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New trends in mattress recycling are developing



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Tire sustainability and it's impact on the recycling industry

by MAURA KELLER

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The concept of sustainability has impacted nearly every industry and tire manufacturing is no exception. In fact, the majority of U.S. Tire Manufacturers Association (USTMA) members are pursuing technological advancements that improve sustainability (safety, economics and environmental impact) of today's tires. As a result, these tires may feature different material composition and components than in the past. For example, some new tires contain RFID chips for connected mobility, Kevlar for strength, and bio-based and reclaimed recycled materials. Another potential game changer may be airless (or non-pneumatic) tires, for which prototypes have been developed, with a Michelin fitment on a GM vehicle announced for the 2024 model year.

"These materials may require recyclers to modify their recycling processes and update their equipment," said John Sheerin, director, End-of-Life Tire Programs at USTMA.

Indeed, it's important to note that several tire manufacturers are looking at ways to make tires partially or entirely from bio-based, renewable or biodegradable materials over the coming years.

Simultaneously, USTMA said some tire manufacturers are investing in their own recycling efforts, such as:

- Bridgestone's at-scale use of recovered carbon black (rCB) in the tire market as part of its long-standing partnership with Delta-Energy Group, LLC.

- Continental Tires' agreement with Pyrum Innovations, a specialist in the pyrolysis of end-of-life tires. The aim of the collaboration is to further optimize and expand the recycling of end-of-life tires through pyrolysis.

- Michelin's first tire pyrolysis plant in collaboration with Enviro, a Swedish company that has developed a patented tire pyrolysis technology to recover carbon black, oil, steel and gas from end-of-life tires.

According to William Niaura, director of sustainable materials and circular economy at Bridgestone Americas Technology Center, from retreading to creating different production processes for carbon black using end-of-life tires and exploring waste biomass carbon sources as a substitute for petrochemicals, Bridgestone America has established a technical roadmap to achieve 100 percent renewable tires.

"To achieve these sustainability targets, we are working closely with the



With the importance companies are placing on recycling end-of-life tires, recyclers must understand the needs of the rubber industry to establish a downstream market.

PHOTO BY PAUL PRESCOTT | DREAMSTIME

recycling industry to encourage the recovery and reuse of end-of-life tires," Niaura said.

Indeed, Sarah Amick, vice president EHS&S and senior counsel at USTMA, said tire manufacturers are working to further support scrap tire markets through their sustainability efforts in product development and manufacturing.

"The management of scrap tires has been a priority for USTMA members for almost three decades. USTMA works with stakeholders, including states, the U.S. EPA and the industry, to incentivize market development and advance federal and state regulations that foster sustainable scrap tire markets," Amick said. According to USTMA's 2019 Scrap Tire Management Report, approximately 76 percent of scrap tires currently go to scrap tire markets.

USTMA is working with states and the federal government, industry groups, recyclers, researchers and environmental groups to grow new and existing markets, which require:

- Investment in scrap tire solutions that advance the circular economy;
- State grant programs to grow new and existing markets;
- Federal investment in sustainable infrastructure that advances innovation while protecting health, safety and the environment; and
- Additional research to assess life-cycle impacts.

"USTMA members support sustainable and circular markets for scrap tires, including markets that reduce CO2 emissions by reducing emissions compared to those associated with the manufacture and transport of virgin materials," Amick said.

And here's why: According to Sheerin, rubber modified asphalt made with scrap tires, in addition to offering durability and maintenance advantages, has been shown to contribute lifecycle CO2 emissions at least 32 percent lower than conventional pavement.

Also, pyrolysis of scrap tires to yield recycled carbon black – used to reinforce and manage heat in a tire – produces 81 percent less CO2 per ton compared to virgin carbon black.

"In 2019, 36.8 percent of recovered scrap tires were used as tire derived fuel (TDF) by cement kilns, pulp and paper mills, and other industrial users," Sheerin said. The U.S. Environmental Protection Agency has recognized the biogenic or natural rubber fraction in TDF as carbon neutral, reducing the CO2 emissions profile of TDF and, therefore, the tire's life cycle. In cement kilns, TDF has an added circularity benefit because the steel belts replace the ferrous oxide that would otherwise need to be added to the cement mix.

"While the challenges are complex, our mission is simple: 100 percent of scrap tires enter sustainable and circular markets," Sheerin said.

