



2010 Minerals Yearbook

GYPSUM

GYP SUM

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In 2010, the United States ranked fourth worldwide in the production of crude gypsum, with 8.84 million metric tons (Mt) of production and a reported value of \$60.9 million. China was the world's leading producer and consumer of gypsum, with estimated production of 47 Mt of crude gypsum. As a result of the slowness in recovery of the economy, especially in the residential construction sector, crude production tonnage decreased by approximately 15% from that of 2009, with a corresponding decrease in value of 21% (table 1). Calcined gypsum production decreased by about 9% to 12.1 Mt in 2010 compared with 13.4 Mt produced in 2009.

The sale of synthetic gypsum increased by 32% to 10.7 Mt in 2010 from 8.1 Mt in 2009. 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. Many 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 byproduct gypsum, at a lower price than the cost of its mined counterpart, which led to the construction of wallboard production facilities adjacent to coal-fired powerplants.

Production

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 2010, 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 all of the operations through this survey, the Gypsum Association, the American Coal Ash Association, or other Federal and State agencies. Some production was estimated on the basis of employment records published by the Mine Safety and Health Administration (MSHA).

The United States was the fourth leading producer of gypsum in 2010, accounting for 6% of reported global output (table 8). During 2010, crude gypsum in the United States was mined by 40 companies at 54 mines in 19 States (table 2). The leading crude gypsum-producing States were, in descending order, Oklahoma, Texas, Iowa, Nevada, and California, which together accounted for 58% 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 most mines were USG Corp. (USG) with eight mines; Georgia Pacific LLC (GP) with seven mines; National Gypsum Co. (NGC) with six mines; CertainTeed Corp. with six mines; American Gypsum with three mines; Temple Inland Inc. (TI) with two mines; and PABCO Gypsum with one

mine. For 2010, these seven companies produced 74% of the total U.S. crude gypsum.

During 2010, gypsum was calcined (partially dehydrated by heating) at 62 plants operated by 8 companies in 32 States, principally to produce feedstock for wallboard and plaster manufacturing plants (table 3). The leading gypsum calcining States in 2010 were, in descending order, Texas, California, Florida, Iowa, and Indiana (table 3). These 5 States had 22 plants that produced approximately 4.2 Mt of calcined gypsum and together accounted for about 34% of national output. In 2010, domestic output of calcined gypsum decreased by 9% to 12.1 Mt valued at approximately \$360 million (table 1).

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.

Sixteen synthetic gypsum producers sold 10.7 Mt of synthetic gypsum from their FGD systems during 2010, with an estimated value of \$16.1 million. Of the total synthetic gypsum sold and used, 72% was used for wallboard production, 11% was used in cement and concrete manufacture, 8% for mining applications, 4% for agricultural, and the remaining 5% for a variety of other applications. Approximately 51% of synthetic gypsum produced in 2010 was neither sold, nor used, and in most cases was landfilled (American Coal Ash Association, 2011).

For 2010, gypsum-derived products, including agricultural products, cement, plasters, and wallboard totaled 11.7 Mt with a value of \$1.68 billion. This represented a production decrease of 16% from the 14.0 Mt produced in 2009, and a 13% decrease in value from \$1.9 billion (table 4).

During 2010, eight companies manufactured gypsum wallboard products at 62 plants in the United States. Wallboard product shipments were approximately 17.2 million square feet (1.6 million square meters), a decrease of about 6% compared with those of 2009 (table 5).

The wallboard industry expanded rapidly between 2003 and 2006. American Gypsum, CertainTeed Saint-Gobain, 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 decline in the U.S. housing market that began in 2007 and continued through 2010 resulted in flat and declining sales for most

gypsum producers, and led to layoffs and the idling of wallboard production plants (Crangle, 2011).

