



# 2019 Minerals Yearbook

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## GYPSUM [ADVANCE RELEASE]

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# GYPSUM

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In 2019, the United States production of crude mined gypsum equaled 21.2 million metric tons (Mt) with a value of \$183 million (tables 1, 7). That represented a slight increase in tonnage and a 5% increase in value from the 2018 production of 21.1 Mt valued at \$174 million. The United States was the world's leading producer of mined crude gypsum (21.2 Mt), followed by Iran (16 Mt, estimated) and China (15.5 Mt, estimated) (table 7). The United States was also the world's leading consumer of mined crude gypsum; apparent consumption of all types of gypsum, including mined crude, synthetic, and imported, was 41.7 Mt, a 3% decrease from 42.9 Mt in 2018. Calcined gypsum production remained essentially unchanged at 17.5 Mt in 2019 compared with that in 2018 (table 1).

Sales of synthetic gypsum decreased by 13% to 14.4 Mt in 2019 (table 1). Coal-burning powerplants in the United States are required to operate sulfur dioxide scrubbing systems, which results in the precipitation of large quantities of byproduct gypsum. Because byproduct gypsum was available, often at a substantially lower cost than its mined counterpart, a number of wallboard production facilities have been constructed adjacent to coal-fired powerplants. In 2019, an estimated 40% of the synthetic gypsum produced in the United States was neither sold nor used and in most cases was discarded.

## Legislation and Government Programs

Several million tons of gypsum waste are generated every year during building demolition, wallboard installation, and wallboard manufacturing. Construction costs are lower when full pieces of uncut wallboard are used rather than multiple, smaller remnants. As a result, an estimated 10% to 12% of the wallboard used in new construction and renovation is discarded as scrap. Only a small part of that waste is recycled. The most recent legislative action concerning the disposal of gypsum was in 2010 when the Massachusetts Department of Energy and Environmental Affairs banned the disposal of clean wallboard from State waste disposal facilities (Massachusetts Department of Energy and Environmental Affairs, 2020). To date, no other State has instituted a similar regulation that addresses wallboard disposal. As landfill space becomes scarcer, recycling is expected to increase. In addition to recycling scrap in wallboard plants, wallboard scrap also may be ground and used as a soil conditioner.

Wallboard manufacturers and the construction industry have been exploring ways to return scrap and waste wallboard to plants for recycling. Other potential markets for recycled gypsum include athletic-field markings, cement production, grease absorption, sludge drying, stucco additive, and water treatment. Until costs decline and (or) legislation associated with the disposal of scrap gypsum in landfills becomes more

restrictive, recycling likely will continue to remain a low priority within the industry.

Imports of corrosive wallboard from China into the United States, a contentious issue since 2005, was brought to a legal conclusion in 2019. A \$248 million class action settlement was reached between Taishan Gypsum Co., Ltd. and thousands of U.S. homeowners affected by wallboard produced by Taishan Gypsum (McGill, 2019). By yearend 2019, the U.S. Consumer Product Safety Commission had received 4,051 reports of possible corrosive wallboard from residents in 44 States, the District of Columbia, American Samoa, and Puerto Rico. Most complaints were filed for homes constructed during 2006 and 2007 (U.S. Consumer Product Safety Commission, 2020). Sulfide gases emitted from the corrosive drywall were suspected of damaging copper wiring and plumbing and also posed concerns for human health (Global Gypsum Magazine, 2010a).

## Production

Industry data for gypsum were collected by the U.S. Geological Survey (USGS) from semiannual and annual surveys of gypsum operations and from quarterly data provided by the Gypsum Association. In 2019, the USGS annual survey canvassed 60 gypsum operations that accounted for all known domestic output of crude and byproduct gypsum. Data were available for all operations through this survey, the Gypsum Association, the American Coal Ash Association, State agencies, and Federal agencies. Of the 60 operations, 9 did not respond to the survey, and their respective production levels were estimated based on prior reported production levels in conjunction with employment records published by the Mine Safety and Health Administration.

The United States was the world's leading producer of crude gypsum in 2019, with 21.2 Mt of production, accounting for an estimated 14% of global output (table 7). The United States was also the leading producer of crude gypsum in 2018, accounting for an estimated 14% of global output. In 2019, crude gypsum in the United States was produced at 51 mines in 16 States (table 2). Because reporting is nationally aggregated by several large gypsum producers with locations in multiple States, the order of production by State is not known.

The U.S. gypsum industry primarily consisted of a few large, vertically integrated companies that mined gypsum and manufactured wallboard, plaster, and other gypsum products. Companies with the highest production of crude gypsum were USG Corp. with nine mines, National Gypsum Co. with six mines, Saint-Gobain S.A. with four mines, American Gypsum Co. LLC with three mines, Georgia-Pacific LLC with three mines, and PABCO Gypsum with one mine. In 2019, these six companies produced an estimated 40% of U.S. crude gypsum.

Gypsum Resources Materials, LLC, the operator of the Blue Diamond gypsum mine near Las Vegas, NV, filed for Chapter 11 bankruptcy protection in May 2019 (Johnson, 2019). Reasons for the bankruptcy included mining disruptions owing to weather and equipment issues and a delayed residential development project (Global Gypsum Magazine, 2019).

