





GEARING UP

NORTH AMERICAN MILL EXPANSIONS AND CONVERSIONS COULD PROVIDE A MUCH-NEEDED HOME FOR RECOVERED PAPER GRADES THAT ARE NO LONGER MOVING TO CHINA—IF SUFFICIENT DEMAND EXISTS FOR WHAT THOSE MILLS ARE PRODUCING.

BY KEN MCENTEE

After China banned mixed paper imports and imposed a strict 0.5% limit on prohibitives in imports of old corrugated containers and other recovered paper grades, the announcement of any new market for recovered fiber—and mixed paper in particular—is music to the ears of U.S. paper recyclers. Now, about two years after China first announced its plans, a variety of initiatives to expand the North American recovered paper market are coming into tune.

At least 17 North American mills designed to use OCC or mixed paper—or converted to accept those feedstocks—have come online since 2018 or are scheduled to do so by 2021. Most new North American containerboard projects are based on recycled fiber, says Mark Wilde, a containerboard industry analyst for BMO Capital Markets (New York). “The industry has been pivoting toward secondary fiber for the last 25 to 30 years, and I think that will probably continue,” he says. Although not all mill representatives would confirm the amount of recovered fiber they expect to consume each year, the best-case scenario is that from 2018 to 2021 North America will be adding about 3.5 million tons of new annual OCC and mixed paper consuming capacity for the production of containerboard and about 1 million tons for producing recycled pulp. That doesn’t include consumption at two mills that can shift their furnish between wood and recycled fiber.

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Seven of the new projects expect to use some portion of mixed paper, a grade that has struggled to find new markets since the Chinese ban. Industry consultant Bill Moore of Moore & Associates (Atlanta) estimates that about 550,000 tons of mixed paper recovered for recycling, mainly from residential collection programs, was landfilled last year, 7% of the estimated 7.4 million tons of mixed paper recovered for recycling that year. Jan Lambert, executive vice president of CorrVentures, said the Hudson Valley Paperboard mill his firm plans to construct in Rensselaer, N.Y., south of Albany, will consume 330,000 tons of OCC and mixed paper annually, and he expects mixed paper to be roughly 13% to 22% of that total. He cautions that the proportion could change considerably in either direction, however. The mill, which plans to manufacture about 70% linerboard and 30% corrugating medium, is scheduled to start up in the fourth quarter of 2021. Other new mill projects' spokespeople declined to estimate the percentage of mixed paper they would use in their furnish. Wilde estimates that Pratt Industries (Conyers, Ga.), the predominant consumer of mixed paper in the United States, uses about 60% mixed paper in its 100% recycled feedstock. In October, Pratt plans to open its fifth U.S. containerboard mill, in Wapakoneta, Ohio.

Some of the new projects will manufacture containerboard; others will make recycled pulp the companies plan to export to China to replace

the recovered paper they can no longer access. In addition to the Hudson Valley Paper project described above, announced projects include the following:

Midwest Paper Group, Combined Locks, Wis. This former Appleton Coated paper mill shut down and went into bankruptcy in September 2017; Industrial Assets Corp. (Los Angeles) and Maynards Industries USA (Detroit) purchased and reopened the mill later that year. By July 2018 all three machines were running 24/7, according to John Corrigan, head of people, legal, and environmental affairs. The mill's total production capacity is about 400,000 tons per year, and each machine can produce either white or brown paper, based on customer demand, Corrigan says. Right now, "most of what we [produce] is brown," he says, where the inputs are OCC, double-lined kraft from preconsumer sources, and mixed paper.

Packaging Corp. of America, Wallula, Wash. A former paper machine that PCA (Lake Forest, Ill.) converted to manufacture linerboard began production at this facility in the second quarter of 2018. It identified the product as virgin linerboard, but its 2018 annual report notes that all of its containerboard mills have the ability to use recycled fiber.

Hood Container Corp., St. Francisville, La. In 2016, Louisiana Gov. John Bel Edwards announced that Hood Container (Waverly, Tenn.) would install a recycling plant to use OCC as part of the mill's expansion plans in 2018. The Northeast Recycling Council (Brattleboro, Vt.), in a report on new paper recycling capacity, said the mill would consume 120,000 tons of OCC per year.

Copamex, Anahuac, Mexico. The company, based in San Pedro Garza Garcia, Mexico, is converting a printing and writing paper machine at this mill to produce as much as 286,000 tons of containerboard from OCC and mixed paper annually, with plans for the machine to begin production early this year.