Consumption

In 2010, U.S. apparent domestic gypsum consumption was more than 22.5 Mt, a slight decrease compared with that of 2009. Domestic sources (mined crude plus an estimated 10.7 Mt of synthetic gypsum produced) met approximately 87% of domestic consumption requirements; imports, totaling 3.33 Mt, satisfied the remaining need. In 2010, approximately 48% of the gypsum consumed in the United States came from synthetic sources, 12% more than that which was reported in 2009. An industry-wide shift toward the use of synthetic gypsum continued in 2010. This was largely the 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 2010, about 92% of the calcined gypsum used to manufacture wallboard was consumed in the production of regular ½-inch gypsum board (table 5). This product represented 35% of total calcined gypsum consumption. Type X gypsum board, so named because of extra fire retardation qualities, consumed 35% of calcined gypsum. Other regular gypsum board, from ¼- to 1-inch thick, consumed 3% 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, East North Central, Middle Atlantic, and Pacific (in decreasing order) were the leading sales areas for gypsum wallboard products.

As a result of the economic downturn and the associated reduction in the construction industry's demand for concrete, uncalcined gypsum consumed in the United States decreased by 5% in 2010 to 1.28 Mt. About 901,000 t, or 71%, 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 4% by weight of cement output (Roskill Information Services Ltd., 2009, p. 320). Most of the remainder of the uncalcined gypsum consumed, about 375,000 metric tons (t), was used primarily for agricultural purposes. Agricultural use of gypsum increased by 7% from that of 2009. 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 may be recycled. The gypsum core and paper covering are separated, then reinjected with new material into the manufacturing stream.

Several million tons of gypsum waste is generated every year by building demolition, wallboard installation, and wallboard manufacturing. 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. Only a small portion of this waste has been recycled. On December 14, 2010, the Massachusetts Department of Environmental Protection banned the disposal of clean wallboard from State waste disposal facilities (Massachusetts Department of Environmental Protection, 2010). As landfill space becomes more scarce, recycling is expected to increase. 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 scrap wallboard and waste wallboard to plants 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 legislation associated with landfilling scrap gypsum become more restrictive, recycling will likely continue to remain a low priority within the industry.

Prices

In 2010, the average values (free on board, mine or plant) reported by U.S. producers were \$6.89 per metric ton for crude gypsum and \$29.65 per ton for calcined gypsum (table 1). The average value for plaster reported by domestic producers during the year was \$345 per ton (table 4). The average value of uncalcined gypsum used primarily for agricultural purposes was approximately \$52.26 per ton and that used in cement production was about \$17.21 per ton (table 4).

During 2010, prices for gypsum wallboard increased by 6% despite an 18% decrease in total wallboard production (table 5). This is likely a result of the wallboard industry adjusting to market conditions following several years of declining production. The combined average price of ½-inch wallboard for 20 major U.S. metropolitan cities in 2010 was \$248.56 per 100 square meters (\$230.92 per 1,000 square feet). From January 2010 to January 2011, prices for ½-inch regular wallboard decreased by 5%, while Type X wallboard increased slightly, in 20 major U.S. metropolitan cities (Engineering News-Record, 2010; 2011).

Average ½-inch wallboard prices during 2010 were lowest in St. Louis, MO, (\$109 per 100 square meters or \$102 per 1,000 square feet), followed by Detroit, MI, (\$115 per 100 square meters or \$107 per 1,000 square feet), and

Cleveland, OH, (\$129 per 100 square meters or \$120 per 1,000 square feet). The highest average wallboard prices in 2010 were in Boston, MA, (\$409 per 100 square meters or \$380 per 1,000 square feet), followed by Philadelphia, PA, (\$309 per 100 square meters or \$287 per 1,000 square feet) and San Francisco, CA, (\$298 per 100 square meters or \$277 per 1,000 square feet) (Engineering News-Record, 2011).

Foreign Trade

In 2010, the United States led the world in international trade in gypsum and gypsum products (tables 6–7). The United States imported crude gypsum from 12 countries and exported gypsum and gypsum products to 86 countries and territories, although only a small quantity of crude gypsum and other gypsum products were exported by the United States in 2010, most of which went to Canada.

Imports of crude gypsum in 2010 decreased by 21% from those of 2009 and accounted for 13% 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 94% of imported gypsum, while imports from Spain supplied most of the remainder. 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. Most 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, both of which operate mines on the Baja California Peninsula (*Compania Occidental Mexicana S.A. de C.V.*, 2005; *Compania Minera Caopas, 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 reduce gypsum imports in the future.

Wallboard exports increased by nearly 10% in 2010, totaling about 729,000 metric tons valued at \$129 million. Ninety-five percent of board exports went to Canada. Wallboard imports increased by 4% in 2010, totaling 244,000 t valued at \$32.4 million.