The Bureau of Land Management released an environmental analysis for a proposed USG mine expansion project in Imperial County, CA, near the town of Plaster City. If approved, the company would invest more than \$110 million in the local economy and create 140 new jobs (Bureau of Land Management, 2019). The Plaster City gypsum mine was opened by the Pacific Portland Cement Co. in 1920 and purchased by USG in 1945. Additionally, USG operated a large wallboard production plant with an annual capacity of more than 1 billion square feet at the site (USG Corp., 1999).

Continental Building Products Inc., headquartered in Herndon, VA, announced that its acquisition by Saint-Gobain, a multinational corporation founded in 1665 and based in France, was planned to be complete by 2020 at a price of \$1.4 billion (Saint-Gobain S.A., 2019). At the time of the proposed merger, Continental Building Products, a company that made building products, including wallboard and plaster products, employed 645 persons with a total 2018 annual revenue of \$510 million (Business Wire, 2019).

In 2019, domestic output of calcined gypsum remained essentially unchanged compared with the revised total of 17.5 Mt valued at \$618 million in 2018 (table 1). The process of calcining gypsum involves heat, which removes a portion of the molecular water found within crude gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ). Calcined gypsum, or hemihydrate ( $\text{CaSO}_4 \cdot 0.5 \text{H}_2\text{O}$ ), can then be rehydrated to form a variety of plaster-based products, including wallboard.

In addition to calcined and crude gypsum production, synthetic gypsum was generated as a byproduct of various industrial processes. The primary source of synthetic gypsum was flue gas desulfurization (FGD) systems at coal-fired powerplants. Smaller quantities of synthetic gypsum were derived as byproducts of chemical processes such as acid neutralization, citric acid production, sugar production from sugar beets, and titanium dioxide production. Synthetic gypsum was used as a substitute for crude gypsum, principally for wallboard manufacturing, cement production, and agricultural purposes, in descending order of tonnage.

Approximately 400 synthetic gypsum producers synthesized an estimated 24 Mt of FGD gypsum in 2019. Of the total synthetic gypsum produced, an estimated 14.4 Mt was sold or used in 2019, with a total estimated value of \$72 million. Coal-fired powerplants were surveyed for their respective synthetic gypsum production levels by the American Coal Ash Association. Those data show that an estimated 42% of synthetic gypsum produced was neither sold nor used and was discarded in most cases (American Coal Ash Association, 2020).

In 2019, gypsum-derived products, including agricultural products, cement, plasters, and wallboard, totaled 42.7 Mt with a value of \$5.20 billion. This represented a slight increase in tonnage and a 6% increase in value compared with the 42.5 Mt produced in 2018 valued at \$4.90 billion (table 3).

During 2019, seven companies manufactured gypsum wallboard products in the United States. Approximately 2.34 billion square meters (25.2 billion square feet) of wallboard products with a value of \$3.52 billion were shipped, which represented a 6% increase in quantity and an 8% increase in value compared with that in 2018 (table 4).

## Consumption

In 2019, U.S. apparent consumption of gypsum, which is calculated by adding natural crude gypsum, synthetic gypsum sales, and imports, then subtracting domestic exports, was 41.7 Mt, 3% less than that in 2018. Domestic sources (mined crude plus an estimated 14.4 Mt of synthetic gypsum sales) met approximately 85% of domestic consumption requirements; imports, totaling 6.14 Mt, satisfied the remaining need (tables 1, 5). Sales of synthetic gypsum were estimated to be 13% less than those in 2018 (table 1). Although the consumption of synthetic gypsum was thought to have declined in 2019, it continued to be used in large quantities at many wallboard plants throughout the United States. This widespread use of synthetic gypsum was based upon its ready availability in many parts of the country, coupled with its lower cost compared with that of mined crude gypsum. Although decreases in synthetic gypsum production have taken place and may continue to take place, the use of synthetic gypsum by the wallboard industry is likely to continue.

Gypsum products were categorized as either calcined or uncalcined (table 3). Calcined gypsum is produced by heating powdered natural or synthetic gypsum to approximately 350 degrees Fahrenheit ( $^{\circ}\text{F}$ ), which partially dehydrates the gypsum to form a hemihydrate base needed to manufacture a variety of gypsum products, including plaster and wallboard. Calcined gypsum was produced domestically from mined crude and synthetic gypsum to manufacture wallboard and plaster products. Uncalcined gypsum was used to produce masonry and portland cement, and in agriculture. Miscellaneous uses, such as athletic field markings, accounted for less than 1% of consumption.

In 2019, more than 99% of calcined gypsum was estimated to have been used in the production of plaster and prefabricated products, much of which consisted of wallboard (table 3). Owing to an estimated underreporting in specific end-use calcined gypsum products, the following percentages were based on reported calcined gypsum board products. Type X gypsum board, so named because of extra fire retardation qualities, consumed 44%, by weight, of calcined gypsum. One-half-inch wallboard accounted for 39% of calcined gypsum consumption. Water- and moisture-resistant board, typically used in bathroom and kitchen walls, accounted for 12% of calcined gypsum. Other wallboard, including mobile-home board, predecorated wallboard, sheathing, and veneer base constituted most of the balance (table 4).

