



# 2007 Minerals Yearbook

---

## GYPSUM

---

# GYPSUM

By Robert D. Crangle, Jr.

**Domestic survey data and tables were prepared by Shonta E. Osborne, statistical assistant, and the world production table was prepared by Linder Roberts, international data coordinator.**

In 2007, the United States ranked second worldwide in the production of crude gypsum, with 17.9 million metric tons (Mt) with a reported value of \$146 million. China was the world's leading producer and consumer of gypsum, with a reported production of 37 Mt of crude gypsum. For the United States, 2007 production tonnage decreased by approximately 3% from that of 2006, with a corresponding decrease in value of 12% (table 1). Calcined gypsum production decreased by 28% to 16.7 Mt in 2007 compared with 23.1 Mt produced in 2006.

The sale of synthetic gypsum decreased by 3% to 8.4 Mt in 2007 from 8.7 Mt in 2006. The long-term use of synthetic gypsum from flue gas desulfurization (FGD), however, will likely increase as more coal-fired electric powerplants convert their desulfurization processes to produce marketable gypsum. Most coal-burning powerplants in the United States are required by the U.S. Environmental Protection Agency to install sulfur dioxide scrubbing systems. This created a significant source of gypsum, which has led to the construction of wallboard production facilities adjacent to coal-fired powerplants.

## Domestic Data Coverage

Gypsum industry data for this report are collected by the U.S. Geological Survey (USGS) from semiannual and annual surveys of gypsum operations and from monthly statistics provided by the Gypsum Association. In 2007, the USGS annual survey canvassed 118 gypsum production operations that accounted for all known domestic output of crude, calcined, and byproduct gypsum. Of the nonrespondents, 10 were found to be nonoperational in 2007. Data were available for 108 of the operations through this survey, the Gypsum Association, or other Federal and State agencies, representing 100% of known production.

## Production

The United States was the second leading producer of gypsum in 2007, accounting for about 12% of reported global output (table 8). During 2007, domestic output of crude gypsum declined to 17.9 Mt, a 3% decrease from the 18.5 Mt produced in 2006 (table 1). Crude gypsum in the United States was mined by 46 companies at 56 mines in 17 States (table 2). The leading crude gypsum-producing States were, in descending order, Oklahoma, Iowa, California, Nevada, Arkansas, Texas, Michigan, and New Mexico, which together accounted for 76% of total domestic output.

The U.S. gypsum industry consisted primarily of a few large, vertically integrated companies that mined gypsum and manufactured wallboard, plaster, and other gypsum products. Companies with the largest number of mines were U.S. Gypsum

Corp. (USG) with nine mines; National Gypsum Co. (NGC) and Georgia-Pacific Corp. (GPC), each with seven mines; Harrison Gypsum Co. with three mines; BPB America Inc. (BPB) with three mines; Temple Inland Forest Products Corp. (TI) with two mines; and American Gypsum Co. (a subsidiary of the Eagle Materials Corp.) and Pacific Coast Building Products Inc., each with two mines. For 2007, these eight companies produced 83% of the total U.S. crude gypsum. The 10 leading gypsum mines in the United States accounted for 46% of domestic output in 2007. These 10 mines were owned by 7 companies, and the average production per mine was approximately 815,000 metric tons per year (t/yr).

During 2007, gypsum was calcined (partially dehydrated by heating) at 53 plants operated by 9 companies in 30 States, principally to produce feedstock for wallboard and plaster manufacturing plants (table 3). The leading gypsum calcining States in 2007 were, in descending order, California, Texas, Arkansas, Nevada, Indiana, Florida, Iowa, Michigan, and New Hampshire (table 3). These 9 States had 28 plants that produced approximately 10.8 Mt of calcined gypsum each and together accounted for about 65% of national output. In 2007, domestic output of calcined gypsum decreased by 28% to 16.7 Mt valued at more than \$368 million (table 1).

Companies with the most calcining plants were USG with 21 plants; NGC, 17 plants; GPC, 9 plants; and BPB with 2 plants. These four companies produced 93% of the national calcined gypsum output. The 10 leading calcining plants in the United States accounted for 38% of production in 2007. These 10 plants were owned by four companies, and the average plant output was 630,000 t/yr.

In addition to mined gypsum production, synthetic gypsum was generated as a byproduct of various industrial processes. The primary source of synthetic gypsum was FGD from coal-fired electric powerplants. There were 19 domestic coal-fired powerplants that sold synthetic gypsum to the wallboard industry in 2007. Smaller amounts of synthetic gypsum were derived as a byproduct of chemical processes, such as acid neutralization processes, citric acid production, sugar production from sugar beets, and titanium dioxide production. Synthetic gypsum was used as a substitute for mined gypsum, principally for wallboard manufacturing, cement production, and agricultural purposes, in descending order of importance.

In response to USGS surveys, eight companies that were not electric powerplants reported that they produced synthetic gypsum. These eight companies operated plants in six States and reported approximately 1.1 Mt of synthetic gypsum sales in 2007 valued at \$3.3 million. Domestic coal-fired electric powerplants produced and sold approximately 7.3 Mt of synthetic gypsum from their FGD systems during 2007. Of the total 8.4 Mt of synthetic gypsum consumed during the

year, about 90% was used for wallboard production, 8% was used in cement and concrete manufacture, and 2% was used in agricultural applications.

Phosphogypsum, another industrial byproduct, is produced in the manufacture of fertilizers. At present, phosphogypsum is not used in wallboard manufacturing because of the presence of radionuclides, which produce radioactive radon gas as they decay.

For 2007, gypsum-derived products, including agricultural products, cement, plasters, and wallboard totaled 30.5 Mt with a value of \$3.3 billion. This represented a production decrease of 16% from the 36.1 Mt produced in 2006 (table 4).

During 2007, six companies manufactured gypsum wallboard products at 51 plants in the United States. In 2007, wallboard product shipments were approximately 2.8 billion square meters (30.5 billion square feet), a decrease of about 16% compared with those of 2006 (table 5). This represented about 61% of the total domestic wallboard products production capacity available in 2007.

The years between 2003 and 2006 marked a period of rapid expansion in the wallboard industry. American Gypsum, BPB, Lafarge North America Inc. (LaFarge NA), National Gypsum, and USG expanded their existing wallboard operations or opened new ones during this time, increasing their wallboard production capacities by more than one billion square feet. The rapid decline in the U.S. housing market, which began in 2007, marked the start of a possible prolonged contraction. This resulted in flat and declining sales for most gypsum producers, coupled with layoffs and the idling of wallboard production plants (Gypsum Today, 2007a, c).