Bio Pappel (McKinley Paper Co.), Port Angeles, Wash. In 2017, the McKinley Paper subsidiary of Mexico City-based Bio Pappel purchased this mill, which manufactured newsprint and telephone directory paper, from Nippon Paper Industries USA (Port Angeles). McKinley expects to begin producing recycled containerboard there in September, with a planned production capacity of 250,000 tons a year.

Port Townsend Paper Co., Port Townsend, Wash. The company plans to install a new pulper by October that

will allow it to increase the OCC in its furnish from 40% to 60% and will double the mill's consumption of OCC from 120,000 tons to 240,000 tons per year.

Pratt Industries, Wapakoneta, Ohio. The new mill, scheduled to open in October, will produce up to 400,000 tons of recycled corrugating medium and linerboard per year from about 300,000 tons of mixed paper and 165,000 tons of OCC.

ND Paper, multiple locations. This subsidiary of China's Nine Dragons Paper, based in Oakbrook Terrace, Ill., is developing recycled pulp and containerboard projects in Fairmont, W.Va.; Biron, Wis.; and Rumford, Maine, that could consume more than 1.5 million tons of OCC and mixed paper annually. The Maine mill will produce about 400,000 tons of recycled pulp that it primarily will ship to Nine Dragons mills in China, said Brian Boland, vice president of government affairs and corporate initiatives. The Wisconsin facility will produce up to 250,000 tons of corrugating medium and linerboard annually on a converted printing and writing paper machine fed by a recycled pulp line. A second pulp line will produce about 400,000 tons a year that ND will mainly ship to China. An existing paper machine at that mill will continue to make printing and writing paper from virgin pulp, Boland added.

ND expects the Wisconsin mill to be up and running later this year or in early 2020, with the Maine operations scheduled to follow. Boland said the ratio of OCC to mixed paper at those mills hasn't been established. "The pulp will need to support a certain quality level in a finished product, so because of that there will be a natural limit as to how much mixed paper you can put into the blend as opposed to OCC," he says. "We do intend to use a percentage of mixed paper in that blend, but it will be weighted toward OCC."

In Fairmont, ND is changing the product mix from primarily bleached pulp to primarily unbleached pulp that it will export to China, Boland says. "The facility was using a variety of tough feedstocks before we purchased it, so a lot of the systems were already in place to do what we're doing today," he says. "Most of our improvements and future capital will be focused on getting our production up." He expects the Fairmont mill's pulp production capacity to be about 242,000 tons per year.

Phoenix Paper Wickliffe, Wickliffe, Ky. Shanghai-based Shanying International Holdings Co. announced late last year its plans to convert this closed paper

CHINA'S SHRINKING DEMAND

Despite the sudden and dramatic shock of China's mixed paper ban in 2018, its thirst for the grade had been diminishing for a decade. In 2009, U.S. exporters sent 5.6 million tons of mixed paper to China, which was 48% of all mixed paper recovered for recycling in the United States that year, according to the U.S. Commerce Department. Overall, U.S. recyclers exported 65% of the mixed paper recovered that year (7.6 million tons), and U.S. mills took in 35% (4 million tons), according to the American Forest & Paper Association (Washington, D.C.).

The following year, U.S. mixed paper exports to China declined 50%, to 2.8 million tons, which was less than a third of all U.S. mixed paper collected. Overall U.S. exports of mixed paper fell to 53% of the total, and those export levels stayed between 51% and 54% through 2017. Domestic mixed paper consumption remained relatively consistent between 2011 and 2017, generally ranging between 3.8 million and 3.9 million tons, which was 47% to 49% of the U.S. mixed paper market.

While the United States continued to export a little more than half of the mixed paper it recovered, China's share dropped 23%—by about 570,000 tons—in 2016, then fell another 16%—down another 373,000 tons—in 2017. After the ban took effect last year, shipments to China fell 95%, to less than 113,000 tons. U.S. exports of mixed paper to other markets increased 46% last year, increasing by about 900,000 tons, and domestic consumption improved by about 142,000 tons, but overall consumption of U.S. mixed paper was down about 828,000 tons in 2018 compared with 2017. Through April of this year, domestic and export consumption of U.S. mixed paper totaled 2.25 million tons, a pace that, if it continues, is likely to match 2018's consumption.