Uncalcined gypsum consumption in the United States decreased slightly to an estimated 25.2 Mt in 2019 from 25.6 Mt in 2018 (table 3). About 4.40 Mt, or 17%, was consumed in portland and masonry cement production. Gypsum is added to cement to retard its setting time and accounts for

3% to 7%, by weight, of cement output (van Oss, 2005, p. 8; Roskill Information Services Ltd., 2009, p. 320). Most of the remainder of the uncalcined gypsum consumed, 20.8 Mt, was used for agricultural purposes, unchanged from that in 2018. Finely ground gypsum rock was used in agriculture and other industries to neutralize acidic soils, improve soil permeability, add nutrients, stabilize slopes, and provide catalytic support for maximum fertilizer benefits. Large quantities of uncalcined gypsum also were used by the oil and gas industry as a road base as well as ground cover for rig platforms (Layden, 2014). Small quantities of high-purity gypsum also were used in a wide range of industrial applications, including the production of food, glass, paper, and pharmaceuticals.

## Prices

In 2019, the average U.S. unit values (free on board, mine or plant) were estimated to be \$8.62 per metric ton for crude gypsum, a 5% increase from that in 2018, and \$35 per metric ton for calcined gypsum, a 10% increase from that in 2018 (table 1). The average unit value for prefabricated products, which includes wallboard, reported by domestic producers during the year was \$241 per metric ton, a slight increase from that in 2018 (tables 3, 4). During 2019, the combined value of prefabricated gypsum products, which includes wallboard, increased by 8% from that in 2018 (table 4).

The average unit value of uncalcined gypsum used primarily for agricultural purposes was estimated to be \$44 per metric ton, an increase of 10% from that in 2018, and that used in cement production was \$19 per metric ton, a 4% increase from that in 2018 (table 3).

## Foreign Trade

The United States imported crude gypsum from 15 countries and localities and exported it to 63 countries and localities; 67% of total exports went to Canada. Imports of crude gypsum in 2019 increased by 18% from those in 2018 and accounted for 15% of apparent consumption (table 1). Canada, Mexico, and Spain accounted for more than 94% of imported gypsum (table 5). The majority of imports from Canada went to east coast plants and those from Mexico went to the west coast. Most of the crude gypsum imported by the United States from Mexico was produced by *Compañía Minera Caopas, S.A. de C.V.* and *Compañía Occidental Mexicana, S.A. de C.V.* in Baja California Sur, both of which operated mines on the Baja California Peninsula (*Compañía Occidental Mexicana, S.A. de C.V.*, 2020; Secretaría de Economía, 2020). Almost all gypsum imported from Canada came from Nova Scotia.

Wallboard exports decreased by 12% in 2019, totaling 502,000 metric tons (t) valued at \$90.6 million, of which more than 92% went to Canada. Wallboard imports, almost all of which originated from Canada and Mexico, increased by 5% in 2019 to 480,000 t valued at \$116 million (table 6).

## World Review

Global crude gypsum production in 2019 was estimated to be 148 Mt, a slight decrease from that in 2018 (table 1, 7). In 2019, 79 countries produced gypsum, with the 10 leading producers

accounting for 70% of total world production (table 7). The United States was the leading producer of crude gypsum in 2019 with 21.2 Mt, followed by, in decreasing order of estimated tonnage, Iran with 16 Mt, China with 15.5 Mt, Turkey with 10 Mt, Thailand with 9.8 Mt (reported), Oman with 9.1 Mt, Spain with 7.0 Mt (reported), Russia with 5.5 Mt, Mexico with 5.4 Mt, and Japan with 4.3 Mt. The estimated gypsum production in Iran of 16 Mt in 2019 was based on historical production information that may not fully account for more than 20 years of double-digit inflation, unemployment as high as 10%, nor the increased cost of land and housing in urban areas, all of which may have limited the actual production of gypsum (Esmacili, 2008; Khajehpour, 2013). Despite those circumstances, the Iranian economy expanded between 2016 and 2018 at approximately 10% per year, likely boosting the domestic housing sector and leading to a corresponding increase in gypsum production (Salehi-Isfahani, 2018). That expansion, in turn, was likely brought to a halt in 2019 with the reimposition of U.S. economic sanctions (Wong, 2019; World Bank Group, The, 2020). Determining an accurate gypsum production level in Iran remains problematic.

Production in North America accounted for an estimated 20% of total global 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 was in the manufacture of cement and concrete. Cement manufacture accounted for approximately 50% of worldwide gypsum consumption, and plaster products, including wallboard, accounted for approximately 30% of all consumption.

As a low-value, high-bulk mineral commodity mined from deposits widely distributed throughout the world, gypsum tended to be used 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 their large deposits were near wallboard markets in the United States.

Estimated world production capacity for gypsum wallboard in 2019 exceeded 17 billion square meters per year (183 billion square feet per year) at more than 250 plants worldwide.

**Australia.**—Australia's estimated gypsum production was 1.4 Mt in 2019 (table 7). Boral Ltd., Australia's leading producer and supplier of gypsum-based wall and ceiling systems and parent company of USG Boral Building Products Pty Ltd., produced an after-tax profit of \$311 million in fiscal year 2019, a decrease of 7% from that in fiscal year 2018. The decline was attributed to an underperformance in the housing sector in Canada and the United States, a decline in the global brick marketplace, and several Australian quarry upgrades (Boral

Ltd., 2019, p. 6–7). Boral and Knauf, the owner of USG, agreed to form an expanded joint venture in Asia, which included a return to Boral's 100% ownership of USG Boral Australia and New Zealand (Boral Ltd., 2019, p. 6).

