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The evolution of recycling within the paper packaging industry

by MAURA KELLER

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As consumers' focus turns more toward e-commerce and online purchasing, they are experiencing an influx of paper packaging in their lives and may turn their attention to sustainability of today's paper-based packaging like never before.

Giancarlo Maroto, managing director, paper, forestry and recycling for DS Smith North America pointed out that the world is changing around us, and we're impacted by trends such as changing shopping habits, the shift to online from brick and mortar, tremendous e-commerce growth during COVID and more packaging in homes.

"All have contributed to a heightened awareness of packaging and need for sustainable options," Maroto said. "As such, environmental issues are at the forefront of consumers' mind, and our surveys show consumers are aware of the increased impact of packaging – in particular unrecyclable problem plastics – and 73 percent say they care if the box is made from sustainable materials." As a result, DS Smith helps companies explore innovative ways to provide that "wow" factor in the unboxing experience, while balancing that with sustainable attributes like being 100 percent recyclable or able to reseal and return in the same box.

The paper recycling segment of the recycling industry is continuing to adapt to the changes brought on by the pandemic. Maroto said the current elevated demand for recovered fiber will only continue, in large part due to the increase in e-commerce packaging. Consumers are increasingly aware of the circular economy model and are demanding solutions to replace problem



Efforts have been made to create paper-only packaging, driving the shift away from combined plastic and paper output. PHOTO COURTESY OF WEYERHAUSER

plastics. That's where the growth in paper packaging and subsequent recycling comes in.

"One hundred percent recyclable, fiber-based packaging is the only sustainable way to meet that demand," Maroto said.

Lauren Olson, zero waste manager at World Centric, a manufacturer of only compostable foodservice and packaging products, said the current backlash on plastic products, brought on in part by the extreme and growing volume of plastic in the ocean and its toxic effect on marine life, is causing a shift to paper products. Paper straws are a great example of a direct replacement for plastic.

"We see a bright future for responsibly sourced paper products, particularly those made with bamboo and other rapid renewable fibers instead of wood fibers," Olson said. "Consumers want to ensure that they are not using a regrettable substitute for plastic by using paper that inflicts unnecessary ecological harm."

A Combined Effort

According to Jordan Fengel, sustainability manager for Tetra Pak U.S. and Canada, a few products have been developed that attempt to use paper only, shifting away from the combined use of plastic and paper.

"However, if you look at the function of plastic in combination with paper, it provides multiple roles, including acting as a barrier from light and oxygen and adding strength to the package," Fengel said. "What we're seeing more than a complete move away from

plastic is a shift towards bio-based barriers which are sourced from materials like sugar cane or corn."

For instance, the Pabco bottle uses mainly fibers for their container, but they also integrate a bio-based layer for oxygen and light protection.

"So, you can see that there is still the need for plastic substance, whether it is bio-based or fossil-based, to be used to protect the product inside the package," Fengel said. "Other companies have tried to create and sell a 'paper bottle' only to be called out for greenwashing as consumers found the package encasing a plastic bottle."

Fengel also pointed out that the driving force behind the shift comes from consumers using their buying power to purchase sustainable products but also from impending legislation like Extended Producer Responsibility (EPR) that can create higher fees for packages deemed "hard-to-recycle."

"The combination of paper and plastic in packaging is misunderstood by policymakers and others like NGOs as it is thought to create a non-recyclable or hard to recycle packaging, however, the packages are widely recycled in the U.S. where the technology and infrastructure exists," Fengel said.

There are multiple efforts being used to correctly communicate that a package is recyclable, like on-pack messaging, social media, and through brand and municipality websites. For instance, the unqualified recycling logo, which is substantiated through the FTC Green Guides, legitimately ties marketing

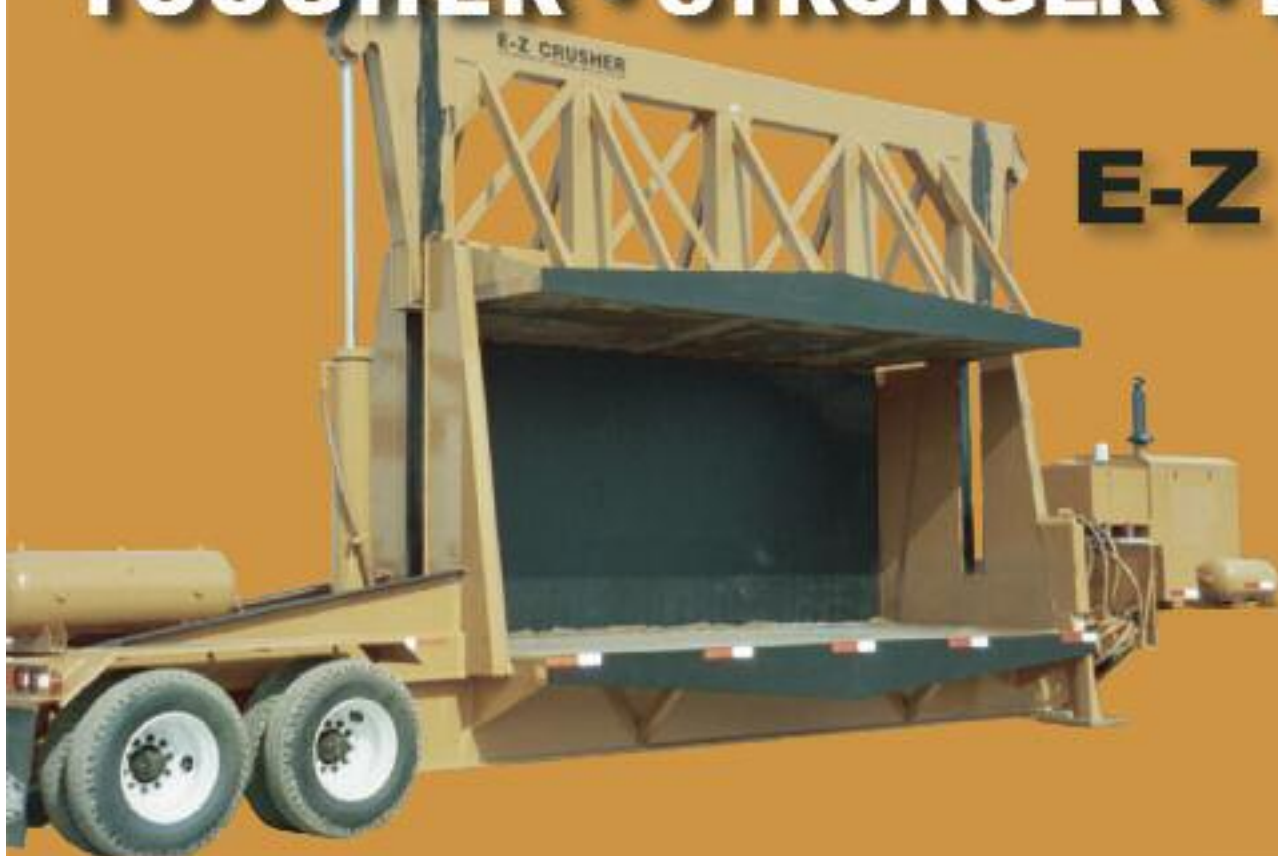
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Santa Barbara County unveils renewable energy facility

County officials, staff, engineers and contractors met at the Tajiguas landfill in Santa Barbara, California for the grand opening of the county's newest recycling and waste management facility. The ReSource Center will allow the county to truck in and process its own waste, turning it into recyclables and renewable energy rather than sending it to landfill. The facility will boost the county's diversion rate by 60 percent, to a total diversion rate of 85 percent. Drastically reducing the amount of material buried will help extend the life of the landfill by a decade (the landfill was previously projected to reach capacity in the next few years).

The ReSource Center will accept solid waste from the South Coast and Santa Ynez Valley areas of Santa Barbara County, including the unincorporated communities of these areas as

well as the cities of Santa Barbara, Goleta, Solvang, and Buellton. Joan Hartmann, Santa Barbara Supervisor, said at the opening that the facility "allows for recycling and reuse of materials, turning a liability into an asset." She added that the site is the single greatest reduction of greenhouse gasses in the county.

The ReSource Center brings in 600 to 700 tons of waste per day and around 150 to 180 tons of recyclables. Its massive state-of-the-art sorting facility sorts through the waste and separates it by size, weight, density and composition. The MRF equipment was supplied by Van Dyk Recycling Solutions of Norwalk, Connecticut and included size reducers for liberating bags, 3D trommels, anti-wrapping screens, air density separators, elliptical separators, 11 optical sorters to identify recyclables by composition,

and a high-capacity baler from Bollegraaf Recycling Solutions. The MRF is operated by Marborg Industries.

The county anticipates processing between 150 to 180,000 tons of trash and recyclables every year. Referring to the county's commitment to having a recycling, renewable energy, anaerobic digestion, and composting facility all on one site, John Dewey, chief executive officer of Mustang Renewable Power Ventures, the project developer, said, "Nobody else has done it like this in a single location with all these various components."

In addition to recyclables, the ReSource Center also recovers organic material such as food scraps and other wet, heavy material. Organic waste makes up around 40 to 45 percent of the county's trash. Once recovered, this waste is transferred up to the anaerobic digester on-site, where it is dumped

into heated tunnels and sealed airtight. It is then pumped with a mixture of 97 percent water and 3 percent cattle manure to start the digestion process. The natural bacteria in the manure breaks down the organic waste to produce methane gas. The methane gas is then harnessed to create renewable electricity that is sold back to SoCal Edison (Southern California's primary electricity supply company). The electricity produced is enough to power the Resource Center itself, as well as about 1000-1200 homes. But the process is not over yet. The leftover material in the anaerobic digester tunnels is then sent to the site's composter, where the last bit of glass or film plastic is removed and the remaining compost is dried out. The county already has demand for the compost from local farmers.

Casella Waste Systems VP plans retirement

Casella Waste Systems, Inc., a regional solid waste, recycling and resource management services company, announced that the company's vice president and chief accounting officer, Christopher B. Heald plans to retire on March 31, 2022 after a 20 year career with the company.

Heald plans to stay on in an advisory capacity during the transition period.

Largest anaerobic digestion facility in New England now part of the Anaergia Group

Anaergia Inc. has acquired its indirect subsidiary, Rhode Island Bioenergy Facility, LLC (fka Orbit Energy Rhode Island, LLC), which owns the largest industrial anaerobic digester for food and other solid organic waste recycling in New England. This acquisition expands Anaergia's footprint in the northeastern United States and its capacity to address increasing demand for organic waste recycling.

The Rhode Island Bioenergy Facility can process over 100,000 tons of

organic waste per year at its location in Johnston, Rhode Island. Such waste, that otherwise would have been land-filled or incinerated, is processed into clean energy, fertilizer, and water, while reducing greenhouse gasses.

Anaergia intends to see the facility upgraded with industry leading technology and other improvements that will optimize operations and financial performance in converting organic waste into carbon negative renewable natural gas. The financial impact of this

development is in line with the expectations in Anaergia's previously released financial forecasts.