China's consumption of U.S. OCC peaked later than its consumption of mixed paper, but that, too, had been declining before the new quality standards went into effect. In 2012, it imported 8.3 million tons, which was 28% of the OCC the United States recovered that year. In 2017, the year before China implemented its 0.5% limit on prohibitives, U.S. OCC exports there totaled almost 6.1 million tons, or 19% of the amount recovered. Despite the new restrictions, U.S. OCC exports to China last year fell only 0.3% from 2017. However, through April of this year, the United States had exported only 1.5 million tons of OCC to China. If exports continue at that slower pace, they will total 4.4 million tons for the year, which would be a 27% (1.7 million-ton) drop from 2018.

In 2018, U.S. OCC shipments to export markets other than China were up by 2.6 million tons, leading to a record volume of OCC exports, while domestic OCC consumption reached close to 22.6 million tons—a 1.7% gain compared with 2017. This year, domestic consumption of OCC through April was on pace for a 1.6 million-ton decline for the year, to 21 million tons. Overall exports this year, including to China, also have dropped, to a likely 11.3 million tons for the year, which would be a 1.2 million-ton decrease compared with 2018.



If margins between OCC and mixed paper prices increase, mills are likely to look for ways to use more mixed paper, especially if they can find material of higher quality.

mill to produce kraft linerboard, bleached hardwood and softwood pulp, and recycled pulp from OCC, with a production capacity of 300,000 tons a year. When the mill restarted in May, it began making bleached hardwood pulp. Company officials did not respond to attempts to confirm the additional production plans, but the company's website notes "additional products coming soon." Shanying owns Cycle Link International Holdings (Hong Kong), a recovered paper supplier with U.S. operations based in Diamond Bar, Calif. **International Paper, Riverdale, Ala.** IP (Memphis, Tenn.) announced plans to convert the mill's No. 15 white paper machine to produce 450,000 tons of white top linerboard and containerboard a year, which it expects to start in 2020. Thomas Ryan, IP director of corporate communications, would not confirm whether the machine will use recycled fiber, but he notes that "Riverdale is an integrated mill. They have both virgin fiber as well as recovered fiber. This is primarily a virgin [fiber] site, but I don't have the breakdown" of the proportion of each. Across its containerboard mill system, IP uses a ratio of 65% virgin fiber and 35% OCC, he says.

Grupo Gondi, Monterrey, Mexico. A new recycled lightweight containerboard machine, scheduled to start in early 2020 at this location of the Mexico City-based company, will have the capacity to

manufacture 440,000 tons of product annually. **Green Bay Packaging, Green Bay, Wis.** The company plans to double its capacity to make 100% recycled containerboard by replacing its 72-year-old mill with a new one that can produce 685,000 tons a year. It expects the new mill, which will use OCC and mixed paper, to be operational by the first quarter of 2021.

Cascades, Ashland, Va. Cascades (Kingsey Falls, Quebec) plans to convert White Birch Paper's (Greenwich, Conn.) former Bear Island newsprint mill to produce about 400,000 tons a year of recycled lightweight linerboard and corrugating medium using OCC and mixed paper. The project is scheduled to start in early 2021.

MIXED PAPER'S PROSPECTS

In the short term, Wilde says, North American prospects for mixed paper demand look positive, with privately owned consuming companies leading the way. "I think the most innovative players in mixed paper ... the guys who have pioneered using more mixed paper, No. 1 on the list is Pratt Industries," he says. Whether that innovation "will be enough to turn around the pricing in the near term is another question," he notes.

Recovered paper traders note that the current, unusually narrow margins between the prices of mixed paper and OCC give mills little incentive to use mixed paper, but when markets return to normal, mills may find some cost advantages to using it. "The differential, even at negative numbers for mixed paper, is not real high, so the economic short-term incentive to use mixed paper is not as good as it was last year, when mixed was down and OCC was more in the mid-range," Moore says. "But, longer term, I think anybody who is going to do a new mill or is contemplating stock prep changes is going to seriously consider adding mixed paper to their furnish."

Price isn't the only consideration involved in the decision to use mixed paper, however, Hudson Valley's Lambert says. "You have to consider correctly blending OCC and [mixed paper] fibers in proportion with the desired outcome for density of the sheet to meet the demands of the marketplace," he explains. "We're looking to use as much mixed paper as we can, but at this time we're not clear about what the markets are going to look like when we come online."