## Consumption

In 2007, U.S. apparent domestic gypsum consumption was more than 35.7 Mt, a 7% decrease compared with that of 2006. Domestic sources (mined crude plus an estimated 8.4 Mt of synthetic gypsum produced) met more than 74% of domestic consumption requirements; imports totaling 9.4 Mt satisfied the remaining need. In 2007, slightly more than 23% of the gypsum consumed in the United States came from synthetic sources, approximately the same percentage as reported in 2006.

Gypsum output is categorized as either calcined or uncalcined (table 4). Calcined gypsum was produced domestically from crude gypsum to manufacture wallboard and plaster products. Uncalcined gypsum, used for portland cement production and agriculture, accounted for virtually all remaining consumption during the year. Miscellaneous uses, such as athletic field markings, accounted for only a fraction of 1% of consumption.

In 2007, about 75% of the calcined gypsum used to manufacture wallboard was consumed in the production of regular ½-inch gypsum board (table 5). This product represented 42% of total calcined gypsum consumption. Type-X gypsum board, so named because of extra fire retardation qualities, consumed 33% of calcined gypsum. Other regular gypsum board, from ¼- to 1-inch thick, consumed 14% of the total. Other wallboard, including lath, mobile-home wallboard, predecorated wallboard, sheathing, veneer base, and water- and moisture-resistant wallboard, composed most of the balance.

Metropolitan areas in the South Atlantic, West South Central, Pacific, and East North Central (in decreasing order) were the leading sales areas for gypsum wallboard products.

Uncalcined gypsum consumed in the United States decreased by 20% in 2007 to 5.1 Mt. About 3.3 Mt, or 65%, of the uncalcined gypsum consumed in the United States was for portland cement production (table 4). Gypsum is added to cement to retard its setting time and makes up about 2% to 6% by weight of cement output (Roskill Information Services Ltd., 2004, p. 294). Most of the remainder of the uncalcined gypsum consumed, about 1.1 Mt, was used primarily for agricultural purposes. Agricultural use of gypsum decreased by 56% from that of 2006. Finely ground gypsum rock was used in agriculture and other industries to neutralize acidic soils, to improve soil permeability, to add nutrients, to stabilize slopes, and to provide catalytic support for maximum fertilizer benefits. Small amounts of high-purity gypsum are also used in a wide range of industrial applications, including the production of foods, glass, paper, and pharmaceuticals.

## Recycling

Several million tons of gypsum waste is generated every year by building demolition, wallboard installation, and wallboard manufacturing. Only a small portion of this waste has been recycled. In 2006, two wallboard manufacturers in the United States began to use recycled material to supplement natural gypsum at plants in New England. This was not expected to significantly affect gypsum supplies; however, should landfilling become problematic, recycling is expected to increase.

Gypsum waste generated by the wallboard manufacturing process can be recycled. The gypsum core and paper covering are separated, then reinjected with new material into the manufacturing stream. Because labor expenses are higher than wallboard prices, construction costs are lowered when full pieces of uncut wallboard are used in place of multiple, smaller remnants. As a result, between 10% and 12% of the wallboard used in new construction and renovation is discarded as scrap. The costs of disposal of this wallboard scrap in solid waste landfills are increasing. In addition to recycling scrap in wallboard plants, wallboard scrap may also be ground and used as a soil conditioner. Wallboard manufacturers and the construction industry have been exploring ways to return this scrap and waste to a plant for recycling. Other potential markets for recycled gypsum waste are in cement production, as a stucco additive, in sludge drying, in water treatment, in grease absorption, and for marking athletic fields. Until costs and/or legislation associated with landfilling scrap gypsum become prohibitive, recycling will likely continue to remain a low priority within the industry.

## Prices

In 2007, the average values (free on board, mine or plant) reported by U.S. producers were \$8.18 per metric ton for crude gypsum and \$22.02 per ton for calcined gypsum (table 1). The average value for plaster reported by domestic producers during the year was \$18.45 per 100 kilograms (\$8.37 per 100 pounds).

The average value of uncalcined gypsum used in agriculture was about \$26.90 per ton and that used in cement production was about \$14.29 per ton (table 4).

During 2007, prices for gypsum wallboard generally decreased in response to a corresponding sharp decrease in demand. The steep drop in price was directly related to the abrupt decline in the housing construction sector on which the gypsum industry is heavily dependent. The average wallboard price for 2007 in 20 major U.S. metropolitan areas across the country was \$303.67 per 100 square meters (\$282.12 per 1,000 square feet). Prices for ½-inch, 5/8-inch, ½-inch Type X, and 5/8-inch Type-X wallboard decreased in all 20 cities that were sampled. The changes in prices for each metropolitan area ranged from a decrease of \$63.97 per 100 square meters (\$59.43 per 1,000 square feet) in Chicago, IL, to a drop of \$227.72 per 100 square meters (\$211.57 per 1,000 square feet) in Minneapolis, MN. At the beginning of the year, prices in these 20 cities ranged from \$271 per 100 square meters in Chicago (\$252 per 1,000 square feet), to \$501 per 100 square meters in Minneapolis (\$465 per 1,000 square feet). At yearend 2007, wallboard prices ranged from \$208 per 100 square meters (\$193 per 1,000 square feet) in Chicago to \$273 per 100 square meters (\$254 per 1,000 square feet) in Minneapolis.

The average prices from these 20 cities combined was \$322 per 100 square meters (\$299 per 1,000 square feet) in January and \$285 per 100 square meters (\$265 per 1,000 square feet) at yearend. This represented an overall average decrease in price of \$91 per 100 square meters (\$85 per 1,000 square feet), or 27%, from the beginning of 2007 to yearend 2007 (Engineering News-Record, 2007, 2008).

The combined average price throughout 2007 across the United States was \$304 per 100 square meters (\$282 per 1,000 square feet), a slight decrease from the overall average of \$306 per 100 square meters (\$284 per 1,000 square feet) in 2006. The average wallboard prices during all of 2007 were lowest in Chicago (\$239 per 100 square meters or \$222 per 1,000 square feet) followed closely by Seattle, WA (\$243 per 100 square meters or \$226 per 1,000 square feet). The highest average wallboard prices throughout 2007 were in Minneapolis (\$388 per 100 square meters or \$360 per 1,000 square feet) followed by Birmingham, AL (\$358 per 100 square meters or \$333 per 1,000 square feet).