**Canada.**—Canada produced an estimated 3.0 Mt of crude gypsum in 2019 (table 7). About 1.73 Mt, or 58% of production, was exported to the United States. In 2019, Red Moon Resources Inc., owner of the Ace gypsum mine in western Newfoundland, produced an estimated 150,000 t of crude gypsum with operations commencing in May (Olivero, 2019). The Ace Mine was expected to produce about 350,000 metric tons per year for approximately 10 years (Global Gypsum Magazine, 2018).

**China.**—In 2019, Beijing New Building Materials PLC (BNBM) and Taishan Gypsum, both owned by the China National Building Material Co., reported a total gypsum wallboard manufacturing capacity of 2.47 billion square meters per year (25.6 billion square feet per year). The majority of gypsum used by BNBM was thought to be from synthetic gypsum sources. In 2019, BNBM's gypsum board operations produced 1.97 billion square meters (21.2 billion square feet) of wallboard, an increase of 5% from the 1.87 billion square meters (20.1 billion square feet) manufactured in 2018 (China National Building Material Co., 2020). From 2006 through 2013, China's wallboard production increased at an annual rate of 17%, with 2.7 billion square meters of wallboard manufactured in 2013 (Tiwari, 2014). Wallboard was a standard building material in commercial construction for non-load-bearing walls and ceilings in China, with an estimated 80% of all domestically consumed wallboard used in commercial construction (Global Gypsum Magazine, 2011).

**Japan.**—Yoshino Gypsum Co., Ltd., which opened Japan's first wallboard factory in 1921, was the leading wallboard producer with 14 wallboard plants and 5 plaster plants located throughout Japan. The company's combined capacity of 350 million square meters per year of its Tiger Board product accounted for approximately 70% of Japan's total wallboard output (Global Gypsum Magazine, 2012; Yoshino Gypsum Co., Ltd., 2020). With few crude gypsum mining resources, Japan stopped mining gypsum in 1976 and has relied on synthetic, recycled, and imported gypsum since then to meet its domestic demand (Pressler, 1984; Global Gypsum Magazine, 2010b).

**Mexico.**—In 2019, Mexico produced an estimated 5.4 Mt of gypsum, unchanged from that in 2018 (table 7). About 1.73 Mt, an estimated 32% of Mexico's 2019 crude gypsum production, was exported to the United States. In 2019, USG Mexico, S.A. de C.V., the leading manufacturer of wallboard in Mexico, operated five mining and manufacturing facilities (USG Mexico, S.A. de C.V., 2020). The largest known gypsum (selenite) crystals in the world, up to 12 meters (39 feet) in length, were discovered at the Naica Mine in Chihuahua (Bressan, 2018).

## Outlook

The average sales price for U.S. residential new homes was essentially unchanged nationwide in 2019 from that in 2018 and 2018 was essentially unchanged from that in 2017 (U.S. Census Bureau, 2020c). Flattened sales prices, coupled with historically low mortgage interest rates, likely contributed

to the sustained sales activities within the housing sector in 2019 and, by extension, the wallboard market (Federal Home Loan Mortgage Corp., 2020). 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, an increase in housing starts has been closely paired with an increase in gypsum consumption. Likewise, during periods of economic recession, when housing starts often precipitously declined, gypsum consumption also decreased.

The average number of housing starts from 1959 through 2019, including multidwelling units, was 1.43 million per year. Housing starts averaged about 1.8 million per year during the 5 years preceding the recessionary years that began in 2007. Housing starts in 2018 and 2019 were 1.25 million and 1.29 million, respectively (U.S. Census Bureau, 2020b). As the surplus of residential real estate constructed before 2009 is drawn down, the Nation's annual population growth of more than 3,000,000 people may necessitate an increase in residential construction in the near future (Deloitte Insights, 2015; Reyes, 2015; Passy, 2019; U.S. Census Bureau, 2020a).

The future of synthetic gypsum, following more than 20 years of large annual growth rates, may be beginning to slow as significant supplies of comparatively less expensive and cleaner burning natural gas compete with coal in the generation of electric power. The increased production and consumption of domestic shale gas could continue to lead to a corresponding decrease in coal consumption and, with it, a decrease in the production of synthetic gypsum. Natural gas (dry) production in 2019 was 963 billion cubic meters (34.0 trillion cubic feet), which was 10% more than that in 2018 (U.S. Energy Information Administration, 2020). Coal production decreased by 6.6% in 2019 from that in 2018 (U.S. Energy Information Administration, 2019).

In the long term, as disposal areas for excess synthetic gypsum reach capacity and the opening of new disposal sites becomes increasingly difficult, power companies may continue the trend of converting electric generation plants to operate on natural gas, especially if shale gas supplies continue to offer an economically attractive alternative to coal. Because the retrofitting of coal-fired powerplants with desulfurization systems has been accomplished for most plants and less expensive natural gas is available for electrical generation, FGD gypsum production may stabilize. The changeover from using crude gypsum for wallboard production to FGD gypsum likely will be limited to FGD plants within close proximity to wallboard production facilities or to new wallboard plants that would be constructed adjacent to existing FGD facilities.

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 new construction growth, which are the areas of highest consumption. Older and less efficient crude-gypsum-fed plants could become less competitive, but could see a revival if lesser quantities of FGD gypsum are produced. In response to increased public awareness, the gypsum industry

may boost the recycling of scrap gypsum in its raw materials streams. The industry may also increase the use of labels, such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program, which certifies varying levels of ecologically conscious building practices (U.S. Green Building Council, undated).

