



2008 Minerals Yearbook

GYPSUM [ADVANCE RELEASE]

GYPSUM

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In 2008, the United States ranked second worldwide in the production of crude gypsum, with 14.4 million metric tons (Mt) of production and a reported value of \$125 million. China was the world's leading producer and consumer of gypsum, with a reported production of 46 Mt of crude gypsum. As a result of the economic recession in the United States, especially as evidenced in the housing sector, 2008 production tonnage decreased by approximately 19% from that of 2007, with a corresponding decrease in value of 14% (table 1). Calcined gypsum production increased by 19% to 19.9 Mt in 2008 compared with 16.7 Mt produced in 2007.

The sale of synthetic gypsum increased by 15% to 9.7 Mt in 2008 from 8.4 Mt in 2007. The long-term use of synthetic gypsum from flue gas desulfurization (FGD) will likely continue to 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, at a lesser price than the cost of its mined counterpart, which 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 data provided by the Gypsum Association. In 2008, the USGS annual survey canvassed 112 gypsum production operations that accounted for all known domestic output of crude, calcined, and byproduct gypsum. Data were available for 87 of the operations through this survey, the Gypsum Association, or other Federal and State agencies, representing 78% of known production. Nonrespondent production was estimated on the basis of past-years' reporting and employment records published by the Mine Safety and Health Administration (MSHA).

Production

The United States was the second leading producer of gypsum in 2008, accounting for 9% of reported global output (table 8). During 2008, domestic output of crude gypsum declined to 14.4 Mt, a 19% decrease from the 17.9 Mt produced in 2007 (table 1). Crude gypsum in the United States was mined by 30 companies at 55 mines in 21 States (table 2). The leading crude gypsum-producing States were, in descending order, Nevada, Iowa, California, Oklahoma, Texas, Arkansas, New Mexico, Indiana, Michigan, and Arizona, which together accounted for 83% 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 USG Corp. (USG) with nine mines; National Gypsum Co. (NGC) with eight mines; Georgia Pacific LLC (GP) with six mines; Harrison Gypsum Co. with three mines; CertainTeed Corp. with four mines; and Temple Inland Inc. (TI) with three mines. For 2008, these eight companies produced 78% of the total U.S. crude gypsum. The 10 leading gypsum mines in the United States accounted for 43% of domestic output in 2008. These 10 mines were owned by 7 companies, and the average production per mine was approximately 625,000 metric tons per year (t/yr).

During 2008, gypsum was calcined (partially dehydrated by heating) at 57 plants operated by 8 companies in 30 States, principally to produce feedstock for wallboard and plaster manufacturing plants (table 3). The leading gypsum calcining States in 2008 were, in descending order, Nevada, Georgia, New York, California, Arkansas, Texas, Florida, Indiana, Iowa, and Michigan (table 3). These 10 States had 34 plants that produced approximately 14.8 Mt of calcined gypsum each and together accounted for about 75% of national output. In 2008, domestic output of calcined gypsum increased by 19% to 19.9 Mt valued at more than \$847 million (table 1).

Companies with the most calcining plants were USG with 20 plants; NGC, 18 plants; GPC, 10 plants; and BPB with 4 plants. These four companies produced 83% of the domestic calcined gypsum output. The 10 leading calcining plants in the United States accounted for 42% of production in 2008. These 10 plants were owned by three companies, and the average plant output was 830,000 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. 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.

Synthetic gypsum producers sold 9.7 Mt of synthetic gypsum from their FGD systems during 2008, with an estimated value of \$84.6 million. Of the total synthetic gypsum sold and used, 80% was used for wallboard production, 10% was used in cement and concrete manufacture, and 10% was used for waste stabilization, agricultural, and other miscellaneous applications. Approximately 40% of synthetic gypsum produced in 2008 was neither sold, nor used (American Coal Ash Association, 2009).