See TIRE RECYCLING, Page A4

ISRI wraps world's largest recycling convention with high attendance

First in-person ISRI Convention in three years saw over 5,000 attendees

The Institute of Scrap Recycling Industries (ISRI), the Voice of the Recycling Industry™, attracted more than 5,000 attendees at the ISRI2022 Convention and Exposition in Las Vegas. The first in-person annual convention and expo in three years, the ISRI2022 attendee total represented the event's largest paid registration in eight years.

"ISRI2022 saw over 5,000 attendees from 53 countries and 49 states, plus D.C. and Puerto Rico," said Robin Wiener, ISRI president. "It was a wonderful event – and so much fun to be together after three long years without an ISRI Convention! We hosted industry leaders from around the world, recognized members for safety leadership, awarded ISRI's coveted Design for Recycling®, Youth Poster and Video Contest, Lifetime Achievement awards and more, while also providing top drawer networking and educational opportunities from leading speakers. Of course, ISRI2022 also showcased the largest recycling exhibit hall in the



Voice of the Recycling Industry™

industry, allowing attendees to see the latest in new technologies and innovations. Now I can't wait for next year in Nashville!"

Sonoco Alloyd won the 2022 Design for Recycling award for its EnviroSense™ PaperBlister™ package. The award was accepted by Sabrina Dixon-Ridges, the company's global sustainability business strategy alignment manager.

Gary Champlin, general manager of Champlin Tire Recycling in Concordia, Kansas, ended his term as ISRI chair and turned leadership over to Brian Henesey, vice president and general manager of Rocky Mountain Recycling in Commerce City, Colorado, to begin his two year term.

When I met my now wife, I asked if she was vegetarian because she really loved animals.

She responded, "No, I just really hate vegetables."

We've been together ever since!

Technologies for hard-to-recycle thermoset materials reported

PreScouter, a Chicago based research intelligence company, has compiled a new Intelligence Brief that looks at the potential impact of recycling thermosets on reducing fossil based plastic waste and highlights some examples of current options for recycling these materials along with some that are close to being fully developed.

Currently, only 10 to 18 percent of all plastics are recycled, in part because not all types of plastic are easy to process. As explained in the brief, plastic materials are generally classified according to their chemical compositions as either thermoplastics, such as polyethylene terephthalate or thermosets, which consist of the major resin classes of isocyanates, unsaturated polyesters, formaldehydes, epoxies and alkyds. These resins are widely used as strong, lightweight materials; but the presence of covalent intermolecular cross-links that makes thermoset materials so attractive is precisely what makes them so difficult to recycle.

The report looks at the current scenario along with forecasts for the recycling of thermoset and thermoplastic waste, comparing the volumes of each type of plastic that are being produced and percentages being recycled. With approximately 11 percent of plastic production volume worldwide consisting of thermosets, the development of new recycling solutions for these materials could potentially have

a major impact on global efforts to reduce fossil-based plastic waste.

After outlining the current routes of thermoset recycling, the brief goes on to provide technology overviews of nine commercially available thermoset material recycling solutions. Companies profiled are located in the United States, the United Kingdom, Germany, and India and include several major chemical companies such as Dow Polyurethanes, BASF and Covestro AG. The technologies profiled are categorized into polyurethane foam solutions, epoxy composite solutions, and difficult to recycle plastic solutions.

This Intelligence Brief concludes with an exclusive interview with Sudhin Datta, PhD, consultant on polymers and retired senior research associate at ExxonMobil Chemical. He explains that the most important classical thermosets that are recyclable are polyurethanes, epoxies, and silicones, while there are also materials that behave like thermosets in the recycling process, such as PVC, Teflon and PEX. "There is a move to recycle or to reconstitute almost all polyurethane foam insulation," said Dr. Datta. "My sense is no more than 20 percent of the world's production of polyurethane foam is actually recycled," he added.

For a direct link to the report, view this article on www.AmericanRecycler.com.

NWRA Women's Council awards \$60,000 in scholarships

The National Waste & Recycling Association (NWRA) Women's Council shared its scholarship recipients.