Industry trends indicate significant developments abroad in the coming decade. The pace and magnitude of wallboard plant construction in Asia, particularly in China, India, and Thailand, suggest that the continent, with billions of potential consumers, will likely 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, domestic consumption of gypsum, Canada's gypsum production could increase. Elsewhere, wallboard production capacity growth and the recognition of the convenience and economy of wallboard as a building material in Central America, Europe, and South America means that wallboard manufacturing may require increased gypsum production in the future. A decline in national and global economic conditions, however, could hamper such growth.

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

(Thousand metric tons and thousand dollars)

	2015	2016	2017	2018	2019
United States:					
Crude:					
Production:					
Quantity <sup>2</sup>	18,800 <sup>r</sup>	19,800 <sup>r</sup>	20,700	21,100	21,200
Value	146,000 <sup>r</sup>	158,000 <sup>r</sup>	155,000	174,000	183,000
Imports for consumption	4,030	4,340	4,800	5,210 <sup>r</sup>	6,140
Synthetic gypsum sales <sup>3</sup>	15,500	16,700	20,700 <sup>r</sup>	16,600 <sup>r</sup>	14,400
Calcined:					
Production:					
Quantity	16,500	17,900	17,800	17,500 <sup>r</sup>	17,500
Value	462,000	537,000	534,000	560,000 <sup>r</sup>	618,000
Products sold, value <sup>4</sup>	3,190,000	3,270,000	3,340,000	3,270,000	3,520,000
Exports, value	41,700	36,800	39,700	42,200	44,400
Imports for consumption, value	7,210	15,300	7,790	8,410	9,270
World, production	145,000 <sup>r</sup>	144,000 <sup>r</sup>	144,000 <sup>r</sup>	150,000 <sup>r</sup>	148,000 <sup>c</sup>

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

<sup>1</sup>Table includes data available through September 18, 2020. Data are rounded to no more than three significant digits.

<sup>2</sup>Does not include byproduct gypsum.

<sup>3</sup>Source: The majority of these data originate from the American Coal Ash Association.

<sup>4</sup>Prefabricated gypsum products.

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

State	2018			2019		
	Active mines	Quantity (thousand metric tons)	Value (thousands)	Active mines	Quantity (thousand metric tons)	Value (thousands)
Arizona, Colorado, New Mexico	6	2,320	\$23,900	6	2,410	\$20,700
Nevada and Utah	9	4,410	44,100	9	4,960	42,700
Arkansas and Louisiana	2	W	W	2	W	W
California	5	1,020	10,100	4	1,040	8,940
Iowa and Indiana	5	W	W	5	W	W
Michigan	2	W	W	2	W	W
South Dakota and Wyoming	3	W	W	3	W	W
Kansas, Oklahoma, Texas	20	8,530	83,300 <sup>r</sup>	20	8,120	69,800
Total	52	21,100	174,000	51	21,200	183,000

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>1</sup>Table includes data available through September 18, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.



TABLE 3  
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	2018		2019	
	Quantity	Value	Quantity	Value
<b>Uncalcined:</b>				
Portland and masonry cement	4,800 <sup>e</sup>	86,400	4,400 <sup>e</sup>	82,500
Agriculture and other <sup>2</sup>	20,800 <sup>e</sup>	832,000	20,800 <sup>e</sup>	917,000
Total	25,600 <sup>e</sup>	918,000	25,200 <sup>e</sup>	1,000,000
<b>Calcined:</b>				
Plaster	80	26,400	79 <sup>e</sup>	26,100
Prefabricated gypsum products <sup>3</sup>	13,800	3,270,000	14,600 <sup>e</sup>	3,520,000
Other <sup>4</sup>	2,970 <sup>r</sup>	687,000 <sup>r</sup>	2,820	651,000
Total	16,900 <sup>r</sup>	3,980,000 <sup>r</sup>	17,500	4,200,000
Grand total	42,500 <sup>r</sup>	4,900,000 <sup>r</sup>	42,700	5,200,000

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

<sup>1</sup>Table includes data available through September 18, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes gypsum used for infrastructure purposes, unspecified uses, and estimated underreported amount.

<sup>3</sup>Includes weight of paper, metal, or other materials.

<sup>4</sup>Estimated underreported amount.

TABLE 4  
PREFABRICATED GYPSUM PRODUCTS SOLD OR USED IN THE UNITED STATES<sup>1</sup>

Product	2018			2019		
	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)
Veneer base	278,000	202	\$50,500	279,000	203	\$51,500
Sheathing	517,000	376	173,000	524,000	380	184,000
<b>Regular gypsum board:</b>						
<sup>3</sup> / <sub>8</sub> -inch	580,000	184	36,800	599,000	190	43,000
<sup>1</sup> / <sub>2</sub> -inch	11,600,000	5,270	1,110,000	12,500,000	5,660	1,250,000
<sup>5</sup> / <sub>8</sub> -inch	3,040	2	440	58,900	35	8,680
Total	12,200,000	5,460	1,140,000	13,100,000	5,880	1,300,000
Type X gypsum board	8,580,000	6,230	1,400,000	8,910,000	6,470	1,430,000
Water- and moisture-resistant board	2,150,000	1,560	500,000	2,320,000	1,690	558,000
Grand total	23,700,000	13,800	3,270,000	25,200,000	14,600	3,520,000

