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FOCUS: Paper

Paper packaging surge impacts paper recycling



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SERVICE REQUESTED



Recovering more metals from EV batteries is key for recyclers

by MAURA KELLER

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The demand for lithium and other metals within EV batteries is set to grow exponentially in the coming years. While mining will continue to play a significant role in meeting the need for these battery materials, EV battery recycling is expected to help supplement mining and bridge the gap between supply and demand.

"Beyond the clear need to meet demand, battery recycling promotes sustainability, can be done domestically, and avoids some of the ecological and labor challenges associated with mining," said Eric Frederickson, managing director of operations and compliance at Call2Recycle.

According to Fredrickson, EV battery chemistries depend on five minerals whose domestic supply is potentially at risk for disruption: lithium, cobalt, manganese, nickel and graphite, according to a Congressional Research Service report from early 2022.

"The U.S. Geological Survey designated these and other minerals as 'critical,' according to the methodology codified in the Energy Act of 2020," Frederickson said. "To avoid supply chain issues, automakers are beginning to turn to battery recycling as a way to meet demand for key metals in batteries. Battery recyclers are also evaluating and investing in new technologies that will make recycling more efficient and maximize the quantity of metals extracted from EV batteries.'

Opportunities Abound

and the materials they contain. Automakers and other industry players are preparing for the EV batteries that will reach their end-of-life in the years ahead. The federal government is increasingly supporting efforts to strengthen EV battery recycling too, which is part of a growing awareness of the need to secure a domestic supply of strategic minerals.

Frederickson pointed to the Bipartisan Infrastructure Law, which has earmarked funding for EV battery recycling, and part of \$3 billion invested into the battery supply chain. The Inflation Reduction Act has also provided incentives for automakers to use recycled materials in their batteries, and EV manufacturers are already turning to battery recycling to help make their sup-

The demand for battery metals is very strong, driving the prices higher. "Altogether, the significant growth in EV battery recycling investment we've witnessed in recent years has been driven by a rapid increase in EV sales, strong demand for battery materials to power the transition to clean energy, growing awareness of the harms of improper recycling for large format batteries, and legislative efforts to create a domestic battery supply chain," Fred-

> of startups to an established sector." Steve Christensen, executive director of the Responsible Battery Coalition (RBC), said that at the RBC, their OEM members are already looking to recycled metals from all viable form-factor batteries as sources of materials.

> erickson said. "This convergence of fac-

tors offers a tremendous opportunity for

the industry to scale up its capacity in

coming years, but it also speaks to the

volume of challenges facing the indus-

try during its transition from a collection

"Price and availability continue to be concerns. The demand for battery metals is very strong, driving the prices higher," Christensen said. "The technology exists to refine spent battery components to be used in any form. However, the refining process to achieve that level increases the cost of these materials making them less desirable than newly sourced materials. Incentives for the use of recycled materials in batteries could change this."

David Regan, vice president of commercial at Aqua Metals, said that cobalt, nickel and lithium are all critical metals, and are all expected to fall short of supply chain needs. According to Benchmark Metals, the year-over-year price increase of lithium is 182.6 percent and the International Energy Agency (IEA) says the world could face lithium shortages by 2025.

See EV BATTERIES, Page A4



As part of its battery strategy and its sustainability strategy, Volkswagen AG is very interested in the realization of a closed loop of cell materials.

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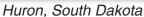


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ISRI accepting submissions for 2023 award

ISRI announced that it is now accepting submissions for the 2023 Design for Recycling® (DFR) Award. The DFR Award is ISRI's highest award given annually to the most outstanding contribution to products designed with recycling in mind. The award recognizes manufacturers who design with recycling in mind in the same manner they consider cost, safety, and other factors.

"The role of recycling in manufacturing is perhaps more critical than ever," said ISRI president Robin Wiener. "As manufacturers work to ensure sustainability goals are met, and supply chains are not disrupted, incorporating recycling into a product's design from the conception phase is the answer. Now is the time to applaud those manufacturers who factor in recyclability when designing their products."

Last year, ISRI named Sonoco Alloyd as its 2022 DFR winner. Sonoco received the award for its revolutionary Sonoco Alloyd EnviroSense® PaperBlister™ package that offers a recyclable alternative to traditional retail plastic-to-card blister packaging. Previous winners include Nestlé Waters North America; Lexmark; Cascades Fine Papers Group; Coca-Cola Recycling Company; LG Electronics; Samsung Electronics; EcoStrate SFS; and Cascade Engineering.

To be eligible for the award, a product must be designed/redesigned and manufactured to be:

•Easily recycled through current or newly designed recycling processes and procedures;

•Cost effective to recycle, whereby the cost to recycle does not exceed the value of its recycled materials;

•Free of hazardous materials that impede the recycling process;

•Maximizing the use of recycled materials and/or components within product manufacturing; and

•Having a net gain in the overall recyclability of the product while reducing its overall negative impact on the environment.

Interested parties can enter online before the February 17, 2023 deadline. Applicants will be notified by March 20, 2023. The winner will be officially recognized at the ISRI2023 Convention and Exposition to be held April 17-20 in Nashville, Tennessee.

I told my boss three companies were after me and I needed a raise to stay at my job.

We haggled for a few minutes and he finally agreed to give me a 5 percent raise.

As I was leaving his office, he stopped me and asked, "By the way, which companies are after you?"

I responded, "The gas, electric and cable companies!"

Morton Township Recycling in Michigan receives \$10,000 Ice Mountain grant



Morton Township Recycling Center, Michigan has received a \$10,000 grant award from Blue Triton through its Ice Mountain brand.

Blue Triton brands, formerly Nestle Waters North America, has supported the Morton Township Recycling program with contributions now totaling \$105,000.

Located at 8560 Midstate Drive, the recycling center serves about 250 customers per week and has maintained a recycling volume of 90 plus tons per year for the past 2 years, with 91 tons recycled between July 2021 and June 2022 and 93 tons between July 2020 and June 2021.

Arlene Anderson-Vincent, natural resources manager with BlueTriton Brands salutes the great strides being made by local community recycling centers. These rural community-based recycling programs provide residents the resources needed to dispose of and

Waste Pro drivers and helpers earn over \$1 million in safety awards

In 2022, Waste Pro awarded 115 employees the company's coveted Safety Award. A total of \$1,030,000 was awarded to 91 drivers and 24 helpers who remain dedicated to safely serving the communities within the Southeastern United States.

The Bureau of Labor Statistics has consistently ranked solid waste collection in the top five most dangerous jobs in the U.S., with fatality rates being as high as 10 times the national average. Waste Pro's founder and executive board chairman John Jennings established the \$10,000 Safety Award Program in 2004 for drivers. To earn the \$5,000 or \$10,000 awards, helpers and drivers must go three years without an at-fault accident, injury, or incident causing property damage; have a record of excellent customer service; maintain a well-kept truck; and have a strong attendance record.

repurpose materials like cardboard and plastics, as well as safe disposal of toxic household hazardous wastes like oil, paint, and other chemicals.

"We applaud Morton Township Recycling Center, Osceola Township's spring and fall clean up days, and Mecosta and Osceola-Lake Conservation District's annual Household Hazardous Waste Collection program," she said. "Ice Mountain is pleased to award \$10,000 each to Morton and Osceola township recycling programs and through the Ice Mountain Environmental Stewardship Fund, \$12,900 to the Mecosta and Osceola-Lake Conservation District Household Hazardous Waste Collection program."

The Recycling Partnership forms strategy

The Recycling Partnership, a mission-driven NGO committed to advancing a circular economy by building a better recycling system, is announcing its 5-point plan to fix recycling. Since its inception in 2014, The Recycling Partnership has been addressing big challenges head-on, collaborating with the full spectrum of stakeholders to drive recycling system change.