For 2008, gypsum-derived products, including agricultural products, cement, plasters, and wallboard, totaled 21.5 Mt with a value of \$2.0 billion. This represented a production decrease of 36% from the 33.5 Mt produced in 2007, and a 38% decrease in value from \$3.3 billion (table 4).

During 2008, nine companies manufactured gypsum wallboard products at 51 plants in the United States. In 2008, wallboard product shipments were approximately 1.8 billion square meters (18.9 billion square feet), a decrease of about 36% compared with those of 2007 (table 5).

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 1 billion square feet. The rapid decline in the U.S. housing market, which began in 2007 and continued through 2008, marked the start of a possible prolonged contraction in housing construction. This resulted in flat and declining sales for most gypsum producers, coupled with layoffs and the idling of wallboard production plants (Gypsum Today, 2007a, b).

Consumption

In 2008, U.S. apparent domestic gypsum consumption was more than 31.2 Mt, a 12% decrease compared with that of 2007. Domestic sources (mined crude plus an estimated 9.7 Mt of synthetic gypsum produced) met approximately 77% of domestic consumption requirements; imports, totaling 7.3 Mt, satisfied the remaining need. In 2008, approximately 31% of the gypsum consumed in the United States came from synthetic sources, about 7% more than that which was reported in 2007. An industry-wide shift toward the use of more synthetic gypsum continued in 2008. This is largely a result of the lower costs associated with the purchase and transportation of FGD gypsum, which is often available near the same urban centers where wallboard production facilities are located.

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 2008, about 78% of the calcined gypsum used to manufacture wallboard was consumed in the production of regular ½-inch gypsum board (table 5). This product represented 36% of total calcined gypsum consumption. Type X gypsum board, so named because of extra fire retardation qualities, consumed 36% of calcined gypsum. Other regular gypsum board, from ¼- to 1-inch thick, consumed 10% 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.

As a result of the economic downturn and its negative impact on the construction industry's demand for concrete, uncalcined gypsum consumed in the United States decreased by 36% in 2008 to 2.6 Mt. About 1.7 Mt, or 66%, of the uncalcined gypsum consumed in the United States was for portland cement production (table 4). This was a decrease of about 42% from that of 2007. 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 900,000 t, was used primarily for agricultural purposes. Agricultural use of gypsum decreased by 19% from that of 2007. 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

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. In addition to recycling scrap in wallboard plants, wallboard scrap may also be ground and used as a soil conditioner.

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. Should landfilling become problematic, recycling is expected to increase. International gypsum-recycling efforts are more robust. As a result of new legislation enacted in November 2008 in the United Kingdom, gypsum-based products are prohibited from being landfilled (Global Gypsum Magazine, 2009a, c). On a lesser scale, similar efforts were observed in India, where waste gypsum was used to manufacture building panels (Global Gypsum Magazine, 2009f).

Wallboard manufacturers and the construction industry have been exploring ways to return scrap wallboard and waste to a plant for recycling. Other potential markets for recycled gypsum include cement production, as a stucco additive, sludge drying, water treatment, grease absorption, and for marking athletic fields. Until costs and/or legislation associated with landfilling scrap gypsum become more restrictive, recycling will likely continue to remain a low priority within the industry.

Prices

In 2008, the average values (free on board, mine or plant) reported by U.S. producers were \$8.70 per metric ton for crude gypsum and \$42.64 per ton for calcined gypsum (table 1).

The average value for plaster reported by domestic producers during the year was \$191 per ton (table 4). The average value of uncalcined gypsum used in agriculture was about \$33.89 per ton and that used in cement production was about \$15.21 per ton (table 4).

During 2008, prices for gypsum wallboard generally decreased in response to a corresponding sharp decrease in demand. The precipitous drop was related to the abrupt decline in the housing construction sector on which the gypsum industry is heavily dependent. The combined average price of ½-inch wallboard for 20 major U.S. metropolitan cities in 2008 was \$275.35 per 100 square meters (\$255.81 per 1,000 square feet). From January 2008 to January 2009, prices for ½-inch wallboard decreased slightly, 5/8-inch wallboard increased by 3%, ½-inch Type X wallboard increased slightly, and 5/8-inch Type X wallboard decreased slightly for 20 major U.S. metropolitan cities (Engineering News-Record, 2008, 2009).

