

LIME¹

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: In 2008, 19.8 million tons (21.8 million short tons) of quicklime and hydrate was produced (excluding commercial hydrators) at a value of about \$1.8 billion. At yearend, there were 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 81 primary lime plants (plants operating lime kilns) in 30 States and Puerto Rico. The 4 leading U.S. lime companies produced quicklime or hydrate in 24 States from 36 lime plants and 12 separate hydrating plants. Combined, these plants accounted for about 70% of U.S. lime production. Principal producing States, each with production of more than 1 million tons, were Alabama, Kentucky, Missouri, Nevada, Ohio, Pennsylvania, 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.

Salient Statistics—United States:

| | 2004 | 2005 | 2006 | 2007 | 2008^e |
|--|-------------|-------------|-------------|-------------|-------------------------|
| Production ² | 20,000 | 20,000 | 21,000 | 20,200 | 19,800 |
| Imports for consumption | 232 | 310 | 298 | 375 | 325 |
| Exports | 100 | 133 | 116 | 144 | 175 |
| Consumption, apparent | 20,100 | 20,200 | 21,200 | 20,400 | 20,000 |
| Quicklime average value, dollars per ton at plant | 64.80 | 72.10 | 78.10 | 84.60 | 89.20 |
| Hydrate average value, dollars per ton at plant | 89.80 | 91.10 | 98.30 | 102.40 | 106.30 |
| Stocks, yearend | NA | NA | NA | NA | NA |
| Employment, mine and plant, number | 5,350 | 5,300 | 5,300 | 5,300 | 5,400 |
| Net import reliance ³ as a percentage of apparent consumption | 1 | 1 | 1 | 1 | 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 duplication.

Import Sources (2004-07): Canada, 80%; Mexico, 19%; and other, 1%.

| Tariff: Item | Number | Normal Trade Relations 12-31-08 |
|---------------------|---------------|--|
| 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 2008, lime sales were steady through most of the year, but suffered a downturn when the economy slowed in the second half of the year and especially when steel production decreased in the fourth quarter. Prices continued to increase, with quicklime prices increasing about \$5 per metric ton and hydrate prices increasing about \$4 per ton. These price increases do not include the fuel surcharges applied by many of the companies. In some cases, these surcharges were calculated based on the price per barrel of crude oil. With the dramatic decrease in oil prices, these surcharges would have been reduced or eliminated in the latter part of the year. Evidence of future price increases was indicated by one major lime supplier announcing across-the-board price increases of \$30 per short ton (where contracts allowed) effective January 1, 2009.

In February, Carmeuse North America (Pittsburgh, PA) and Oglebay Norton Co. (Cleveland, OH) finalized the agreement under which Carmeuse acquired Oglebay Norton. The new combined company was renamed Carmeuse Lime and Stone. The acquisition will allow Carmeuse to expand into the limestone reagent fgd market, and to diversify into filler materials and industrial sands.⁴

LIME

In October, Mississippi Lime Company (St. Louis, MO) acquired from Alpha Natural Resources, Inc. (Abingdon, VA) its majority interest in Gallatin Materials LLC. Gallatin Materials is a new lime producer that started up its plant near Verona, KY, in early 2008. Mississippi Lime also acquired the remaining shares from minority shareholders to assume full control of the company.⁵ This acquisition dovetailed nicely with Mississippi Lime's recent expansion into hydrate markets in the Midwest and Southeast. In 2008, the company built a new hydrating plant in Weirton, WV, and acquired a second hydrating plant in Chester, SC.^{6,7}

World Lime Production and Limestone Reserves and Reserve Base:

| | Production | | Reserves and reserve base ⁸ |
|------------------------|---------------|-------------------|--|
| | 2007 | 2008 ^e | |
| United States | 20,200 | 19,800 | Adequate for all countries listed. |
| Austria | 2,000 | 2,000 | |
| Belgium | 2,200 | 2,100 | |
| Brazil | 7,000 | 7,000 | |
| Canada | 2,200 | 2,100 | |
| China | 170,000 | 175,000 | |
| France | 4,000 | 4,000 | |
| Germany | 7,120 | 7,000 | |
| Iran | 2,600 | 2,600 | |
| Italy ⁹ | 6,000 | 6,000 | |
| Japan (quicklime only) | 9,150 | 9,000 | |
| Mexico | 6,500 | 6,500 | |
| Poland | 2,000 | 2,000 | |
| Russia | 8,200 | 8,000 | |
| South Africa (sales) | 1,599 | 1,600 | |
| Turkey (sales) | 3,600 | 3,500 | |
| United Kingdom | 2,000 | 2,000 | |
| Vietnam | 2,120 | 2,100 | |
| Other countries | <u>24,500</u> | <u>23,000</u> | |
| World total (rounded) | 283,000 | 290,000 | |

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.

^eEstimated. NA Not available.

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

²Sold or used by producers.

³Defined 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.

⁴Carmeuse Lime & Stone, 2008, Carmeuse closes acquisition of Oglebay-Norton: Pittsburgh, PA, Carmeuse Lime & Stone press release, February 13, 1 p.

⁵Industrial Specialties News, 2008, Mississippi Lime buys fledgling lime producer: Industrial Specialties News, v. 22, no. 20, October 20, p. 1.

⁶Mississippi Lime Company, 2008, Mississippi Lime Company commissions hydrate expansion: St. Louis, MO, Mississippi Lime Company press release, April 3, 1 p.

⁷Mississippi Lime Company, 2008, Mississippi Lime Company acquires hydrated lime plant in Chester, SC: St. Louis, MO, Mississippi Lime Company press release, April 16, 1 p.

⁸[See Appendix C for definitions.](#)

⁹Includes hydraulic lime.