Here is The Recycling Partnership's 5-point plan to fix the U.S. recycling system:

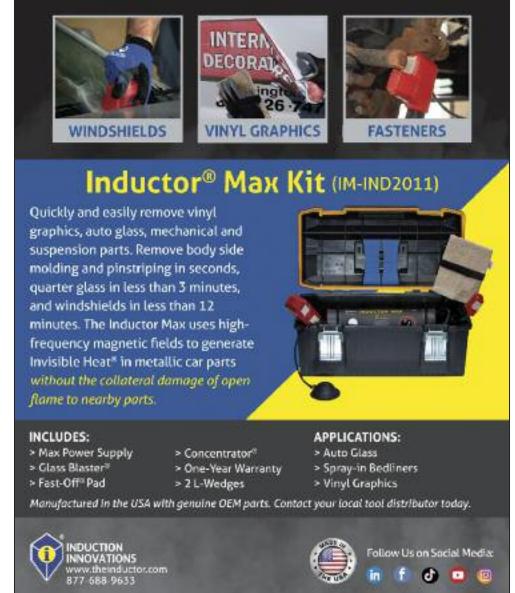
•Ensure all households can recycle – 40 million U.S. households still lack the ability to recycle at home.

•Help the Public Understand What's Recyclable in Their Town – Research shows that 60 percent of people believe recycling is confusing.

•Make packaging recyclable – The Recycling Partnership believes in a future where all packaging is circular (meaning all packaging can be reused, composted, or recycled) – that will eliminate the guess work of recycling.

•Support policy to help pay for a better recycling system – Cash-strapped communities cannot afford to be the only source of funding for a better recycling system.

•Invest in the future – Establish a \$17 billion investment over 5 years to deliver the benefits of recycling to the public.



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American Recycler

EV batteries

■Continued from Page 1

"The other critical metals are rapidly increasing in demand and in value and we could see shortfalls across the board if recycling does not ramp up to fill the supply gap. 2023 is a big year for recycling technologies to start delivering product to battery manufacturers both sustainably and economically," Regan said.

Regan further pointed out that the global lithium-ion battery recycling market is projected to increase from \$41B in 2021 to \$116.6B by 2030, partly driven by the increased demand for EV batteries, fueled in turn by strict requirements and incentives, such as those for increased North American mining and battery production in the Inflation Reduction Act (IRA). Meeting those domestic requirements via mining is both time consuming and polluting.

"We do expect EV and lithium-ion battery manufacturers will have to incorporate recycled metals to meet demand in the near term. In fact, battery manufacturers and OEMs are already partnering and investing in recycling, knowing their mined raw material supply is likely to fall short within the coming decade," Regan said.

New Challenges

As the EV market is a relatively new one, the challenges arising as it relates to recycling the metals within EV batteries are plentiful.

For one, Frederickson explained that the timeframe between when lithium-ion batteries enter the market and when they reach end of life, is estimated at 10 to 13 years, which adds a layer of complexity to scaling the industry.

"In the last few years, we've seen a significant number of new players enter the industry, so overall capacity to recycle batteries has gone up. But since many EV batteries won't come off the market for years, there's significant uncertainty about when these batteries will actually make their way to recycling plants," Frederickson said. "Right now, many new processors are prima-



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BELLEVUE, IOWA | 563.872.4112 Sales@uscheckel.com | Uscheckel.com rily recycling production scrap. Given the growth in domestic battery manufacturing, this will help get the industry up and running. Scaling the industry appropriately for end-of-life EV batteries will take careful planning, investment, and coordination, with readjustments at each step of the way as new data comes in and technology evolves."

The industry will also need to figure out how to deal with other uncertainty, including whether demand for different battery materials will shift, how future legislation will affect battery sourcing and recycling, and if advanced battery compositions will alter the financial incentives of battery recycling.

Safety also needs to remain a priority throughout the recycling process. Proper handling, procedures and training are crucial to protect the physical safety of people and organizations trying to transport and recycle EV batteries, not to mention the environmental harms brought on by improper disposal.

"Given their size and weight, it's not as simple as just removing these batteries, putting them in a box, and shipping them. There are a myriad of logistics, challenges and regulatory intricacies in safely and compliantly handling, storing, shipping and recycling EV batteries," Frederickson said.

Call2Recycle is working to solve these challenges by sharing its vast regulatory and logistics expertise to address the unique challenges of EV batteries. Recently, Call2Recycle collaborated with the Suppliers Partnership for the Environment (SP) to publish a guidance document "Regulations Governing Shipment of Electric Vehicle (EV) Batteries in the U.S."

"The guide was intended to help unravel those complexities by highlighting the noteworthy regulations and current requirements that stakeholders will need to understand and comply with when managing an EV battery at the end of its useful life," Frederickson said.

Finally, Frederickson pointed to the lack of established pathways between EV owners and battery processors. That's one of the areas that Call2Recycle is focused on: How can they facilitate and refine the EV battery's journey from consumer to processor?

Craig Bouchard is the founder of Real Alloy and investor in Ecolution, which recycles, stores and distributes electricity consumed by moving vehicles. Ecolution and its partners/customers will become large buyers of first-life and second-life lithium-ion batteries.

According to Bouchard, manufacturers like Tesla, GM, Ford, BMW, Daimler, Volvo, Toyota, Nissan and others are trying as hard as they can to learn how to recycle to improve their costs and supply chain issues.

"But these large companies are not finding answers that move the needle. Not even Tesla, Bouchard said. "Lithium batteries need to follow the path of lead batteries, which are easily recyclable and have an industry with distribution that readily accepts and recycles lead batteries. But lithium batteries contain much more energy in small packages, which make them desirable for electronics and e-vehicles. My guess is that the global EV demand explosion will lead to new battery technologies, probably solid state in nature, eventually making lithium-ion yesterday's news."

Future Outlook

The recycling industry has always known that battery recycling is an important mechanism to prevent the environmental harms of batteries ending up in landfills, but we're also starting to see broader recognition that battery recycling, especially for EVs, is a matter of fighting climate change and ensuring national security through critical minerals.

"Recycled metals are essential to a future circular economy for EV batteries. Research conducted by the University of Michigan in partnership with RBC member, Ford Motor Company, concluded that there would be sufficient resources for the next 100 years to support the growth in lithium demand from vehicle electrification with the condition that lithium from end-of-life vehicles is recycled," Christensen said. "The research analyzed scenarios with recycling participation at 90 percent, 96 percent, and 100 percent and with a 90 percent lithium recovery efficiency."

"It's interesting to consider what the future will look like if and when EVs reach full market saturation. Once this happens, most of the metal used to make new EV batteries will come from recycled batteries," Frederickson said. "On average, 80 percent of the lead used in U.S. manufacturing of new lead batteries comes from recycled lead batteries. While the economics of lead acid battery collection and recycling are different from EV battery recycling, it does provide a glimpse into a future where the main source of battery material comes from recycled batteries."

As more and more EVs hit the road, Frederickson said there are plenty of reasons to be confident in the role metal recycling from EV batteries will play in the years ahead. The trick will be navigating future uncertainty and making sure that we don't have too little or too much capacity to handle the EV batteries that reach their end-of-life.

"If we get it right, battery recycling will play an integral role in meeting the demand for the battery materials that will power an electrified economy," Frederickson said.

Regan thinks high-purity recycled metals also will be a crucial component of the global effort to increase use of EVs and mitigate the devastating effects of climate change.

"The recycling industry is in its infancy, and will need to deliver on a sustainable, cost-effective supply chain for battery manufacturing," Regan said. "Lithium-ion battery waste produced by EVs is currently expected to rise to 11M metric tons by 2030, so recycling is also a necessary endeavor to curb additional waste stream pollution. There is great opportunity here for the recycled metals industry and now is the time to start delivering."