Average ½-inch wallboard prices during 2008 were lowest in Cincinnati, OH, (\$203 per 100 square meters or \$256 per 1,000 square feet), followed by Birmingham, AL, (\$231 per 100 square meters or \$215 per 1,000 square feet), followed by Baltimore, MD, (\$234 per 100 square meters or \$218 per 1,000 square feet). The highest average wallboard prices throughout 2008 were in Boston, MA, (\$406 per 100 square meters or \$377 per 1,000 square feet), followed by Philadelphia, PA, (\$311 per 100 square meters or \$289 per 1,000 square feet), and San Francisco, CA, (\$309 per 100 square meters or \$287 per 1,000 square feet).

Foreign Trade

In 2008, the United States was the world leader in international trade in gypsum and gypsum products (tables 6, 7). The United States imported crude gypsum from 11 countries and exported gypsum and gypsum products to 123 countries and territories, although only a small quantity of crude gypsum and other gypsum products were exported by the United States in 2008, most of which went to Canada.

Imports of crude gypsum in 2008 decreased by 22% from those of 2007 and accounted for 23% 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 91% of imported gypsum, while Spain, the Dominican Republic, China, and Jamaica (in descending order) supplied most of the remainder (table 6). The majority of imports from Canada went to east coast plants, while 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, S.A. de C.V. and Compania Occidental Mexicana S.A. de C.V. in Baja California Sur (Compania Minera Caopas, S.A. de C.V, 2010; Compania Occidental Mexicana S.A. de C.V, 2010). 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 2008, totaling about 10.9 million square meters (117 million square feet) valued at \$133 million and 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 30% in 2008, totaled 34 million square meters (366 million square feet), and were valued at \$50.6 million.

World Industry Structure

Global crude gypsum production in 2008 was estimated to be 159 Mt, representing a decrease of 5% compared with that of 2007, when production totaled 167 Mt (table 1). In 2008, 86 countries produced gypsum, 10 of which accounted for 75% 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). China was the leading producer of crude gypsum in 2008 with an estimated 46 Mt, followed by the United States with 14.4 Mt, Iran with 12.0 Mt, Spain with 11.5 Mt, Thailand with 8.0 Mt, Japan with 5.8 Mt, Canada with 5.7 Mt, Italy with 5.4 Mt, Mexico with 5.1 Mt, and France with 4.8 Mt. Given the expansion in China's economy and its respective construction and infrastructure demands, China will likely continue to be the world's leading gypsum producer for the near future. North American production accounted for almost 16% 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 plaster product. World production is probably underestimated, because 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 end 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 wallboard markets in the United States. Little crude gypsum was exported from the United States.

Estimated world production capacity for gypsum wallboard in 2008 exceeded 17 billion square meters per year (about 183 billion square feet per year) at more than 250 plants worldwide. Approximately 20% of this capacity was in the United States; Asia and Western Europe each accounted for about 20% of capacity. As in the United States, the use of synthetic

gypsum from FGD sources increased in industrialized nations, particularly in Europe.

World Review

Asia.—A significant rise in commercial and residential construction and infrastructure improvements and additions, coupled with a cultural shift toward the use of more gypsum-based products, resulted in increased gypsum consumption. 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 new load-bearing phosphogypsum panel plant in India was under construction and scheduled to open in 2009. Panels from this plant were purported to be substitutes for brick and concrete (Global Gypsum Magazine, 2009d). Although gypsum deposits in Afghanistan are numerous, many mining operations remained inactive or underworked 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).