## Foreign Trade

In 2007, the United States was the world leader in international trade of gypsum and gypsum products (tables 6, 7). The United States imported crude gypsum from 13 countries. The United States exported gypsum and gypsum products to 113 countries and territories. Only a small quantity of crude gypsum and other gypsum products were exported by the United States in 2007, most of which went to Canada, compared with imports.

Net imports of crude gypsum in 2007 decreased by 17% from those of 2006 and accounted for 26% of apparent consumption. Much of this import dependence can be attributed to the lack of adequate domestic gypsum resources near large east coast and west coast wallboard markets. Canada and Mexico accounted for 93% of imported gypsum, while Spain,

the Dominican Republic, China, the United Kingdom, and Germany (in descending order) supplied most of the remainder (table 6). Most imports from Canada went to east coast plants, and Mexican sources chiefly served the west coast. Foreign subsidiaries of U.S. gypsum companies produced much of the gypsum that was imported for their respective U.S.-based wallboard plants. The majority of the crude gypsum imported by the United States from Mexico was produced by Compania Minera Caopas de C.V. and Compania Occidental Mexicana S.A. de C.V. (COMSA) in Baja California Sur and by USG Mexico in Colina (Sharpe, 2007). Almost all gypsum imported from Canada came from Nova Scotia. The completion of large wallboard manufacturing plants near powerplants along the east coast may affect gypsum imports in the future.

Wallboard exports rose slightly in 2007, totaling about 11.1 million square meters (67 million square feet) valued at \$100 million; they went primarily to countries in Asia, Europe, and Latin America. Reflecting a significant decrease in demand owing to the decline in the U.S. housing sector, wallboard imports decreased by 56% in 2007, totaled 48.7 million square meters (524 million square feet), and were valued at \$85 million.

## World Industry Structure

Global crude gypsum production in 2007 was estimated to be 153 Mt, representing an increase of 3% compared with that of 2006, when production totaled 149 Mt (table 1). Global production in 2007 marked a fourth year of record breaking production levels. In 2007, 85 countries produced gypsum, 10 of which accounted for 76% of the total world production (table 8). An estimated 200 million metric tons per year of synthetic gypsum (mostly phosphogypsum) is generated worldwide (Roskill Information Services Ltd., 2004, p. 20). Distantly located gypsum-product manufacturing operations, coupled with high transportation costs, results in the consumption of only a small portion of synthetic gypsum. China was the leading producer of crude gypsum in 2007 with an estimated 37 Mt, followed by the United States with 17.9 Mt, Iran with 12.0 Mt, Spain with 11.5 Mt, Thailand with 8.6 Mt, Canada with 7.7 Mt, Mexico with 6.1 Mt, Japan with 5.9 Mt, Italy with 5.4 Mt, and France with 4.8 Mt. Given the expansion of China's economy and its respective construction and infrastructure demands, it is likely that China will continue to be the world's leading gypsum producer for the near future. North American production accounted for almost 21% of total crude gypsum production. Although the use of gypsum wallboard increased worldwide, only industrialized nations used gypsum primarily for wallboard products. In developing countries, especially in Asia and the Middle East, most gypsum was used in the production of cement or as a plaster product. World production is probably underestimated, as output by some foreign gypsum producers is used to manufacture products onsite, which may not be reported. Additionally, production from small deposits in developing nations was intermittent and in many cases unreported.

Worldwide, the leading use of gypsum is in the manufacture of cement and concrete. In 2003 (the last year worldwide consumption use was available), cement manufacture accounted

for about 51% of worldwide gypsum consumption, while plaster products, including wallboard, accounted for 39% of all consumption (Roskill Information Services Ltd., 2004, p. 283).

As a low-value, high-bulk commodity drawn from deposits widely distributed throughout the world, gypsum tended to be consumed within the many countries from which it was produced. Less than 20% of the world's crude gypsum production was estimated to enter international trade. Only a few countries, such as Canada, Mexico, Spain, and Thailand, were major crude gypsum exporters; of these, Canada and Mexico are significant exporters because of their large deposits in proximity to sizeable wallboard markets in the United States. Little crude gypsum was exported from the United States.

Estimated world production capacity for gypsum wallboard in 2007 exceeded 17 billion square meters per year (about 183 billion square feet per year) at more than 250 plants worldwide. Almost one-half of this capacity was in the United States; Asia and Western Europe each accounted for about one-fifth of capacity. As in the United States, the use of synthetic gypsum from FGD sources increased in industrialized nations, particularly in Europe.

## World Review

**Africa and the Middle East.**—Following a similar divestiture in 2006, Lafarge SA completed the sale of a gypsum mining operation and a cement production facility to the South African consortium Sinaka in 2007 (Global Gypsum Magazine, 2007e). The 2007 net operational profit of The Egyptian National Cement Co. (NCC), a major producer of industrial gypsum and gypsum blocks and bricks, decreased 7.5% from that of the same period in 2006 (Global Gypsum Magazine, 2007b). A 2007 contract between the German firm Grenzebach BSH GmbH and the United Arab Emirates based Jamal Al Ghurair Group will lead to a new wallboard plant in Abu Dhabi that is expected to be the largest-capacity wallboard plant in the Middle East with production capacity of 50-million square meters per year (Global Gypsum Magazine, 2008a).

**Asia.**—Construction in Asia, particularly China, increased throughout much of 2007. Chinese wallboard production has expanded approximately 20% per year since 2004 (Global Gypsum Magazine, 2007a). A significant rise in commercial and residential construction, and infrastructure (cement) improvements and additions, coupled with a cultural shift toward the use of more gypsum-based products, resulted in an increased gypsum demand. India also expanded its gypsum consumption to include larger quantities of domestically produced gypsum-based fertilizer in response to sulfur-based fertilizer shortages throughout 2007 (Industrial Minerals, 2008c). A continued slowdown in the Thailand residential construction market during 2007 resulted in a second year of single-digit growth for all construction raw materials, including gypsum (Global Gypsum Magazine, 2007f). Although gypsum deposits in Afghanistan are numerous, many mining operations remained inactive or under-worked as a result of domestic unrest and the accompanying impacts on the economic and construction sectors. Should the economy continue to

stabilize, Afghani gypsum consumption for cement and plaster manufacturing could be expected to increase up to 400% within the next few years (Industrial Minerals, 2008a).

**Australia.**—Australian demand for plasterboard increased slightly in 2007, reflecting strong new home construction activity in Queensland, despite weakness in New South Wales (Boral Ltd., 2008). Australia's largest gypsum mine, operated by Gypsum Resources of Australia Pty. Ltd., accounts for approximately 30% of the nation's gypsum production (Government of South Australia, 2009).

