

By Steven Ferry

Gypsum Wallboard Industry Going Out on a Strong Limb

Why are gypsum wallboard manufacturers like National Gypsum, the third largest producer in the United States, spending hundreds of millions of dollars to increase their capacity? National Gypsum alone is investing \$200 million to build two new plants, while expanding and modernizing its Tampa, Fla., facility for a total capacity increase of 1.7 billion square feet.

Even though the company owns eight mines and quarries that supply its 18 existing wallboard plants, National Gypsum has opted to make the wallboard at these new plants from synthetic gypsum, and therein lies another tale.

East of the Mississippi, there are essentially no gypsum deposits, which makes it doubly convenient that many coal-fired power stations in the United States are in the East. What's the connection?

According to John Glasscock, president of Synthetic Material in Cumberland City, Tenn., "Coal-burning power stations were mandated in the Clean Air Act signed by President Bush, to clean up their sulfur dioxide emissions. This is being done now in some plants by forcing the gases through a fine mist spray of water that traps the sulfites and then falls into large vats. FGD crystals (Fluegas Desulfurized or synthetic gypsum) then form as a sediment. FGD is chemically identical to natural gypsum, which itself is formed by water that has been confined and then saturated in minerals, forming gypsum deposits."

Synthetic gypsum comes out of the power station as a wet slurry. In most cases the power stations filter and de-water this slurry, although these processes are also being offered by companies such as Synthetic Material. Even though the filtering and drying processes add time and expense to the process, the advantage of synthetic over

natural gypsum is that it is already close to the size required for manufacturing. Natural gypsum has to be mined or quarried and then crushed and ground into a fine powder.

"Synthetic hasn't always been available," Glasscock continues. "Commercial grade gypsum requires not only coal with a high sulfur content (which it typically does not have), but a power station that uses the scrubbing process outlined above. Only about 20 power stations fit the bill in the United State."

National Gypsum is not alone in expanding manufacturing in the East. The three largest gypsum manufacturers in the country have been playing the same card. Georgia Pacific, the second-largest U.S. gypsum manufacturer, will be bringing its new plant in Wheatfield, Ind., on line in this year, next to a coal-fired power station. Georgia Pacific already has one plant

using 100 percent synthetic gypsum for its wallboard, in Savannah, Ga.

U.S. Gypsum Company, the king of the gypsum manufacturers, is spending more than half a billion dollars to build three new plants and modernize and expand two others. Two of these new plants, in Aliquippa, Pa., and Bridgeport, Ala., as well as one of the upgraded facilities in East Chicago, Ind., will use synthetic gypsum for 100 percent of their raw materials.

Smaller players, such as Temple Inland, have also been heading East. As Jim Rush, business unit manager for gypsum/fiber products puts it, "We're basically a regional producer, and our customers required that we expand our geographic coverage, which meant eastward. Well, there really aren't any sources of raw gypsum ore in the East. Most of it is brought in by ship. So we found a source of very pure, synthetic gypsum at the TVA power plant in Cumberland City, Tenn., and decided to build a plant right there. There's

enough synthetic gypsum being produced at the power plant, about 1.2 million tons per annum, to supply not only the Cumberland plant that is currently under construction, but our existing plant in West Memphis, Ark." Providing "recycled" building materials is, according to Rush, filling a demand that hasn't been quantified yet, but is definitely there and can only grow, especially as this is one recycled product that doesn't cost more than its non-recycled equivalent.

Another mid-size player, Celotex, is constructing a new facility in Kentucky that will also use synthetic gypsum.

By positioning new gypsum wallboard manufacturing facilities next to coal-fired power stations and redirecting their waste stream from the land fills, gypsum companies have a source of high-quality, easily obtainable gypsum, and have been able to better serve markets locally in the Eastern half of the country (until now, the East has traditionally been supplied by higher-priced gypsum rock from Canada).

Instead of the power stations having to pay for the disposal of their waste stream, they are now able to generate revenue from it. This is a very good example of industry using technology to the benefit of all, including the environment. With the exception of USG's new plant in Rainier, Ore., it is these new synthetic facilities that account for all the new plants being opened.