Europe.—France's Saint-Gobain, a global leader in gypsum production, announced a freeze on acquisition projects, coupled with significant reduction of capital expenditures, as a result of the economic recession (Global Gypsum Magazine, 2009e). Germany's Knauf Gips KG was building a wallboard production facility in the Irkutsk region of Russia that was scheduled to open in 2011. The plant and an accompanying drywall academic center was to use the nearby Nukutsky gypsum deposit as its feedstock source (Global Gypsum Magazine, 2009b). In 2008, France-based Lafarge Group operated 76 wallboard plants (33 in Europe) in 29 countries with 8,132 employees and total sales of \$2.12 billion (Lafarge Group, 2009, p. 5).

Middle East.—Gypsemna Co. opened a new wallboard plant in the United Arab Emirates near the city of Abu Dhabi. The plant was expected to address the increased demand for wallboard within the entire Middle Eastern region for both residential and commercial projects (Global Gypsum Magazine, 2009g).

South America.—In 2008, Lafarge operated wallboard plants in Argentina, Brazil, and Chile, as well as plaster plants in Brazil and Chile (Lafarge, 2009, p. 40). Brazilian Gypsum produced approximately 2 Mt of gypsum in 2008, representing 95% of total Brazilian production, with mineral reserves estimated to be 1,200 Mt (Brazilian Gypsum, 2010).

Australia.—Australian housing construction activity decreased by 18% in 2008 to 130,000 new-home starts, a 40-year low, reflecting the global recession that slowed both residential and commercial building activities (Housing Industry Association of Australia, 2009). In response to the economic decline, Boral Limited, Australia's largest building and construction materials supplier, reported an earnings decrease of 19%, which included a 90% earnings decrease in its U.S.-based construction supply businesses (Boral Ltd., 2008, p. 6, 26).

Canada.—In 2008, Canadian production of crude gypsum totaled 5.7 Mt, a 24% decline from that of 2007. About 4.7 Mt,

or 83% of Canadian production, was exported to the United States in 2008. Canada continued as the second ranked North American producer of gypsum. CertainTeed Gypsum Canada, Inc. employed 635 employees and reported total sales of \$255 million in 2008 (Saint-Gobain, 2009, p. 223). The sluggish U.S. residential and commercial construction sectors were likely to continue to have a negative impact on the Canadian gypsum industry.

China.—Early reports of problematic wallboard, which was manufactured in China and imported into the United States, were filed with the U.S. Consumer Product Safety Commission in December 2008 (U.S. Consumer Product Safety Commission, 2009a). Most of the affected properties were residential homes constructed in Florida in 2006 and 2007. The corrosive wallboard is thought to emit sulfide gases, particularly in humid and warm climates, which may cause corrosion and discoloration of metal surfaces, including air-conditioning coils and exposed electrical wiring in recessed switch and outlet boxes (McQueen, 2009). Home builders in south Florida began removing corrosive drywall from their newly built residential communities in early 2009 (Ross, 2009). Based on the amount of wallboard imported from China between 1999 and 2008, an estimated 38,000 U.S. homes could have been constructed with Chinese wallboard, with 25,000 of those homes possibly built in Florida. Not all imported wallboard from China is thought to be problematic.

Mexico.—In 2008, gypsum production was 5.1 Mt, a 16% decline from that of 2007. About 1.9 Mt, or 38% of Mexican production, was exported to the United States in 2008. USG Mexico S.A. de C.V. reported an operating profit in 2008 of \$20 million, a 23% reduction from the \$26 million reported in 2007 (USG Corp., 2009, p. 29). Efforts continued to explore the origin of the unique gypsum (selenite) megacrystals discovered in Naica, Mexico. The largest of these crystals, which are up to 11 meters long and as much as 50 tons in weight, are thought to have crystallized during a period of up to 500,000 years (Garcia-Ruiz and others, 2007).