**Europe.**—In 2007, Germany's Knauf Gips KG (Knauf) initiated a project in Bulgaria to build a new wallboard production facility adjacent to the Maritsa East 3 powerplant, using the facility's FGD gypsum as feedstock. The new wallboard facility is expected to result in the creation of 250 jobs while producing 30 million square meters of wallboard per year (Global Gypsum Magazine, 2007c). The Atlas Group opened a gypsum and anhydrite mine in Niwice, Poland, and an accompanying gypsum processing plant; an additional processing plant is anticipated to open in 2008–09, with revenues expected to exceed 270 million Euros (Global Gypsum Magazine, 2008b).

**South America.**—In 2007, the wallboard sector in Argentina was dominated by three companies—Belgium's Durlock SA with 48% of the market, Yesnos Knauf GmbH (a subsidiary of Germany's Knauf Gip) with 43%, and Novoplack with the remaining 9% (Global Gypsum Magazine, 2007d). Trade negotiations were initiated in 2007 between a Brazilian gypsum cooperative, the Pernambuco State Gypsum Industry Union, and the Middle Eastern nations of Jordan and Dubai in an attempt to capitalize on significant plaster price discrepancies between the two regions. The approximate 2007 cost of plaster in Brazil was \$46 per ton, while the same product in Jordan was priced as high as \$120 per ton (Global Gypsum Magazine, 2007d). The agreement facilitated higher profits for Pernambuco, with lower costs to Dubai and Jordan.

**Canada.**—In 2007, Canadian production of crude gypsum totaled 7.7 Mt, a 15% decline from that of 2006. About 6.4 Mt, or 83% of Canadian production, was exported to the United States in 2007. Canada continued as the second ranked North American producer of gypsum. In July 2007, Lafarge closed its wallboard plant in Corner Brook, Newfoundland and Labrador, Canada (Lafarge, 2008, p. 31). The decline in the U.S. housing sector will likely continue to have a negative impact on the Canadian gypsum industry.

**Mexico.**—Gypsum production in 2007 continued at a robust pace as a result of increased wallboard consumption driven by Mexico's thriving housing market. Despite several U.S. plant closures and hundreds of layoffs in 2007, USG Corp.'s Mexican subsidiary, USG Mexico, S.A. de C.V., reported increased sales coupled with a net operating profit (Industrial Minerals, 2007). Mexico is forecast to be the leading North American consumer of gypsum in terms of growth between 2008 and 2011 (Industrial Minerals, 2007).

## Outlook

Demand for gypsum products was expected to decrease for the next 2 to 3 years as housing starts continue to drop (National Association of Home Builders, 2008). Because the residential housing market is responsible for approximately 60% of consumption of gypsum products, a key economic indicator used by the gypsum and wallboard industries is the number of new housing starts, as measured by the issuance of new building permits. In November 2007, building permits decreased to a 14-year low (Gypsum Today, 2007b). All U.S. regions reported declining permits, with three of four posting double-digit declines. These declines were most pronounced in the Midwest, which reported a 22.1% decrease, followed by the South with a decrease of 18.7%; the Northeast registered a 14.7% decline, and the West a 3.7% decline (National Association of Home Builders, 2008). Preliminary gypsum production and consumption data for the first part of 2008 indicated gypsum use levels would continue to decrease throughout the year and into 2009. Other supply and demand indicators, such as construction rates for new office and commercial buildings and a decrease in new housing starts, also indicated that the gypsum industry would probably produce significantly less product than in 2007.

Conversely, the availability of more FGD gypsum was expected to continue to increase as new scrubbers come online at more coal-fired electric powerplants (U.S. Environmental Protection Agency, 2009). During the next several years, the use of mined gypsum may decline in the United States as greater quantities of synthetic gypsum are used in wallboard manufacturing. Some actual and planned gypsum mine closings have already been attributed to substitution by synthetic gypsum. This substitution increase could accelerate additional mine closings throughout the rest of this decade. This changeover, however, will likely be limited to FGD plants with close proximities to wallboard production facilities. The percentage of synthetic gypsum use may eventually reach an economic equilibrium point. In the long term, as disposal areas fill and the opening of new disposal sites becomes increasingly difficult, power companies may have to calcine and clean the gypsum waste slurry and may also have to subsidize transportation costs in order to dispose of excess gypsum waste. This may increase the economic viability of using FGD gypsum from powerplants that presently may be considered too far from wallboard plants.

Expansion of synthetic gypsum resources will continue in the United States. Forecasts indicate that demand of high calcium limestone, the primary component required to transform sulfur dioxide to synthetic gypsum, will increase by about 70% during the next 10 years as existing and new coal-fired powerplants are fitted with FGD scrubbing systems to meet Clean Air Act regulatory requirements (Industrial Minerals, 2008b). The trend toward FGD gypsum as a raw material, at the expense of crude gypsum, is expected to continue as air pollution regulations increase both within the United States and throughout the industrialized world.

The U.S. gypsum industry has been moving toward the use of large-capacity wallboard plants supplied from multiple sources, including synthetic gypsum from coal-fired

powerplants. These larger wallboard plants have been located in regions of high population and growth, which are the areas of highest consumption. The older, less efficient, and smaller natural (mined) gypsum-fed plants will find it increasingly difficult to compete, and some will close. As a response to increased public awareness, the gypsum industry may boost the recycling of scrap gypsum into its raw materials streams. There may also be an increase in the use of ecolabels, such as the Scientific Certification System Green Cross, which certifies the presence of recycled and recovered content in each product. Implementation of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Public Law 109–59 (SAFETEA-LU), which became law in August 2006, will continue funding for the building and repair of the Nation's highway system through 2009 (U.S. Department of Transportation, Federal Highway Administration, 2006). This will remain an important stimulus for the domestic cement industry and thus is likely to increase demand for gypsum as an integral cement component.

Industry trends imply significant developments abroad in the coming decade. The pace and magnitude of wallboard plant construction in Asia, particularly China, India, and Thailand, suggest that the continent, with billions of potential consumers, will probably become one of the world's leading gypsum wallboard markets.

Elsewhere, wallboard production capacity growth and the recognition of the convenience and economy of wallboard as a building material in Central America, Europe, India, and South America implies that wallboard manufacturing may require increased gypsum production in future years. A decline in various national and global economic conditions may, however, hamper such growth.

