

**LIME<sup>1</sup>**

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** In 2009, an estimated 15.0 million tons (16.5 million short tons) of quicklime and hydrate was produced (excluding commercial hydrators) at a value of about \$1.6 billion. At yearend, there were 32 companies producing lime, which included 22 companies with commercial sales and 10 companies that produced lime strictly for internal use (for example, sugar companies). These companies had 75 primary lime plants (plants operating lime kilns) in 29 States and Puerto Rico. The 4 leading U.S. lime companies produced quicklime or hydrate in 23 States from 30 lime plants and 12 separate hydrating plants. Combined, these plants accounted for about 80% of U.S. lime production. Principal producing States, each with production of more than 1 million tons, were Alabama, Kentucky, Missouri, and Texas. Major markets for lime were, in descending order of consumption, steelmaking, flue gas desulfurization (fgd), construction, water treatment, mining, precipitated calcium carbonate, and pulp and paper.

<b>Salient Statistics—United States:</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009<sup>e</sup></b>
Production <sup>2</sup>	20,000	21,000	20,200	19,900	15,000
Imports for consumption	310	298	375	307	380
Exports	133	116	144	174	94
Consumption, apparent	20,200	21,200	20,400	20,000	15,000
Quicklime average value, dollars per ton at plant	72.10	78.10	84.60	89.90	101.00
Hydrate average value, dollars per ton at plant	91.10	98.30	102.40	107.20	136.00
Stocks, yearend	NA	NA	NA	NA	NA
Employment, mine and plant, number	5,300	5,300	5,300	5,400	4,800
Net import reliance <sup>3</sup> as a percentage of apparent consumption	1	1	1	1	2

**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 (2005-08):** Canada, 84%; Mexico, 15%; and other, 1%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12-31-09</b>
Calcined dolomite	2518.20.0000	3% ad. val.
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 2009, the recession and its aftermath continued to negatively impact lime markets, large and small. Lime production decreased by an estimated 24% compared with that of 2008, a decrease that rivals the previous largest percentage decrease in annual U.S. lime output that happened as a result of the 1981-82 recession. The cause for this large decrease was evident from examining major lime-consuming industries, which reported significant decreases in production or raw material consumption ranging from 12% to 44% compared with the same period in 2008.

## LIME

Prices continued to increase, with quicklime prices increasing about \$11 per metric ton and hydrate prices increasing about \$19 per ton, although the latter may also reflect a shift in product mix. Large price increases that went into effect beginning in 2009 were announced by some of the leading lime companies in late 2008. It appears that, despite the decrease in sales, lime producers were able to push through higher prices. Fuel surcharges (not included in the 2008 prices reported in the Salient Statistics table) were applied by many of the lime companies in early 2008 but were no longer in effect in 2009 when fuel prices decreased dramatically. In recent years, lime companies have reported that they were unable to keep up with rising production costs, and the large 2009 price increases were lime company efforts to reestablish operating margins.

Seven lime plants were mothballed during 2009 owing to the sharp decrease in demand. These plants were in the Midwest and the West and normally served construction, mining, and steel markets, depending on their location. In addition, individual kilns were idled at some large multiple kiln plants to reduce unneeded capacity.

### World Lime Production and Limestone Reserves:

	Production		Reserves <sup>4</sup>
	<u>2008</u>	<u>2009<sup>e</sup></u>	
United States	19,900	15,000	Adequate for all countries listed.
Austria	2,000	1,700	
Belgium	2,200	1,800	
Brazil	7,400	6,000	
Canada	2,070	1,500	
China	180,000	190,000	
France	4,000	3,000	
Germany	7,000	5,000	
Iran	2,700	2,200	
Italy <sup>5</sup>	6,000	5,000	
Japan (quicklime only)	9,500	8,000	
Mexico	6,500	5,000	
Poland	1,900	1,600	
Russia	8,200	7,000	
South Africa (sales)	1,590	1,300	
Turkey (sales)	3,600	3,000	
United Kingdom	2,000	1,800	
Vietnam	2,200	2,000	
Other countries	<u>27,200</u>	<u>22,000</u>	
World total (rounded)	296,000	280,000	

**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, 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.

<sup>e</sup>Estimated. NA Not available.

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

<sup>2</sup>Sold or used by producers.

<sup>3</sup>Defined 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.

<sup>4</sup>See [Appendix C for definitions](#). Reserve base estimates were discontinued in 2009; see [Introduction](#).

<sup>5</sup>Includes hydraulic lime.