Outlook

U.S. 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, 2009). 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 September 2008, housing starts fell to a 25-year low, which was an annual rate of 872,000. Construction of single-family homes decreased to 544,000 for 2008, the lowest number since February 1982 (National Association of Home Builders, 2008). Preliminary gypsum production and consumption data for the beginning of 2009 indicated that use levels of gypsum were likely to remain static.

Conversely, the availability of FGD gypsum was expected to continue to increase as new scrubbers come online at more coal-fired electric powerplants (U.S. Environmental Protection Agency, 2010). During the next several years, the use of mined gypsum may continue to 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 the increased use of synthetic gypsum. This increase in substitution by synthetic gypsum 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, or where new wallboard plants will be constructed adjacent to existing FGD plants. 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, clean, or subsidize the transportation costs associated with synthetic gypsum in order to dispose of excess waste. This may increase the economic viability of using FGD gypsum from powerplants that are presently 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 become more stringent 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 component of cement.

Industry trends indicate 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 means that wallboard manufacturing may require increased gypsum production in future years. A decline in national and global economic conditions may, however, hamper such growth.

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Gypsum Association.

TABLE 1
SALIENT GYPSUM STATISTICS¹

(Thousand metric tons and thousand dollars)

	2004	2005	2006	2007	2008
United States:					
Crude:					
Production:					
Quantity	17,200	18,800	18,500	17,900	14,400
Value	124,000	159,000	167,000	146,000	125,000
Imports for consumption	10,100	11,200	11,400	9,390	7,330
Synthetic gypsum sales	8,400	8,410	8,670	8,370	9,660
Calcined:					
Production:					
Quantity	23,200	21,000 ^r	26,100 ^r	16,700	19,900
Value	862,000 ^r	781,000 ^r	1,090,000 ^r	640,000 ^r	847,000
Products sold, value	2,940,000	3,260,000	3,250,000	3,090,000	1,850,000
Exports, value	31,800	33,700	36,700	43,600	47,400
Imports for consumption, value	3,420	4,350	5,010	6,700	7,240
World, production	145,000 ^r	148,000 ^r	159,000 ^r	167,000 ^r	159,000 ^e

^eEstimated. ^rRevised.

¹Data are rounded to no more than three significant digits.

TABLE 2
CRUDE GYPSUM MINED IN THE UNITED STATES, BY STATE¹

State	2007			2008		
	Active mines	Quantity		Active mines	Quantity	
		(thousand metric tons)	Value (thousands)		(thousand metric tons)	Value (thousands)
Arizona, New Mexico	7	1,310	\$9,450	7	1,380	\$9,630
Arkansas, Georgia, Kansas, Louisiana	6	2,470	24,500	6	1,880	17,300
California, Nevada, Utah	13	3,680	32,600	12	4,110	35,400
Colorado, South Dakota, Washington, Wyoming	6	963	7,760	7	830	7,810
Indiana, New York, Ohio, Virginia	3	1,260	8,140	3	1,150	9,950
Iowa	7	2,820	21,600	7	2,000	17,700
Michigan	3	809	8,030	3	656	7,270
Oklahoma	7	3,410	26,100	6	1,370	12,800
Texas	4	1,180	8,200	4	1,040	7,550
Total	56	17,900	146,000	55	14,400	125,000

¹Data 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 STATE¹

State	2007			2008		
	Active plants	Quantity		Active plants	Quantity	
		(thousand metric tons)	Value ^r (thousands)		(thousand metric tons)	Value (thousands)
Alabama, Florida, Georgia	5	1,790	\$68,700	6	3,510	\$149,000
Arizona, Colorado, New Mexico, Utah, Wyoming	4	862	33,000	4	728	31,000
Arkansas, Louisiana, Oklahoma, Texas	10	3,640 ^r	139,000	10	3,130	134,000
California, Nevada, Oregon, Washington	10	4,160 ^r	159,000	11	5,410	231,000
Illinois, Indiana, Michigan, Ohio	9	2,240	85,700	8	1,900	80,800
Iowa and Kansas	4	1,220	46,600	5	1,150	49,100
Maryland, North Carolina, Pennsylvania, Virginia	4	945 ^r	36,200	5	1,080	46,200
Massachusetts, New Hampshire	3	777	29,800	3	613	26,100
New Jersey and New York	4	1,080	41,300	5	2,330	99,500
Total	53	16,700	640,000	57	19,900	847,000

^rRevised.