"Our acquisition of this facility extends Anaergia's own-and-operate activities to the East Coast of the U.S. This facility enables Anaergia to invest in sustainable infrastructure that generates high tech jobs, serves the community, and expands our capacity to generate carbon negative fuel," said Andrew Benedek, Anaergia's chairman and chief executive officer.

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Packaging

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claims to collection, sortation, and end markets.

“Broken down, this means that recycling facilities must be available for at least 60 percent of consumers where an item is sold; the entire item, excluding negligible components, must be technically recyclable and be large enough to make it through a materials recovery facility’s (MRF) sorting system; and the material must have enough value to justify recycling,” Fengel said.

Organizations like The Recycling Partnership and others are working throughout the recycling value chain to connect consumers with proper messaging techniques to reduce contamination and recover more materials which contribute to a circular economy.

“We need more messaging to consumers about the economic value of recycling; there are not enough front-facing messages on TV or highway billboards about the true value of recycling, which would complement the ongoing efforts and reinforce the current messaging,” Fengel said.

E-commerce and Paper Package Recycling

The e-commerce sector has grown substantially during the pandemic as consumers were at home and still needed every day goods. As the pandemic continues to unfold with new variants, online shopping continues to be the method of choice for many consumers.

“Packaging design has transitioned to multiple formats to accommodate varying order sizes and consumer

demands as family sizes are shrinking and more people are buying what they need versus bulk purchases,” Fengel said. “There has also been a move to easier-to-recycle secondary packaging so that there are sustainability gains not only from primary packaging but also what the package is shipped in. Consumers expect to be able to recycle the majority of the packaging and shipping materials that they receive from online orders.”

What’s more, the MRFs within the recycling industry are well poised to manage paper in general as they were built at the high-use point of paper products like newspaper, office paper and boxes.

“They can handle paper packaging well with the continued advancement of robotics and optical sorters combined with AI,” Fengel said. “We’ve seen this in action via our work with Carton Council, who have been instrumental in helping to introduce AI technology in MRFs across the country.”

Fengel suggested that recycling facilities will be able to collect all commodities, including paper packaging, more efficiently and effectively as the use of automation grows.

“As paper packaging use expands, the recycling industry is well-positioned to sort, bale and market these valuable commodities,” Fengel said. “End-markets for paper materials and packaging need a steady supply of quality materials for product manufacturing, so it is important that MRFs continue to invest in infrastructure and technological upgrades that enable the proper sortation of packaging which includes poly-coated paper and other

commodities which have value and end-market demand.”

Of course consumer perception plays a vital role within the paper recycling industry. DS Smith’s latest consumer survey shows that Boomers take recycling more seriously than younger generations, but all groups support increased use of sustainable packing materials.

The survey indicated that all groups surveyed were united when asked about the surplus of boxes from e-commerce spending and the message was clear – they’re not bothered by the extra packages but do want them made of sustainable materials.

“As consumers increasingly turn to e-commerce, they don’t want to feel guilty about the packaging that comes along with it,” said Mark Ushpol, managing director of the North America Packaging Division for DS Smith. “They want packaging that is sustainable, and corrugated boxes made from renewable fiber are reusable and recyclable, helping businesses and consumers tackle those challenges and feel good about their choices.”

Nearly two-thirds (62 percent) put the responsibility to recycle their boxes on themselves, with the rest saying sustainability falls on the companies that make the products packaged in the boxes (34 percent) or recycling services in their local communities (33 percent).

Broken out by generation, Baby Boomers (71 percent) hold themselves more accountable for responsibly recycling their boxes than others – Millennials (60 percent), Gen Z (59 percent) and Gen X (58 percent).

Viability of Paper-based Packaging
Fengel said that consumers will continue to see a shift from all-plastic commodities to more paper-based packaging as the public and corporate interests and investments in sustainability continues to grow. Sources for paper packaging contribute to positive carbon reduction as the materials come from forests and other natural sources, which are renewable.

“Paper-based packaging also provides necessary elements like product protection, and it is widely recycled in

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Casella Waste reports increased revenues for second quarter 2021

Casella Waste Systems, Inc. reported its financial results for the period ending June 30, 2021.

Highlights for the three months and year-to-date ended June 30, 2021:

- Revenues were \$215.9 million for the quarter, up \$27.1 million, or up 14.4 percent, from the same period in 2020.

- Overall solid waste pricing for the quarter was up 4.0 percent, driven by collection pricing, up 4.2 percent, and landfill pricing, up 4.3 percent, from the same period in 2020.

- Net income was \$11.8 million for the quarter, down \$(0.3) million, or down (2.7) percent, from the same period in 2020. Provision for income taxes was \$5.4 million for the quarter, up \$5.1 million from the same period in 2020.

- Adjusted EBITDA, a non-GAAP measure, was \$52.1 million for the quarter, up \$8.1 million, or up 18.5 percent, from the same period in 2020.

- Net income as a percentage of revenues was 5.5 percent for the quarter, down (96) basis points from the same period in 2020. Adjusted EBITDA as a percentage of revenues, a non-GAAP measure, was 24.1 percent for the quarter, up 84 basis points from the same period in 2020.

- Net cash provided by operating activities was \$79.0 million for the year-to-date period, up \$16.5 million, or up 26.4 percent, from the same period in 2020.

For the year-to-date period, revenues were \$405.4 million, up \$33.7 million, or up 9.1 percent, from the same period in 2020. Net income was \$16.1 million, or \$0.31 per diluted common share, for the year-to-date period, as compared to net income of \$13.1 million, or \$0.27 per diluted common share, for the same period in 2020. Adjusted net income was \$17.8 million, or \$0.35 adjusted diluted earnings per common share, for the year-to-date period, as compared to adjusted net income of \$14.9 million, or \$0.31 adjusted diluted earnings per common share, for the same period in 2020.

Operating income was \$34.0 million for the year-to-date period, up \$9.5 million from the same period in 2020.

NY DEC adopts regulations over food scrap recycling

State Department of Environmental Conservation (DEC) commissioner Basil Seggos has adopted final regulations to implement New York's Food Donation and Food Scraps Recycling Law. The law and implementing regulations are a critical step in addressing contributors to climate change and assisting those in need by supporting the donation of quality food. The regulations require large generators of food scraps to donate wholesome food to the maximum extent practicable, helping New Yorkers struggling with food insecurity by increasing the amount and variety of food available through relief organizations across the State.

Commissioner Seggos said, "Americans currently waste about a quarter of all the food purchased, which directly leads to the creation of methane and other greenhouse gases and negative environmental impacts. These wasted food resources can now be used to help people in need instead of contributing to climate change. The regulations released today are a perfect example of a common-sense approach to promoting food recycling while also helping the hungry and reducing waste to build healthier, environmentally sustainable communities."

Removing organics from landfills is a key recommendation under the Climate Action Council's Waste Panel to help achieve New York's ambitious Climate Leadership and Community Protection Act's goals to significantly reduce greenhouse gas emissions and put the State on a path to carbon neutrality economy-wide by 2050.


The regulations implement the 2019 Food Donation and Food Scraps Recycling Law's requirements for all designated food scrap generators to donate excess edible food and send

food scraps to an organics recycler if one is available within 25 miles of the generator. The resulting increase in food donation will help New Yorkers in need and create jobs to assist the not-for-profits that handle food donations. The law also requires generators to recycle food scraps by using organics recyclers (composting facilities, etc.) to reduce the amount of food scraps that would otherwise end up in landfills and ultimately produce methane, a potent greenhouse gas. Composting facilities and other organics recyclers produce beneficial organic soil conditioners that are needed to improve the quality of poor soils and reduce erosion.

DEC's regulations define a food scrap generator as an entity that generates an annual average of two tons of food scraps or more per week at a single location. These entities include, but are not limited to, supermarkets, food service businesses such as restaurants, higher education institutions, hotels, food processors, correctional facilities, and sports or entertainment venues. New York City, hospitals, nursing homes, adult care facilities, and elementary and secondary schools are exempt.

The regulations also detail requirements to donate excess food and recycle food scraps if an organics facility is available, as well as annual reporting. In addition, the regulations include a temporary waiver provision for generators that demonstrate a need to be excluded from certain requirements, such as a lack of food scraps transporters nearby. The regulations also outline requirements that apply to transporters, transfer facilities, landfills, and combustion facilities to ensure that once the food scraps are separated by the generator, they are ultimately recycled and not disposed.

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PLASTICS

International Recycling Group helps launch U.S. plastics pact roadmap to 2025

International Recycling Group (IRG) recently helped launch The U.S. Plastics Pact's "Roadmap to 2025," an aggressive national strategy illustrating how the U.S. Pact, IRG and fellow signatories, known as Activators, will achieve each of the U.S. Pact's four 2025 targets through specific actions, responsibilities, and interim timeframes to realize a circular economy for plastics in the U.S. by 2025.

Launched in August 2020, The U.S. Plastics Pact is a consortium led by The Recycling Partnership and World Wildlife Fund as part of the Ellen MacArthur Foundation's global Plastics Pact network, which unites a holistic ecosystem of cross-industry stakeholders behind a common vision and national strategy to address plastic waste at its source by 2025.

As an Activator of the U.S. Pact, IRG joins other stakeholders across the plastics value chain in achieving systemic change and accelerating progress toward the following 2025 targets by inspiring and supporting upstream innovation through coordinated initiatives such as rethinking products, packaging, and business models in order to transi-

tion away from today's take-make-waste model to a circular economy where plastics never become waste:

1. Define a list of packaging to be designated as problematic or unnecessary by 2021 and take measures to eliminate them by 2025.

2. 100 percent of plastic packaging will be reusable, recyclable, or compostable by 2025.

3. By 2025, undertake ambitious actions to effectively recycle or compost 50 percent of plastic packaging.

4. By 2025, the average recycled content or responsibly sourced bio-based content in plastic packaging will be 30 percent.

IRG, headquartered in Erie, Pennsylvania, is building a supersized plastics recycling plant, SuperPRF™, to process all types and grades of post-use plastic. The facility will bring in hundreds of millions of pounds of mixed plastics per year. Within 5 years, the plant is expected to process about 500 million pounds of material.

The U.S. Pact's Roadmap is designed to kick-start action and help U.S. industry leaders and packaging producers develop a national strategy,

advance shared goals, and measure the strength of progress through annual reporting. This national strategy will assist Pact Activators in reaching ambitious goals by 2025 that they could not otherwise meet on their own through sharing knowledge, optimizing investments, identifying gaps, overcoming systemic barriers, and implementing policies.

"The current state of U.S. infrastructure, coupled with the lack of incentives to utilize recycled content in plastic packaging, have put immense strain on the value chain," said Emily Tipaldo, executive director, The U.S. Plastics Pact. "The Roadmap is designed to help U.S. industry leaders act on the significant, system wide change needed to realize a circular economy for plastics by 2025. The timeframe is short, and the workload is immense, but if we choose to do nothing, the visions of a circular economy across the U.S. will give way to the status quo."

The Roadmap holds members of the U.S. Pact accountable to sustainability objectives ensuring that plastics remain in the U.S. economy and out of the environment for years to come.