World Industry Structure

Global crude gypsum production in 2010 was estimated to be 147 Mt, representing a slight decrease compared with that of 2009, when production totaled 150 Mt (table 1). In 2010, 87 countries produced gypsum, 10 of which accounted for 74% of the total world production (table 8). An estimated 250 million metric tons per year of synthetic gypsum (mostly phosphogypsum) was generated worldwide (Roskill Information Services Ltd., 2009, p. 22). Much of the synthetic production, however, was disposed of rather than used. China was the leading producer of crude gypsum in 2010 with an estimated 47 Mt, followed by Iran with 13.0 Mt, Spain with 11.5 Mt, the United States with 8.8 Mt, Thailand with 8.5 Mt, Japan with 5.7 Mt, and Italy with 4.1 Mt. Although its crude gypsum reserves are substantial, the available Iranian crude production data predate the global recession, as well as several

years of international sanctions that intensified in 2006. These conditions degraded Iran's economy and were accompanied by a rise in both unemployment and inflation, which may have led to a decline in residential and commercial construction and a corresponding decrease in gypsum consumption (Fassihi, 2010). Furthermore, since 2009, most Iranian banks have been prohibited from extending loan assistance toward the purchase of property, which has likely further hampered residential construction, and with it, gypsum production (Guillaume and Sensenbrenner, 2011). Consequently, the available gypsum production data for Iran may not be accurate.

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 10% 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 products. World production may have been underestimated, because output by some foreign gypsum producers was used to manufacture products onsite, which may not have been 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 2008 (the last year worldwide end use was available), cement manufacture accounted for up to 60% of worldwide gypsum consumption, while plaster products, including wallboard, accounted for approximately 30% of all consumption (Roskill Information Services Ltd., 2009, p. 320, 330).

As a low-value, high-bulk commodity drawn from deposits widely distributed throughout the world, gypsum tended to be consumed within the many countries where 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 were significant exporters because of their large deposits proximate to wallboard markets in the United States. Compared to imports, little crude gypsum was exported from the United States (tables 1, 7).

Estimated world production capacity for gypsum wallboard in 2010 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.

World Review

Asia.—A significant increase in commercial and residential construction and infrastructure additions and improvements, coupled with a cultural shift toward the use of more gypsum-based products, resulted in a continuation of increased gypsum consumption. From 2002 through 2008, the production of crude gypsum in Asia has increased 2% faster than the rate of economic growth, as the acceptance and use of wallboard and plaster products has increased faster than the region's gross domestic product (GDP) (Roskill Information Services Ltd., 2009, p. 18). Yoshino

Gypsum Co. Ltd., which opened Japan's first plasterboard factory in 1921, owned 16 wallboard plants throughout Japan in 2010 with a combined production capacity of 486 million square meters per year (Global Gypsum Magazine, 2010c).

Europe.—Lafarge Group (France) reported increased sales of 10% in the second quarter of 2010, with higher volumes compensating for reduced prices (Global Gypsum Magazine, 2010d). With 77 gypsum plants in 30 countries and nearly 8,000 employees, Lafarge was the third ranked gypsum producer in the world in 2010 (Lafarge Group, 2011, p. 3). Saint-Gobain (France) announced plans to open new gypsum plants in Algeria, China, Egypt, and Russia, which will add to its Gypsum Activity unit that employed nearly 12,000 employees in 130 production facilities throughout the world in 2010 (Saint-Gobain Group, 2011, p. 7, 17). The privately owned and operated Knauf Group (Germany) operated 40 wallboard and 110 plaster and building materials plants in 49 countries in 2010. During that same period, Knauf was the second leading foreign investor in the Commonwealth of Independent States (CIS) countries with an estimated 7,500 employees throughout the CIS (Global Gypsum Magazine, 2010b).

Middle East.—Most countries in the Middle East consumed all domestically produced gypsum, with the exception of Iran, which annually exported more than 1 Mt (Roskill Information Services Ltd., 2009, p. 17).