¹Data 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 USE¹

(Thousand metric tons and thousand dollars)

Use	2007		2008	
	Quantity ^r	Value	Quantity	Value
Uncalcined:				
Portland cement	2,980	42,600	1,730	26,300
Agriculture and miscellaneous ²	1,120	30,100	903	30,600
Total	4,100	72,700	2,630	56,900
Calcined:				
Plasters	669	123,000	633	121,000
Prefabricated products ³	28,700	3,090,000	18,200	1,850,000
Total calcined	29,400	3,220,000	18,900	1,970,000
Grand total	33,500	3,290,000	21,500	2,030,000

^rRevised.

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

²Includes synthetic gypsum.

³Includes weight of paper, metal, or other materials and some synthetic gypsum.

TABLE 5
 PREFABRICATED GYPSUM PRODUCTS SOLD OR USED IN THE UNITED STATES¹

Product	2007			2008		
	Quantity (thousand square feet)	Quantity ² (thousand metric tons)	Value (thousands)	Quantity (thousand square feet)	Quantity ² (thousand metric tons)	Value (thousands)
Lath:						
³ / ₈ -inch	369	(3)	\$138	244	(3)	\$77
¹ / ₂ -inch	335	(3)	99	249	(3)	50
Other	15,300	15	2,410	21,600	18	171
Total	16,000	16	2,650	22,100	19	298
Veneer base	367,000 ^r	342 ^r	43,300 ^r	329,000	311	32,700
Sheathing	158,000 ^r	595 ^r	67,900 ^r	101,000	104	11,200
Regular gypsumboard:						
³ / ₈ -inch	529,000 ^r	852 ^r	136,000 ^r	1,050,000	1,050	61,900
¹ / ₂ -inch	9,200,000 ^r	8,950 ^r	1,180,000 ^r	7,100,000	7,160	709,000
⁵ / ₈ -inch	1,530,000 ^r	1,620 ^r	75,800 ^r	244,000	262	67,700
1-inch	149,000 ^r	192 ^r	38,400 ^r	121,000	153	29,300
Other ⁴	891,000 ^r	973 ^r	62,100 ^r	572,000	542	61,800
Total	12,300,000 ^r	12,600 ^r	1,490,000 ^r	9,080,000	9,160	929,000
Type X gypsumboard ⁵	6,970,000 ^r	10,600 ^r	1,020,000 ^r	6,530,000	6,860	624,000
Predecorated wallboard	80,500 ^r	1,440 ^r	16,600 ^r	131,000	117	22,200
⁵ / ₁₆ -inch mobile home board	364,000 ^r	398 ^r	50,000 ^r	202,000	197	23,500
Water- and moisture-resistant board	1,810,000 ^r	2,190 ^r	249,000 ^r	1,290,000	1,300	153,000
Other	520,000	523 ^r	153,000	159,000	167	51,300
Grand total	22,600,000 ^r	28,700 ^r	3,090,000 ^r	17,800,000	18,200	1,850,000

^rRevised.

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

²Includes weight of paper, metal, or other materials.

³Less than 1/2 unit.

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

⁵Includes Type X and all other firecode-categorized wallboard products.