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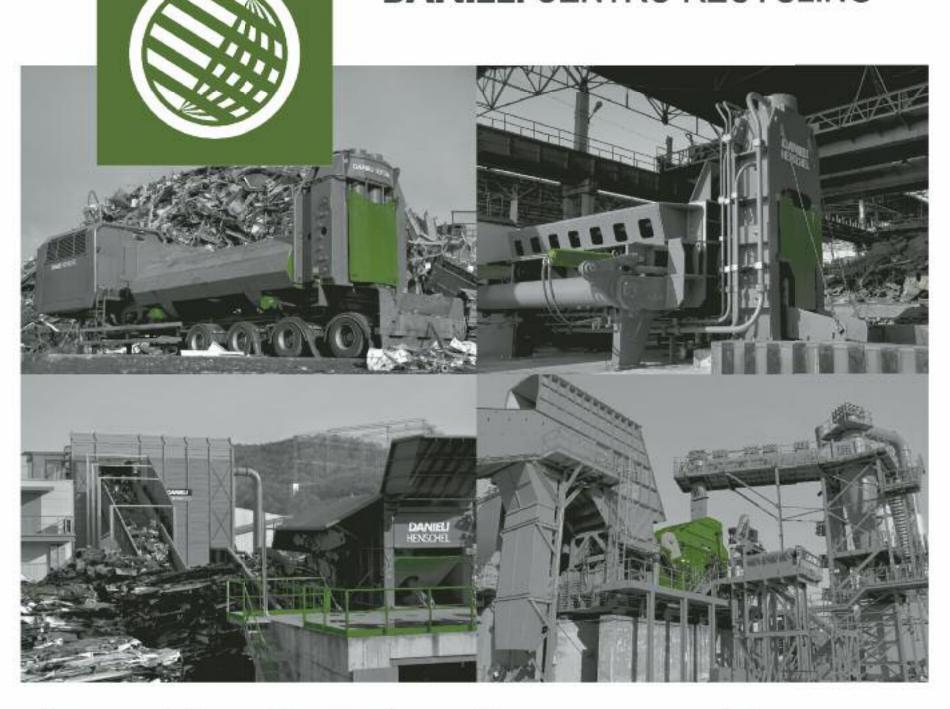
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WASTE

Michigan legislature passes bill to update solid waste law

The Michigan legislature just passed a historic eight-bill package designed to update Michigan solid waste law. Supporters expect the bills to be signed by the Governor soon.

This package is the product of 7 years of deliberation in workgroups that included more than 70 different stakeholder groups from Michigan Recycling Coalition to the Michigan Chamber of Commerce. House Bills 4454-4461, which garnered significant stakeholder and bipartisan support, passed through the Michigan House of Representatives in late April of 2021 and finally received approval by the Michigan Senate on the final day of the lame duck period.

With funding secured and an updated policy framework finally in place, Michigan can begin to develop a circular economy to the benefit of Michigan's economy and environment.

Michigan Department of Environment, Great Lakes and Energy communications manager, Hugh McDiarmid said, "The solid waste and recycling statute updates represent long overdue legislation to modernize materials management systems."

The Michigan Recycling Coalition led the effort to move the package through both houses. According to Michigan Recycling Coalition executive director Kerrin O'Brien, "The changes to Michigan solid waste policy

embodied in the bill package mitigate the policy preference for landfill disposal of solid waste. Counties will soon be funded and incentivized to plan for needed infrastructure, programs, and services to manage waste more productively through reduction, recycling, composting, and more."

Late amendments to the package, caused much consternation for the environmental community but ultimately the amendments addressing chemical recycling do not change the current regulatory structure. McDiarmid and O'Brien also clarify the fact that these types of facilities do not process solid waste and are not covered under Part 115 but are thoroughly regulated by other areas of environmental law like those governing air quality and industrial groundwater.

"Updating the recycling laws in Michigan has been a discussion since I started in the recycling industry in 2016. This is a huge step forward for recycling and composting. I am looking forward to the prioritizing of landfill diversion and sustainable materials management in Michigan," said Andi Tolzdorf Emmet County DPW director.

In 2018, the Michigan Recycling Coalition worked with the Snyder administration to capture legislative approval for Renew Michigan. This fund provides \$24 million annually.

Casella utilizes first electric refuse vehicle in Vermont

Casella Waste Systems, Inc., introduced its Mack® LR Electric model, the first electric refuse vehicle in the State of Vermont, in a ceremony at the Killington Grand Hotel.

Casella's LR Electric refuse truck is the first in its fleet and has been equipped with an automated sideloader with a split body for collecting waste and recycling simultaneously.

By switching one truck from diesel to electric, Casella expects to conserve over 7,500 gallons of diesel fuel per year, which has an immediate benefit to our air and climate. Because the fleet will be charging with Green Mountain Power, which delivers 100 percent carbon-free electricity, the company expects to eliminate over 78 metric tons of greenhouse gas emissions per year.

The Mack LR E will be used on residential routes in the Rutland Region and was partially made possible when Casella successfully secured grant funding through the Vermont Department of Environmental Conservation's Volkswagen Environmental Mitigation Trust. Casella believes that Vermont will provide the right proving ground for the pilot program.

"Sustainable innovation is core to everything we do as a company," said Casella chairman and chief executive officer, John W. Casella. "The opportunity to pilot the Mack LR Electric in Vermont will help us evaluate whether this is a viable option in other markets that we serve. The opportunity to cut greenhouse gas emissions, while maintaining a high level of service to our customers, is key to us."

iDiskk penalized for truck fires

A San Jose recycling company has been ordered by a Santa Clara County Superior Court Judge to pay \$25,000 in civil penalties for causing dangerous fires to start in the back of garbage trucks in Campbell, California.

The company, iDiskk, LLC, its principal Yue Zou, and her husband Lei Zhang, were all held responsible for improperly throwing away lithium batteries, which burst into flames in three trucks last fall. No one was hurt

in the fires. During an October 13 fire, the garbage truck lifted the bin to dump the load in the street to avoid damage to the vehicle. In doing so, the bin caught overhead utility lines causing the adjacent utility pole to break and fall to the ground.

In addition to paying civil penalties, iDiskk, LLC, Zou, and Zhang agreed to be bound by a permanent injunction never to improperly dispose of hazardous waste again.



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METALS

October 2022 crude steel production numbers are in

Top 10 Steel-Producing Countries JAN-OCT % Change % Change **OCT 22/21** 2022 (Mt) 2022 OCT 22/21 **CHINA** 79.8 11.0 860.6 -2.2 **INDIA** 10.5 2.7 103.8 6.1 **JAPAN** -10.6 7.3 75.2 -6.5 U.S. 6.7 -8.9 68.1 -4.8 -11.5 5.8 60.4 **RUSSIA** -6.6 5.1 -12.1 55.7 -5.0 **SOUTH KOREA** 3.1 -14.4 31.4 -6.9 **GERMANY** 2.9 -17.8 30.2 -10.1 **TURKEY** 2.8 -4.5 28.7 -5.2 **BRAZIL**

the 64 countries reporting to the World Steel Association (worldsteel) was 147.3 million tonnes (Mt) in October 2022, a 0.0 percent change compared to October 2021.

IRAN

2.9

Crude steel production by region

Africa produced 1.4 Mt in October 2022, up 2.3 percent on October 2021. Asia and Oceania produced 107.3 Mt, up 5.8 percent. The EU (27) produced 11.3 Mt, down 17.5 percent. Europe, Other produced 3.7 Mt, down 15.8 percent. The Middle East produced 4.0 Mt, up 6.7 percent. North America produced 9.2 Mt, down 7.7 percent. Russia & other CIS + Ukraine produced 6.7

World crude steel production for Mt, down 23.7 percent. South America produced 3.7 Mt, down 3.2 percent.

25.1

Top 10 steel-producing countries

9.0

China produced 79.8 Mt in October 2022, up 11.0 percent on October 2021. India produced 10.5 Mt, up 2.7 percent. Japan produced 7.3 Mt, down 10.6 percent. The United States produced 6.7 Mt, down 8.9 percent. Russia is estimated to have produced 5.8 Mt, down 11.5 percent. South Korea produced 5.1 Mt, down 12.1 percent. Germany produced 3.1 Mt, down 14.4 percent. Turkey produced 2.9 Mt, down 17.8 percent. Brazil is estimated to have produced 2.8 Mt, down 4.5 percent. Iran produced 2.9 Mt, up 3.5 percent

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United Steelworkers approve four-year labor contract

union has ratified four-year labor agreements covering approximately 11,000 workers at United States Steel Corporation.

According to U. S. Steel, the agreements, which are retroactive to September 1, 2022, provide a \$4,000 appreciation bonus, increases in U. S. Steel's pension contribution and increases to base wages. U. S. Steel said that wages will have risen more than 21 percent by the time the contracts expire in September 2026.