Trying to Keep Up with Demand

The availability and rise of synthetic gypsum is not the whole story behind the drive to increase capacity, obvious-

ly. Economics 101 applies. United States Gypsum Company has increased capacity by 8 percent over the last five years, while overall U.S. demand over the same time period has increased 30 percent. To better meet this demand, USG will be increasing capacity by a whopping 22 percent over the next five years. Their three new and upgraded synthetic plants open up markets and cut costs to some degree. But the cost of synthetic gypsum is on a par with the average price of mined or quarried gypsum. The use of synthetic gypsum, while being an environmental success story and a convenience in terms of manufacturing location, is not the driving force behind the trend to increase capacity. The fact is that gypsum itself, whether natural or synthetic, makes up less than 20 percent of the cost of manufacturing and bringing wallboard to the market.

So what is prompting this flurry of expansion and upgrades? Perhaps the fact that USG is also closing an older, less efficient plant in Virginia provides a clue. As Marty Duffy, USG's marketing/communications manager at USG points out, "We are undergoing a revitalization program by building three new wallboard plants and enhancing two existing plants. We will be replacing a rather sizable percentage of our existing wallboard capacity, much of which was built before 1955, with new, low-cost capacity. Our goal is to reduce manufacturing and distribution costs in order to strengthen our position as the industry's low-cost wallboard manufacturer and to better meet our customers' needs." A goal shared, no doubt, by all wallboard manufacturers, and driving to some extent the current upsurge in increasing efficiency and capacity.

More significant is the fact that no new wallboard plants have been built in the United States since 1990—there is only so much incremental increase a manufacturer can eke out of an existing plant.

Industry capacity on Jan. 1, 1998, stood at 26.93 billion square feet. Actual production was 25.48 square feet in 1997 and is estimated at 26 billion this year (see the chart on page 61). Bearing in mind that capacity figures are based on half-inch wallboard while production figures include everything from quarter-inch to one-inch wallboard, it is probably true to say that production is running at near capacity around the country.

Without new facilities coming on line, incremental increase has been forced on the industry until it could see a good reason to invest the millions of dollars needed for new plants. And that's where the industry finds itself today.

"The demand is as strong as I have seen it in 10 years," says Al Mueller, vice president of the manufactured products group at Pacific Coast. "The late 1980s saw strong demand outstripping capacity, with customers and projects actually waiting for material. That's the mode we are in right now and why we are doubling the capacity at our Las Vegas plant."

With residential housing starts over 1.5 million for the past year, it would seem that gypsum wallboard production closely parallels residential construction. This was certainly true in the past, but other factors have entered in over the last several years, such as houses with larger blueprints. In the mid-

1980s, houses averaged 1,700 square feet. That figure is up at 2,200 square feet today. Remodeling and renovation represent another growth area. Add to this trend the fact that custom-home builders are gravitating from half to 5/8-inch board for the more upscale homes, and there's an immediate 25 percent increase in need. Remodeling and renovation also includes not just the residential market but big-city commercial buildings, where office vacancy rates have been plummeting.

"There's an awful lot of wallboard in a 40-story office building that is being stripped down," adds Mueller. "This sub-element of the market has become a major force, with the rebounding of the office market, which hasn't received

much attention. New construction is near impossible in established cities, so the tendency has been to strip and modernize existing buildings—a trend that is even reaching the West Coast in places like San Francisco."

Second-Guessing the Crystal Ball

Rush of Temple Inland sees only good news in the near term: "This wonderful increase in demand comes from all areas of the gypsum customer segments. It's a combination of repair and remodeling, residential and commercial, with repair and remodeling continuing to take a larger and larger portion of the gypsum that is being made.

"We expect to see industry capacity increases of around 8 percent this year, and then probably another 11 percent in the year 2000. Even if housing drops off to 1.4 million next year, there are still the fairly strong commercial and repair and remodeling markets that will continue to drive a decent gypsum market."

Mike Simpson, president of Continental Gypsum concurs, adding that "resi-

dential is being fueled by a very favorable mortgage rate and healthy incomes so people can afford to make the mortgage payments. The U.S. construction business is alive and well." He has a caveat, though: "If we can work through what is happening with the various economies around the world without having a major recession, we will continue to enjoy a stability that is unusual for what is essentially a terribly cyclical industry. I am an optimist, and we will continue to increase production incrementally to match the increasing demand."

Mueller at Pacific Coast is of a similar frame of mind: "There's far too much volatility in the financial markets—what is happening in Asia and South America is translating into volatility in financial markets, which is not good for anyone's confidence level. But looking beyond that, the U.S. economy is pretty sound: reasonable growth, good employment, low inflation, low interest rates and a number of important sectors that are doing well, including construction, which is doing very well."