South America.—In 2010, Lafarge and co-owner Etex Group, operated wallboard plants in Argentina, Brazil, Chile, and Colombia as well as plaster plants in Brazil and Chile (Lafarge, 2011, p. 36). Brazilian Gypsum, which represented 95% of Brazil's overall production, exported gypsum to markets in Angola, Aruba, France, India, Iraq, Italy, Jordan, Mercosul, Nicaragua, Portugal, Spain, the United Kingdom, the United States, and Venezuela (Brazilian Gypsum, 2010).

Australia.—Australian housing construction activity increased by 22% in 2010 to 169,000 new-home starts, which followed a 40-year low of 139,000 starts in 2009 (Housing Industry Association of Australia, 2011). Perhaps in response to the improved economic circumstances associated with residential construction, Boral Ltd., Australia's leading building and construction materials producer, invested \$80 million in its Australian plasterboard business. Revenue from Boral's Building Products division, which includes all of its gypsum-associated products, was up by 6% in 2010 to a total of \$1.2 billion (Boral Ltd., 2010, p. 8, 18).

Canada.—Canadian production of crude gypsum totaled 2.72 Mt, a 23% decline from the 3.54 Mt produced in 2009, which represented a 38% decline from that of 2008. About 1.98 Mt, or 73% of Canadian production, was exported to the United States. NuGyp, a new wallboard and plasters manufacturing technique developed by Innogyps, Inc., was named the 2010 best new product of the year by Global Gypsum, the industry's leading trade association, for significantly reducing water demand and energy costs associated with wallboard and special plasters production (Pro Publications, 2010).

China.—In 2010, Beijing New Building Materials (BNBM), the largest gypsum-board producer in Asia, operated 21 wallboard plants in China with an estimated annual production of 1 billion square meters (Global Gypsum Magazine, 2010b).

Lafarge planned to invest \$21 million in two new wallboard production facilities, each with a capacity of 15 million square meters, and each supplied with synthetic gypsum from the Chongqing Luohuang coal-fired powerplant (Global Gypsum Magazine, 2010e).

The issue of corrosive imported wallboard from China into the United States continued to be problematic. The U.S. Consumer Product Safety Commission received approximately 3,900 reports of possible corrosive wallboard from residents in 43 States, the District of Columbia, American Samoa, and Puerto Rico (U.S. Consumer Product Safety Commission, 2010). Sulfide gases emitted from the problematic drywall were suspected of damaging copper wiring and plumbing, while also raising human health concerns (Global Gypsum Magazine, 2010a). Following several years of complaints regarding corrosive wallboard imported from China, a pending class-action settlement was reached in a Louisiana Federal Court in 2011. The proposed agreement between approximately 5,000 affected homeowners, most of whom reside in Gulf Coast and southern United States, and Chinese wallboard manufacturer, Knauf Plasterboard Tianjin, could reach \$1 billion (Wotapka, 2011).

Mexico.—In 2010, gypsum production in Mexico was 3.56 Mt, a 38% decrease from that of 2009. About 1.14 Mt, or 32% of Mexico's 2010 crude gypsum production, was exported to the United States. In 2010, USG Mexico S.A. de C.V., the largest manufacturer of wallboard in Mexico, increased sales by \$9 million, or 6%, compared with those of 2009, despite a production decrease of 12%, the result of beneficial currency exchange rates (USG Corp., 2011, p. 34).

Outlook

U.S. demand for gypsum products was expected to increase during the next 2 to 3 years as housing starts are projected to rise (Irwin, 2011). Because the residential housing market is responsible for approximately 60% of the 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. Since 1959, the average number of annual housing starts, including multidwelling units, is 1.5 million per year (Zibel and Bater, 2011). Although annual housing starts of 1.8 million (and greater) were not sustainable during the pre-2008 recessionary years, neither were the 554,000 nor the 587,000 housing starts of 2009 and 2010, respectively (U.S. Census Bureau, 2011). As the surplus of residential real estate dwellings constructed before 2009 is drawn down, the Nation's annual population growth of 3 million new persons, alone, may necessitate an increase in residential construction within the near future (U.S. Census Bureau, 2008; Irwin, 2011; Zibel and Bater, 2011).