"The new agreements balance the needs of our employees, customers, stockholders and other stakeholders. We will continue to work together in implementing our Best for All strategy

The United Steelworkers (USW) and transforming the future of steel through strategic investments in innovation, sustainability, operational excellence and the communities in which we operate," said U. S. Steel president and chief executive David B. Burritt.

> "With the new contract ratified, union members will be safer at work and our jobs and benefit more secure than they have been in the past," said USW District 7 director Michael Millsap, who chaired the union's bargaining committee. "Our continued solidarity will ensure that we keep the tradition of steelmaking alive in our communities for another generation of Steelworkers."

November steel shipments down 3.8 percent from prior month

The American Iron and Steel Institute (AISI) reported that for the month of November 2022, U.S. steel mills shipped 6,938,520 net tons, a 12.1 percent decrease from the 7,893,990 net tons shipped in November 2021. Shipments were down 3.8 percent from the 7,210,301 net tons shipped in the previous month, October 2022. Shipments year-to-date in 2022 are 82,613,742 net

tons, down 4.9 percent vs. 2021 shipments of 86,848,042 net tons for 11 months.

A comparison of shipments yearto-date in 2022 to the first eleven months of 2021 shows the following changes: corrosion resistant sheet and strip, down 9 percent, hot rolled sheet, down 9 percent and cold rolled sheet, down 14 percent.



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METALS

Finished import market share up in December

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 December totaled 2,182,000 net tons (NT). This was a 1.9 percent increase from the 2,141,000 permit tons recorded in

November and an 8.8 percent increase from the November preliminary imports total of 2,006,000. Import permit tonnage for finished steel in December was 1,850,000, up 5.2 percent from the preliminary imports total of 1,758,000 in November. For the full year of 2022, total and finished steel imports were 30,822,000 NT and 25,245,000 NT,

down 2.0 percent and up 10.9 percent, respectively, from the same period in 2021. The estimated finished steel import market share in December was 23 percent and is 24 percent for 2022.

For additional information, view this article on www.AmericanRecycler.com.



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Dade Capital advances operations

DADE Capital Corp. has split off the buying, selling and customer service operations of its business and is now operating as DADE Auctions Inc. the company announced. Known as America's marketplace for used equipment for the salvage, recycling and waste industries, DADE Auctions' updated identity better represents its comprehensive services for buyers and sellers. DADE Capital Corp. will continue to offer financing options.

Andrew Fournier, appointed company president in 2021, stated, "We wanted this new name and logo to truly reflect our revitalized commitment to the four pillars of our mission: exceptional customer service, complete transparency, better results and increased customer loyalty.

"Over 38 years, we've built a reputation for fairness, integrity and total transparency," Fournier said. "That's why the vast majority of our customers come back again and again. And we will maintain our high standards of service as we grow."

Now, with nearly four decades of exceptional service and an unmatched list of industry contacts, he said, "DADE Auctions is looking ahead to expand our reach with buyers and sellers and offer easier access to information. And DADE Capital will continue to provide customers with flexible financing options by partnering with institutions that truly understand our customers' needs."

Tata Steel selects Danieli for new project

Tata Steel Long Products has awarded Danieli with the order for a new SBQ bar and wire rod mill to be installed in Jamshedpur – East Singhbhum district of Jharkhand – the first planned industrial city in India.

The new mill will roll 150 x 150, 200 x 200 and 240 x 200 square billets into finished 20 to 90mm diameter round bars and wire rod from 5.5 to 25mm diameter.

The bar mill will consist of a reversible stand followed by 12 housingless stands arranged in H-V configuration, a cooling bed equipped with hardness control by insulated covers and complete bar finishing services.

The wire rod line will feature an eight pass finishing block and a twin-module block - TMB followed by controlled cooling conveyor and V+H coil handing system. The high tech equipment will be manufactured at Danieli quality workshops in Buttrio, Italy, and Sri City, near Chennai, in India.

Tata Steel Long Products mill will be the 24th Danieli rolling mill in India, and 145th for special bar quality in the

American Recycler February 2023, Page A13

Aqua Metals completes pilot installation; begins operations



Aqua Metals, Inc., which is reinventing metals recycling with its AquaRefining technology, announced it has completed equipment installation and is now operating its first-of-a-kind lithium battery recycling facility, utilizing electricity to recycle instead of intensive chemical processes, fossil fuels or high-temperature furnaces.

Located at the company's Innovation Center in the Tahoe-Reno Industrial Center in Nevada, the pilot is now operational with the introduction of feedstock into the automated system.

"This is an unprecedented accomplishment for Aqua Metals, and for the global push toward electrification," said Steve Cotton, president and chief executive officer, Aqua Metals. "We believe that Aqua Metals is the first company to take a vision beyond the laboratory, by establishing an industrial scale, dedicated, U.S.-based recycling facility, built to continuously produce metric tons of highpurity minerals from spent lithium-ion batteries. We are confident that Aqua Metals is now positioned to be the first metals recycling facility in North America to recover battery-grade lithium hydroxide from spent batteries in commercial quantities, and to initiate sales of recycled critical minerals into both metals markets and the lithium-ion battery supply chain."

The company's Li AquaRefining technology is a low-emissions, closed-loop recycling solution capable of recovering all valuable metals, including high-purity lithium, manganese, cobalt and nickel from lithium batteries. The

company's goal is to demonstrate its belief that Li AquaRefining is an economically superior process that offers a lower cost pathway to recycle critical minerals and achieve net-zero emissions.

Li AquaRefining utilizes electroplating powered by electricity to recover metals instead of intensive chemical processes or polluting fossil-fuel furnaces. The patent-pending Li AquaRefining enables low-cost and efficient production of high-purity products — drastically lowering emissions and limiting waste streams — and is designed to significantly reduce capital and operating costs.

"I applaud our entire team for completing the successful equipment installation and working through the supply chain challenges to commence operations of this state-of-the-art recycling facility," said Ben Taecker, Aqua Metals' chief engineering and operating officer. "This is a foundational step for Aqua Metals as we begin scaling to demonstration capacity and subsequent full scale commercial operations of what we believe is the world's cleanest and lowest-cost lithium battery recycling technology."

Aqua Metals anticipates the following milestones in the first quarter of 2023:

- •Achieving targeted product specs for each high-purity metal.
- •Ramping up to process metric tons of black mass per month.
- •Becoming the first company in North America to recover battery-grade lithium hydroxide from spent lithium-ion batteries in commercial quantities.

Amazon's plastic packaging waste jumped 18 percent

Oceana released a new report "The Cost of Amazon's Plastic Denial on the World's Oceans" revealing that Amazon generated an estimated 709 million lbs. of plastic packaging waste last year. This is an 18 percent increase over Oceana's 2020 estimate of 599 million lbs. Oceana found, based on data from a peer-reviewed study on plastic waste pollution published in Science in 2020, that up to 26 million lbs. of this plastic waste will end up in the world's waterways and seas. The type of plastic used by Amazon – plastic film – can be damaging to marine life.

"The science is clear, the type of plastic used by Amazon for its packaging is a threat to the oceans. Customers and shareholders are calling for the company to act. It's time for Amazon to, as it has on climate, step up and commit to a global reduction in its use of plastic packaging," said Matt Littlejohn, Oceana's senior vice president for strategic initiatives.

Amazon refuses to outline a plan and commit to a company-wide reduction in plastic use. At its annual general meeting in May 2022, nearly 49 percent of Amazon's shares – totaling 181 million shares – voted in favor of a resolution asking the company to address its growing plastic packaging problem. This is the most support that a shareholder-led resolution has received in Amazon's history.

Despite Amazon's commitment to transparency for its other sustainability efforts, the company has not been transparent about its global plastic packaging footprint. On December 13, 2022, Amazon released a blog which stated, "[i]n 2021, we reduced average plastic packaging weight per shipment by over 7 percent, resulting in 97,222 metric tons [just over 214 million pounds] of single-use plastic being used across our global operations network to ship orders to customers."