Kroger shareholders support cuts in single use plastic

Forty-five percent of shareholders, representing shares worth \$10.2 billion, supported a proposal filed by As You Sow, at Kroger's annual meeting. The proposal asked the company to disclose how much of its packaging escapes to the environment, disclose company strategies or goals to reduce use of plastic packaging and evaluate opportunities for dramatically reducing the amount of plastics used in packaging.

Earlier this month 35 percent of shareholders at Amazon.com, the world's largest online retailer, supported an identical As You Sow proposal. Five other global consumer goods companies who received the same proposal from As You Sow as Kroger have agreed to reduce use of virgin plastic. Target Corp. and Keurig Dr Pepper will cut virgin plastic 20 percent by 2025. Mondelez committed to a 5 percent absolute reduction, including a 25 percent cut in virgin plastic in its rigid plastic packaging. PepsiCo and Walmart agreed to cuts that are still being finalized and will be disclosed later this year.

A Personal Cheerleader

If I'm ever feeling down, I just type "Yo are the best" into Google. Then it responds, "I think you mean: You are the best." And I feel much better.

—Jack Barry, comedian

Packaging

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the current system we have in the U.S., Fengel said.

Additionally, as the supply of office and school paper is still diminished and may not return to pre-pandemic levels, paper mills and other fiber consuming end-markets are utilizing paper-based packaging as it provides a quality input to make new paper products.

"The biggest challenge faced by the packaging industry is the incoming patchwork of policies aimed at improving recycling and reducing contamina-

tion. The policies look good on paper but are poorly designed as they focus heavily on end-of-life management instead of the entire lifecycle and may overlook the true benefits that packaging plays in delivering quality goods to consumers in a safe manner," Fengel said. "This is especially true of food and beverage packaging that not only keeps the product safe, but also allows for wider distribution and reduced food waste by extending the shelf life of the product inside. As for the paper packaging industry, it must ensure that sourcing for fiber and other bio-based materials do not negatively impact biodiversity and are sustainable for the long-term future."

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PAPER

DS Smith's Georgia paper mill earns top certification

Sustainable packaging leader DS Smith's paper mill in southeast Georgia has earned top honors as an industry leader in energy efficiency.

The International Organization for Standardization (ISO) recently recognized DS Smith's mill in Riceboro, Georgia, the first ISO-50001 certified facility in the pulp, paper and paper products industry in North America.

It's one of only 145 sites in the U.S. to have received that certification since the ISO's program began 2012, designed to audit and highlight companies that embrace effective energy management systems. According to the most recent ISO survey, it had certified 260 companies worldwide in the pulp, paper and paper products sector, and none was in the U.S. – until DS Smith's Riceboro.

"The old adage that you can't manage what you don't measure has never been more important than today," said Giancarlo Maroto, managing director, paper, forestry and recycling for DS Smith North America. "We're extremely proud of our Riceboro team and the work they put in to pass the rigorous ISO audit and be recognized as the first paper mill in the U.S. to be ISO-50001 certified."

"This program will guide us in our plans to boost energy efficiency, improve environmental quality and achieve our goal of reducing carbon

emissions, a major component of our Now and Next sustainability strategy, and our ambitious climate targets," Maroto said.

An ISO-approved audit team visited the mill, certifying that it uses an Energy Management Systems (EnMS), based on the ISO-50001 internationally recognized framework for integrating energy management into its existing processes. An EnMS system enables organizations to better manage their energy performance to operate more efficiently.

DS Smith recently announced a series of carbon reduction targets, including a science-based target that requires a 40 percent reduction of carbon dioxide emissions per ton of product by 2030, compared to 2019 levels, and a commitment to reach net-zero emissions by 2050.

In addition to its climate action commitment, DS Smith recently announced its \$140 million research and development and innovation package to accelerate its work in the circular economy. The new investment underpins DS Smith's new circular economy led sustainability strategy, Now and Next, which pledges to manufacture 100 percent recyclable or reusable packaging by 2023 and to take a billion pieces of problem plastics off supermarket shelves by 2025.

AF&PA releases updated paper reports for July 2021

The American Forest & Paper Association released its July 2021 U.S. paper reports.

Printing-Writing Paper

According to the report, total printing-writing paper shipments increased five percent in July compared to July 2020. U.S. purchases of total printing-writing papers increased nine percent in July compared to the same month last year. Total printing-writing paper inventory levels remained essentially flat (-0.1 percent) when compared to June 2021.

•Uncoated free sheet (UFS) paper shipments increased seven percent compared to July 2020 while the inventory level remained essentially flat (-0.4 percent) compared to June 2021. UFS imports and exports both increased compared to June 2020, up four percent and 18 percent respectively.

•U.S. purchases of coated free sheet (CFS) papers in July increased three percent compared to last July while the inventory level increased two percent compared to June 2021. CFS imports and exports both increased compared to June 2020, up 32 percent and 53 percent respectively.

•Coated mechanical (CM) paper shipments increased 16 percent com-

pared to July 2020 while the inventory level decreased three percent compared to June 2021. CM imports and exports both increased compared to June 2020, up 60 percent and 31 percent respectively.

•U.S. purchases of uncoated mechanical (UM) papers in July increased 28 percent compared to last July while the inventory level decreased four percent compared to June 2021. UM imports and exports both increased compared to June 2020, up 61 percent and 180 percent respectively. up 26 percent and 52 percent respectively.

U.S. Packaging Papers & Specialty Packaging

Total packaging papers & specialty packaging shipments in July decreased one percent compared to July 2020. They were up two percent when compared to the same seven months of 2020.

•The operating rate was 84.2 percent, down 1.5 points from July 2020 and up 4.0 points year-to-date.

•Mill inventories at the end of July increased 8,000 short tons from the previous month and were essentially flat (+672 short tons) compared to July 2020.

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METALS

ArcelorMittal and Canada invest in decarbonization

ArcelorMittal along with the Canadian Government will invest CAD\$1.765 billion in decarbonization technologies at ArcelorMittal Dofasco's plant in Hamilton. The intended investments will reduce annual CO2 emissions at ArcelorMittal's Hamilton, Ontario operations by approximately 3 million tonnes, which represents approximately 60 percent of emissions, within the next 7 years. This means the Hamilton plant will transition away from the blast furnace-basic oxygen furnace steelmaking production route to the Direct Reduced Iron (DRI) – Electric Arc Furnace (EAF) production route, which carries a significantly lower carbon footprint.

ArcelorMittal will introduce new manufacturing processes that contribute to a considerable reduction of CO2 emissions and deliver other positive environmental impacts including the elimination of emissions and flaring from coke making and ironmaking operations.

The investment is contingent on support from the governments of Canada and Ontario. The Government of Canada announced it will invest CAD\$400 million in the project. The company is in discussions with the Government of Ontario regarding its support.

At the heart of the plan is a 2 million tonne capacity DRI facility and an EAF facility capable of producing 2.4

million tonnes of high quality steel through its existing secondary metallurgy and secondary casting facilities. Modification of the existing EAF facility and continuous casters will also be undertaken to align productivity, quality and energy capabilities between all assets in the new footprint.

The new DRI and EAF will be in production before the end of 2028.

This project contributes to the sustainability of well-paying skilled positions in advanced manufacturing and is also expected to support as many as 2,500 jobs during the engineering and construction phases. It will also support ArcelorMittal Dofasco's customers decarbonization ambitions while further enhancing ArcelorMittal Dofasco's capability to support the most demanding product segments including automotive exposed, advanced high strength steels, and consumer packing.

This new production route for ArcelorMittal Dofasco will provide a technically advanced manufacturing environment for operations, maintenance, and technology staff to work in, with improved health and safety. New positions, training and development will be provided for employees moving from existing business units to new assets, with approximately 160,000 training hours required to transition our workforce to the new footprint.

Finished import market share estimated at 20 percent in July

Based on the Commerce Department's most recent Steel Import Monitoring and Analysis (SIMA) data, the American Iron and Steel Institute (AISI) reported that steel import permit applications for the month of July totaled 2,786,000 net tons (NT). This was an 8.2 percent decrease from the 3,036,000 permit tons recorded in June and a 3.8 percent decrease from the June preliminary imports total of 2,897,000. Import permit tonnage for finished steel in July was 1,879,000, down 6.9 percent from the preliminary imports total of 2,018,000 in June. For the first 7 months of 2021 (including July SIMA permits and June preliminary imports), total and finished steel imports were 17,474,000 NT and 11,874,000 NT, up 15.7 percent and 18.5 percent, respectively, from the same period in 2020. The estimated finished steel import market share in July was 20 percent and is 19 percent year-to-date (YTD).

Finished steel imports with large increases in July permits vs. the June preliminary imports include sheets and strip all other metallic coatings (up 39

percent), mechanical tubing (up 29 percent) and sheets and strip galvanized hot dipped (up 19 percent). Products with significant year-to-date (YTD) increases vs. the same period in 2020 include hot rolled sheets (up 66 percent), hot rolled strip (up 56 percent), light shapes bars (up 55 percent), plates in coils (up 44 percent), cut lengths plates (up 42 percent), sheets and strip all other metallic coatings (up 40 percent), wire rods (up 39 percent), wire drawn (up 22 percent), hot rolled bars (up 17 percent) and heavy structural shapes (up 14 percent).


In July, the largest finished steel import permit applications for offshore countries were for South Korea (250,000 NT, down 9 percent from June preliminary), Vietnam (99,000 NT, up 162 percent), Turkey (78,000 NT, down 20 percent), Japan (71,000 NT, down 40 percent) and Taiwan (65,000 NT, down 23 percent). Through the first seven months of 2021, the largest offshore suppliers were South Korea (1,581,000 NT, up 23 percent from the same period last year) and Japan (591,000 NT, up 22 percent).

Steel imports up 18.5 percent through June


Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the U.S. imported a total of 2,897,000 net tons (NT) of steel in June 2021, including 2,018,000 NT of finished steel (up 14.8 percent and 8.7 percent, respectively, vs. May final data).

Through the first 6 months of 2021, total and finished steel imports are

14,688,000 and 9,995,000 NT, up 18.5 percent and 15.6 percent, respectively, vs. the same period in 2020. Annualized total and finished steel imports in 2021 would be 29.4 and 20.0 million NT, up 33.4 percent and 23.9 percent, respectively, vs. 2020. Finished steel import market share was an estimated 21 percent in June and is estimated at 19 percent over the first six months of 2021.



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AR Scrap Metals MarketWatch

Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
#1 Bushelings	per gross ton	\$368.00	371.00	368.00	445.00	593.00
#1 Bundles	per gross ton	369.00	360.00	345.00	435.00	584.00
Plate and Structural	per gross ton	321.00	335.00	380.00	427.00	479.00
#1 & 2 Mixed Steel	per gross ton	309.00	312.00	360.00	429.00	450.00
Shredder Bundles (tin)	per gross ton	169.00	190.00	279.00	293.00	305.00
Crushed Auto Bodies	per gross ton	169.00	190.00	279.00	293.00	305.00
Steel Turnings	per gross ton	105.00	105.00	135.00	190.00	285.00
#1 Copper	per pound	3.72	3.60	4.00	4.09	4.09
#2 Copper	per pound	3.49	3.39	3.71	3.91	3.69
Aluminum Cans	per pound	.70	.70	.72	.78	.70
Auto Radiators	per pound	1.65	1.58	2.20	2.29	2.30
Aluminum Core Radiators	per pound	.64	.62	.74	.70	.74
Heater Cores	per pound	1.36	1.39	1.54	1.29	2.00
Stainless Steel	per pound	.71	.70	.72	.80	.86

All prices are expressed in USD. Printed as a reader service only.