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 availability of synthetic gypsum. This increased use of synthetic gypsum could accelerate additional mine closings through 2020. 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 production facilities will continue in the United States. Forecasts indicate that demand for high calcium limestone, the primary component required to transform sulfur dioxide to synthetic gypsum in many FGD processes, could 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, 2008). Approximately 85% of FGD systems are wet scrubbers that use a limestone slurry to capture sulfur dioxide emissions (Industrial Minerals, 2009). 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 built 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 likely will close. As a response to increased public awareness, the gypsum industry may boost the recycling of scrap gypsum into its raw materials streams. The industry may also increase the use of ecolabels, such as the Scientific Certification System Green Cross, which certifies the presence of recycled and recovered content in each product.

Worldwide 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. Should the economic conditions in the United States more favorably affect the U.S. housing sector, and in turn increase the U.S. consumption of gypsum, Canadian gypsum production should likewise increase. Elsewhere, wallboard production capacity increases and the recognition in Central America, Europe, India, and South America of the convenience and economy of wallboard as a building material means that wallboard manufacturing may require increased gypsum production in future years.

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TABLE 1
SALIENT GYPSUM STATISTICS¹

(Thousand metric tons and thousand dollars)

	2006	2007	2008	2009	2010
United States:					
Crude:					
Production:					
Quantity	18,600	15,700	12,300	10,400	8,840
Value	107,000	95,000	91,200	77,400	60,900
Imports for consumption	11,400	9,390	7,330	4,220	3,330
Synthetic gypsum sales	8,670	8,370	9,660	8,120	10,700
Calcined:					
Production:					
Quantity	21,600	21,700	17,900	13,400 ^r	12,100
Value	716,000	768,000	674,000	478,000 ^r	360,000
Products sold, value	4,260,000	3,610,000	2,500,000	1,850,000	1,620,000
Exports, value	36,700	43,600	47,400	37,800	42,200
Imports for consumption, value	5,010	6,700	7,240	6,800	7,180
World, production	160,000	167,000 ^r	156,000 ^r	150,000 ^r	147,000 ^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	2009			2010		
	Active mines	Quantity (thousand metric tons)	Value (thousands)	Active mines	Quantity (thousand metric tons)	Value (thousands)
Arizona, Colorado, New Mexico	8	1,410	\$10,500	8	1,180	\$8,140
Nevada and Utah	7	1,460	10,900	7	1,270	8,720
Arkansas, Kentucky, Louisiana	4	670	4,990	4	547	3,770
California and Washington	6	1,310	9,740	6	850	5,860
Iowa and Indiana	10	1,780	13,300	10	1,540	10,600
Michigan and West Virginia	3	539	4,010	3	478	3,290
South Dakota and Wyoming	4	316	2,350	4	272	1,870
Kansas, Oklahoma, Texas	12	2,920	21,700	12	2,710	18,600
Total	54 ^r	10,400	77,400	54	8,840	60,900

^rRevised.

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	2009			2010		
	Active plants	Quantity (thousand metric tons)	Value (thousands)	Active plants	Quantity (thousand metric tons)	Value (thousands)
Alabama, Kentucky, Tennessee	4	1,040	\$37,400	4	988	\$29,300
Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming	10	2,240	80,200	10	2,040	60,600
Arkansas, Louisiana, Texas	9	1,810	65,000	9	1,690	50,100
California, Oregon, Washington	8	1,680	60,300	8	1,500	44,400
Florida, Georgia, North Carolina, South Carolina	7	1,610	57,600	7	1,470	43,600
Illinois, Indiana, Michigan	6	1,150	41,300	6	1,010	29,900
Iowa, Kansas, Oklahoma	7	1,440	51,600	7	1,330	39,500
Maryland, Pennsylvania, Virginia, West Virginia	7	1,380	49,600	7	1,180	34,900
New Hampshire, New Jersey, New York	4	986	35,300	4	918	27,200
Total	62 ^r	13,400 ^r	478,000 ^r	62	12,100	360,000

^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	2009		2010	
	Quantity	Value	Quantity	Value
Uncalcined:				
Portland cement	992	15,400	901	15,500
Agriculture and miscellaneous ²	352	19,500	375	19,600
Total	1,340	34,900	1,280	35,100
Calcined:				
Plasters	83	27,700	80	27,300
Prefabricated products ³	12,600	1,850,000	10,400	1,620,000
Total	12,700	1,880,000	10,400	1,640,000
Grand total	14,000	1,920,000	11,700	1,680,000