## References Cited

- Boral Ltd., 2008, Boral Ltd. annual review 2007: Sydney, New South Wales, Australia, Boral Ltd., 60 p. (Accessed January 30, 2009, at [http://www.boral.com.au/Annual\\_Reports/reports/Annual\\_Report\\_2007/annual\\_report\\_2007.pdf?AUD=&site=CI](http://www.boral.com.au/Annual_Reports/reports/Annual_Report_2007/annual_report_2007.pdf?AUD=&site=CI).)
- Engineering News-Record, 2007, Construction economics: Engineering News-Record, v. 258, no. 3, January 22, p. 21–22.
- Engineering News-Record, 2008, Construction economics: Engineering News-Record, v. 260, no. 4, January 28, p. 20–21.
- Global Gypsum Magazine, 2007a, China report, gypsum board industry prepares for new expansion phase: Global Gypsum Magazine, May, p. 10–16.
- Global Gypsum Magazine, 2007b, Egyptian construction enjoys a good year: Global Gypsum Magazine, November, p. 12.
- Global Gypsum Magazine, 2007c, Knauf building new gypsum panel plant: Global Gypsum Magazine, April, p. 6.
- Global Gypsum Magazine, 2007d, Knauf to invest over US \$5.2m in Argentina in 2007: Global Gypsum Magazine, February, p. 9.
- Global Gypsum Magazine, 2007e, Lafarge ties up \$152.03m empowerment deal: Global Gypsum Magazine, February, p. 6.
- Global Gypsum Magazine, 2007f, Slowdown to continue in 2007: Global Gypsum Magazine, February, p. 10.
- Global Gypsum Magazine, 2008a, Gypsum in the Middle East, from antiquity to modern day: Global Gypsum Magazine, May, p. 22.
- Global Gypsum Magazine, 2008b, News in brief, Poland: Global Gypsum Magazine, January, p. 8.
- Government of South Australia, 2009, Primary Industries and Resources SA, gypsum. (Accessed June 2, 2009, at [http://outernode.pir.sa.gov.au/minerals/geology/minerals\\_mines\\_and\\_quarries/commodities/gypsum](http://outernode.pir.sa.gov.au/minerals/geology/minerals_mines_and_quarries/commodities/gypsum).)

Gypsum Today, 2007a, Gypsum industry expected to face situation like lumber: Gypsum Today, June 8, 2007. (Accessed February 2, 2009, at <http://www.gypsumtoday.com/news/viewnews.pl?id=1028>.)

Gypsum Today, 2007b, Housing starts drop with permits, hitting 14 year low: Gypsum Today, December 18. (Accessed February 3, 2009, at <http://www.gypsumtoday.com/news/viewnews.pl?id=1183>.)

Gypsum Today, 2007c, Lafarge Gypsum reports 2nd quarter and 1st half results: Gypsum Today, August 7. (Accessed February 2, 2009, at <http://www.gypsumtoday.com/news/viewnews.pl?id=1081>.)

Industrial Minerals, 2007, Gypsum slow down offset by Mexican demand: Industrial Minerals, no. 483, December, p. 26.

Industrial Minerals, 2008a, Afghanistan, revival and redevelopment: Industrial Minerals, no. 488, June, p. 62.

Industrial Minerals, 2008b, FGD drives US high-Ca limestone demand: Industrial Minerals, no. 486, March, p. 28.

Industrial Minerals, 2008c, Indian gypsum made into fertiliser: Industrial Minerals, no. 487, April, p. 42.

Lafarge Group, 2008, 2007 annual report: Paris, France, Lafarge Group, March 28, 235 p. (Accessed June 2, 2009, at [http://www.lafarge.com/28032008-publication\\_finance-annual\\_report\\_2007-uk.pdf?xtmc=lafarge2007annualreport&xtmr=1](http://www.lafarge.com/28032008-publication_finance-annual_report_2007-uk.pdf?xtmc=lafarge2007annualreport&xtmr=1).)

National Association of Home Builders, 2008, Decline in housing production accelerates in November: Washington, DC, National Association of Home Builders press release, December 16, 1 p. (Accessed January 7, 2009, at [http://www.nahb.org/news\\_details.aspx?newsID=8417](http://www.nahb.org/news_details.aspx?newsID=8417).)

Roskill Information Services Ltd., 2004, The economics of gypsum and anhydrite (9th ed.): London, United Kingdom, Roskill Information Services Ltd., 342 p.

Sharpe, R.D., 2007, Gypsum: Mining Engineering, v. 59, no. 6, June, p. 34–37.

U.S. Department of Transportation, Federal Highway Administration, 2006, The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy

for Users, Public Law 109–59: U.S. Department of Transportation, Federal Highway Administration. (Accessed January 29, 2009, at URL <http://www.fhwa.dot.gov/safetealu/index.htm>.)

U.S. Environmental Protection Agency, 2009, Basic information, clear skies: U.S. Environmental Protection Agency, January 14. (Accessed February 2, 2009, at <http://www.epa.gov/air/clearskies/basic.html>.)

## GENERAL SOURCES OF INFORMATION

### U.S. Geological Survey Publications

Coal Combustion Products. Ch. in Minerals Yearbook, annual (1994–2000).

Gypsum. Ch. in Mineral Commodity Summaries, annual.

Gypsum. Ch. in United States Mineral Resources, Professional Paper 820, 1973.

Gypsum. Mineral Industry Surveys, monthly.

Gypsum Deposits of the United States, Bulletin 697, 1920.

### Other

Gypsum. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.

Gypsum Association.

TABLE 1  
SALIENT GYPSUM STATISTICS<sup>1</sup>

(Thousand metric tons and thousand dollars)

	2003	2004	2005	2006	2007
<b>United States:</b>					
<b>Crude:</b>					
<b>Production:</b>					
Quantity	16,700	17,200	18,800 <sup>r</sup>	18,500 <sup>r</sup>	17,900
Value	114,000	124,000	159,000 <sup>r</sup>	167,000 <sup>r</sup>	146,000
Imports for consumption	8,300	10,100	11,200	11,400	9,390
Synthetic gypsum sales	8,300	8,400	8,410 <sup>r</sup>	8,670 <sup>r</sup>	8,370
<b>Calcined:</b>					
<b>Production:</b>					
Quantity	20,400	23,200	24,600 <sup>r</sup>	23,100 <sup>r</sup>	16,700
Value	400,000	489,000	410,000 <sup>r</sup>	417,000 <sup>r</sup>	368,000
Products sold, value	2,640,000	2,940,000	3,260,000	5,430,000 <sup>r</sup>	3,090,000
Exports, value	31,000 <sup>r</sup>	31,800 <sup>r</sup>	33,700 <sup>r</sup>	36,700 <sup>r</sup>	43,600
Imports for consumption, value	3,040 <sup>r</sup>	3,420 <sup>r</sup>	4,350 <sup>r</sup>	5,010 <sup>r</sup>	6,700
World, production	135,000 <sup>r</sup>	144,000 <sup>r</sup>	145,000 <sup>r</sup>	149,000 <sup>r</sup>	153,000 <sup>e</sup>