Mick Barry, president of Mid America Recycling (Des Moines, Iowa), agrees that mills have little incentive to use mixed paper today, but

he expects that will change as markets improve. “Markets have ups and downs, and most of the bigger mill groups I know are not shortsighted,” he says. “They know that, sooner or later, [the market] is going to find equilibrium. It will probably take three or four years for this to sort out, then all the mill groups are going to be looking for a way to do what one of the major mill groups is doing—finding a formula to make a linerboard from mixed paper and OCC that meets their standard of quality and doing it a whole lot cheaper.”

Part of that formula will be a cleaner mixed paper supply, Moore says, which will require the efforts of recyclers and the mills themselves. “Even though the [materials recovery facilities] of the world are making cleaner mixed paper than before, it is not as clean as decent OCC,” he says. “Mills need to have a good stock preparation system that can handle it. It’s expensive. You don’t go out and get a mixed paper system for a million dollars. You can do de-trashing, which is the first step to get at the contaminants. But it will cost tens of millions [of dollars] to really revamp a stock prep system to handle a larger percentage—say, 25% mixed paper—in your board mill.”

On the MRF side, the key is doing more presorting and slowing down the processing line to pull out more contaminants, says Barry, whose company operates a MRF in Des Moines. He likes to think of his operation as “the best of the worst—single stream is the worst thing that ever happened to recycling,” he says. In the years leading up to China’s import restrictions, many MRF operators were speeding up their operations to increase volume—and profit—but sacrificing quality, he says. “When we repurchased our plant from Waste Management in 2013, we knew that quality issues were coming up, so we took care of it,” he says. “We packed to the quality spec that we could sell to any mill in the U.S., and we never had a problem selling all of our mixed paper.”

Unfortunately, Barry says, in early 2018, the mill that was buying his mixed paper went down for mechanical upgrades shortly after the Chinese ban on mixed paper went into effect. “Because of the ban, we couldn’t find alternative buyers for all of our volume, even when the market dropped to zero [dollars per ton],” he says. “We sold two-thirds of it and put a third in storage, but eventually we had to start landfilling some of it until our buyer came back online. Currently we’re not sending any paper to the landfill.” That’s not the

case for other MRFs, especially those on the West Coast, where domestic markets for mixed paper and OCC are limited, he notes.

Before China began to dominate the mixed paper market, recyclers packed the grade according to the needs of North American mills, Lambert says, and the industry might be returning to that approach. “For 30 years, we divided mixed paper into hard mix and soft mix depending on whether it had a high percentage of groundwood or a low percentage of groundwood,” he explains. For the last 15 years, Chinese mills’ “eventual interests in maximizing fiber length nearly eliminated [the] inclusion of groundwood fiber in mixed paper” in favor of higher percentages of OCC. Mixed paper “is an important outlet grade for North American dealers and should not typically require [re-sorting] or upgrading ... by sweetening the mix with added OCC,” as was done for the export market, he says. As long as the material is “free of contaminants,” he expects to see added demand “in the Northeast market for ... traditional U.S. mixed paper based on ISRI specs.”

TIMING IS EVERYTHING

Ultimately, these sources say, demand for containerboard packaging will drive the North American market for mixed paper and OCC. Industry watchers worry about whether these new projects will result in too much North American containerboard production. While these projects ramp up or get started, the containerboard market has weakened, causing mills currently in operation to take market-related downtime and pushing OCC prices down to their lowest level in 10 years. Some observers worry that the additional production capacity these projects will create will further depress containerboard prices. BMO Capital Markets’ Wilde says the new projects will probably continue to move forward regardless. “All of these projects were conceived when demand growth looked high,” he says. “I think people are taking a more cautious view of demand [today], but if you have iron in the ground, and when you’re in the middle of one of these several-hundred-million-dollar projects, you don’t back off.” Even so, he says, “we’re going to have to see more capacity rationalized here in North America because if you look at supply and demand, it looks a lot more concerning than it did 18 months ago, when we still had good demand growth.”

Despite the current dismal market conditions in the containerboard business, veteran

industry consultant Charles Klass, chairman of CorrVentures and owner of Klass Associates (Madeira Beach, Fla.), says he feels confident about the Hudson Valley project and expects to have financing in place by the end of the year. The key, Klass says, is that the mill will produce lightweight containerboard, which he believes is a growth market in the United States.