TABLE 6
IMPORTS FOR CONSUMPTION OF CRUDE GYPSUM, BY COUNTRY¹

(Thousand metric tons and thousand dollars)

Country	2007		2008	
	Quantity	Value	Quantity	Value
Argentina	(2)	4	--	--
Brazil	(2)	7	--	--
Canada ³	6,410	75,300	4,740	62,900
China	37	687	42	307
Dominican Republic	88	836	66	2,070
Germany	(2)	13	--	--
India	(2)	3	(2)	2
Italy	(2)	3	(2)	27
Jamaica	--	--	19	742
Korea, Republic of	--	--	(2)	20
Mexico	2,280	22,600	1,930	19,500
Morocco	(2)	2	--	--
Spain	575	5,480	524	7,720
Turkey	(2)	2	(2)	--
United Kingdom	(2)	62	(2)	20
Total	9,390	105,000	7,330	93,400

-- Zero.

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

²Less than ½ unit.

³Includes anhydrite.

Source: U.S. Census Bureau.

TABLE 7
U.S. GYPSUM AND GYPSUM PRODUCTS TRADE FOREIGN¹

(Thousand metric tons and thousand dollars)

Year	Crude ²		Plasters ³		Boards ⁴		Other, value ⁵	Total, value
	Quantity	Value	Quantity	Value	Quantity	Value		
Exports:								
2007	147	23,500	201	43,600	100	99,500	49,000 ^r	216,000 ^r
2008	149	20,500	135	47,400	98	133,000	55,400	257,000
Imports for consumption:								
2007	9,390	105,000	14	6,700	438	85,200	55,500 ^r	252,000 ^r
2008	7,330	93,400	13	7,240	306	50,600	43,400	195,000

^rRevised.

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

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

³Data are for "Plasters," HTS code 2520.20.0000.

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

⁵Data 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^{1,2}

(Thousand metric tons)

Country	2004	2005	2006	2007	2008 ^e
Afghanistan ^c	3	2	2	2	2
Algeria	1,058	1,460	1,033	1,198	1,672 ³
Argentina	836	1,073	1,203	1,227 ^r	1,200
Armenia	51	44	44	55	55
Australia	4,325	3,857	4,265 ^r	3,896 ^r	4,000
Austria ⁴	921 ^r	911 ^r	936 ^r	1,006 ^r	1,000
Azerbaijan	9	28	35	22	23
Bhutan	131	151	160	170	160
Bolivia	(5)	(5)	1 ^r	4 ^r	4
Bosnia and Herzegovina	140	153	132 ^r	154 ^r	154
Brazil ⁴	1,472	1,582	1,737	1,750 ^e	2,100
Bulgaria ⁴	176	188	216 ^r	234 ^r	234
Burma	71	68	69	69 ^e	69
Canada ⁴	9,339	9,400	9,036	7,562 ^r	5,740 ^p
Chile	630	661	845	773	774 ³
China ^c	29,000	32,000	42,000 ^r	48,000 ^r	46,000
Colombia	161 ^r	173 ^r	186 ^r	200 ^r	200
Croatia	148 ^r	196 ^r	170 ^r	170 ^{r,e}	170
Cuba ^c	(5) ^r	(5) ^r	(5) ^r	(5) ^r	(5)
Cyprus	255	260 ^e	250	250 ^e	250
Czech Republic	71	25	16	66 ^r	35
Dominican Republic	459	370	356	350 ^{r,e}	350
Ecuador	(5)	1	1	2 ^e	1
Egypt ^{c,4}	2,000	2,000	2,000	2,000	2,000
El Salvador ^c	6	6	6	6	6
Eritrea	1	1 ^e	1	1 ^e	1
Ethiopia ⁴	51	35	39 ^r	40 ^{r,e}	40
France ^{e,4}	5,700	4,902 ³	4,800	4,800	4,800
Germany, marketable ⁴	1,579	1,644	1,771	1,898 ^r	1,900
Greece ^{e,4}	500	500	500	500	500
Guatemala	106	350	227	495 ^r	500
Honduras ^c	6 ³	6	6	6	6
Hungary ^{e,4}	62	55	30 ^{r,3}	26 ^r	26
India ^c	2,350	2,400	2,450	2,500	2,550
Indonesia	6	6	6	6 ^e	6
Iran ⁵	12,594	11,196	12,000 ^e	12,000 ^e	12,000
Ireland ^c	450	450	450	450	450
Israel	125	107	111	83 ^r	83
Italy	2,488	2,905	2,860	5,459	5,400
Jamaica	283	302	364	228	225 ³
Japan	5,865	5,913	5,796	5,850	5,800
Jordan	135	345	334	288 ^r	300
Kenya ⁴	9	9	9 ^r	10	10
Laos	201	774 ^e	775	775 ^e	775
Latvia	226	220 ^e	230	230 ^e	230
Lebanon ^c	30	30	30	30	30
Libya ^c	175	175	200 ^r	240 ^r	250
Luxembourg ^{e,4}	(5)	(5)	(5)	(5)	(5)
Macedonia	165 ^r	190 ^r	268 ^r	256 ^r	256
Mali ^c	1	--	--	--	--
Mauritania	39	43	45	49 ^r	44 ³
Mexico ⁴	9,221	6,252	6,076	6,080 ^e	5,135 ³