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METALS

June steel shipments up

The American Iron and Steel Institute reported that for June 2021, U.S. steel mills shipped 8,031,516 net tons, a 33.3 percent increase from the 6,023,524 net tons shipped in June 2020. Shipments were up 0.6 percent from the 7,987,038 net tons shipped in May 2021. Shipments year-to-date in 2021 are 45,969,876 net tons, a 11.5 percent increase for six months.

A comparison year-to-date to the first six months of 2020 shows hot dipped galvanized sheet up 19 percent, cold rolled sheet up 14 percent and hot rolled sheet up 6 percent.

Novelis invests \$7 million for expansion

Novelis Inc. announced it is investing more than \$7 million to hire 37 new employees and restart several pieces of idled equipment at its manufacturing facility in Terre Haute, Indiana. With this expansion, the plant will produce aluminum for household foil applications later this year after recently securing several multi-year agreements with key customers. Examples of these applications include products such as aluminum foil sheets and rolls used in commercial and residential kitchens. Novelis is actively seeking qualified candidates for available positions that include operators, mechanics, electricians, engineers and other operational

leadership roles. Interested candidates can learn more by visiting novelis.com/careers and searching for jobs in Terre Haute.

Novelis stopped producing household foil in 2014 due to unfavorable market dynamics. Since then, the U.S. Aluminum Association's Trade Enforcement Working Group, of which Novelis is a member, has filed antidumping and countervailing duty cases against several countries from which unfairly priced aluminum foil has been imported into the U.S. Since the success of these cases, interest for household foil produced in the U.S. has increased and Novelis has decided to

reenter the market, create jobs and invest in its operations.

The Indiana Economic Development Corporation offered Novelis up to \$475,000 in conditional tax credits based on the company's job creation plans. These tax credits are performance-based, meaning the company is eligible to claim incentives once residents of Indiana are hired. The Terre Haute Economic Development Corporation approved additional incentives. The WorkOne Center of Western Indiana will also support Novelis' hiring efforts and offer eligible, unemployed workers funding for on-the-job training.

Steel Dynamics pledges long term carbon neutrality goal

Steel Dynamics, Inc. announced a goal to be carbon neutral by 2050 for its electric arc furnace (EAF) steel mill operations. To achieve this target, the company also set interim emissions reduction and renewable energy milestones to be achieved by 2025 and 2030.

On the path to carbon neutrality, Steel Dynamics is targeting a 20 percent Scope 1 and Scope 2 combined greenhouse gas (GHG) emissions intensity reduction across its EAF steel mills by 2025 and a 50 percent reduction by 2030, compared to a 2018 baseline. Additionally, the company plans to increase the use of renewable electrical energy for its EAF steel mills to 10 percent by 2025 and 30 percent by 2030.

These goals expand on Steel Dynamics' existing sustainability focus, leading the steel industry for more than 25 years with its exclusive use of electric arc furnace technology, circular manufacturing

model, and innovative teams creating solutions to increase efficiencies, reduce raw material usage, reuse secondary materials, and promote material conservation and recycling. Steel Dynamics plans to be a leader in this area with focus toward:

- Identifying and implementing emission reduction projects.
- Improving energy management to reduce emissions and enhance operational efficiency.
- Increasing the use of renewable energy, including partnering with local utilities.
- Researching and developing innovative technologies.

"Our commitment to all aspects of sustainability is embedded in our founding principles – valuing our teams, our partners, our communities, and our environment," stated Mark D. Millett, chairman, president and chief executive officer. "As evidence

of our ongoing commitment, our Scope 1 and Scope 2 emissions are already among the lowest in the industry. We are embarking on a path to carbon neutrality from a position of strength – and we are committed to the continued reduction of our environmental footprint."

Based on International Energy Agency recommendations for the steel sector, Steel Dynamics' current steelmaking operations already fall within the 2050 intensity targets designed to meet the Paris Agreement and its 2°C scenario. Further, the company is aligned with the Science Based Targets Initiative (SBTi) as its EAF steel mills plan to meet the SBTi "well below 2°C" scenario target for Scope 1 and 2 combined emissions intensity by at least 2030, based on the Iron & Steel Sectoral Decarbonization Approach.

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 <p style="font-weight: bold; font-size: 1.1em;">'05 Deere 544J</p> <p>County maintained, stock #3668, great running!</p> <p style="font-weight: bold; font-size: 1.1em; color: red;">\$32,900</p>	 <p style="font-weight: bold; font-size: 1.1em;">CAT shear</p> <p>Steel, used, 30½ jaw depth, fits 330-360 class</p> <p style="font-weight: bold; font-size: 1.1em; color: red;">\$25,000</p>	 <p style="font-weight: bold; font-size: 1.1em;">'06 Komatsu WA320-5</p> <p>AC, very nice tires, JRB quick coupler</p> <p style="font-weight: bold; font-size: 1.1em; color: red;">\$39,500</p>	 <p style="font-weight: bold; font-size: 1.1em;">'11 Volvo L120F</p> <p>VERY clean, hyd. quick coupler, 4.5 yd bucket, stock #3703</p> <p style="font-weight: bold; font-size: 1.1em; color: red;">\$67,500</p>	 <p style="font-weight: bold; font-size: 1.1em;">'96 CAT IT28F</p> <p>NICE! Equipped well, many attach. options too!</p> <p style="font-weight: bold; font-size: 1.1em; color: red;">\$39,500</p>	 <p style="font-weight: bold; font-size: 1.1em;">2017 JCB 427</p> <p>Volvo style quick coupler, ride control</p> <p style="font-weight: bold; font-size: 1.1em; color: red;">\$74,900</p>		

AUTOMOTIVE

Eastman collaborates for fully circular recycling study in automotive market

Eastman announced a collaboration with the United States Automotive Materials Partnership LLC (USAMP) and automotive recycler PADNOS for a concept feasibility study to demonstrate a closed-loop project to recycle automotive-industry mixed plastic waste in the automotive supply chain. USAMP is a subsidiary of the United States Council for Automotive Research LLC (USCAR).

When automobiles are at the end of their life, metals, tires and glass account for 80 to 90 percent of the materials that can be recycled through traditional mechanical recycling streams. The other 10 to 20 percent, referred to as automotive shredder residue (ASR), consists of mixed plastic and other non-recycled materials that currently end up in landfills or are recovered through waste-to-energy technologies. Under this initiative

PADNOS will use ASR as a sustainable feedstock for Eastman's molecular recycling process, creating a truly circular solution.

The study will also assess how well Eastman's carbon renewal technology (CRT), one of Eastman's two molecular recycling technologies, breaks down the plastic-rich fraction of ASR into molecular building blocks. By recycling these complex plastics in CRT, Eastman can replace fossil-based feedstock and create polymers without compromising performance for use in new automotive applications.

USAMP sees the potential for energy savings and reduced overall greenhouse gas emissions while eliminating a significant fraction of the five to seven million tons of ASR generated annually in the U.S. from landfills.

"This 12 month automotive recycling project with Eastman and PAD-

NOS is part of USAMP's broad materials research and sustainability program," said Steve Zimmer, executive director of USCAR. "Programs like this are critical to establishing a cost-effective pathway for addressing challenges associated with the consumption of ASR back into automotive parts to enable true industry circularity."

Steve Crawford, executive vice president, chief technology, and sustainability officer for Eastman, cited this as a prime example of how collaboration across the value chain is essential to making material circularity mainstream.

"Our molecular recycling technologies are recycling complex plastic waste at commercial scale now, but technologies alone won't build a circular economy – it takes work across the value chain by multiple players who are determined to deliver sustainable solutions," Crawford said. "That's why this project is so exciting. The member companies of USCAR – Ford, General Motors and Stellantis – are accelerating their approach to designing for more sustainable end-of-life solutions, and this project can be a catalyst for circularity within the automotive value stream that addresses both the climate and waste plastic issues and reshapes what we thought was possible."

Refurbished cars donated

Two Dallas residents experienced a life-changing event – the presentation of two vehicles to provide them independence and the ability to work and take care of their families – thanks to the National Auto Body Council Recycled Rides® program and the United Recyclers Group conference, along with car donors Farmers Insurance® and collision repair partners Town East Ford and Trophy Nissan, both Berkshire Hathaway Automotive companies.

The recipients, selected by Family Promise of Longview, were:

•Jackie Grant, who received a 2013 Nissan Altima repaired by Trophy Nissan, is a grandmother raising her granddaughter. She lost her vehicle while she was out of work due to surgery.

•Randi Ruthart-Garrison, who was presented with a 2014 Ford Fusion refurbished by Town East Ford, has an old, unreliable vehicle, which makes it challenging for her family to get to work and school.

NABC Recycled Rides is a unique program in which businesses team up to repair and donate vehicles to individuals and families in need of reliable transportation. Since the inception of the program in 2007, they have donated over 2,750 vehicles valued at more than \$36 million.

SALVAGING Millions

by Ron Sturgeon
Autosalvageconsultant.com

It's not about luck – It's the plan!

I believe trouble comes in bunches. There's no such thing as luck, good or bad. We all have storms in our life. Some weather the storms better than others. By working hard and being honest, you'll find that when a storm comes your way, you will always have the money, friends and resources to see you through. Don't count on luck to help you, and don't bemoan it as the reason for problems.

Those things you set into habit are the things that guide you when the trouble comes. If you're standing on firm ground through practiced moral principles and are developing sound business relationships, you'll weather just about any storm that comes your way.

There are four simple steps in growing, improving or rebuilding a business. Most of your competitors just won't get it. The first step is to recognize you have a problem. You have to see that there's room for improvement. That's where most fail. Once you recognize the problem, the second step is to define it more closely. Once you've done that, then you devise a plan to address the issues you've defined.

But the fourth and most difficult step is still in front of you – executing your plan. This part can be immeasurably painful because it requires a massive amount of new discipline. You'll have to deal with a whole new sector of problems because you're going to go beyond where you once were.

The funny part is that nearly all your competitors won't get it. Most know there is something amiss, the engine isn't running on all cylinders, and mama didn't get her usual new car last year. They may even be piddling over a solution, but I can promise you they don't have a plan.

They haven't committed anything to writing. It can be as simple as listing what is wrong, with the solutions and a timeline for planning. Hopefully, you will use your operating metrics to identify the problems, whether they are bigger than a breadbox or smaller than a car, and then you'll track your implementation of solutions. By looking at the metrics, you can see if you are making progress.

So, if you do it, guess what? You win! They will be left behind.

So, what are you waiting for?

Remember, only you can make BUSINESS GREAT!

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RUBBER

Tire shipments expected to increase in USTMA 2021 July forecast, indicating continued rebound for U.S.