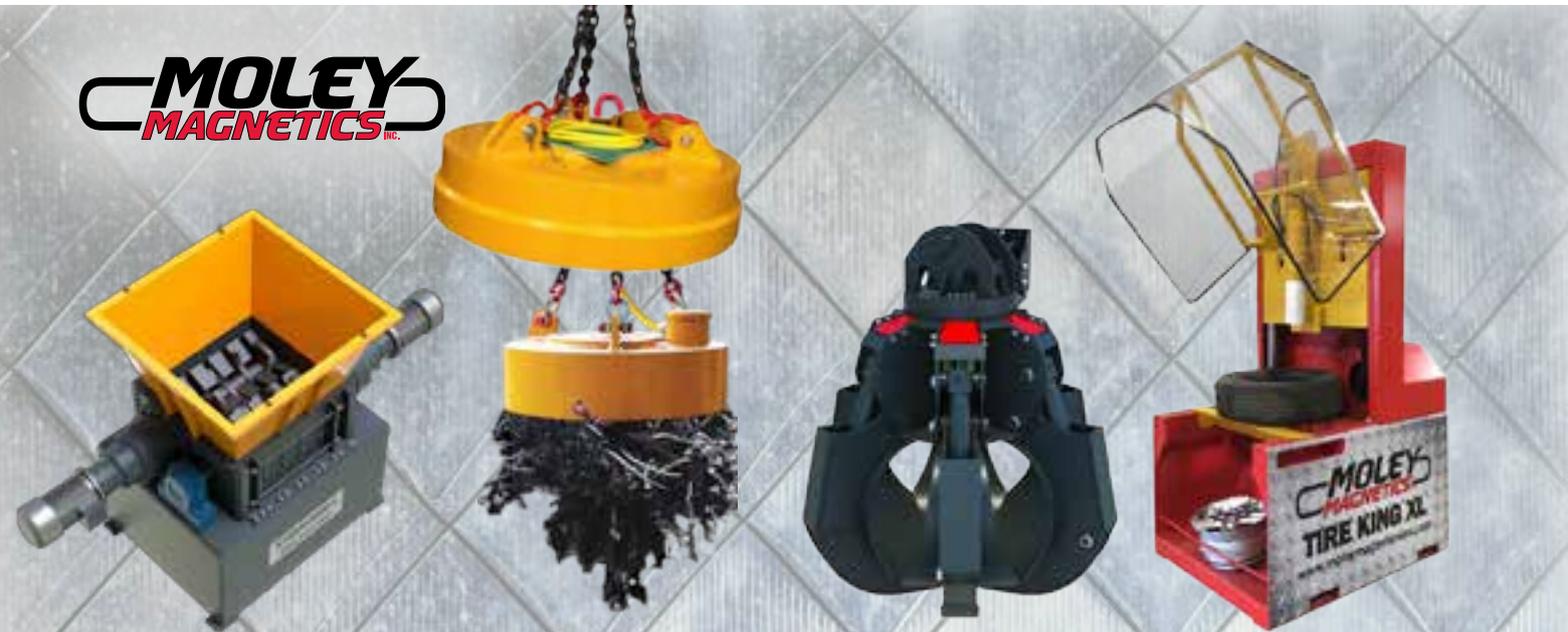
The growth of e-commerce in the United States has caused a lot of optimism about containerboard growth opportunities, but Moore notes that Amazon's move toward using flexible padded mailers could depress those prospects. This move into padded mailers is "going to slow the growth of corrugated boxes for e-commerce," he says. "On the other hand, there also is a pushback on flexible and paper/plastic padded mailers because they are not recyclable. There is not a MRF out there that is separating flexible mailers [for recycling] like they would a corrugated box. But people had been expecting box growth of 2.5 to 3% a year going forward [for corrugated boxes],

and now the numbers are looking closer to 2%." (Read more about "the Amazon effect" on OCC supply and demand in the September/October issue of *Scrap*.)

At the same time, environmental concerns about plastic are driving demand for paper packaging, says Marty Rusk, vice president of Smurfit Kappa North America Recycling (Mesquite, Texas). "We are a paper-based company that is doing anything we can to replace anything that is plastic," Rusk says. "What we make is 100% recyclable, and it doesn't end up floating in the ocean. Plastics right now are in the limelight, and our customers want to see options."

The key to growing demand, Barry says, is manufacturing more products in the United States. "We need widget makers here," he says. "Making more products in the USA means more packaging." ■

Ken McEntee is editor and publisher of The Paper Stock Report, paperstockreport.com.



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