<sup>e</sup>Estimated. <sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

TABLE 2  
CRUDE GYPSUM MINED IN THE UNITED STATES, BY STATE<sup>1</sup>

State	2006			2007		
	Active mines	Quantity (thousand metric tons) <sup>r</sup>	Value (thousands) <sup>r</sup>	Active mines	Quantity (thousand metric tons)	Value (thousands)
Arizona, New Mexico	7	1,570	\$12,200	7	1,310	\$9,450
Arkansas, Kansas, Louisiana	6	2,580	23,700	6	2,470	24,500
California, Nevada, Utah	11	3,660	35,700	13	3,680	32,600
Colorado, South Dakota, Wyoming	6	1,050	9,470	6	963	7,760
Indiana, New York	3	1,350	11,900	3	1,260	8,140
Iowa	7	2,880	25,200	7	2,820	21,600
Michigan	3	932	8,220	3	809	8,030
Oklahoma	6 <sup>r</sup>	3,420	30,200	7	3,410	26,100
Texas	3 <sup>r</sup>	1,010	10,200	4	1,180	8,200
Total	52 <sup>r</sup>	18,500	167,000	56	17,900	146,000

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 3  
CALCINED GYPSUM PRODUCED IN THE UNITED STATES, BY STATE<sup>1</sup>

State	2006			2007		
	Active plants	Quantity (thousand metric tons)	Value (thousands) <sup>r</sup>	Active plants	Quantity (thousand metric tons)	Value (thousands)
Alabama, Florida, Georgia	6 <sup>r</sup>	2,550 <sup>r</sup>	\$59,400	5	1,790	\$52,300
Arizona, Colorado, New Mexico, Utah, Wyoming	5 <sup>r</sup>	2,290	15,000	4	862	11,000
Arkansas, Louisiana, Oklahoma, Texas	10	4,510 <sup>r</sup>	80,800	10	3,280	61,100
California, Nevada, Oregon, Washington	10 <sup>r</sup>	5,890 <sup>r</sup>	112,000	10	4,150	83,100
Illinois, Indiana, Michigan, Ohio	9 <sup>r</sup>	2,420 <sup>r</sup>	42,600	9	2,240	50,200
Iowa and Kansas	6 <sup>r</sup>	2,070 <sup>r</sup>	36,500	4	1,220	17,200
Maryland, North Carolina, Pennsylvania, Virginia	3	769 <sup>r</sup>	13,600	4	1,320	38,100
Massachusetts, New Hampshire	3	1,190 <sup>r</sup>	31,800	3	777	22,600
New Jersey and New York	5 <sup>r</sup>	1,410 <sup>r</sup>	24,900	4	1,080	32,400
Total	57 <sup>r</sup>	23,100 <sup>r</sup>	417,000	53	16,700	368,000

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 4  
 GYPSUM PRODUCTS (MADE FROM DOMESTIC, IMPORTED, AND  
 SYNTHETIC GYPSUM) SOLD OR USED IN THE UNITED STATES, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	2006 <sup>r</sup>		2007	
	Quantity	Value	Quantity	Value
Uncalcined:				
Portland cement	3,820	52,800	3,320	42,600
Agriculture and miscellaneous <sup>2</sup>	2,520	45,100	1,740	30,100
Total	6,340	97,900	5,070	72,700
Calcined:				
Plasters	143	157,000	125	123,000
Prefabricated products <sup>3</sup>	29,600	5,430,000	25,300	3,090,000
Total calcined	29,700	5,590,000	25,400	3,220,000
Grand total	36,100	5,680,000	30,500	3,290,000

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes synthetic gypsum.

<sup>3</sup>Includes weight of paper, metal, or other materials and some synthetic gypsum.

TABLE 5  
 PREFABRICATED GYPSUM PRODUCTS SOLD OR USED IN THE UNITED STATES<sup>1</sup>

Product	2006			2007		
	Quantity (thousand square feet)	Quantity <sup>2</sup> (thousand metric tons)	Value (thousands)	Quantity (thousand square feet)	Quantity <sup>2</sup> (thousand metric tons)	Value (thousands)
Lath:						
<sup>3</sup> / <sub>8</sub> -inch	509	(3) <sup>r</sup>	\$222	369	(3)	\$138
<sup>1</sup> / <sub>2</sub> -inch	1,120	1 <sup>r</sup>	321	335	(3)	99
Other	9,080 <sup>r</sup>	7	1,050 <sup>r</sup>	15,300	15	2,410
Total	10,700 <sup>r</sup>	8 <sup>r</sup>	1,590	16,000	16	2,650
Veneer base	490,000 <sup>r</sup>	445 <sup>r</sup>	72,500 <sup>r</sup>	407,000	369.4	48,000
Sheathing	758,000 <sup>r</sup>	688 <sup>r</sup>	82,300 <sup>r</sup>	669,000	607	288,000
Regular gypsumboard:						
<sup>3</sup> / <sub>8</sub> -inch	740,000 <sup>r</sup>	470 <sup>r</sup>	126,000 <sup>r</sup>	738,000	469	189,000
<sup>1</sup> / <sub>2</sub> -inch	14,500,000 <sup>r</sup>	13,200 <sup>r</sup>	2,230,000 <sup>r</sup>	12,800,000	11,700	1,640,000
<sup>5</sup> / <sub>8</sub> -inch	2,020,000 <sup>r</sup>	2,290 <sup>r</sup>	98,200 <sup>r</sup>	2,130,000	2,420	106,000
1-inch	225,000 <sup>r</sup>	409 <sup>r</sup>	57,100 <sup>r</sup>	208,000	378	53,600
Other <sup>4</sup>	3,760,000 <sup>r</sup>	3,410 <sup>r</sup>	335,000 <sup>r</sup>	1,240,000	1,130	86,600
Total	21,200,000 <sup>r</sup>	20,900 <sup>r</sup>	2,840,000 <sup>r</sup>	17,200,000	16,000	2,080,000
Type X gypsumboard	10,600,000 <sup>r</sup>	9,650 <sup>r</sup>	1,490,000 <sup>r</sup>	9,980,000	9,050	1,460,000
Predecorated wallboard	74,100 <sup>r</sup>	67 <sup>r</sup>	25,000 <sup>r</sup>	75,200	68	15,500
<sup>5</sup> / <sub>16</sub> -inch mobile home board	335,000 <sup>r</sup>	197 <sup>r</sup>	41,100 <sup>r</sup>	273,000	161	37,500
Water- and moisture-resistant board	1,500,000 <sup>r</sup>	1,360 <sup>r</sup>	257,000 <sup>r</sup>	1,410,000	1,280	194,000
Other	158,000 <sup>r</sup>	144 <sup>r</sup>	42,500 <sup>r</sup>	520,000	471	153,000
Grand total	35,200,000 <sup>r</sup>	33,400 <sup>r</sup>	4,860,000 <sup>r</sup>	30,500,000	29,200	4,280,000

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes weight of paper, metal, or other materials.