See footnotes at end of table.

TABLE 8—Continued
 GYPSUM: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2004	2005	2006	2007	2008 ^e
Moldova	103	131	186	312	300
Mongolia ^c	25	25	26	26	26
Morocco ^c	600	600	600	600	600
Nicaragua ⁴	36	36	42	40 ^e	40
Niger	18 ^e	17	13	5 ^{r,p}	5
Nigeria ^c	160	150	169 ^r	579 ^r	500
Oman ^c	60	60	60	60	60
Pakistan	467	552	650 ^r	620	640
Paraguay ^c	5	5	5	5	5
Peru	150	150	151	151 ^e	495 ³
Poland ⁴	1,167 ^r	1,243	1,353 ^r	1,581	1,580
Portugal ⁴	461	389	400	400 ^e	300
Romania	490	502	615	707	705
Russia ^c	2,077 ³	2,200	2,200	2,300	2,300
Saudi Arabia	641	713	2,101 ^r	2,100 ^{r,e}	2,300
Serbia ^c	45 ⁷	45 ⁷	45 ⁷	45	45
Slovakia ⁴	127	107	110	110 ^e	110
South Africa	452	548	554	627	571 ^{p,3}
Spain ⁴	12,534	13,000 ^e	11,500	11,500 ^e	11,500
Sudan ^{e,4}	11 ^r	9 ^r	7 ^{r,3}	8 ^{r,3}	8
Switzerland ^c	250	250	250	250	250
Syria	432	467	444	448 ^r	573 ³
Tajikistan	57	9	9	9 ^e	9
Tanzania ⁴	59	63 ^r	33 ^r	3 ^r	3
Thailand	7,169	7,113	8,355	8,569	8,000
Tunisia ^c	108	113	151 ^r	157 ^r	165
Turkey	2,301 ^r	3,501 ^r	4,370 ^r	3,241 ^r	3,000
Turkmenistan ^c	100	100	100	100	100
Uganda	(5)	(5)	(5)	(5) ^e	(5)
Ukraine	337	381	376	742	740
United Arab Emirates ^c	110	120	130	150 ^r	200
United Kingdom ⁴	2,914	2,000	1,700	1,700 ^e	1,700
United States ⁸	17,200	18,800	18,500	17,900	14,400 ³
Uruguay ^c	1,150 ^r	920 ^r	-- ^r	-- ^r	--
Venezuela	4	6	7	7 ^e	7
Yemen	37	38	44	45	50
Total	145,000 ^r	148,000 ^r	159,000 ^r	167,000 ^r	159,000

^eEstimated. ^pPreliminary. ^rRevised. -- Zero.

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

²Table includes data available through July 7, 2009.

³Reported figure.

⁴Includes anhydrite.

⁵Less than ½ unit.

⁶Data are for years beginning March 21 of that stated.

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

⁸Excludes byproducts gypsum.