JULY FORECAST: USTMA 2021 Projected Tire Shipments

ORIGINAL	2020	2021 Estimated	% Change	Units +/-
Passenger	37.2	40.9	9.9	3.7
Light Truck	5.4	5.7	6.2	0.3
Truck	4.7	5.9	25.3	1.2
REPLACEMENT				
Passenger	203.8	224.4	10.1	20.6
Light Truck	32.9	37.3	13.2	4.3
Truck	19.2	21.9	14.6	2.8
TOTAL	303.2	336.1	10.9	32.9

ALL SHIPMENTS IN MILLIONS. FIGURES ARE ROUNDED.

The U.S. Tire Manufacturers Association (USTMA) projects total U.S. tire shipments of 336.1 million units in 2021, compared to 303.2 million units in 2020 and 332.7 million units in 2019.

Comparing with 2020, Original Equipment (OE) shipments for passenger, light truck and truck tires are

expected to increase by 9.9 percent, 6.2 percent, and 25.3 percent respectively, with a total increase of 5.2 million units. Replacement shipments for passenger, light truck and truck tires are also projected to increase by 10.1 percent, 13.2 percent, and 14.6 percent respectively, with a total increase of 27.7 million units.

A woman told a marriage counselor that her husband's complaint that he leads a dog's life is probably well founded.

"He comes in the house with muddy

feet," she said, "tracks across my clean floors, barks at nothing, growls at his food and makes himself comfortable on my best furniture."

Tire rubber recycler PRISM Worldwide closes on latest funding

PRISM™ Worldwide, LLC a recycled tire rubber and plastics innovation company, closed a \$10.5 million capital funding round, bringing the total capital raised to \$23.5 million.

The latest round of investment comes from Seattle based Columbia Pacific Advisors and the Baty Family. The new investment will provide PRISM the capital to expand their operations as well as their research and development efforts.

Based in Kirkland, Washington, PRISM Worldwide has developed the first patented clean technology that converts 100 percent of end-of-life tires (ELT) into functional, sustainable, like-new rubber and plastic polymers. The resulting product is called PRISM Thermoplastic Rubber (PTR™) and is used in the manufacture of a number of rubber and plastic products. This unique process is the result of thirty years of research and refinement inspired by the path to sustainability in the circular supply chain.

It creates a reaction that realigns the critical sulfidic bridge instead of breaking it. This keeps all the valuable polymer, linkages, and carbon black intact. Unlike traditional recycling

methods which destroy the sulfidic bridge, this new process creates a like-new thermoplastic rubber.

The resulting product, PTR, can be utilized in asphalt roads, roofing applications, and new tire production. Additional applications include engineered consumer rubber products such as shoe soles, hoses and belts – just to name a few. With expanded R&D capability, the company aims to create even more applications for its recycling process. By providing not only the rubber, but all the chemical bonds too, PTR provides a new product for the rubber and plastics industry.

With heightened global demand for rubber and oil-based materials which use finite natural resources, high-functioning rubber repurposing is crucial for long term sustainability. In addition to the reuse of these resources, calculations indicate that the production of PTR emits less than 15 percent of the greenhouse gases emitted in the manufacture of synthetic rubber. Because of their focus on sustainability and carbon footprint reduction, PRISM has attracted investors dedicated to funding innovations in the environmental, social, and governance sphere.

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BUSINESS BRIEFS

McCloskey expands with new manager in India

■ McCloskey has appointed Abhishek Nagpal to the position of country manager – business development, McCloskey India, responsible for the company's brand and sales operations in the Indian market.

Nagpal joins the McCloskey International team with over a decade of experience in the Indian heavy equipment industry, most recently as manager – sales for Metso Outotec. His time collaborating in-market with customers to deliver the best solutions for their application requirements provides a strong foundation for his new role with McCloskey International.

Abhishek's appointment aligns with the market entry of McCloskey into India, with sales based in Gurugram, and manufacturing based in Alwar, Rajasthan. The first products, McCloskey high mobility tracked stackers, have dispatched from the facility, with screeners and crushers queued for production. McCloskey's track mobile products are highly versatile and suited to a wide range of applications including aggregates, landscaping, infrastructure and road building, construction and demolition, mining, waste management and recycling.

In his new role, Abhishek will be overseeing sales in the region, as well as identifying and recruiting strategic distribution partners who will bring McCloskey's broad product range of crushers, screeners, stackers and washing systems to the market.

Brokk hires midwest regional sales manager

■ Brokk, a manufacturer of remote-controlled demolition machines, announced Chad Diacek as its Midwest regional sales manager. Diacek manages sales for both Brokk robotic demolition machines and Aquajet Hydrodemolition robots. He provides support to customers throughout Illinois, Iowa, Wisconsin, Minnesota, South Dakota, North Dakota, Nebraska, Kansas and Missouri.

Casella Waste appoints Gary Sova to its board

■ Casella Waste Systems, Inc., a regional solid waste, recycling and resource management services company, has appointed Gary Sova to Casella's board of directors. In addition, the company announced the retirement of James F. Callahan, Jr. from its board and the retirement of James E. O'Connor upon the completion of his term.

Sova served as a senior executive at Republic Services, Inc. from 2002 to 2019. During his time at Republic Services, he served as senior vice president of the energy services division, senior vice president of national accounts, and as the company's executive vice president of marketing and sales.

With the retirement of O'Connor and Callahan and the appointment of Sova, the company's board now consists of nine members, seven of whom are independent directors. Sova was appointed to the board's audit committee.

Porter appointed as GBB sustainability officer

■ Gershman, Brickner & Bratton, Inc. (GBB) announced that Jennifer Porter, GBB vice president, has been appointed as the firm's sustainability officer. As sustainability officer for the company, she will oversee GBB's internal sustainability efforts and lead sustainability planning assignments for clients. She will continue to spearhead activities that increase diversity, inclusion, equity, and justice within GBB and for its clients.

With 20 years of experience in government and private sector sustainability initiatives, Porter has extensive expertise in solid waste management, recycling and composting program development and evaluation. She is a certified practitioner in Zero Waste Principles and Practices by the Solid Waste Association of North America and the California Resource Recovery Association, and presents and publishes regularly on topics such as resilience, the circular economy and sustainability.

At GBB, she has managed multiple key projects including leading the team tasked with planning and implementing the development of a circular economy Sustainable Business Park with an ambitious goal in Kent County, Michigan to achieve 90 percent waste reduction by 2030. She also led multiple long-term strategic solid waste management community planning projects.

Prior to joining GBB in 2017, she was conservation program coordinator for the City of Portland, Oregon's Office of Sustainable Development.

Anaergia names new director to board

■ Anaergia Inc., an integrated waste-to-value platform created to eliminate greenhouse gases by turning organic waste into renewable natural gas, fertilizer and water, has appointed Richard Chow to the board of directors.

The company's nominating committee proposed, and the board approved, the appointment of Chow to the board. He will serve on the governance, compensation and nominating committee of the board.

Chow is an advisor to Inclusive Capital Partners, a San Francisco-based investment firm. Chow has close to 25 years of experience in the energy industry, having served as chief executive officer, president and/or board member for several companies. Most recently, he has been a Distinguished Careers Institute Fellow at Stanford University, where he continues to serve as an advisor to the TomKat Center for Sustainable Energy.

Previously, Chow founded Ridge Energy Services in 2016, an oilfield services company focused on geothermal, and sold the company assets to Iceland Drilling in 2020. For close to 10 years, Chow was a portfolio chief executive officer for a group of investors, including Riverstone Holdings, a \$30 billion private equity firm investing across the entire energy value chain globally. In this capacity, he served as the chief executive officer and board member for ThermaSource and president of US Biodiesel.

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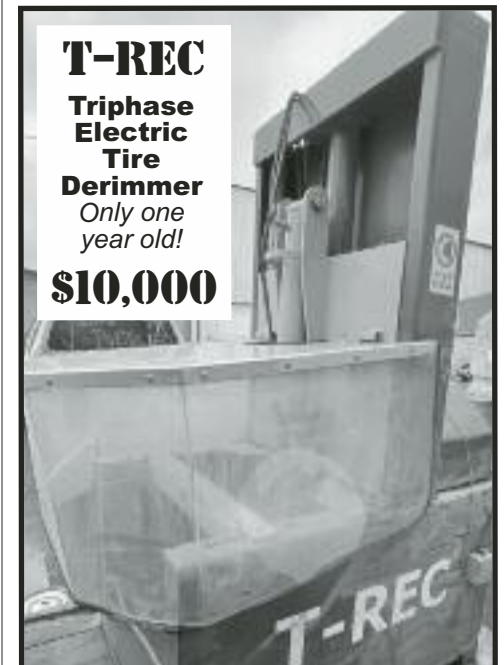


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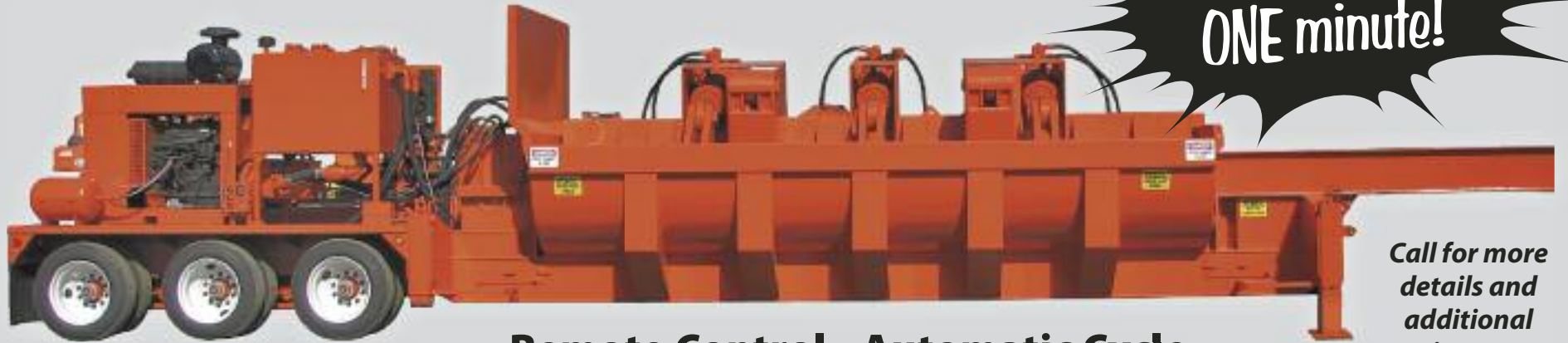


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Creating a circular economy with e-waste

by MAURA KELLER

mkeller@americanrecycler.com

In a huge win for e-waste recycling, all of the medals for the current 2021 Tokyo Olympic games come from donated, recycled electronic items from the Japanese population. Japan collected consumer electronics for over five years to gather the noble metals necessary to create all the medals for the Olympic champions (See *Olympic medals made from recycled electronic waste* on page B3).

This example of e-waste recycling is an indication of the changing focus on properly recycling the electronic waste that is growing exponentially as our global environment continues to embrace the “latest and greatest” electronic devices, while improperly disposing of their used phones, tablets, computers and other electronic products.