David House, president of American Gypsum, is not quite as upbeat. He


U.S. Capacity for 1/2" Wallboard

| Manufacturer | Number of wallboard facilities, number of mines/quarries | 1997 Production | 1998 Production (estimated) | Current Capacity | Increase in Capacity in Last Five ears | Increase in Capacity in Next Five ears | Use of Synthetic Gypsum |
|---|---|------------------------------|-----------------------------|------------------------------|---|--|--|
| US Gypsum Company | 27 (soon to be 30) wallboard facilities; 13 quarries and mines. | N/A | N/A | 9.5 billion sq. ft. | 8%, up from 8.9 billion | 22%, or another 2.2 billion sq. ft. with three new plants and two modernizations/expansions. Closing its Virginia plant. | 15% of production is from synthetic. Two of three new plants will use synthetic. |
| Georgia-Pacific | 20 (21 by 1999) wallboard facilities | 5.888 billion sq. ft. | 6 billion sq. ft. | 6.307 billion sq. ft. | Doubled through purchase of Domtar in 1996 | New plant near Chicago by 1999 with 400,000 sq. ft. | Small percentage, but new plant will be all synthetic. |
| National Gypsum Company | 19 (21 by 2003) wallboard facilities; 8 mines/quarries | N/A | N/A | N/A | Baltimore expansion in 1998 | 600 million sq. ft. with Pittsburgh plant in 2000; 400 million sq. ft. in Tampa expansion in 2000; 700 million sq. ft. in St. Louis in 2003. | 100% in Pittsburgh Tampa and St. Louis |
| Celotex | 4 wallboard facilities | N/A | N/A | N/A | N/A | New plant being constructed in Kentucky | New plant will use synthetic. |
| Temple-Inland Forest Products Corporation | 3 (4 by 1999) wallboard facilities; 1 mine | 1 billion sq. ft. | 1 billion sq. ft. | 1 billion sq. ft. | Incremental | Building new facility in Cumberland by 2000, with 80% increase to 1.8 billion sq. ft. | All use some synthetic, with new facility and one other using 100% synthetic. |
| American Gypsum | 3 wallboard facilities | 1.1 billion sq. ft. | 1.2 billion sq. ft. | 1.3 billion sq. ft. | 66% increase in 1996 (purchase of an existing plant) | 25% incremental increase | None |
| James Hardie Gypsum (ANZO) | 3 wallboard facilities | N/A | N/A | N/A | N/A | N/A | N/A |
| Pacific Coast Gypsum | 2 wallboard facilities | 750 million sq. ft. | 750 million sq. ft. | 750 million sq. ft. | None | 60% increase or 450 million sq. ft. through plant expansion in 1998-1999 | |
| Lafarge Corporation | 2 | N/A | N/A | 690 million sq. ft. | Bought GP's Buchanan, N.Y., and Wilmington, Del., facilities in 1996. | N/A | N/A |
| Continental Gypsum Company | 1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Republic Group Incorporated | 1 | 570 million sq. ft. | 560 million sq. ft. | 570 million sq. ft. | 20% | 10% | None |
| TOTAL | 85, but it is soon to be 92. | 25.48 billion sq. ft. | 26 billion sq. ft. | 26.93 billion sq. ft. | Incremental | Approximately 25% | — |

sees the trend peaking, supported by baby-boomers reaching their peak spending years, “I am not sure we will be able to continue growing at the rate we have been.” One thing that bothers House is whether, when the demand does drop, the industry players will try to force their capacity into the system by cannibalizing the market share of other manufacturers, thereby causing prices to plunge. It has happened that way before.

Executive vice president and chief operating officer of Celotex, Tim Pariso, is confident enough to increase production capacity because “we believe that the market demand is there to support the increased production and because the technology has improved and will obsolete some of the older facilities. The availability of by-product gypsum closer to markets and newer plants that can produce high-quality product on high-speed lines means greater efficien-

cies. The demand is not just being fueled by increased production in residential and commercial, but because wallboard usage has increased per unit.”

All in all, while no one in the industry has a crystal ball, the signs are strong enough in the U.S. economy, and confidence high enough in the world markets, for key manufacturers to be willing to risk building new plants. The fact that all the new plants are using synthetic gypsum for their raw material points to a potential cutting of costs in moving product to market. For the consumer, this is all good news. 

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