime only)	8,050	7,400	
Mexico	6,500	6,500	
Poland	2,000	2,000	
Russia	8,000	8,000	
South Africa (sales)	1,600	1,600	
United Kingdom	2,000	2,000	
Other countries	<u>22,400</u>	<u>23,000</u>	
World total (rounded)	116,000	117,000	

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

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 and lime kiln dust and fly ash 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. NA Not available.

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

²To convert metric tons to short tons, multiply metric tons by 1.1023.

³Sold or used by producers.

⁴Defined as imports – exports + adjustments for Government and industry stock changes; stock changes are assumed to be zero for apparent consumption and net import reliance calculations.

⁵Less than ½ unit.

⁶Aggregate Research Institute, 2003, Vulcan to close lime plant near Manteno, accessed November 10, 2003, via URL http://www.aggregate-research.com/press_archive.asp.

⁷See Appendix C for definitions.

⁸Includes hydraulic lime.