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February 2023, Page A15 **American Recycler**

BRIEFS

Doosan Infracore North America names new CEO

Chris Jeong was recently named the new chief executive officer at Doosan Infracore North America. He succeeds Edward Song, who was promoted to global sales head of Hyundai Doosan Infracore in Korea.

Jeong most recently served as chief executive officer for Doosan Infracore European Union. He joined Doosan in 2006 as a senior corporate strategy manager after completing his MBA at Carnegie Mellon University. He led strategic activities across various markets before he was promoted to vice president of sales and marketing for emerging markets. Chris oversaw sales and marketing for Doosan employee teams in Asia, Oceania, Commonwealth of Independent States, Middle East, Africa, Latin America, Brazil and India.

Song led Doosan Infracore North America to success during his time as chief executive officer. Among his many accomplishments were establishing two regional parts distribution centers in North America, opening the machine customization plant in Savannah, Georgia, and most recently introducing the new Doosan machine monitoring center at the corporate office in Suwanee.

ERI opens new electronics recycling facility in Arizona

■ ERI, a fully integrated IT and electronics asset disposition (ITAD) provider and cybersecurity-focused hardware destruction company, announced that due to steadily continued growth, it has opened a new recycling facility in Goodyear, Arizona (near Phoenix) marking the company's 13th operational location and ninth full-scale recycling facility.

Located at 215 N. 143rd Avenue, the new facility will serve as a southwestern recycling operations hub for the ITAD and e-waste recycling leader.

Located within the Goodyear Gateway South complex, a Class A masterplanned industrial park just north of the Phoenix Goodyear Airport, the new facility is already fully operational.

News of ERI's Arizona location comes on the heels of the company's recent announcement that it has achieved carbon neutral status at all its facilities nationwide - a first for the ewaste recycling industry - which includes carbon neutrality for the new Arizona facility.

Nucor promotes Noah Hanners to executive VP

Nucor Corporation announced that Noah Hanners was promoted to executive vice president.

Hanners began his career with Nucor in 2011 as melt shop engineer at Nucor Steel South Carolina. He currently serves as vice president and general manager of The David J. Joseph Company. Prior to joining Nucor, Hanners served as a major in the United States Army.



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SECTION B www.AMERICANRECYCLER.com MARCH 2023

Paper packaging surge impacts paper recycling

by MAURA KELLER

mkeller@americanrecycler.com

While online shopping has seen significant growth over the last decade, the recent pandemic resulted in exponential online shopping by consumers, as brick-and-mortar retailers closed their doors and consumers were cautious about leaving their homes. As a result, paper packaging and subsequently, paper recycling trends have risen.

George Harrison, director of marketing and operations of Pkgmaker.com said that the packaging industry is booming as e-commerce continues to expand. With more and more transactions happening online, the demand for efficient, protective, and aesthetically pleasing packaging solutions has never been higher.

"When it comes to the types of packaging most sought-after in this sector, cardboard boxes are perhaps the most popular option amongst retailers due to their cost efficiency and range of sizes available," Harrison said. "Recyclability and recycled content of packaging is growing in importance with companies increasingly recognizing the need to reduce their environmental impact. Packaging companies are responding by taking a number of different steps, including more efficient use of materials, reduced waste generation, and using more sustainable alternatives."

Indeed, the influx in packaging has been a major boon for the paper recycling industry. As Harrison explained, with more consumer goods being packaged in paper, many companies are now able to take advantage of the profits from buying, processing and re-selling recycled paper products.

"Overall, the influx of packaging means good news for both packagers and recyclers alike as each party stands to gain from cutting down on costs and improving customer satisfaction all while contributing towards better environmental stewardship – something everyone should be invested in," Harrison said.

According to Caroline James, director of sustainability at Atlantic Packaging, a large privately owned industrial packaging company, as e-commerce shopping gains popularity and consumers' attitudes simultaneously shift away from single-use plastics, they are seeing a dramatic increase in the number of boxes and paper-based packaging used to move products through the economy.

"We're excited about this shift since paper comes from renewable resources, whereas petroleum-based plastic does not, and paper for e-commerce is typically curbside-recyclable, unlike flexible plastics," James said.

While corrugated boxes are one of the most ubiquitous items consumers see, James said the good news is that these boxes are also one of the most frequently



Nano and Advanced Materials Institute created the nano-shield coating to make paper packaging more sustainable. This liquid solution prevents the spread and penetration of water and oil on paper.

PHOTO COURTESY OF THE INNOVATION HUB@HK

and easily recycled items in the U.S. – experts estimate that between 69 and 92 percent of old corrugated cardboard (OCC) is recycled.

"Recycling rates of other paper hover around 80 percent, too. Compare this to less than 10 percent of plastics, and the relative circularity of corrugate and paper becomes clear," James said. Furthermore, varying amounts of recycled fiber can be integrated into all kinds of products, so end markets for recycled paper remain strong. Consumers want to be able to place packaging items into their recycling bin, and paper packaging helps them do so.

Innovations To Note

"Packaging companies are doing their best to respond to demand and better support recyclable content by aiding in streamlining the supply of waste paper," said Jack Hubbell Rosene, marketing coordinator at Erdie Industries, an Ohio-based packaging company. "While we have made incredible progress since the 1990s in reclaiming used paper, there are other fields outside of packaging for companies to expand into. For example, there are many products made with plastic that more eco-friendly paper equivalents could replace."

Innovated packaging materials are undoubtedly affecting the paper recycling industry. One such innovation is the use of biodegradable, compostable materials for packaging. "These materials can break down easily within a short period of time and don't create

waste or pollution, making them perfect for sustainable packaging solutions," Harrison said. "They're also lightweight and require less energy to produce, helping to improve transport efficiency and cost savings too. Additionally, they can save on landfill space since they decompose quickly – something all recyclables should feature."

Another trend gaining traction is sustainability-focused design principles being incorporated into packaging structures. For example, Harrison pointed to designs that incorporate recycled materials into their construction that could reduce raw material usage while still ensuring structural integrity during transit.

"This could make it easier for recyclers to sort through post-consumer products more efficiently as well as economically. After all, recyclers don't want to dedicate extra manpower or resources towards sorting through non-compatible items without any payoff," Harrison said.

Rosene added that beyond recycling, the packaging industry will likely begin to see more biodegradable options.

"Paper can only be recycled a number of times before it can no longer maintain structural integrity," Rosene said. "So whether or not the packaging is meant to be recycled or thrown away, there are still options to prevent landfills from overflowing."

See PACKAGING, Page B7





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International Paper makes changes to executive team

International Paper made changes to its senior leadership team including the retirement of a long serving executive and organizational shifts to enhance agility in serving customers and driving profitable growth.

Greg Wanta, senior vice president of the company's North American Container business, will retire after transitioning responsibilities.

The following leadership moves are effective immediately:

Tom Hamic has been named senior vice president, North American Container and chief commercial officer. Hamic joined the company in 1991 and served in a variety of sales, marketing and strategy leadership roles, including positions in the company's container-board and North American container businesses. Most recently, Hamic led significant commercial and financial improvements in the company's Global Cellulose Fibers business.

Jay Royalty has been named senior vice president, containerboard and recycling. He will also retain interim responsibility for the company's EMEA Packaging business. Royalty joined the company in 1991 and has served in a variety of converting, sales, marketing and finance leadership roles. He most recently served as senior vice president, EMEA Packaging.

Clay Ellis has been named senior vice president, Global Cellulose Fibers. Ellis joined the company in 1992 and has served in a variety of manufacturing, engineering, technical and commercial leadership roles, including positions in the company's pulp business. Most recently, he served as senior vice president, Enterprise Operational Excellence.

The International Paper Board of Directors has elected two new executives to Sutton's leadership team:

Aimee Gregg has been elected senior vice president, Supply Chain and Information Technology. Gregg joined the company in 2002 and has served in a variety of sales, operations and business leadership roles in the company's North American Industrial Packaging business. She most recently served as vice president and general manager, Containerboard and Recycling.

Allison Magness has been elected senior vice president, manufacturing and environment, health and safety. Magness joined the company in 2000 and has served in a variety of engineering, manufacturing and business leadership roles. She most recently served as vice president, South Area, North American Container.