<sup>3</sup>Less than 1/2 unit.

<sup>4</sup>Includes 1/4-, 7/16-, and 3/4-inch gypsumboard.

Source: Gypsum Association.

TABLE 6  
IMPORTS FOR CONSUMPTION OF CRUDE GYPSUM, BY COUNTRY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country	2006		2007	
	Quantity	Value	Quantity	Value
Argentina	--	--	(2)	4
Austria	(2)	12	--	--
Brazil	14	2,740	(2)	7
Canada <sup>3</sup>	7,380	80,700	6,410	75,300
China	39	6,140	37	687
Dominican Republic	93	1,120	88	836
France	1	52	--	--
Germany	14	1,990	(2)	13
Greece	(2)	3	--	--
India	(2)	15	(2)	3
Italy	--	--	(2)	3
Jamaica	4	30	--	--
Jordan	(2)	30	--	--
Korea	(2)	3	--	--
Mexico	2,930	26,300	2,280	22,600
Morocco	(2)	4	(2)	2
Spain	899	10,300	575	5,480
Sweden	(2)	8	--	--
Turkey	--	--	(2)	2
United Kingdom	(2)	33	(2)	62
Total	11,400	130,000	9,390	105,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Less than ½ unit.

<sup>3</sup>Includes anhydrite.

Source: U.S. Census Bureau.

TABLE 7  
U.S. GYPSUM AND GYPSUM PRODUCTS TRADE FOREIGN<sup>1</sup>

(Thousand metric tons and thousand dollars)

Year	Crude <sup>2</sup>		Plasters <sup>3</sup>		Boards <sup>4</sup>		Other, value <sup>5</sup>	Total, value
	Quantity	Value	Quantity	Value	Quantity	Value		
<b>Exports:</b>								
2006	143	18,300	209	36,700	98	69,900	37,400	162,000
2007	147	23,500	201	43,600	100	99,500	8,000	175,000
<b>Imports for consumption:</b>								
2006	11,400	130,000	12	5,010	994	206,000	60,400	401,000
2007	9,390	105,000	14	6,700	438	85,200	42,200	239,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Data are for "Gypsum, anhydrite," Harmonized Tariff Schedule of the United States (HTS) code 2520.10.0000.

<sup>3</sup>Data are for "Plasters," HTS code 2520.20.0000.

<sup>4</sup>Data are for "Boards, sheets, panels, tiles, and similar articles, not ornamented—Faced or reinforced with paper or paperboard only," HTS code 6809.11.0000.

<sup>5</sup>Data are for "Boards, sheets, panels, tiles, and similar articles, not ornamented: Other," HTS code 6809.19.0000, and "Other articles," HTS code 6809.90.0000.

Source: U.S. Census Bureau.

TABLE 8  
GYPSUM: WORLD PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Thousand metric tons)

Country	2003	2004	2005	2006	2007 <sup>c</sup>
Afghanistan <sup>c</sup>	3	3	2	2	2
Algeria	350	1,058	1,460	1,033 <sup>r</sup>	1,198 <sup>3</sup>
Argentina	499 <sup>r</sup>	836 <sup>r</sup>	1,073 <sup>r</sup>	1,203 <sup>r</sup>	1,200
Australia	4,066	4,325	3,857	4,249 <sup>r</sup>	4,200
Austria <sup>e,4</sup>	1,000	1,000	1,000	1,000	1,000
Azerbaijan	4	9 <sup>r</sup>	28 <sup>r</sup>	35 <sup>r</sup>	22 <sup>3</sup>
Bhutan	123	131	151	160	170
Bolivia	--	(5)	(5)	(5) <sup>e</sup>	1
Bosnia and Herzegovina	63 <sup>r</sup>	140 <sup>r</sup>	153 <sup>r</sup>	128 <sup>r</sup>	130
Brazil <sup>4</sup>	1,529	1,472	1,582	1,737 <sup>r,p</sup>	1,750 <sup>p</sup>
Bulgaria <sup>4</sup>	168	176	188	450 <sup>r,e</sup>	730 <sup>3</sup>
Burma	66	71	68	69 <sup>r</sup>	69
Canada <sup>4</sup>	8,378	9,339	9,400	9,036 <sup>r</sup>	7,654 <sup>3</sup>
Chile	662	630	661	845 <sup>r</sup>	773 <sup>3</sup>
China <sup>c</sup>	27,000 <sup>r</sup>	29,000 <sup>r</sup>	32,000 <sup>r</sup>	35,000 <sup>r</sup>	37,000
Colombia <sup>c</sup>	560	560	700	700 <sup>r</sup>	700
Croatia	166	200 <sup>r,e</sup>	250 <sup>r</sup>	300 <sup>r,e</sup>	335 <sup>3</sup>
Cuba <sup>c</sup>	130	130	-- <sup>r</sup>	--	--
Cyprus	300	255	260 <sup>e</sup>	250	250
Czech Republic	104	71 <sup>r</sup>	25	16 <sup>r</sup>	15
Dominican Republic	250	459	370	356 <sup>r</sup>	356
Ecuador	5 <sup>e</sup>	(5) <sup>r</sup>	1 <sup>r</sup>	1 <sup>r</sup>	2
Egypt <sup>e,4</sup>	2,000	2,000	2,000	2,000	2,000
El Salvador <sup>c</sup>	6	6	6	6	6
Eritrea	1	1	1 <sup>e</sup>	1	1
Ethiopia <sup>4</sup>	48	51	35	35	35
France <sup>e,4</sup>	5,600	5,700	4,902 <sup>3</sup>	4,800	4,800
Germany, marketable <sup>4</sup>	1,748	1,579	1,644	1,771 <sup>r</sup>	1,750
Greece <sup>e,4</sup>	500	500	500	500	500
Guatemala	67	106	350	227 <sup>r</sup>	227
Honduras	20 <sup>r</sup>	6 <sup>r</sup>	6 <sup>r,e</sup>	6 <sup>r,e</sup>	6
Hungary <sup>e,4</sup>	62	62	55	19 <sup>r,3</sup>	19
India <sup>e</sup>	2,300	2,350	2,400	2,450	2,500
Indonesia	6	6	6	6	6
Iran <sup>6</sup>	13,828	12,594	11,196 <sup>r</sup>	12,000 <sup>r,e</sup>	12,000
Ireland <sup>c</sup>	450	450	450	450	450
Israel	141 <sup>r</sup>	125	107	111 <sup>r</sup>	110
Italy	1,646 <sup>r</sup>	2,488 <sup>r</sup>	2,905 <sup>r</sup>	2,860 <sup>r</sup>	5,459 <sup>3</sup>
Jamaica	249	283	302	364 <sup>r</sup>	228 <sup>3</sup>
Japan	5,764	5,865	5,913 <sup>r</sup>	5,796 <sup>r</sup>	5,850
Jordan	64	135 <sup>r</sup>	345 <sup>r</sup>	334 <sup>r</sup>	330
Kenya <sup>4</sup>	9	9	9	10 <sup>r</sup>	10
Laos	102	201	774 <sup>r,e</sup>	775 <sup>r</sup>	775
Latvia	159	226	220 <sup>e</sup>	230	230
Lebanon <sup>c</sup>	30 <sup>r</sup>	30 <sup>r</sup>	30 <sup>r</sup>	30 <sup>r</sup>	30
Libya <sup>c</sup>	150	175	175	175	175
Luxembourg <sup>e,4</sup>	(5)	(5)	(5)	(5)	(5)
Macedonia <sup>c</sup>	21 <sup>r</sup>	21 <sup>r</sup>	27 <sup>r,3</sup>	38 <sup>r,3</sup>	40
Mali <sup>c</sup>	1	1	-- <sup>r</sup>	--	--
Mauritania	34	39	43 <sup>r</sup>	45 <sup>r</sup>	45
Mexico <sup>4</sup>	6,986	9,221	6,252	6,076 <sup>r</sup>	6,080