- Brittany Anderson – Machinex Technologies
- Olivia Cross – WM
- Brenda Forsythe – Waste Connections of Canada

- Felicia Odds – Waste Connections (Bay Disposal)

- Emily Nisly – Nisly Brothers Inc.
- Brett Smith – Vogel Disposal Services

- Dawn Thibodaux – Waste Connections

- Vanessa Vogel – Vogel Disposal Services

In 2007, the NWRA Women's Council established an educational scholarship program to assist qualified individuals in their pursuit of an education that will lead to productive careers in the environmental industry. All NWRA member company employees and their dependents are eligible to apply. To date, \$375,000 has been awarded.

"We are thrilled to celebrate NWRA's 60th anniversary by giving away \$60,000 in scholarships," said Tammy Holtzman, chair of the Women's Council Scholarship Committee and district manager at Waste Connections of Canada. "This year's pool of candidates was exceptional, and this year's class of scholars are wonderful examples of those dedicated to our industry."

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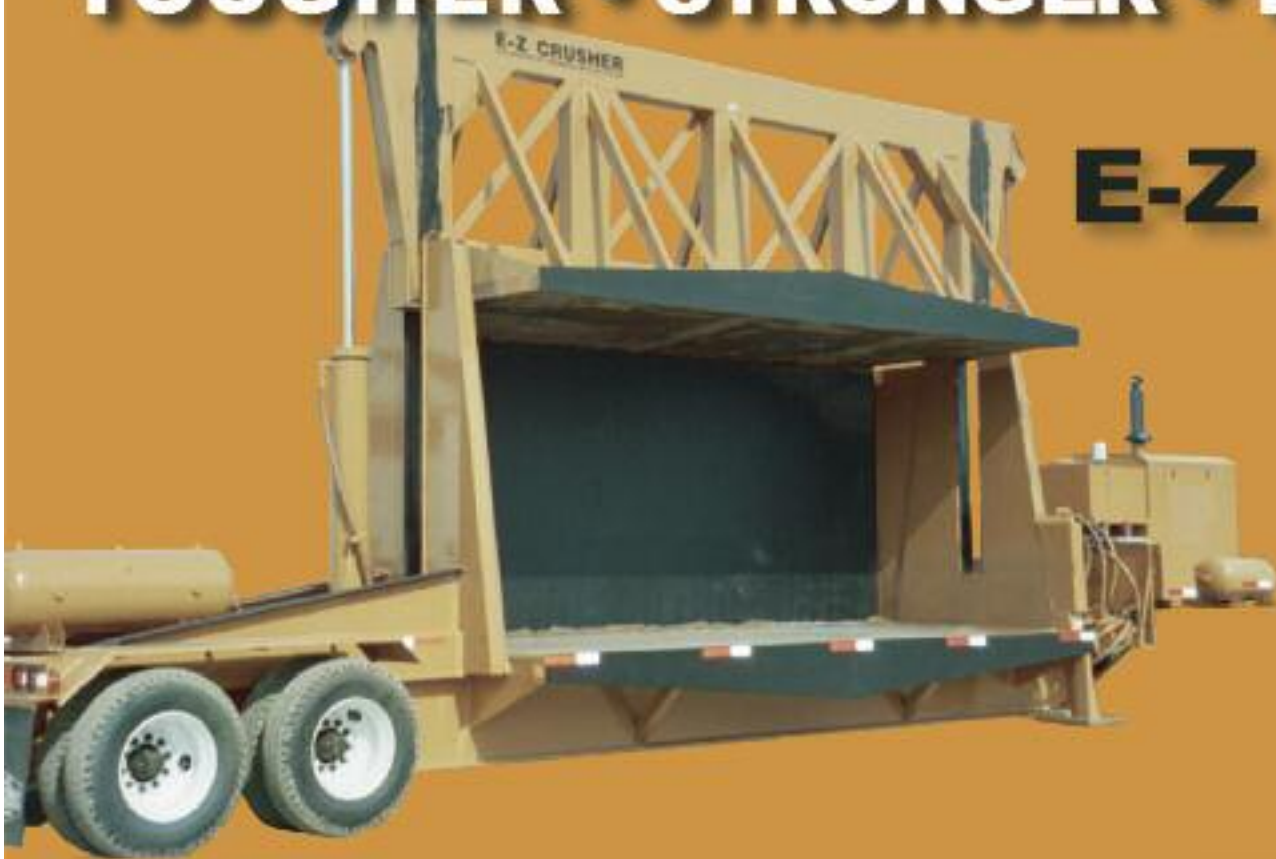
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Tire recycling

■Continued from Page 1

Maureen Kline, vice president of public affairs & sustainability for Pirelli Tires North America, said that Pirelli Tires' hope is for scrap tire material to be sustainably useful as a raw material for other products, so it will become more valuable.