<sup>1</sup>Table includes data available through September 18, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

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

TABLE 5  
IMPORTS FOR CONSUMPTION OF CRUDE GYPSUM, BY COUNTRY OR LOCALITY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Country or locality	2018		2019	
	Quantity	Value	Quantity	Value
Canada <sup>2</sup>	1,390 <sup>r</sup>	19,200 <sup>r</sup>	1,730	34,400
Dominican Republic	8	105	6	210
Germany	(3)	369	1	212
Mexico	2,100	24,500	1,970	25,700
Morocco	(3)	72	28	709
Spain	1,620	29,700	2,100	30,900
Turkey	88	3,480	306	10,000
Other	1	248 <sup>r</sup>	2	167
Total	5,210 <sup>r</sup>	77,700 <sup>r</sup>	6,140	102,000

<sup>r</sup>Revised.

<sup>1</sup>Table includes data available through August 20, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes anhydrite.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. GYPSUM AND GYPSUM PRODUCTS FOREIGN TRADE<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>								
2018	36	15,500	118	42,200	572 <sup>r</sup>	101,000	85,300	244,000
2019	37	14,200	113	44,400	502	90,600	79,400	229,000
<b>Imports for consumption:</b>								
2018	5,210 <sup>r</sup>	77,700 <sup>r</sup>	22	8,410	457 <sup>r</sup>	119,000	40,800 <sup>r</sup>	246,000 <sup>r</sup>
2019	6,140	102,000	27	9,270	480	116,000	36,400	264,000

<sup>r</sup>Revised.

<sup>1</sup>Table includes data available through August 20, 2020. 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 7  
MINED GYPSUM: WORLD PRODUCTION, BY COUNTRY OR LOCALITY<sup>1</sup>

(Thousand metric tons)

Country or locality <sup>2</sup>	2015	2016	2017	2018	2019
Afghanistan	57 <sup>r</sup>	57 <sup>r</sup>	40	36 <sup>r</sup>	36 <sup>e</sup>
Albania	86 <sup>r</sup>	132 <sup>r</sup>	104	102 <sup>r</sup>	106
Algeria	1,770	2,200	2,500 <sup>e</sup>	2,500 <sup>e</sup>	2,500 <sup>e</sup>
Angola <sup>e</sup>	190	190	190	190	190
Argentina	1,315	1,558	1,276	774 <sup>r</sup>	770 <sup>e</sup>
Armenia	19	15	14	20 <sup>r</sup>	20 <sup>e</sup>
Australia	2,542	2,889	1,397	1,400 <sup>e</sup>	1,400 <sup>e</sup>
Austria	715	674	712 <sup>r</sup>	837 <sup>r</sup>	840 <sup>e</sup>
Azerbaijan	130	111	33	9 <sup>r</sup>	9 <sup>e</sup>
Belarus	43	63	68	64 <sup>r</sup>	68
Bhutan	389	318	328 <sup>r</sup>	461 <sup>r</sup>	460 <sup>e</sup>
Bolivia	1	1	-- <sup>r</sup>	1	1 <sup>e</sup>
Bosnia and Herzegovina	59	61	99	122 <sup>r</sup>	131
Brazil	3,162 <sup>r</sup>	2,674 <sup>r</sup>	3,000 <sup>r</sup>	3,000 <sup>r</sup>	3,000 <sup>e</sup>
Bulgaria	99	41	41 <sup>r</sup>	46 <sup>r,e</sup>	46 <sup>e</sup>
Burma	94 <sup>r</sup>	246 <sup>r</sup>	361 <sup>r</sup>	309 <sup>r</sup>	299
Canada	1,726 <sup>r</sup>	1,679	3,001	2,997 <sup>r</sup>	3,000 <sup>e</sup>
Chile, crude	860	934	1,157	909 <sup>r</sup>	910 <sup>e</sup>
China, natural <sup>3</sup>	16,300 <sup>4</sup>	12,190 <sup>r,4</sup>	11,740 <sup>r,4</sup>	15,500 <sup>e</sup>	15,500 <sup>e</sup>
Croatia	138	170	201	167 <sup>r</sup>	170 <sup>e</sup>
Cuba	91	74	85	100 <sup>r</sup>	100 <sup>e</sup>
Cyprus, crude	472	682 <sup>r</sup>	703	626 <sup>r</sup>	624
Czechia	11	10	7	8 <sup>r</sup>	8 <sup>e</sup>
Dominican Republic	240	140	110	130 <sup>r</sup>	130 <sup>e</sup>
Egypt <sup>5</sup>	744	1,000 <sup>e</sup>	1,000 <sup>e</sup>	1,000 <sup>e</sup>	1,000 <sup>e</sup>
Eritrea <sup>e</sup>	17 <sup>r</sup>	17 <sup>r</sup>	18 <sup>r</sup>	18 <sup>r</sup>	18
Ethiopia	290 <sup>e</sup>	81 <sup>r</sup>	85 <sup>r</sup>	253 <sup>r</sup>	250 <sup>e</sup>
France <sup>5</sup>	2,027	4,183	3,014	3,000 <sup>e</sup>	3,000 <sup>e</sup>
Georgia	40	53	86 <sup>r</sup>	81 <sup>r</sup>	62
Germany <sup>5</sup>	2,872 <sup>r</sup>	3,090	3,238	3,271 <sup>r</sup>	3,300 <sup>e</sup>
Greece	649	778	855 <sup>r</sup>	800 <sup>r</sup>	800 <sup>e</sup>
Guatemala	111	131	135 <sup>r</sup>	133 <sup>r</sup>	130 <sup>e</sup>
India <sup>e</sup>	2,640	2,700	2,700	2,700	2,700
Iran <sup>6</sup>	20,000	16,377	16,000 <sup>e</sup>	16,000 <sup>e</sup>	16,000 <sup>e</sup>
Iraq <sup>e</sup>	1,000	1,000	1,000	1,000	1,000
Ireland <sup>e</sup>	250	250	200 <sup>r</sup>	200	200
Israel	159	147	116	76 <sup>r</sup>	76 <sup>e</sup>
Italy	572	617	469 <sup>r</sup>	189 <sup>r</sup>	190 <sup>e</sup>
Jamaica	43	50	50 <sup>e</sup>	50 <sup>e</sup>	50 <sup>e</sup>
Japan	4,670	4,670	4,600 <sup>r,e</sup>	4,300 <sup>r,e</sup>	4,300 <sup>e</sup>
Jordan	228 <sup>e</sup>	252 <sup>r</sup>	241 <sup>r</sup>	250 <sup>e</sup>	260 <sup>e</sup>
Kazakhstan	82	137	133	121 <sup>r</sup>	120 <sup>e</sup>
Kenya <sup>e</sup>	6	6	6	6	6
Kyrgyzstan	40	40 <sup>e</sup>	40 <sup>e</sup>	42 <sup>e</sup>	42 <sup>e</sup>
Laos	990	469	463 <sup>r</sup>	619 <sup>r</sup>	620 <sup>e</sup>
Libya <sup>e</sup>	250 <sup>r</sup>	210 <sup>r</sup>	225 <sup>r</sup>	225 <sup>r</sup>	210
Mauritania	70 <sup>e</sup>	70 <sup>e</sup>	200	200 <sup>e</sup>	250 <sup>e</sup>
Mexico <sup>5</sup>	5,457	5,403	5,400 <sup>e</sup>	5,400 <sup>e</sup>	5,400 <sup>e</sup>
Moldova <sup>e</sup>	120	120	120	120	100
Nicaragua	50	42	67	70 <sup>r</sup>	70 <sup>e</sup>
Nigeria	35 <sup>r</sup>	25 <sup>r,e</sup>	17 <sup>r</sup>	39 <sup>r</sup>	39 <sup>e</sup>
Oman	6,049	7,934 <sup>r</sup>	8,665 <sup>r</sup>	9,086 <sup>r</sup>	9,100 <sup>e</sup>
Pakistan	1,660	1,998	2,178 <sup>r</sup>	2,679 <sup>r</sup>	1,670 <sup>e</sup>
Peru, crude	438	257 <sup>r</sup>	287	458 <sup>r</sup>	254
Poland <sup>5</sup>	1,018	1,035	1,108	1,042 <sup>r</sup>	1,040 <sup>e</sup>
Portugal	310	255	152	233 <sup>r</sup>	230 <sup>e</sup>
Qatar <sup>e</sup>	210	210	210	210	210
Romania	840	714	765 <sup>r</sup>	800 <sup>r</sup>	830
Russia	4,223	3,996	3,975 <sup>r</sup>	5,487 <sup>r</sup>	5,500 <sup>e</sup>

