

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

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** In 2010, an estimated 18.0 million tons (19.8 million short tons) of quicklime and hydrate was produced (excluding commercial hydrators) at a value of about \$1.8 billion. At yearend, there were 31 companies producing lime, which included 21 companies with commercial sales and 10 companies that produced lime strictly for internal use (for example, sugar companies). These companies had 73 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 24 States and accounted for about 80% of U.S. lime production. Principal producing States were Alabama, Kentucky, and Missouri (each with production of more than 2 million tons), and Nevada, Ohio, Pennsylvania, and Texas (each with production of more than 1 million tons). 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.

**Salient Statistics—United States:**

	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010<sup>e</sup></u>
Production <sup>2</sup>	21,000	20,200	19,900	15,800	18,000
Imports for consumption	298	375	307	422	430
Exports	116	144	174	108	150
Consumption, apparent	21,200	20,400	20,000	16,100	18,000
Quicklime average value, dollars per ton at plant	78.10	84.60	89.90	102.00	105.00
Hydrate average value, dollars per ton at plant	98.30	102.40	107.20	126.40	130.00
Stocks, yearend	NA	NA	NA	NA	NA
Employment, mine and plant, number	5,300	5,300	5,400	4,800	5,000
Net import reliance <sup>3</sup> as a percentage of apparent consumption	1	1	1	2	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 (2006–09):** Canada, 86%; Mexico, 13%; and other, 1%.

<u>Tariff:</u> Item	<u>Number</u>	<u>Normal Trade Relations</u> <u>12-31-10</u>
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 2010, the U.S. economy began a slow recovery from the longest recession since the 1930s. Production of raw steel, lime's largest end-use market, increased by about 35% in 2010 compared with that of 2009. This accounted for a significant portion of the increase in lime production and consumption in 2010. The flue gas desulfurization market benefitted from increased coal consumption for electricity generation as a result of the unusually long, hot summer experienced in the East and South. Regionally, lime sales were boosted by construction projects using lime for soil stabilization.

Although the lime industry reported significant production increases at many plants, a number of the plants idled in 2009 remained shut down during 2010. These included plants in Arizona, Idaho, Illinois, Utah, and Virginia.

## LIME

The lime industry is facing possible future regulation of carbon dioxide emissions after the U.S. Environmental Agency (EPA) published findings that greenhouse gas emissions (GHG), including carbon dioxide, threaten the public health and welfare of current and future generations. These “endangerment” findings allow the EPA to require that any modification to a stationary source that increases GHG emissions above the significance threshold would need to go through “prevention of significant deterioration” (PSD) review and install the “best available control technology.” In 2010, the EPA published its “PSD and title V greenhouse gas tailoring rule” to establish the applicability criteria that determine which stationary sources and modification projects become subject to permitting requirements for GHG emissions. The tailoring rule is designed to phase in regulation of GHG emissions from stationary sources by temporarily increasing the amount of GHG emissions that would trigger PSD, so that tens of thousands of sources are not immediately swept into the PSD program.

### **World Lime Production and Limestone Reserves:**

	Production		Reserves <sup>4</sup>
	<u>2009</u>	<u>2010<sup>e</sup></u>	
United States	15,800	18,000	Adequate for all countries listed.
Australia	2,000	2,200	
Belgium	2,000	2,000	
Brazil	7,450	7,700	
Canada	1,600	1,800	
China	185,000	190,000	
France	3,500	3,700	
Germany	6,000	6,800	
India	13,000	14,000	
Iran	2,700	2,800	
Italy <sup>5</sup>	6,000	6,400	
Japan (quicklime only)	8,400	9,400	
Korea, Republic of	3,600	4,000	
Mexico	5,500	5,700	
Poland	1,950	2,000	
Romania	2,000	2,200	
Russia	7,000	7,400	
South Africa (sales)	1,380	1,400	
Spain	2,000	2,200	
Turkey (sales)	3,800	4,000	
United Kingdom	1,500	1,600	
Vietnam	1,700	1,800	
Other countries	<u>15,500</u>	<u>16,000</u>	
World total (rounded)	299,000	310,000	

**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 resource/reserve definitions and information concerning data sources.](#)

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