"As a company and as an industry we are focusing R&D efforts on designing tires with less chemicals, doubling down on efforts to refine the quality of recycled material like recovered carbon black, for use in new tire production, and promoting stakeholder dialogue and research funding for market development," Kline said. "As an industry we want to partner with states and the recycling value chain to evolve the recycling possibilities for tires. Everything is inter-connected. For example, lighter-weight electric vehicle tires will wear faster and produce more scrap material."

Exploring the Challenges

Manufacturing more sustainable tires is top of mind for most tire companies as they recognize the challenges of fully recycling all components of today's scrap tires.

"Globally, an estimated one billion tires reach the end of their useful life each year," Niaura said. "Recycling end-of-life tires is a major challenge for the tire industry and its customers. Many of the technical challenges surrounding the use of recycled or recovered materials from end-of-life tires are well understood, but significant barriers remain in achieving material circularity

at a scale that is necessary to realize a cleaner and more sustainable mobility ecosystem."

USTMA is working with other stakeholders on multiple fronts to encourage the growth of circular, sustainable markets for scrap tires, including the use of ground tire rubber in rubber-modified asphalt (RMA).

"RMA has been used in the U.S. since the 1960s. To date, 31 states are either using, testing or planning projects using RMA but despite demonstrable performance and environmental benefits, extensive market adoption has yet to occur," Sheerin said. "USTMA also has identified the use of scrap tire aggregate in roadside water infiltration galleries as a promising new market that repurposes scrap tires while protecting precious groundwater supplies."

Niaura added that global adoption of sustainable practices is the biggest challenge facing the tire industry today. It will take partnerships across all aspects of the value chain to achieve material circularity.

"As we increase the recycled content of our tires with materials such as rice husk silica, recovered carbon black and recycled steel, another challenge will be the availability of materials at scale to support the industry at large," Niaura said. "With the importance companies are placing on recycling end-of-life tires, recyclers must understand the needs of the rubber industry to establish a downstream market."

For example, carbon black is a necessary reinforcing agent and filler in tires. According to Niaura, today, less than one percent of all carbon black used in new tire production glob-

ally is recovered. With that in mind, Bridgestone has made a minority investment in Delta Energy Group, a market leader in material recovery from end-of-life tires and a supplier of recovered carbon black to the company's Americas business.

"Recovered carbon black (rCB) is a promising substitute for virgin carbon black (vCB) as it offers more sustainable performance with minimal tradeoffs," Niaura said. "The process used by Delta-Energy Group to extract materials produces 81 percent less CO2 per ton as compared to traditional or vCB. Through this partnership, we were able to introduce the industry's first at-scale use of rCB in the tire market in 2019."

Kline added that, "Recycling companies are probably the best at keeping up with innovation, but as innovative solutions arise, all the stakeholders in the tire recycling system need to promote awareness of new solutions – for example, the excellent road properties of rubber modified asphalt, which need to be promoted to localities making paving decisions. This is why we favor scaling up the stakeholder approach to end-of-life tire market development: including all the players, educating on solutions and promoting research to fill data gaps."



MAY

5/3-5/4

CARE's 20th Annual Conference. Minneapolis Marriott City Center. Minneapolis, Minnesota. www.carpetrecovery.org 706-428-2127

5/9-5/12

WasteExpo. Las Vegas Convention Center. Las Vegas, Nevada. www.wasteexpo.com 203-358-4384

5/16-5/17

NRRA'S Annual Northeast Recycling Conference & Expo. Double-Tree by Hilton. Manchester, New Hampshire. www.nrrarecycles.org 603-736-4401

5/16-5/19

AISTech 2022. David Lawrence Convention Center. Pittsburgh, Pennsylvania. www.aist.org 724-814-3000

5/22-5/25

The Federation of New York Solid Waste & Recycling Conference with Trade Show. The Sagamore Resort. Bolton Landing, New York. www.conference.nyfederation.org 585-732-5376

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Spross AG to double its robot count for efficient and effortless recycling

Swiss-based family business Spross AG has reinvested into ZenRobotics robot technologies to recover more valuable fractions at their Spross Recyclingwerk Zurich RWZ site. The facility processes 180,000 tonnes of construction waste and bulky household waste annually. Spross recycles waste by sorting it and sending it to different recovery facilities in Switzerland where the waste can be reused.