According to JD Ambati, founder and chief executive officer of EverestLabs AI, a company in advanced recycling with artificial intelligence and robots, just a decade ago in 2011, the EPA task force released the National Strategy for Electronics Stewardship report, which details the federal government’s plan to manage electronics by:

- 1) Incentivizing greener design of electronics
- 2) Leading by example
- 3) Increasing domestic recycling
- 4) Reducing harmful exports of e-waste and building capacity in developing countries.

“Today, e-waste is scattered throughout the waste and recycling ecosystem,” Ambati said. Global E-waste Monitor



The International Olympic Committee announced that for Tokyo 2020, nothing will change. Though the Olympics will be in 2021, the branding will still say 2020. The medals which were derived from metals recovered from electronics in Japan sported the original year.

2020, a new report produced in collaboration with the UN Environment Program (UNEP), found that a record 53.6 million metric tons of electronic waste was generated last year. Also, e-waste was up 21 percent in the last 5 years with Asia generating the largest volume of e-waste, 24.9 million metric tons (Mt), with the Americas generating 13.1 Mt.

“By 2030, the report predicts that global e-waste will nearly double to reach 74 million metric tons, driven by increased consumption of electric and electronic equipment that, according to the report, has ‘short life-cycles and few options for repair – with only 17.4 percent of 2019’s e-waste being collected and recycled,’” Ambati said.

Matthew Anderson, business development manager at Clean Earth said one of the main things making the e-waste situation worse is that we have higher consumption rates of electronics. We know that per capita, around the globe, people are purchasing more electronics year over year.

“We did see a dip in purchasing in Q2 and Q3 of 2020 because of the pandemic, but that rate has already picked back up,” Anderson said.

On top of that, devices have short life cycles as consumers and manufacturers are always looking to invest in the latest generation of devices.

According to Anderson, there is a “right to repair” movement going around, with legislation behind it, that aims

to give individuals the ability to repair and modify their consumer electronic devices.

“This is a step change because right now the manufacturer requires the consumer to use only their services. The “right to repair” means refurbishers can extend the life of the product for its current user, or find it a second home with a new user, therefore reducing the amount of devices that are discarded,” Anderson said. “This movement could mean less e-waste is produced.”

Another action the industry is seeing being taken to improve e-waste collection is that more countries are attempting to create policies around e-waste and its handling. As Anderson pointed out, the annual Global E-waste Monitor

reported that, since 2014, the number of countries that have adopted a national e-waste policy, legislation or regulation has increased from 61 to 78.

“However, regulatory advances in some regions are slow, enforcement is poor, and policy, legislation or regulation does not yet stimulate the collection and proper management of e-waste due to lack of investment and political motivation,” Anderson said. “There should also be involvement from the manufacturers for end-of-life disposal.”

As Ford Seeman, founder and president of Forest Founders explained, most people don’t realize that electronic consumption of media has a negative impact on the planet.

See E-WASTE, Page B6

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Electric vehicle battery recycling market revenue predicted to be \$13,299.6 million

According to a report published by Research Dive, the global electric vehicle battery recycling market is expected to generate a revenue of \$13,299.6 million by 2028 at a CAGR of 37.1 percent during the analysis period from 2021 to 2028, increasing from \$1,217.1 million in 2020.

The inclusive report provides a brief overview of the current scenario, including significant aspects of the market such as growth factors, challenges, restraints and various opportunities during the forecast period. The report also provides figures that make it easier for new participants to understand the market.

In recent years, with the rising concern about climate crisis the demand for 'green' electric vehicles has increased. This increasing demand of EVs is expected to upsurge the number of used batteries. This is the main factor enhancing the growth of the global electric vehicle battery recycling market during the forecast period.

One of the major restraining factors of the market is the high cost of the battery recycling process.

Further, the innovative eco-friendly batteries are expected to create many opportunities for the global market in upcoming years.

The report has divided the market into different segments based on chemistry, application and regional outlook.

Chemistry: Lithium-based Sub-segment Expected to be the Most Lucrative

The lithium-based sub-segment is expected to generate the highest revenue of \$6,099.8 million by 2028, increasing from \$541.0 million in 2020. The main factors behind this growth include high power-to-weight ratio, high temperature performance, high energy efficiency and low self-discharge.

Electric Cars Sub-Segment Predicted to be the Most Profitable

The electric cars sub-segment is expected to garner revenue of \$5,485.1 million at a CAGR of 38.4 percent by 2028, surging from \$470.7 million in 2020. Electric cars have zero carbon emissions which make them more eco-friendly than regular petrol and diesel cars.

Regional Analysis: Asia-Pacific Expected to Dominate the Market

The Asia-Pacific regional market is predicted to reach a revenue of \$6,729.6 million by 2028, at a CAGR of 37.8 percent. The main factor behind this growth is the rising production and demand of electric car battery and electric vehicles in the regional countries such as India, Japan, Australia and China.

Key Players in the Market

The most prominent players of the global electric vehicle battery recycling market include:

- American Manganese Inc.
- Battery Solutions
- LI-CYCLE CORP.
- ACCUREC Recycling GmbH
- Retrie Technologies
- G & P Service

- SNAM S.A.S.
- SITRASA
- Umicore
- Recupyl

These players are working on developing strategies such as product development, merger and acquisition, partnerships and collaborations to sustain the market growth.

For instance, in August 2019, American Battery Solutions, Inc. (ABS), an advanced battery systems company completed the acquisition of high-voltage manufacturing and testing assets from Robert Bosch Battery Systems, a hybrid vehicle battery provider. ABS offers electrified mobility battery systems to emerging industrial, transportation, and commercial markets by leveraging the vast experience and expertise of the Robert Bosch Battery Systems in development, testing, and manufacturing of automotive battery systems.

The report also summarizes many important aspects including financial performance of the key players, SWOT analysis, product portfolio, and latest strategic developments.

Covid-19 Impact Analysis

The coronavirus pandemic has impacted the global electric vehicle battery recycling market in a negative way. This is mainly because of the decline in the demand of electric cars due to the restrictions on travel and work from home culture. Apart from that, the manufacturing of electric cars also slowed down because of the temporary supply chain halt.

Re-Teck pushes recycling using gaming

E-waste recycling company, Re-Teck, announced the development of a new game that Great Focus Inc., a Re-Teck subsidiary, is creating to educate the public about the importance of recycling end of life electronics. Game concepts were created by high school students as part of a competition sponsored by Re-Teck.

"We couldn't be more excited about this educational effort to encourage and incentivize players to engage in activities that help clean up our planet," stated Tony Wang, chief executive officer of Re-Teck.

The game will introduce players to a planet scourged with e-waste and broken electronics. Players assume the role of the main character and create a robot that recycles the electronics into new electronics. As the players engage in gameplay, they can collect parts and tools that will help them advance in the game. Players will complete tasks along the way so they can earn coins that they can use in the store to purchase new tools and parts. Additionally, as they engage in these activities, a progress bar will show the planet becoming "green" again.

After an extensive search, Re-Teck chose global gaming developer Triodoxic Digital Studios out of Mumbai, India. Triodoxic's list of credentials includes film and movies, children's animation, educational programming, virtual reality, healthcare applications, and gaming. Triodoxic was chosen from developers both domestically and internationally. "In the end, we were most impressed by Triodoxic's vision for the game and understanding of the U.S. market," noted Wang.

Great Focus intends to launch the game in Q4 before Black Friday in the U.S. in the Apple iOS and Google Android Markets.

Currently, the company is working with their Dallas-based marketing firm, The Time Group, to develop the onboarding process for sponsors with plans to announce those sponsors as they sign onto the project.

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Redwood raises \$700 million to expand recycling

Redwood Materials announced a more than \$700 million external investment from a selected group of investors who understand Redwood's mission.

The round was led by funds and accounts advised by T. Rowe Price Associates, Inc. and includes Goldman Sachs Asset Management, Baillie Gifford, Canada Pension Plan Investment Board and Fidelity. In addition, all Series B investors, Capricorn's Technology Impact Fund, Breakthrough Energy Ventures and Amazon's Climate Pledge Fund, returned for this round and Valor Equity Partners, Emerson Collective, and Franklin Templeton also participated.

Redwood asserts that all transportation will be electric and all electricity will be sustainable. The lithium ion batteries and other materials needed to power these solutions will need to be reused. Redwood is creating a closed-loop supply chain for electric vehicles and energy products, making them truly sustainable and continuing to drive down the costs for batteries.

"With this capital, Redwood will be able to accelerate our mission to make battery materials sustainable and affordable, accomplishing the change we need in the world with a circular economy," said JB Straubel, chief executive officer, Redwood Materials.

Redwood is currently developing processes to produce battery materials to resell into the battery supply chain. The company recently partnered with Panasonic at the Gigafactory, Envision AESC in Tennessee, and with Amazon, to recycle batteries and e-waste from parts of their businesses.

Last month, Redwood announced plans to triple the size of their Carson City facilities to 550,000 sq.ft. and to build another site on 100 acres in the Tahoe-Reno Industrial Center.

Olympic medals made from recycled electronic waste

The collection of small electronic devices for the Tokyo 2020 (2021) Medal Project ended in 2019. The medal design was announced in the summer of 2019.

The Tokyo Organizing Committee of the Olympic and Paralympic Games (Tokyo 2021) conducted the project to collect small electronic devices such as used mobile phones from all over Japan to produce the Olympic and Paralympic medals.

In the two years between April 2017 and March 2019, 100 percent of the metals required to manufacture the approximately 5,000 gold, silver and bronze medals were extracted from small electronic devices contributed by people from all over Japan. Every single medal to be awarded to athletes

E-waste and info tech asset disposition market size to reach \$115 billion by 2028

The global e-waste and IT Asset Disposition (ITAD) market size is expected to reach USD 115.06 billion at a steady revenue CAGR of 8.6 percent in 2028, according to latest analysis by Emergen Research. Global e-waste and IT asset disposition market revenue growth is driven by increasing usage of advanced technologies, electronic devices and equipment globally, and disposal of these products after end-of-useful life. Rising concerns regarding the harmful effects of e-waste on human health and the environment is a key factor driving market revenue growth. Environmental risks of e-waste are severe as waste contains hazardous and toxic materials, including lead, mercury, chromium, beryllium, cadmium and chemical flame retardants, which can leach into water and soil. High level of e-waste generation each year is expected to continue to drive revenue growth of the market to a significant extent.

Rise in demand for advanced and aesthetically pleasing home appliances is also resulting in rapid increase of the amount of discarded consumer electronic devices. This is also turning the e-waste and ITAD market into a billion dollar industry. Accumulation of vast volumes of e-waste is posing a major threat to the environment. Governments and various organizations across the globe are adopting innovative ways to manage the ever increasing volumes of electronic waste. The urgent need for recycling to reduce these products in landfills and rising awareness among consumers is also having a positive impact on how e-waste is being managed.

Companies generate vast volumes of IT wastes and are currently re-evaluating their procedures for management of IT equipment, owing to implementation of stringent regulatory compliances such as HIPAA/HITECH and NIST.

Lack of a proper plan to dispose of old IT equipment is creating concerns related to identity theft and fraud issues, which is creating rising concerns regarding privacy. Another factor hampering market growth is the additional cost of disposition services. Most companies have no proper disposal plans and several have admitted to delaying implementation of proper plans due to the additional cost of setting a program.