See footnotes at end of table.

TABLE 8—Continued  
GYPSUM: WORLD PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Thousand metric tons)

Country	2003	2004	2005	2006	2007 <sup>e</sup>
Moldova	116 <sup>r</sup>	103 <sup>r</sup>	131 <sup>r</sup>	186 <sup>r</sup>	312 <sup>3</sup>
Mongolia <sup>c</sup>	25	25	25	26	26
Morocco <sup>c</sup>	600	600	600	600	600
Nicaragua <sup>4</sup>	31	36 <sup>r</sup>	36 <sup>r</sup>	42 <sup>r</sup>	40
Niger	18	18 <sup>e</sup>	17 <sup>r</sup>	13 <sup>r</sup>	13
Nigeria <sup>c</sup>	150 <sup>r</sup>	160 <sup>r</sup>	150 <sup>r</sup>	160 <sup>r</sup>	160
Oman <sup>c</sup>	50	60	60	60	60
Pakistan	424	467	552	590	620
Paraguay <sup>c</sup>	5	5	5	5	5
Peru	71	150	150	151 <sup>r</sup>	151
Poland <sup>4</sup>	1,328	1,272	1,243	1,362 <sup>r</sup>	1,581 <sup>3</sup>
Portugal <sup>4</sup>	420	461	389 <sup>r</sup>	400 <sup>r</sup>	400
Romania	394	490	502	615 <sup>r</sup>	707 <sup>3</sup>
Russia <sup>c</sup>	1,800	2,077 <sup>3</sup>	2,200	2,200	2,300
Saudi Arabia <sup>c</sup>	450	641 <sup>3</sup>	713 <sup>3</sup>	750	750
Serbia <sup>c</sup>	42 <sup>r,3,7</sup>	45 <sup>r,7</sup>	45 <sup>r,7</sup>	45 <sup>r</sup>	45
Sierra Leone <sup>c</sup>	4	--	--	--	--
Slovakia <sup>4</sup>	94	127	107 <sup>r</sup>	110 <sup>r</sup>	110
Slovenia <sup>c</sup>	10	--	--	--	--
South Africa	394	452	548	554	627 <sup>p,3</sup>
Spain <sup>4</sup>	11,500 <sup>e</sup>	12,534	13,000 <sup>e</sup>	11,500 <sup>r,p</sup>	11,500
Sudan <sup>e,4</sup>	13 <sup>3</sup>	14	14	14	14
Switzerland <sup>c</sup>	250	250	250	250	250
Syria	377	432	467	444 <sup>r</sup>	440
Tajikistan	15 <sup>r</sup>	57 <sup>r</sup>	9 <sup>r</sup>	9 <sup>r</sup>	9
Tanzania <sup>4</sup>	33	59 <sup>r</sup>	23	33 <sup>r</sup>	33
Thailand	7,291	7,169	7,113 <sup>r</sup>	8,355 <sup>r</sup>	8,569 <sup>3</sup>
Tunisia <sup>c</sup>	110	108	113 <sup>r</sup>	115	115
Turkey	197	250	500 <sup>r,e</sup>	800 <sup>r,e</sup>	770
Turkmenistan <sup>c</sup>	100	100	100	100	100
Uganda	(5)	(5)	(5)	(5)	(5)
Ukraine	321	337	381	376	742
United Arab Emirates <sup>c</sup>	100	110	120	130	130
United Kingdom <sup>4</sup>	2,783	2,914	2,000 <sup>r</sup>	1,700 <sup>r</sup>	1,700
United States <sup>8</sup>	16,700	17,200	18,800 <sup>r</sup>	18,500 <sup>r</sup>	17,900 <sup>3</sup>
Uruguay <sup>c</sup>	1,130	1,130	1,130	1,150 <sup>r</sup>	1,150
Venezuela	5	4	6	7	7
Yemen	42	37	38	44 <sup>r</sup>	45
Total	135,000 <sup>r</sup>	144,000 <sup>r</sup>	145,000 <sup>r</sup>	149,000 <sup>r</sup>	153,000

<sup>e</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

<sup>1</sup>World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Table includes data available through July 15, 2008.

<sup>3</sup>Reported figure.

<sup>4</sup>Includes anhydrite.

<sup>5</sup>Less than ½ unit.

<sup>6</sup>Data are for years beginning March 21 of that stated.

<sup>7</sup>Montenegro and Serbia formally declared independence in June 2006 from each other and dissolved their union.

<sup>8</sup>Excludes byproducts gypsum.