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	2009			2010		
	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	--	--	--	W	W	W
¹ / ₂ -inch	--	--	--	--	--	--
Other	29,900	27	\$4,020	--	--	--
Total	29,900	27	4,020	W	W	W
Veneer base	202,000	147	21,100	203,000	149	\$19,800
Sheathing	390,000	283	48,400	327,000	238	42,000
Regular gypsumboard:						
³ / ₈ -inch	467,000	270	46,100	414,000	147	25,900
¹ / ₂ -inch	8,360,000	5,360	817,000	8,790,000	4,290	640,000
⁵ / ₈ -inch	329,000	267	58,800	38,500	26	4,000
1-inch	58,600	51	7,940	38,000	35	5,490
Other ³	260,000	170	46,800	293,000	144	33,300
Total	9,470,000	6,120	977,000	9,570,000	4,640	708,000
Type X gypsumboard	6,550,000	4,860	561,000	5,560,000	4,190	619,000
Predecorated wallboard	58,700	43	18,800	60,200	44	18,800
⁵ / ₁₆ -inch mobile home board	202,000	119	23,700	104,000	62	13,600
Water- and moisture-resistant board	1,140,000	835	174,000	1,140,000	835	166,000
Other	213,000	187	26,900	224,000	200	27,500
Grand total	18,300,000	12,600	1,850,000	17,200,000	10,400	1,620,000

W Withheld to avoid disclosing company proprietary data. -- Zero.

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

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

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

TABLE 6
IMPORTS FOR CONSUMPTION OF CRUDE GYPSUM, BY COUNTRY¹

(Thousand metric tons and thousand dollars)

Country	2009		2010	
	Quantity	Value	Quantity	Value
Canada ²	2,720	38,500	1,980	26,000
Mexico	1,340	12,700	1,140	11,800
South Africa	--	--	8	951
Spain	164	1,640	198	2,940
Other	(3)	65	(3)	170
Total	4,220	52,900	3,330	41,800

-- Zero.

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

²Includes anhydrite.

³Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 7
U.S. GYPSUM AND GYPSUM PRODUCTS FOREIGN TRADE¹

(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:								
2009	156	16,000	155	37,800	665	120,000	50,200	224,000
2010	360	19,300	190	42,200	729	129,000	66,200	257,000
Imports for consumption:								
2009	4,220	52,900	15	6,800	236	38,500	30,300	128,000
2010	3,330	41,800	15	7,180	244	32,400	29,600	111,000

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	2006	2007	2008	2009	2010 ^e
Afghanistan ^c	2	2	2	2	2
Algeria	1,033	1,198	1,672	1,700	1,700 ³
Argentina	1,203	1,227	1,257	1,300	1,360
Armenia	44	55	46	45	45
Australia	4,265	3,896	3,500 ^e	3,500 ^e	3,500
Austria, gypsum and anhydrate	1,071	1,064	1,087	911 ^r	1,000
Azerbaijan	35	22	38 ^r	46 ^r	48 ³
Bhutan	160	189 ^r	248 ^r	248 ^r	250
Bolivia	1	4	4	2 ^r	1 ³
Bosnia and Herzegovina	132	154	150	74 ^r	80
Brazil ⁴	1,712	1,884 ^r	2,239 ^r	2,348 ^r	2,350 ^p
Bulgaria ⁴	216	234	210 ^{r,e}	190 ^{r,e}	190
Burma	69	75	82	98	81 ³
Canada ⁴	9,036	7,562	5,740	3,540	2,717 ³
Chile	845	773	774	724	725
China ^c	42,000	48,000	46,000	45,000	47,000
Colombia	186	200	200	190 ^e	200
Croatia	170	335	330 ^r	234 ^r	240
Cuba ^c	(5)	(5)	(5)	(5)	(5)
Cyprus ^e	250 ³	250	250	250	250
Czech Republic	16	66	35 ^e	13	5
Dominican Republic	161	146	185	175	175
Ecuador ^c	1 ³	2	1	1	1
Egypt ^{c,4}	2,000 ^e	3,007	2,381	2,500	2,400
El Salvador ^c	6	6	6	6	6
Eritrea ^c	1 ³	1	1	1	1
Ethiopia ⁴	39	30	33	33 ^e	33
France ^{c,4}	4,800	4,800	2,339 ³	2,300	2,300
Germany, marketable ⁴	1,771	1,898	2,112	1,898	1,822 ³
Greece ^{c,4}	500	500	500	500	500
Guatemala	227	495	127	19	50
Honduras ^c	6	6	6	6	6
Hungary ^{c,4}	30	26	26	24 ^r	24
India ^c	2,450	2,500	2,550	2,600	2,650
Indonesia ^c	6	6	6	6	6
Iran ^{c,6}	12,000	12,000	12,000	13,000	13,000
Ireland ^c	450	450	450	450	450
Israel	111	83	10	9 ^r	10
Italy	2,860	5,459	4,139	4,130 ^e	4,130
Jamaica	364	228	238	230 ^e	230
Japan	5,796	5,850	5,800 ^e	5,750	5,700
Jordan	334	288	300 ^e	300 ^e	300
Kenya ⁴	9	10	10	10 ^e	10
Laos ^c	775 ³	775	775	775	775
Latvia ^c	230 ³	230	230	230	230
Lebanon ^c	70 ^r	80 ^r	85 ^r	100 ^r	105
Libya ^c	200	240	250	250	250
Luxembourg ^{c,4}	(5)	(5)	(5)	(5)	(5)