Toilet paper companies are graded

Environment America Research & Policy Center released a report that grades six toilet paper manufacturers and distributors on their environmental and forest protection policies and actions. The progress report, entitled Unrolling the year's progress: Were toilet paper companies softer on the environment?, comes one year after Environment America Research & Policy Center sent tissue companies, including Amazon, Costco, Georgia-Pacific, Kimberly-Clark, Procter & Gamble and Walmart, recommendations to reduce their impact on forests.

In the progress report, toilet paper companies are graded on three metrics: whether or not they sell products made of entirely recycled fibers or alternative fibers, such as sustainably grown bamboo; their Scope 3 emissions reduction plan, or lack thereof; and their commitment to and implementation of a free, prior and informed consent policy to protect the lands rights of Indigenous Peoples and forest-dependent communities.

"Toilet paper companies need to step up to reduce their impact on forests. There is no reason that using toilet paper should mean flushing away the future of our climate, biodiversity and people across the world," said Sammy Herdman, Environment America Research & Policy Center's Save The Boreal Forest Campaign associate and author of the report. "The companies highlighted in this report have net worths of billions of dollars, which stems from innovation and ambition. Now is the time for them to step up to the plate and put that innovation and ambition to use saving our global forests."

Much of the virgin wood pulp used to make toilet paper is sourced from the Canadian boreal forest, which is logged at a rate of one million acres per year. Ongoing logging in the boreal forest threatens to release the 300 billion tons of carbon, which is nearly twice as much carbon as all of the world's recoverable oil reserves. Despite the worsening severity of natural disasters and global leader's pledges to end deforestation, the athome tissue market continues to drag their feet to protect forests and our climate

"Some tissue manufacturers use entirely recycled wood fibers to make their products. It's disheartening to see Costco, Georgia-Pacific and Walmart relying entirely on virgin wood fibers from critically important forests like the boreal to make toilet paper," said Herdman.

In addition to campaigning for corporate responsibility, Environment America Research & Policy Center recently released a guide for consumers who want to shop for woodbased products, including toilet paper, sustainably.

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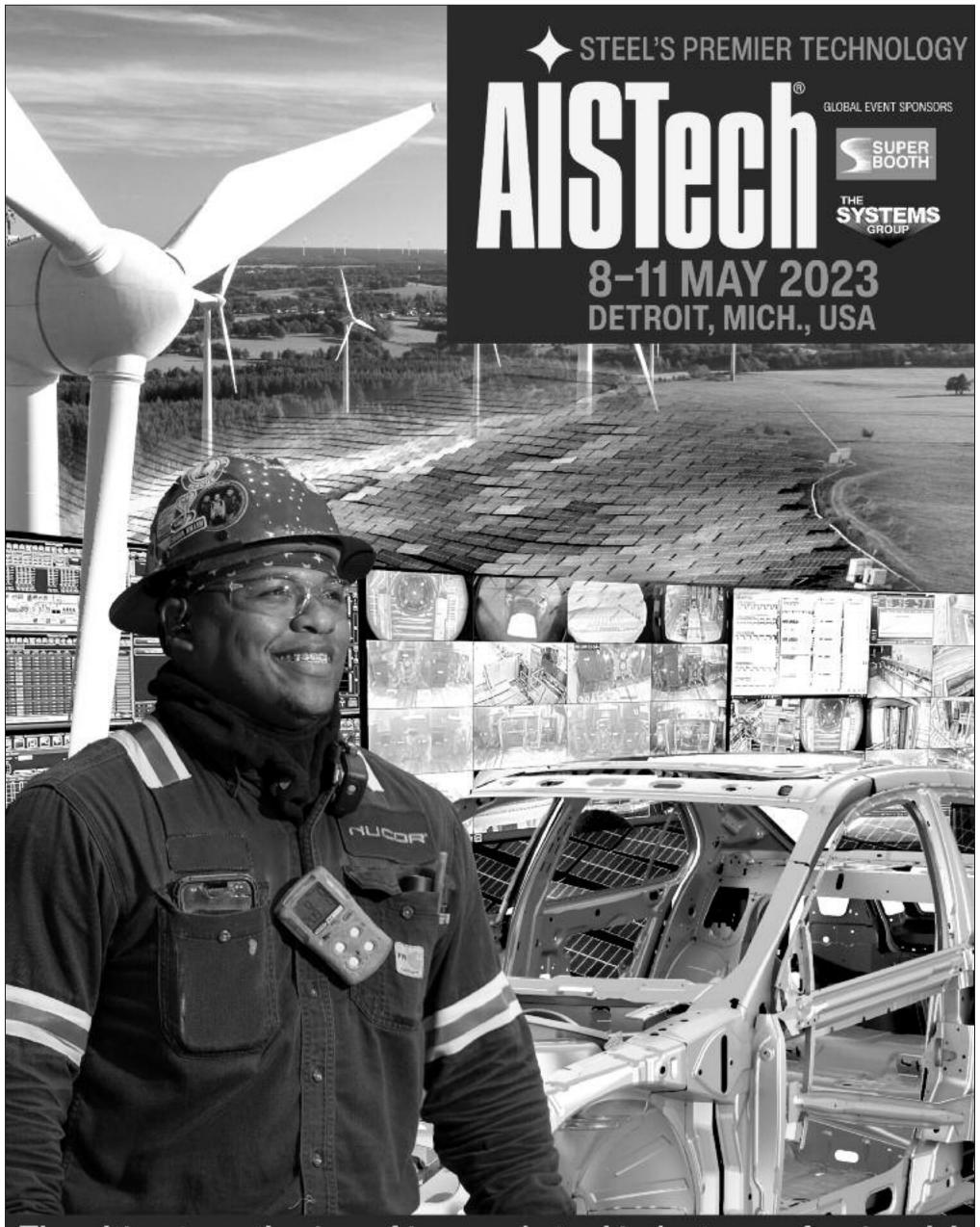
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Paper **Shredders**

by MARY M. THORNTON

maryt@americanrecycler.com

The American Forest and Paper Association has quantified the following regarding paper recycling in the U.S.: Every year since 2009, the recycling rate has met or exceeded 63 percent; in 2021, the recycling rate for cardboard/corrugated was 91.4 percent. The same year, nearly half of recycled paper was used to produce containerboard - the material used to make tissue products, paper towels, newspaper and cardboard, food and medicine boxes. The following describes examples of products used in the recycling industry to process all types of paper material and more.

Julie Anderson, account representative, claimed that "Ameri-Shred's solid reputation is based on the innovative solutions and exceptional customer service that we've provided for over 40 years. Our equipment is known for its superior durability. We specialize in industrial paper shredders, hard drive shredders, solid state drive shredders, and our HD/SSD combo model. Our vast manufacturing capabilities enable us to build standard and custom equipment with great agility and we also provide some of the best lead-times in the industry."

Anderson said that as there are many shredder options and designs, there is a match for each client application, depending on the type of material being processed, throughput, desired particle size, feeding method, etc. "The good news is that Ameri-Shred has the sales and support team to help. Our comprehensive approach for problem solving, delivery, and service after the sale enables us to provide customers with individual shredders as well as complete systems, including ancillary equipment.

"Despite industry changes through the years, the need for shredding and document destruction is still crucial. Along with a large volume of paper documents involved, the need for destruction of personal electronic storage devices such as hard drives, cell phones, tablets and other related digital data grows exponentially with each passing day," Anderson stated. She also views the use of machine diagnostics growing ever more important in the shredding industry. "Operations diagnostics, overall shredder performance metrics, and options for predictive maintenance can improve

efficiencies, increase productivity, and increase ROI. Shredders add economic benefits in recycling applications far exceeding the initial cost of installation. Realizing the possibility of growth in an ever-expanding industry can add great value to your bottom line. Also, we can make it possible to expand your operations to a full system in a timely fashion."

Ameri-Shred also offers a full line of auxiliary recycling equipment, which includes conveyors, cart tippers, box dumpers, dust collectors, metering systems, and balers for independent use or for complete shredding systems.