See footnotes at end of table.

TABLE 7—Continued  
MINED GYPSUM: WORLD PRODUCTION, BY COUNTRY OR LOCALITY<sup>1</sup>

(Thousand metric tons)

Country or locality <sup>2</sup>	2015	2016	2017	2018	2019
Saudi Arabia	2,780	3,000	3,150	3,307	3,300 <sup>e</sup>
Slovakia	67 <sup>r</sup>	53	46 <sup>r</sup>	46 <sup>r</sup>	46 <sup>e</sup>
South Africa	232	262	321	314 <sup>r</sup>	310 <sup>e</sup>
Spain <sup>e, 5</sup>	7,000	7,000	7,000	7,000	7,000
Sri Lanka	1	2	2	2	2
Sudan	180	355	333 <sup>r</sup>	226 <sup>r</sup>	230 <sup>e</sup>
Switzerland	320	340	330 <sup>r</sup>	456 <sup>r</sup>	460 <sup>e</sup>
Syria <sup>e</sup>	150	150	150	150	150
Tajikistan	9	9	9 <sup>r</sup>	10 <sup>r</sup>	10 <sup>e</sup>
Tanzania	239	214	124	241 <sup>r</sup>	240 <sup>e</sup>
Thailand <sup>5</sup>	12,143 <sup>r</sup>	11,747 <sup>r</sup>	10,647 <sup>r</sup>	11,197 <sup>r</sup>	9,788
Tunisia	900	850	850 <sup>e</sup>	900 <sup>e</sup>	900 <sup>e</sup>
Turkey	8,639	10,124	10,223	10,000 <sup>e</sup>	10,000 <sup>e</sup>
Turkmenistan <sup>e</sup>	110	110	110	110	110
Ukraine <sup>5</sup>	1,255	1,303	1,529	1,386 <sup>r</sup>	1,400 <sup>e</sup>
United Arab Emirates <sup>e</sup>	700	700	700	700	700
United Kingdom <sup>e</sup>	1,800	1,600	1,300	1,300	1,300
United States <sup>7</sup>	18,800 <sup>r</sup>	19,800 <sup>r</sup>	20,700	21,100	21,200
Uzbekistan	1,100 <sup>r, e</sup>	1,100 <sup>r</sup>	1,117 <sup>r</sup>	1,292 <sup>r</sup>	1,300 <sup>e</sup>
Yemen <sup>e</sup>	100	100	100	100	100
Total	145,000 <sup>r</sup>	144,000 <sup>r</sup>	144,000 <sup>r</sup>	150,000 <sup>r</sup>	148,000 <sup>e</sup>