See footnotes at end of table.

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

(Thousand metric tons)

Country	2006	2007	2008	2009	2010 ^e
Macedonia	268	256	242	155	160
Mauritania	45	49	44	37 ^r	45
Mexico ⁴	6,076	6,080 ^e	5,135	5,757	3,560 ³
Moldova	186	312	701 ^r	164 ^r	164
Mongolia ^e	26	NA	NA	NA	NA
Morocco ^e	600	600	600	600	600
Nicaragua ^{e,4}	42 ³	40	40	40	40
Niger	13	5	9	9 ^e	9
Nigeria ^e	169	579	300	300 ^e	350
Oman	254 ^r	183 ^r	349 ^r	254 ^r	395 ³
Pakistan	650	703 ^r	700 ^r	650	600
Paraguay ^e	5	5	5	5	5
Peru	151	335	335 ^e	355	335
Poland ⁴	1,353	1,492	1,481 ^r	1,299 ^r	1,300
Portugal ^{e,4}	400 ³	400	300	300	300
Romania	615	707	885 ^r	800 ^e	600
Russia ^e	2,600	3,000	3,600	2,900 ³	2,900
Saudi Arabia ^e	2,101 ³	2,100	2,300	2,100	2,100
Serbia ^e	45	45	45	45	45
Slovakia ⁴	126	151	152	131 ^r	135
South Africa	554	627	571	598	517 ³
Spain ^{e,4}	11,500 ³	11,500	11,500	11,500	11,500
Sudan ⁴	7 ^e	8	13 ^r	30 ^{r,e}	30
Switzerland ^e	250	250	250	250	25
Syria	444	448	573	403	450
Tajikistan ^e	9 ³	9	9	26 ^r	15
Tanzania ⁴	33	53	56 ^r	8 ^r	30
Thailand	8,355	8,643 ^r	8,500 ^e	8,500 ^e	8,500
Tunisia ^e	151	157	177 ^r	360 ^r	360
Turkey	4,370	3,241	3,000 ^e	3,100 ^e	3,200
Turkmenistan ^e	100	100	100	100	100
Uganda ^e	(5) ³	(5)	(5)	(5)	(5)
Ukraine	376	742	1,158	711 ^r	710
United Arab Emirates ^e	130	150	200	200	150
United Kingdom ^{e,4}	1,700 ³	1,700	1,700	1,700	1,700
United States ⁷	18,600	15,700	12,300	10,400	8,840 ³
Uruguay ^e	5	5	5	5	5
Venezuela	7 ³	7	7	7	7
Yemen	44	45	50 ^e	50 ^e	65
Total	160,000	167,000 ^r	156,000 ^r	150,000 ^r	147,000

^eEstimated. ^pPreliminary. ^rRevised. NA Not available.

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 31, 2011.

³Reported figure.

⁴Includes anhydrite.

⁵Less than ½ unit.

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

⁷Excludes byproduct gypsum.