Granutech-Saturn Roto-Grind® single-shaft shredders have provided processing solutions to the paper recycling industry since the mid 1990s. Roto-Grind single shaft shredders are available in four sizes. All but the M80E are available in either hydraulic

> or electric options and have worked extremely well in paper recycling applications.

> "Each of Roto-Grind shredders has a horizontal 20 h.p. ram, which does an exceptional job



Granutech-Saturn Systems

load amperage/pressure in relation to the shredder's motor. The horizontal feed also helps to eliminate excessive bridging of material, which provides optimum throughput. Along with our horizontal ram, we also offer multiple blade sizes and configurations which again, help our customers to better dial in on the perfect machine for their application," noted Jon Maly, national sales manager, cutter division.

Product cutting configurations range from 2 to 4 rows of cutting blades and blade sizes range from 30 to 60mm among the Roto-Grind models. Standard 4 models are M80E 60 h.p., M110E 100 h.p., M160H 150 h.p. and M240H 300 h.p.. In addition to horizontal ram and blade configurations, horsepower and screen options are also offered, to better provide exact customer needs. Depending on the material, screening size and the model involved, processing volume can range from 2 tons to over 10 tons per hour, but duty cycle and throughput can also affect such outcomes. "Our Saturn Roto-Grind Shredders are exceptionally user friendly, but as with any shredder used in the paper and plastic industries, contaminants may have adverse effects on individual shaft blades. For this reason, the unit features a special 'bolt-on blade' design, to help minimize down time. If a contaminant accidently runs through most efficient the shredder, causing damage to the stantly find new uses for them to make throughput, as it is blade, the blade can then be easily metered via the removed and replaced," Maly stated.

MANUFACTURERS

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John Neuens | 414-353-1002 www.bca-industries.com

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The Granutech-Saturn industrial product line also includes industrial quad, dual, single shaft shredders, heavyduty single shaft grinders, nonferrous metal high density balers, rubber powderizers and refiner mills.

HAAS Tyron shredders are used around the world to shred large OCC, paper rolls, and other applications. "With up to 100tph throughput, customers love their Tyrons and contheir operation more efficient, or their

See PAPER SHREDDERS, Page B5



Ameri-Shred Corp.



International Paper pays dividend

International Paper declared a quarterly dividend of \$0.4625 per share for the period from January 1, 2023, to March 31, 2023, inclusive, on the common stock, par value \$1.00, of the company. This dividend is payable on March 15, 2023, to holders of record at of close business February 17, 2023.

The company also declared a quarterly dividend of \$1.00 per share for the period from January 1, 2023, to March 31, 2023, inclusive, on the cumulative \$4.00 preferred stock of the Company. This dividend is also payable on March 15, 2023, to holders of record at the close of business on February 17, 2023.

Paper shredders

■Continued from Page B4

business more revenue," declared Riley Casey, sales manager. Van Dyk Recycling Solutions (VDRS), the sole North American source for these Haas shred-

Casey added, "VDRS proudly offers the highest quality recycling solutions in the

world, and HAAS is no different. Some of our customers have used the same shredder for over 30 years, so we have the utmost confidence in the superior engineering of these machines. The HAAS Tyron line offers market-leading technology for size reduction in a variety of materials. The Tyron shredder is world famous for its reliability, performance, and unique, infinitely



Haas/Van Dyk Recycling Solutions

variable, independent shafts that selfclean at up to 100tph. When it comes to power supply, there's a Tyron for everyone as it can be optioned with SCANIA/CAT, hybrid, or fully electric motors. As we've done for numerous operations, we're happy to provide product performance demonstrations. Give us a call today to schedule a visit!"

AF&PA releases paper reports for November

Association released its November 2022 U.S. paper reports.

Printing-Writing Paper

According to the report, total printing-writing paper shipments decreased 1 percent in November compared to November 2021. U.S. purchases of total printing-writing papers increased 13 percent in November compared to the same month last year. Total printing-writing paper inventory levels increased 9 percent when compared to October 2022.

•Uncoated free sheet (UFS) paper shipments remained essentially flat (-0.3 percent) compared to November 2021 while the inventory level increased 8 percent compared to October 2022. UFS imports increased 55 percent while exports decreased 24 percent in October 2022.

•U.S. purchases of coated free sheet (CFS) papers in November increased 22 percent compared to last November while the inventory level increased 14 percent compared to October 2022. CFS imports doubled, increasing 101 percent, while exports decreased 5 percent in October 2022.

•Coated mechanical (CM) paper shipments increased 5 percent com-

The American Forest & Paper pared to November 2021 while the inventory level increased 10 percent compared to October 2022. CM imports increased 41 percent while exports decreased 4 percent in October

•U.S. purchases of uncoated mechanical (UM) papers in November increased 5 percent compared to last November while the inventory level increased 2 percent compared to October 2022. UM imports and exports both decreased compared to October 2021, down 2 percent and 2 percent respec-

U.S. Packaging Papers & Specialty Packaging

Total packaging papers & specialty packaging shipments in November decreased 9 percent compared to November 2021. They were down 3 percent when compared to the same 11 months of 2021.

•The bleached packaging papers operating rate was 81.7 percent, down 2.8 points from November 2021 and down 4.1 points year-to-date.

•Shipments of unbleached bag & sack paper were 81,200 short tons for the month of November, down 7.9 percent from November 2021.

I thought I had won the latest argument with my wife. We were debating about how to how to rearrange the dining room furniture. But then, when I got home, the tables were turned.

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U.S. paper industry reaches recycling high

Association (AF&PA), announced 68 percent of all paper consumed in the U.S. was recycled in 2021 – a rate on par with the highest rate previously achieved.

Additionally, the recycling rate for old corrugated containers (OCC), commonly known as cardboard, increased. The rate was 91.4 percent in 2021, up from the 2020 rate of 88.8 percent, and overall, a three-year average of 90.5

"Paper recycling is stronger than ever and remains an environmental success story," said AF&PA president & chief executive officer Heidi Brock. "In 2021, U.S. paper recycling reached a high rate of achievement. Further evi-

The American Forest & Paper dence that our industry's investment and public participation in recycling programs are proven and effective."

> Paper recycling extends the life of fiber and advances the circular economy. It allows for the creation of new, sustainable paper-based packaging and

> "Our industry is a leader in sustainability and understands what it means to be a responsible producer," Brock said. "We are investing nearly \$5 billion in projects from 2019 through 2024 to use approximately 8 million additional tons of recovered fiber. This reflects a longstanding commitment to invest in manufacturing infrastructure using recycled paper and improve the circular nature of our industry."

Vast majority of Americans have access to recycling

Association (AF&PA) shared a new report indicating that the most Americans, 94 percent, have access to community paper recycling programs.

The 2021 AF&PA Access to Recycling Study also finds more Americans, 79 percent, now have access to residential-curbside programs making it easier to recycle paper at home – an increase of more than 14 million people since the 2014 study.

Items such as corrugated cardboard, mail, newspapers, office paper,

The American Forest & Paper magazines, paperboard boxes with and without poly coatings, paper bags, liquid packaging cartons and pizza boxes have a consumer access rate of 60 percent or more.

> The 2021 AF&PA Access to Recycling Study is a comprehensive national report that tracks and measures the growth of consumer access to community paper and paperboard recycling in the U.S. It is the latest in a series commissioned by AF&PA and conducted since 1994.

C&D PROS FIND **THEIR** INSPIRATION FROM CDRA



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CDRECYCLING.ORG

Georgia-Pacific wins award for breakthrough technology

with an Innovation in Sustainability award for Juno® Technology.

The American Forest & Paper Association (AF&PA) announced its Better Practices, Better Planet 2030 Sustainability Award winners, recognizing exemplary sustainability programs and initiatives in the paper and wood products manufacturing industry. "This is the first year we are presenting awards in alignment with our new Better Practices, Better Planet 2030 sustainability goals and statement of principles on diversity, equity and inclusion," said AF&PA president and chief executive officer Heidi Brock. "It is exciting to see examples of these goals in action."

Juno Technology is Georgia-Pacific's breakthrough solution to waste diversion and resource recovery.