Spross AG is a Zurich-based family business that offers dumping and disposal services, as well as landscaping and real estate services. Spross began its cooperation with Zenrobotics back in 2019 with an aim to increase the efficiency of their waste recycling. Manager of Disposal Services at Spross-Groupe Josef Binzegger has been more than happy with the waste sorting technology Zenrobotics provides.

So much so that the waste operator has now decided to invest more into ZenRobotics' technology. Spross will double the amount of robot arms at their RWZ facility in 2022 to have more fractions sorted at up to 4,000 picks per hour – allowing them to earn more from valuable fractions or reduce the cost of elimination. So far, the robot's been recovering mainly concrete and stone for concrete production, and also wood, plastics and some metals.

The robot is custom made and it is a perfect fit for the plant despite its challenging environment.

The waste sorting robots work well under challenging circumstances and have increased work safety by replacing manual labor. Thanks to the robot's high-performance and reliability, people have been able to increase their production.

2022 Best Practices in Safety award recipients chosen

The Construction & Demolition Recycling Association (CDRA) shared its 2022 Best Practices in Safety award recipients:

Gold Recipients

- Champion Waste & Recycling
- Cherry Companies
- Dem-Con Companies
- DTG Recycle
- Gray & Son
- Lautenbach Recycling
- Michael Brothers Hauling & Recycling
- Premier Recycle Company
- Southwind RAS

Silver Recipients

- R&B Debris
- JR Ramon Demolition

Construction and demolition recycling and related operations have inherent risk factors and the most successful operators have created a specific action plan to minimize those risks and create a culture of safety. The CDRA developed the awards program to recognize companies that have achieved a high level of safety management and to identify a level of safety performance that will help C&D operators manage their business.

Glass Recycling Foundation efforts recycle 2M glass bottles

The Glass Recycling Foundation (GRF) awarded \$85,000 in grants supporting three pilot projects that recovered a combined two million glass beer bottles in 2021. The non-profit organization which focuses on raising and providing funds for targeted assistance to the U.S. glass recycling supply chain released a report of the foundation's 2021 accomplishments.

"We were excited to have the opportunity to partner on bar and restaurant pilots in Chicago, Columbus and Phoenix and hope to scale these efforts," said Scott DeFife, president of the GRF. "We know that U.S. consumers want to recycle glass, but some communities struggle – that is where the GRF works to provide matching grants to help fill in glass recycling gaps. We look forward to increasing glass recovery in 2022 and beyond."

Glass recycling grants in 2021 supported partnership efforts in a com-

munity glass-only drop off program in Erie County, Pennsylvania and commercial glass collection programs in Chicago, Illinois and Phoenix, Arizona. The 2021 GRF Impact report can be found at the foundation's website.

Most recently, America's leading brewer, Anheuser-Busch, announced that it has joined the GRC to help improve glass recycling in the beverage industry.

The move aligns with the brewer's longstanding commitment to sustainability and goal for 100 percent of their product to be packaged in material that is returnable or made from majority recycled content by 2025. By working with the coalition, Anheuser-Busch hopes to drive glass collection through infrastructure investments and increased public awareness to help reduce GHG emissions and increase the amount of recycled content used in its packaging.



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EPA selects 11 organizations to help with food diversion

The U.S. Environmental Protection Agency (EPA) has selected 11 organizations expected to receive a total of approximately \$2 million in funding to divert food waste from landfills by expanding anaerobic digester capacity nationwide. Anaerobic digestion (AD) is a process in which microorganisms break down organic materials, such as food scraps, manure, and sewage sludge, in the absence of oxygen. The process produces biogas, which can be captured and used for energy production, and digestate, a nutrient-rich product used for fertilizer.

“Anaerobic digestion is an important way to ensure essential nutrients are recirculated into our ecosystems,” said Carlton Waterhouse, deputy assistant administrator for the EPA Office of Land and Emergency Management. “This kind of innovation helps communities reduce food waste that could end up in landfills while capturing methane for use, instead of having it go into the atmosphere.”