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

<sup>1</sup>Table includes data available through September 18, 2020. All data are reported unless otherwise noted. 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>In addition to the countries and (or) localities listed, Colombia, El Salvador, Honduras, Latvia, Luxembourg, Mongolia, and Serbia may have produced gypsum, but available information was inadequate to make reliable estimates of output.

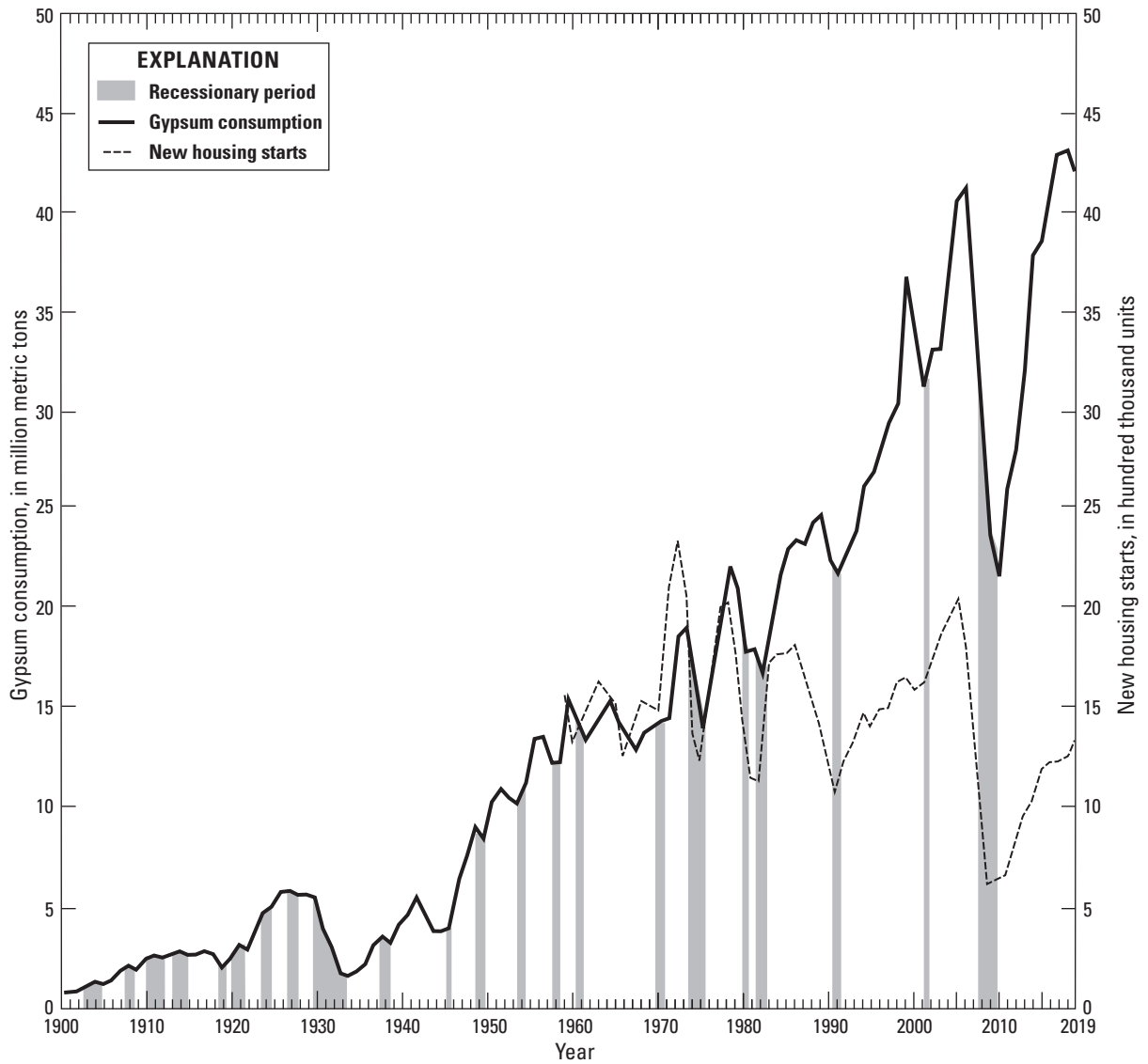
<sup>3</sup>Quantity includes reported crude gypsum and synthetic gypsum. Synthetic gypsum quantity is based on an estimated 70% utilization rate.

<sup>4</sup>Does not include synthetic gypsum.

<sup>5</sup>Includes anhydrite.

<sup>6</sup>Production is based on fiscal year, with a starting date of March 21 of the year shown.

<sup>7</sup>Does not include byproduct gypsum.



**Figure 1.** U.S. gypsum consumption and economic recessions from 1900 through 2019, and new residential building permits beginning in 1959.