Key highlights from the report:

- In June 2021, Singapore started a nationwide e-waste recycling program, and on July 1st, certain types of items will be regulated – including ICT equipment, light bulbs and tubes, large appliances and batteries. These items are being regulated due to their widespread use and impact on the environment. The new program will also make it easy for consumers to recycle.


- The home appliance segment accounted for a significantly large revenue share in 2020 as households in developed regions use multiple electronic devices replaced at regular intervals, thus generating vast amounts of e-waste. Examples of e-waste include refrigerators, washing machines, televisions, air conditioners, phones and computers. Rise in awareness among consumers and the practice of sustainable purchasing options will help reduce further waste.

- The media and entertainment segment accounted for a significantly large revenue share in 2020 as the industry is using the latest devices and storage

equipment to attract more customers. The industry is rapidly changing due to emergence of new graphics and screens which renders older versions obsolete. Movie industry use of several storage devices and sport stadiums deploy advanced scoreboards, arcades are deploying virtual reality technologies and using numerous lighting systems for special effects, flight simulators and immersive 4D gaming experiences, which also require numerous support systems and electronics. This is expected to further continue to generate electronic waste.

- Asia Pacific market revenue is expected to register a rapid growth rate during the forecast period as the region is an electronics product manufacturing hub and a major in the semiconductor industry. The region accounts for 60 percent of the global semiconductor sales, of which China alone accounts for 30 percent. Increased spending on electronic R&D initiatives in China, Japan, Taiwan and South Korea is propelling market growth in the region. In addition, governments in these countries are taking e-waste seriously and launching more efficient management and recycling programs.

- Key players in the market include Dell Technologies, Electronic Recyclers International, Inc., Hewlett Packard Enterprise, LifeSpan International, Umicore S.A., Aurubis AG, Tetronics (International) Ltd., IBM Corporation, Boliden AB and Iron Mountain.




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during the Tokyo Games is made from recycled metals.

Amount of devices collected

- Approximately 78,985 tons collected by municipal authorities across Japan (used small electronic devices including mobile phones)

- Approximately 6.21 million used mobile phones collected by NTT Docomo shops across Japan

Final amount of metals collected

- Gold: Approximately 32kg
- Silver: Approximately 3,500kg
- Bronze: Approximately 2,200kg

Participating municipalities

- 1,621 municipalities
- 90 percent of the 1,741 wards, cities, towns and villages nationwide participated.

EQUIPMENT SPOTLIGHT

Wire Strippers & Choppers

by MARY M. THORNTON

maryt@americanrecycler.com

Ubiquitous wiring can be one of the most common aspects of recycling electronics. Many companies in the industry can profit from extracting the metals that are involved, assuming they can also identify the best product for that process, relative to the size of their operation.

The Bluerock® model WS260 is an industrial grade automatic wire stripping machine used for jacketed insulation removal of electric wires for bare copper and aluminum recycling. The WS260 is the firm's most heavy duty versatile wire stripper with the broadest range in wire cutting from 22 gauge to 2.25" diameter including Romex.

Todd Yamashita, sales vice president, said "What sets Bluerock machines apart from the competition is their automatic self-adjusting design. The WS260's 9 channel cutting rollers are set on a spring suspension that automatically raise and lower to accommodate for a variety of wire types, sizes and conditions. Wires are pulled in by the machine and pass through two sets of cutting rollers to effectively cut the wire on both top and bottom in a single pass, making it much easier to separate your jacket from the bare copper."



CopperMine

Since 2008, CopperMine has offered a wide range of copper recovery machinery, from packet-sized wire stripper to industrial-scale granulator, and anything in between. "We hold a series of U.S. and foreign patents and all of our products are manufactured in our own factory. For instance, our Model 610 industrial grade granulator is compact and easy to use. With one-person-operation, it processes a wide variety of wires and cables and requires only a 10' x 10' space. The design has been enhanced for low-grade wire types like automotive harnesses, CAT5 communication cables, THHN, extension cords, and more. This machine processes a maximum throughput of 150 lbs. of insulated wire per hour with a high copper purity rate up to 99.99 percent," commented

Paul Duclos, operations manager.

He cited the two most important rules in the wire chopping business as copper purity and machine up-time. "A small amount of impurities can easily decrease output from #1 copper to #2, and decrease profits. An hour stoppage in processing means an

hour's wage wasted. CopperMine delivers 99.99 percent purity and our machines are backed with all spare parts stocked and ready for same day shipping. Rising shipping costs and newly implemented foreign regulations have led to an increase in domestic wire processing and our Model 610 is the perfect choice for anyone just starting out in the wire chopping business."

Copper Recovery is a manufacturer of wire and cable recycling equipment and also offers sales and service worldwide. Christopher Carlson, president stated, "We also act as agent or representative for some

of the finest European manufacturers of recycling machinery. Most recently, we infused our knowledge and know-how gained over the last 20 years of cable recycling, combined it with a proven platform, added in a hefty amount of re-engineering along with a top to bottom refresh. The result was a modern and updated series of wire chopping lines, Phoenix." Phoenix, in four standardized configurations, suits most processing capacity requirements and budgets. The equipment is designed for mid-size scrap yards, processing anywhere between 20,000 to 1,000,000 lb. of ICW per month.

Carlson described how "early in the pandemic, we noticed delayed delivery of raw materials and finished goods, so we took steps to eliminate these delays for our clients, including stocking up on electronics we use and producing equipment ahead of orders. As our activities are deemed essential commerce, we've also been free to travel across North America. All of this allowed us to deliver equipment without delays. As copper

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Bluerock Tools

Bluerock sells primarily to metal and automotive recyclers, scrap yard, commercial electricians, demolition contractors and military and government agencies. The company has been inventing and selling their own patented design manual and motorized wire stripping machines since 2005.



Copper Recovery, Inc.

See STRIPPERS & CHOPPERS, Page B5

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Strippers & choppers ■Continued from Page B4

prices increase and consumer spending ramps up, we feel extremely fortunate to be very busy with orders. With a world-wide push for decarbonization, copper demand is predicted to increase significantly over the coming years and we're well positioned for that upward trend."

Sweed consistently seeks ways to improve its nonferrous recovery systems. During an increase in low-yield copper recovery inquiries a few years ago, the firm decided to design and manufacture their version of a processor that could provide a solution for their clients. "The design of our product allows for more adjustment of the process while being a much sturdier piece of equipment. Our Turbo Mill effectively and efficiently processes #2 copper wire and other fine wire, making it easier to separate. Before it hit the market, the primary source for customers in the U.S. for a turbo mill was through international manufacturers. We saw an opportunity to offer our world-class engineering, service, and technical support," explained Chris Salyer, engineering director."

To separate the copper wire from the plastic surrounding it, the Turbo Mill beats the material around, tumbling it over and over to pulverize any remaining insulation. This friction rips the plastic away from the copper wire, which is balled into tiny pellet-like pieces. In this shape, the balled copper "flows" freely like fine sand as it separates easily from plastic – unlike straight fine wire, which can nest and entrap plastic, impeding the separation process. Salyer added, "Our product provides many distinct benefits in the copper liberation process because it makes the balled copper easier to separate from the plastic, and so increasing



Sweed Machinery

copper recovery efficiency and yield. The recovered copper also offers increased purity because the removal process ensures complete separation of the two materials involved. Without a Turbo Mill, someone might use an eighth-inch granulator screen in our entry level chopping line, which allows for 1,500 to 2,000 lbs. of processing per hour. With a Turbo Mill, you can use a larger granulator screen, which more than doubles your throughput and lets you process 4,000 to 5,000 lbs. of material every hour. That increase can also be reflected in a user's bottom line as a higher quantity of purer copper allowing users to sell more scrap at a higher value or reuse it as needed."

Salyer concluded, "The Turbo Mill, like every Sweed machine, is built with usability as a priority. With a line that ranges from 40 to 150 hp, Sweed's Turbo Mill can easily integrate into most existing systems. We provide high quality service and routinely help our customers set up their new machines and that ease of use extends beyond installation. A Turbo Mill is simple to run, maintain, usually feeds right from the granulator and only needs standard maintenance every million pounds or so. It just goes."

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EAGLE DEVELOPS MACHINE TO PEEL MULCH FROM OTR TIRES

Eagle announces their first machine capable of producing rubber mulch. The Eagle Edge 360 is designed to remove high-quality mulch from the treads and sidewalls of OTR tires ranging in sizes from 33" through 63" rims.

The Edge 360 features rasp heads in three locations at varying angles. Multiple rasp heads increase the surface area that can be claimed as mulch and speeds up cycle time. Consistent pressure and tire rotation removes mulch evenly across the whole surface of the tread and operators can control rasp angle and depth with a remote function.

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HIGH PERFORMANCE MELT FILTERS FOR HIGHER PET THROUGHPUTS

Ettliger has unveiled a new generation ECO products for use in PET recycling. The new features accommodate systems with a higher product throughput and are initially available in sizes suitable for medium-sized recycling lines.

Ettliger's ECO filters work with a continuous flow of melt from the outside to the inside of a rotating, perforated drum. A scraper removes a higher concentration of contaminants, sending them to the discharge system.

The new ECO filters have a modular structure, thereby providing a wide range of options for adjusting the filter properties to the respective task.

Ettliger
Kunststoffmaschinen GmbH
Messerschmittring 49
D-86343 Königsbrunn
Germany
+49 8231 34908-12
www.ettlinger.com



L-COM LAUNCHES NEW USB 3.0 ECF-STYLE PANEL MOUNT COUPLERS

L-com, a manufacturer of wired and wireless connectivity products, has launched a new series of USB 3.0, ECF-style, panel mount couplers for use with data acquisition, test and measurement and PC peripheral interconnect applications.

These new couplers allow high-speed, USB 3.0 connections to be efficiently passed through panels or enclosures by utilizing L-com's ECF flange design.

Coupler options include A to A, A to B, and B to A connector combinations in addition to both chrome-plated, shielded and unshielded ECF housing designs.

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NEW COMPACT CRUSHER FROM MCCLOSKEY INTERNATIONAL

McCloskey International has unveiled the I4C, the latest entry into McCloskey's impact crusher line.

In a class of its own, it brings the power and productivity of a 44.3" impactor to a compact footprint for maximum maneuverability.

The crusher has been designed with a deeper chamber, creating greater tramp release space. With an aggressive blow bar and apron design, 4 bar variable speed rotor, and three crush zones with an optional fourth strike, the I4C can be set up as a primary or secondary crusher in some of the toughest materials.

McCloskey International
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Keene, Ontario CA K9J 0G6
705-295-4925
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E-waste

■Continued from Page B1

"E-waste is mostly plastics, silicon and conducting metals," Seeman said. "These materials all have high carbon costs. Precious metals like gold and platinum have high environmental costs for mining. Plastics are derived from crude oil. Since all these materials are highly lucrative to mine, it is cheaper to mine new material than it is to recycle it. This de-incentivizes the electronics industry from pushing investments into recycling programs."