By decreasing the amount of wasted food in landfills, AD reduces landfill methane emissions, in turn reducing impacts of climate change. Methane traps 28 to 36 times more heat in the atmosphere over a 100 year period than carbon dioxide. Additionally, AD is a strategy included in EPA’s food recovery hierarchy that is preferable to landfilling and incineration because it reclaims valuable resources, contributing to a circular economy.

Keeping food waste out of landfills by transforming it into fuel or fertilizer can save money and reduce environmental impacts.

EPA is prioritizing environmental justice by ensuring nearly half of the funds will be awarded to projects or recipients located in underserved communities. Specifically, EPA considered the effects of this program on people of color, low-income, tribal, and indigenous populations, and other vulnerable populations, such as the elderly and children.

Each selected organization will receive a range of approximately \$150,000 – \$200,000 over a two year period. The 11 organizations selected for AD project funding are:

•District of Columbia Department of Public Works (Washington, D.C.): Plans to establish a training and certification program for commercial food waste generators that will equip the participants to set up successful source-separated organics programs to divert food waste to anaerobic digesters for processing.

•Food Lifeline (Seattle, Washington): Plans to develop an AD demonstration project that introduces the community of South Park to alternative energy production through hands-on, culturally, and linguistically relevant engagement and education opportunities.

•Georgia Southern University Research and Services Foundation

(Statesboro, Georgia): Plans to conduct a feasibility study to advance the understanding of how existing AD capacity at pulp and paper mills can be sustainably leveraged for the treatment of food waste from university campuses.

•Monterey One Water (Monterey County, California): Plans to conduct a feasibility study to evaluate the conversion of existing anaerobic digesters at its wastewater treatment facility to co-digest sewage sludge with food and other organic wastes diverted from the area.

•Northeast Waste Management Officials’ Association (NEWMOA) (Boston, Massachusetts): Plans to develop environmental justice engagement and regulatory compliance guidance and training to support states seeking to increase food waste diversion rates through AD utilization.

•Ohio University (Athens County, Ohio): Plans to study and quantify the potential for waste diversion at microbrewery brewpub businesses and demonstrate an AD model system scaled for that sector.

•San Luis Valley Local Foods Coalition (Mosca, Colorado): Plans to install a high-efficiency AD system to process food and organic waste that will demonstrate the technological feasibility and cost effectiveness of such a project in Colorado’s rural, high-alpine San Luis Valley region.

•University of Iowa (Iowa City, Iowa): Plans to conduct a project that

will use computational modeling to demonstrate optimum conditions for biogas production while minimizing digester issues.

•University of Puerto Rico Medical Sciences Campus (Cataño, Puerto Rico): Plans to conduct a project to empower and educate the local community in utilizing AD for organic material management through a seminar series and small pilot facility to demonstrate benefits.

•University of Vermont (Burlington, Vermont): Plans to perform a study to assess current capacity at digesters to accept food wastes; the potential impacts of food waste co-digestion on biogas production; and the potential impacts of co-digestion on nutrients and microplastics in digestate.

•Yurok Tribe (Klamath, California): Plans to establish an AD pilot demonstration project to divert the food waste generated on and near the Yurok Indian Reservation, beginning with a local elementary school.

EPA will make the awards once all legal and administrative requirements are satisfied.

For this year’s grant competition, EPA evaluated applicants on how their projects addressed numerous factors resulting from industrial, governmental, commercial, and/or other actions: human health, environmental, social, climate-related, and other cumulative impacts, and accompanying economic challenges of such impacts.

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Retriev Technologies acquires Battery Solutions

Retriev Technologies, a comprehensive lithium battery recycler and a pioneer in end-of-life battery management, has acquired Battery Solutions, a leader in sustainable, end-to-end management solutions for end-of-life batteries and consumer electronics. The combined offering brings two complementary industry leaders together to create the first and only comprehensive battery management solution in North America.

Battery Solutions' sophisticated cross-chemistry collection, exceptional battery centric logistics network, largest end-of-life battery sorting services in North America and a customer centric approach to end-of-life battery management complements Retriev's long heritage as the oldest and largest lithium-ion battery processing operation. Battery Solutions has a strategic national footprint with a portfolio that services the entire end-of-life battery lifecycle for EVs, telecommunications, consumer collection, waste management sectors and more.

