

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

Domestic Production and Use: In 1999, lime producers at 116 plants in 36 States and Puerto Rico sold or used 20.5 million tons (22.6 million short tons) of lime valued at about \$1.24 billion, an increase of about 400,000 tons (440,000 short tons) and an increase of about \$20 million from 1998 levels. Six companies, operating 45 plants, accounted for about 76% of the total output. Principal producing States, each with production over 1 million tons, were Alabama, Kentucky, Missouri, Ohio, Pennsylvania, and Texas. These six States produced about 11.5 million tons (12.7 million short tons) or 56% of the total output. Major markets for lime were steel, flue gas desulfurization, mining, construction, pulp and paper, precipitated calcium carbonate, and water treatment.

Salient Statistics—United States:	1995	1996	1997	1998	1999^e
Production ³	18,500	19,200	19,700	20,100	20,500
Imports for consumption	289	262	274	231	142
Exports	72	50	80	56	60
Consumption, apparent ⁴	18,700	19,400	19,900	20,300	20,600
Quicklime average value, dollars per ton at plant	56.77	56.68	57.80	57.60	56.00
Hydrate average value, dollars per ton at plant	72.09	79.64	80.20	78.90	79.00
Stocks, yearend	NA	NA	NA	NA	NA
Employment, mine and plant, number	5,500	5,600	5,600	5,600	5,600
Net import reliance ⁵ as a percent of apparent consumption	(⁶)	1	1	1	(⁶)

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 plants are not included as production in order to avoid duplication.

Import Sources (1995-98): Canada, 90%; Mexico, 9%; and other, 1%.

Tariff: Item	Number	Normal Trade Relations 12/31/99
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: 15% (Domestic and foreign), for limestone produced and used for lime production.

Government Stockpile: None.

Events, Trends, and Issues: The merger of the Carmeuse North America Group and Lafarge S.A.'s North American lime operations was finalized in February. Later in the year, Carmeuse acquired from parent company Oglebay Norton the stock of Global Stone Detroit Lime Co. in Michigan and Global Stone Ingersoll Ltd. in Ontario, Canada.⁷ Carmeuse shut down the lime kiln at its plant at Woodville, OH, but will continue to produce stone at the facility. The Woodville plant had been acquired from Lafarge as part of the merger. The shutdown of the Woodville lime plant was due in part to the startup in October of Carmeuse's newly renovated dolomitic lime plant at Maple Grove, OH, which will have the advantage of being newer, larger, and able to produce the higher purity lime required by Carmeuse's customers (J.M. McKinnon, Blade Business Writer, Toledo Blade, November 4, 1999, Bettsville lime operation thrives, accessed November 18, 1999, at URL <http://www.toledoblade.com/editorial/biz/9k04bett.htm>). While divesting itself of lime operations in the Midwest, Oglebay Norton's Global Stone Corp. strengthened its presence in the Mid-Atlantic and Southeast by acquiring the W.S. Frey Co. lime plant at Clearbrook, VA.⁸ Chemical Lime Co. acquired APG Lime Corp. from parent company Global Industrial Technologies Inc. The acquisition included one lime plant in Texas, two in Virginia, and a joint-venture plant in South Carolina.⁹ The South Carolina joint venture, called Palmetto Lime LLC, began lime production in the summer of 1999.

Problems persisted in the domestic steel industry and total steel production decreased by 4% to 5% compared with 1998, although the trade imbalance that adversely affected U.S. steel mills in 1998 was expected to return to pre-1998 levels. Steel remains the largest market for lime and is particularly important in the Midwest and Southeast.

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Phase II of the Clean Air Act Amendments of 1990 goes into effect January 1, 2000. Phase II controls generally limit sulfur dioxide emissions to the same level as for post-1978 powerplants: 1.2 pounds of sulfur dioxide per million Btu. To achieve these emissions levels, utilities will retrofit scrubbers, switch to low-sulfur coal, blend low-sulfur with high-sulfur coal, cofire with natural gas, repower with advanced technology boilers, or perhaps even close the plant. Plants may also trade emission allowance credits issued to them by the Environmental Protection Agency. This is expected to benefit the flue gas desulfurization lime market.

World Lime Production and Limestone Reserves and Reserve Base:

	Production		Reserves and reserve base ¹⁰
	1998	1999 ^e	
United States	20,100	20,500	Adequate for all countries listed.
Belgium	1,750	1,800	
Brazil	5,700	5,700	
Canada	2,514	2,500	
China	21,000	22,000	
France	2,800	2,800	
Germany	7,600	7,800	
Italy ¹¹	3,500	3,500	
Japan (quicklime only)	8,100	8,200	
Mexico	6,600	6,600	
Poland	2,500	2,500	
Romania	1,700	1,750	
South Africa (sales)	1,500	1,600	
United Kingdom	2,500	2,500	
Other countries	<u>28,100</u>	<u>28,000</u>	
World total (rounded)	116,000	118,000	

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 uses, such as agriculture, fluxing, and sulfur removal. Limestone contains less reactive material, is slower to react, and may have other disadvantages compared with lime depending on the use; 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 pH control, and magnesium oxide is a substitute for lime flux in steelmaking.

^eEstimated. NA Not available.

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

²See Appendix A for conversion to short tons.

³Sold or used by producers.

⁴Stocks data are not available; stock changes are assumed to be zero for apparent consumption and net import reliance calculations.

⁵Defined as imports - exports + adjustments for Government and industry stock changes.

⁶Less than 1/2 unit.

⁷North American Minerals News, 1999, North American lime industry: North American Minerals News, no. 53, October, p. 8-10.

⁸National Lime Association, 1999, Global Stone acquires assets of W.S. Frey: Limelites, v. 65. no. 4, p. 6.

⁹Global Industrial Technologies, 1999, Global Industrial Technologies reports first quarter results; completes sale of APG Lime: Dallas, TX, Global Industrial Technologies press release, April 14, 4 p.

¹⁰See Appendix C for definitions.

¹¹Includes hydraulic lime.