In addition, oftentimes electronic waste contains dangerous chemicals such as heavy metals and components that cannot simply be discarded through traditional disposal. Although not commonly recognized by the consumer, electronics may contain toxic metals such as lead, cadmium or mercury, along with other materials, making the importance of proper disposal and recycling imperative to protect our environment.

As Seeman explained, due to the types of metals used, there is an economic incentive to strip them. The more gold and platinum are worth, the more incentive to recycle e-waste. New materials are being used to print certain chips, further reducing the number of materials needed to produce the same effect lowering the overall footprint of e-waste.

Luckily, many countries, such as Norway, have trained their populations to expertly sort out different types of trash.

"We need better education and programs to help make this practice more widespread. With better sorting, it becomes easier to recycle or compost waste. In the U.S., most people don't bother with sorting at all. Almost all the waste from these people is sent to landfills with no chance to recycle," Seeman said. "Even recyclable plastics are contaminated with non-recyclable plastics that force recyclers to send entire batches of mostly recyclable plastic to instead be diverted to landfills. If we can teach better sorting practices, we can create better ways to address e-waste."

Remaining Hopeful

Many countries in Europe are starting to find ways to track the flow of e-waste and all its components. In the U.S., the challenge right now is that we do not have enough data.

As Anderson explained, we know that less than 20 percent of electronics are being recycled, so what is happening to everything else?

"We must gather that data, figure out where it is going and set some goals to handle it properly to promote a circular economy," Anderson said.

Another critical part of this is educating consumers and making it easy for them to get rid of their e-waste. Many people in the general population might not know that electronics such as computers, TVs and their components cannot go in the trash. Plus, so many more devices in people's homes are becoming smart devices. Toasters can be smart devices. Microwaves, washing machines, dishwashers, remote controls and more all have electronic components.

Anderson believes the future of electronics recycling is data security. People should feel assured regarding what happens to their data when their electronics are spent. Our cell phones, the GPS in our cars and our laptops say a lot about us as individuals and our habits – how we bank, what we buy, where we drive – and it needs to be protected.

"We are noticing a lot of clients asking for confirmation that their discarded electronics are safe and secure," Anderson said.

Seeman also stressed the need to reduce the size of electronic components to cut down on overall e-waste.

"More e-waste will enter the market," Seeman said. "We need to address recycling and make it lucrative as a practice to entice the private market to invest and create more e-waste recycling capacity."

Ambati said one place to look, and get quick success in e-waste recovery, is the material recovery facilities (MRF). "Since most of the recycling in the developed world goes to MRFs, equipping them to automatically detect and recover e-waste will result in considerable gains in recycling, and substantial reductions in safety and environmental issues associated with mishandling of e-waste."

This is where technology comes into use. For instance, EverestLabs AI is already training their AI to detect and categorize batteries and small household electronics.

"Electronics collectors can directly invest in technology to ensure that their electronics are not being leaked to the landfill as waste," Ambati said. "Manufacturers who take back their e-waste should also directly invest in technology/AI to ensure a circular economy as opposed to a linear one. Since most curbside programs do not take electronics in their recycling, the responsibility rests on the electronics manufacturer to ensure that their products make it through the full recycling life cycle and their valuable yet potentially hazardous material is reused."

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Former Nikola Corporation chief executive officer Trevor Milton charged in securities fraud scheme

Audrey Strauss, the United States Attorney for the Southern District of New York, and Phillip R. Bartlett, Inspector-in-Charge of the New York Division of the United States Postal Inspection Service (USPIS), announced the unsealing of a criminal indictment charging Trevor Milton with securities and wire fraud in connection with his scheme to defraud and mislead investors about the development of products and technology by the company he founded, Nikola Corporation.

Manhattan U.S. Attorney Audrey Strauss said, "As alleged, Trevor Milton brazenly and repeatedly used social media, and appearances and interviews on television, podcasts and in print, to make false and misleading claims about the status of Nikola's trucks and technology. But today's criminal charges against Milton are where the rubber meets the road, and he now will be held accountable for his allegedly false and misleading statements to investors."

Milton was presented before United States Magistrate Judge Sarah Netburn. The case is assigned to U.S. District Judge Edgardo Ramos.

Overview

From at least in or about November 2019 up through and including at least in or about September 2020, Milton engaged in a scheme to defraud investors by inducing them to purchase shares of Nikola Corporation, the electric- and hydrogen-powered vehicle and energy company that Milton founded, through false and misleading statements regarding Nikola's product and technology development. Milton's scheme targeted individual, non-professional investors – so-called "retail investors" – by making false and misleading statements directly to the investing public through social media and television, print and podcast interviews.

Milton made these false and misleading statements regarding Nikola's products and capabilities to induce retail investors to purchase Nikola stock. Among the retail investors who ultimately invested in Nikola were investors who had no prior experience in the stock market and had begun trading during the COVID-19 pandemic to replace or supplement lost income or to occupy their time while in lockdown, and some of the retail investors that Milton's fraudulent scheme targeted suffered tens and even hundreds of thousands of dollars in losses, including, in certain cases, the loss of their retirement savings or funds that they had borrowed to invest in Nikola. Moreover, Milton took advantage of the fact that Nikola went public by merging with a Special Purpose Acquisition Company or "SPAC," rather than through a traditional IPO, by making many of his false and misleading claims during a period where he would have not been allowed to make public statements under rules that govern IPOs.

Milton made false claims regarding nearly all aspects of Nikola's business, including: (a) false and misleading statements that the company had early success in creating a "fully functioning" semi-truck prototype known as the "Nikola One,"

when Milton knew the prototype was inoperable; (b) false and misleading statements that Nikola had engineered and built an electric- and hydrogen-powered pickup truck known as "the Badger" from the "ground up" using Nikola's parts and technology, when Milton knew that was not true; (c) false and misleading statements that Nikola was producing hydrogen and was doing so at a reduced cost, when Milton knew that in fact no hydrogen was being produced at all by Nikola, at any cost; (d) false and misleading statements that Nikola had developed batteries and other important components in-house, when Milton knew that Nikola was acquiring those parts from third parties; and (e) false and misleading claims that reservations made for the future delivery of Nikola's semi-trucks were binding orders representing billions in revenue, when the vast majority of those orders could be cancelled at any time or were for a truck Nikola had no intent to produce in the near-term.

Nikola One

In or about 2020, Milton promoted a false and exaggerated narrative that Nikola was a first mover in the zero-emissions-trucking business. Specifically, Milton emphasized that Nikola had defied expectations as a young, disruptive company when it managed to build its prototype Nikola One, which Nikola unveiled on or about December 1, 2016, at a large event that was filmed and broadcast on the internet. During that event and later, Milton claimed that the prototype Nikola One was a fully functioning truck, and emphasized that early purported success as a defining event for Nikola. For example, at the unveiling event for the Nikola One, Milton claimed the Nikola One "fully functions and works, which is really incredible."

In fact, the Nikola One prototype was not completed, let alone tested and validated, by the time of the unveiling. Rather, the prototype was wholly missing significant parts, including gears and motors, and the control system (i.e., the system that communicates the driver's directions to the vehicle) was incomplete. The infotainment system in the cab was also incomplete. Instead, for the purpose of the unveiling event, tablet computers or other computer screens were mounted into the areas where the screens for the infotainment would be, and the screens were set to display images created to have the appearance of infotainment screens, with speedometers, maps and other information displayed.

Later, in or about January 2018, and despite the fact that the Nikola One prototype was never completed or operational, Milton had Nikola publish on Twitter and also published on his own Twitter account a video in which the Nikola One appeared to be driving on its own power down a road with no incline. In fact, to film these clips, the Nikola One was towed to the top of hill, at which point the "driver" released the brakes and the truck rolled down the hill until being brought to a stop.

Hydrogen Production

Milton also made numerous false and misleading claims regarding Nikola's

hydrogen business. Specifically, and among other things, Milton made false and misleading claims regarding the status of Nikola's production of hydrogen, the current cost of producing hydrogen, the cost of electricity to produce hydrogen, Nikola's ability to produce hydrogen using clean energy, and the status of permits related to hydrogen production.

For example, on or about March 12, 2020, Milton stated, "Up until Nikola came on the market, hydrogen was around \$16 a kilogram, U.S. dollars. Now Nikola is producing it well below \$4 a kilogram." In fact, Nikola has never produced any hydrogen at any price, nor at the time could it have produced hydrogen for below \$4 per kilogram. To the contrary, Nikola has never obtained a permit to produce hydrogen or installed the equipment necessary to produce hydrogen. At the time that Milton was claiming that Nikola was producing hydrogen for less than \$4 per kilogram, it was in fact purchasing hydrogen from a supplier for \$16 per kilogram.

In House Technology

Milton has repeatedly claimed that Nikola has intellectual property rights over important components of its semi-truck line. While Milton has stated that Nikola outsources many parts of the trucks, like its tires or windshield, Milton has also repeatedly stated that Nikola makes the most important parts, including batteries and the powertrain, of the semi-trucks "in house." For example, in or about June 2020, Milton tweeted, "We do our own batteries at Nikola and have since day 1," and "All the technology, software, controls, E axle, inverters etc. we do internally."

In fact, although Nikola has partnered with various companies to try to develop proprietary battery technology, these efforts were not successful, and Nikola has not successfully developed technology internally, and the batteries it has planned to use in its semi-trucks were developed and manufactured by third parties. Similarly, Nikola has not produced an inverter in house and the inverters it planned to use in its semi-trucks were developed and manufactured by third parties.

Reservations

Milton has also repeatedly misstated the nature of Nikola's reservations to suggest that reservations made for its semi-

trucks are firm and binding. For example, in or about July 2020, Milton claimed that Nikola had "billions and billions of dollars with the contracts" and that these reservations were not "just like, a non-committal thing," but instead were "like, sign on the dotted line, billions and billions and billions and billions of dollars in orders."

In fact, although Nikola did have 14,000 reservations for its sleeper semi-truck, with the exception of a reservation for approximately 800 semi-trucks, which is binding provided that Nikola meets certain conditions, these reservations were non-binding and cancellable at any time for any reason.

After Milton made the false and misleading statements regarding Nikola's products and capabilities described above, tens of thousands of retail investors purchased Nikola's stock between in or around March and September 2020. During this same period, certain institutional investors who had access to more complete information regarding Nikola's products and technology, including some who received Nikola shares as part of the SPAC transaction, were able to sell their stock for a significant profit.

The value of Nikola's stock plummeted after the fact that certain of Milton's statements had been false and misleading was disclosed to the market in or around September 2020. As a result, many Nikola stockholders, including the retail investors who were the target of Milton's scheme, suffered significant financial losses, in some cases totaling in the tens or hundreds of thousands of dollars.

Milton, of Oakley, Utah, is charged with two counts of securities fraud and one count of wire fraud. The securities fraud counts carry maximum penalties of 20 and 25 years in prison, respectively. The wire fraud count carries a maximum penalty of 20 years in prison. The maximum potential sentences in this case are prescribed by Congress and are provided here for informational purposes only, as any sentencing of the defendant will be determined by the judge.

The charges contained in the Indictment are merely accusations and the defendant is presumed innocent unless and until proven guilty.

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