Georgia-Pacific was recognized It is a proven economical and socially responsible solution that can increase recycling and recovery across the U.S. and around the globe. "At Georgia-Pacific, we prioritize the development of new technologies that help us use fewer resources, minimize waste, and improve the environmental performance of our products and processes,' said Christer Henriksson, president of Juno, at Georgia-Pacific.

Juno Technology can recover up to 90 percent of the materials it processes, diverting them from landfills and incinerators. These materials, such as paper fiber, plastics, and metals, can then be circulated back into the economy for reuse as raw materials. Henriksson professed, "Our goal was to go deeper into the waste stream to capture more fiber for reuse without disrupting current recycling."

Greif shares sustainability goals

Greif, Inc., a leader in industrial packaging products and services, announced new sustainability targets, reinforcing the company's commitment to building a more sustainable and equitable future.

These targets set specific and measurable goals that build on the company's announcement in 2021 to reduce absolute Scope 1 and 2 greenhouse gas (GHG) emissions 28 percent by the end of the decade.

The broader sustainability focus for the company continues to be advancing a circular economy, reducing greenhouse gas emissions, and championing diversity, equity & inclusion initiatives.

By 2030, Greif aims to:

•Reach zero waste to landfill at 97 percent of its production facilities

By reducing, recycling, composting, reusing and incinerating with energy recovery, Greif targets 97 percent of its production facilities achieving zero-waste to landfills by 2030.

•Make 100 percent of its products

Working across a vast portfolio of raw materials and products, Greif recyclability targets will be benchmarked by weight, consolidated at a company level.

•Achieve an average of 60 percent recycled raw material content across products

Recycled content targets for Greif products are minimum averages benchmarked across a portfolio of materials and products by weight, consolidated at a company level.

•Attain global gender pay parity

Greif is on track to ensure colleagues receive equal pay for equal work by 2024 and is committed to maintaining gender pay parity.

•Evaluate the sustainability performance for 80 percent of total spend

By aiming to increase the evaluation of the sustainability performance of its suppliers, Greif can have a greater impact across its value chain.

"These 2030 targets reflect our determination as a global company to do our part in building a more sustainable future for our people and the planet," said Ole Rosgaard, president and chief executive officer of Greif. "Together, they create a roadmap to success for our customers, colleagues, and the communities in which we operate and serve."

Sustainability is a core value for Greif and remains an integral part of how the company does business. These new targets build upon previous sustainability targets and reflect a companywide initiative to align its sustainability efforts with the latest science and the needs of its customers, stakeholders, and suppliers.

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Crown Paper Group names Will Lindsay as new CEO

Crown Paper Group announced that Will Lindsay has been named chief executive officer. Lindsay most recently served as senior director, global papers strategy and product optimization at WestRock and brings to this role extensive experience across the paper and packaging industry. Crown Paper Group, including Port Townsend Paper Company and Crown Corrugated Company, is an integrated mill and containerboard operation with a strategic presence in the growing markets of the Pacific Northwest and Western Canada.

Port Townsend Paper Corporation is a provider of high quality recycled and virgin kraft containerboard, kraft

pulp and specialty products in Port Townsend, Washington. The company's two converting facilities, known as Crown Packaging and Boxmaster, operate with extensive customer reach and distribution capabilities throughout British Columbia and Alberta.

Lindsay brings to Crown Paper Group more than three decades of experience in the paper and packaging industry, including leadership across global sales and marketing, supply chain, and product performance. He has held various positions at Longview Fibre Paper & Packaging Inc., KapStone Paper & Packaging Inc., and WestRock.

Packaging

■Continued from Page B1

Embracing the Future & Its Challenges

As technology advances and the ecommerce industry grows, so too does the need for smart, efficient packaging solutions. Harrison said that one of the greatest challenges facing companies in this space is how to package their products sustainably and responsibly while still meeting customer needs. Fortunately, there are some promising solutions on the horizon that could make a big difference when it comes to packaging paper for online consumerism.

"One such solution is utilizing recycled paper as an alternative form of packaging material," Harrison said. "Many businesses are already making use of recycled paperboard – which can be safely reused multiple times - as well as corrugated cardboard made from some percentage of post-consumer waste paper (how much varies depending on the supplier). By switching over to recyclable or biodegradable materials like these, we can significantly reduce our environmental impact by minimizing single-use plastic consumption and decreasing our reliance on unsustainable resources."

Companies are also looking to reduce the amount of waste produced in their packaging processes altogether. This could include using fewer materials per shipment (such as air pillows or bubble wrap) or even transitioning away from traditional packing tape toward water-activated or eco-friendly alternatives with fully recyclable components.

"Additionally, reusing old boxes purchased from retailers has become increasingly popular among e-commerce firms looking to cut down on costs without sacrificing sustainability – not only does this provide an extra layer of protection during transit but also reduces resource consumption while enabling greater reuse within supply chains," Harrison said.

As the demand for fiber-based packaging continues to increase, James said it's critical that packaging compa-

nies work to source their paper from sustainably managed forests, such as those certified by the Sustainable Forestry Initiative (SFI) and the Forest Stewardship Council (FSC).

"Working forests – those used for commercial production of trees – remain crucial carbon sinks and provide ecosystem services such as water filtration while also providing feasible ways to maximize both forest health and fiber production," James said. "Additionally, forest managers and paper mills should continue to decarbonize their supply chains so the carbon footprint of paper production can be dramatically reduced."

When Rosene predicts what may come for paper recycling as it relates to the packaging industry, he looks at the problems on the horizon. If current supply levels aren't enough to meet demand, he believes innovation could increase the number of times packaging can be recycled.

"For example, we can recycle paperboard packaging around seven times before the fibers break down completely," Rosene said. "However, when paper is made waterproof to transport liquids, coatings are added to the paper, which limits recyclability. Creating new liners for paper packaging would be a game changer for our industry, recycling and our planet."



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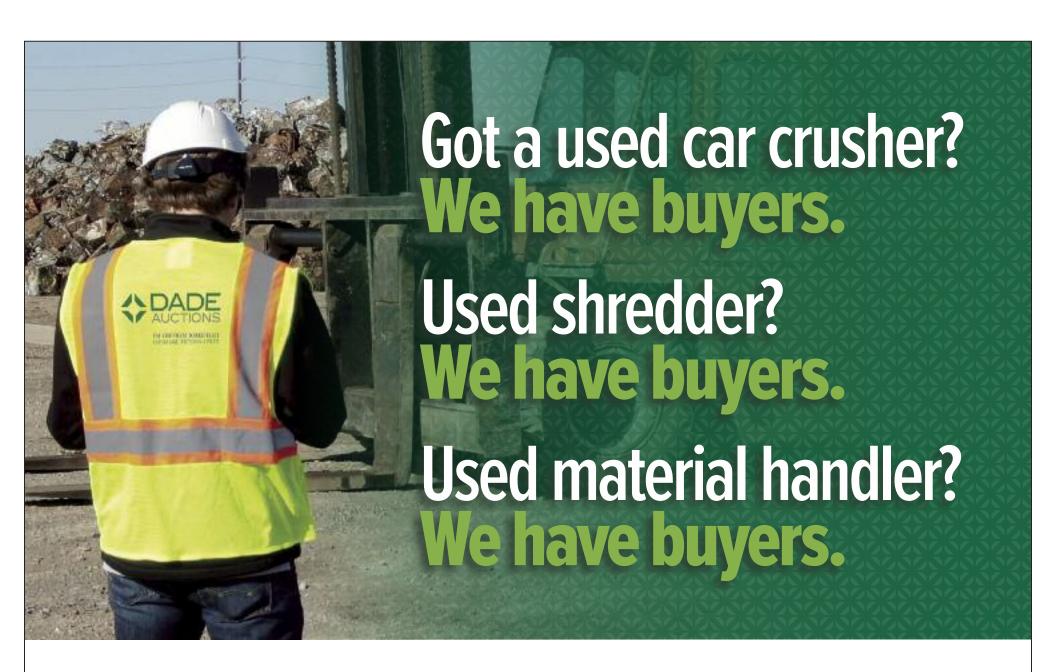
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