Retriev's operations include battery recycling and sorting facilities in

Lancaster and Baltimore, Ohio and Brea, California, as well as Trail, British Columbia. Battery Solutions brings added processing, sorting, fulfillment, logistics and storage solutions with their 95,000 sq.ft. facility in Wixom, Michigan, and a 60,000 sq.ft. facility in Mesa, Arizona.

Retriev's newly combined offering has the expertise and infrastructure to develop customized solutions for both large and small customers that simplifies the collection process and reduces the conversion time. The current customer portfolio includes thousands of customers, with an emphasis on automotive OEMs, environmental services, retail, communications and consumer products.

Last October, Retriev combined with Heritage Battery Recycling to form the largest lithium-ion battery recycler in North America.

The deal expanded Retriev's collection and transportation network through partnerships with Heritage Environmental Services and Heritage-Crystal Clean.

EPA proposes removing C&R battery site from list of nation's most contaminated

The U.S. Environmental Protection Agency (EPA) is seeking comments on the proposed deletion of the C&R Battery Company, Inc. Superfund Site in Chesterfield County, Virginia, from the Superfund National Priorities List (NPL). The NPL is a list of the nation's most contaminated hazardous waste sites.

EPA deletes sites or parts of sites from the NPL when no further cleanup is required to protect human health or the environment. Years, and sometimes decades, of complex investigation and cleanup work have gone into getting these sites to the point where they can be deleted from the NPL.

The 11 acre C&R Battery Company site is located near the James River in Chesterfield County, Virginia. Between the early 1970s and 1985, C&R Battery Co., Inc. used the site to dismantle batteries from cars, trucks and commercial applications in order to recover lead and lead oxide. The process involved cutting open batteries and draining acid into on-site ponds. These practices contaminated soil, sediment and surface water with lead and

other hazardous chemicals.

EPA oversaw the Potentially Responsible Parties cleanup of the site contamination. Cleanup activities included:

- Excavation of lead-contaminated soil and sediment, collecting it into solid form, and stabilizing the contaminated soil and sediment.
- Disposal of the stabilized material in a nearby solid waste landfill.
- Site grading.
- Placement of clean topsoil over the entire site and replanting greenery at the site.

As a result of the clean-up, there are no releases from the site to groundwater or nearby surface water. The James River wetlands, an area approximately three miles downstream typically used for recreational purposes, were determined to be free of site contaminants as well.

Based on monitoring data collected, EPA determined that the response at the C&R Battery Site is complete and as a result, the site has been proposed for deletion from the NPL.

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METALS

Steel imports down 23 percent in February over January

Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the U.S. imported a total of 2,339,000 net tons (NT) of steel in February 2022, including 1,831,000 net tons (NT) of finished steel (down 23.1 percent and 19.7 percent, respectively, vs. January 2022). Total and finished steel imports are up 23.2 percent and 27.6 percent, respectively, vs. February 2021. Over the 12-month period March 2021 to February 2022, total and finished steel imports are up 50.1 percent and 53.1 percent, respectively, vs. the prior 12-month period. Finished steel import market share was an estimated 22 percent in February and is estimated at 23 percent over the first two months of 2022.

Key finished steel products with a significant import increase in February compared to January are reinforcing bars (up 96 percent), heavy structural shapes (up 34 percent) and line pipe (up 19 percent). Products with a significant increase in imports over the 12-month period March 2021 to February 2022 compared to the previous 12-month period include hot rolled sheets (up 93 percent), sheets and strip all other metallic coated (up 92 percent), oil country goods (up 91 percent), wire rods (up 86 percent) and plates in coils (up 85 percent).

In February, the largest suppliers were Canada (470,000 NT, down 19 percent vs. January), Mexico (446,000 NT, down 22 percent), Brazil (264,000 NT, down 30 percent), South Korea (217,000 NT, up 37 percent) and Vietnam (71,000 NT, down 50 percent). Over the 12-month period March 2021 to February 2022, the largest suppliers were Canada (6,935,000 NT, up 33 percent vs. compared to the previous 12-months), Mexico (5,160,000 NT, up 58 percent), Brazil (3,929,000 NT, up 3 percent), South Korea (2,762,000 NT, up 36 percent) and Russia (1,688,000 NT, up 299 percent).

U.S. IMPORTS OF FINISHED STEEL MILL PRODUCTS					
BY COUNTRY OF ORIGIN (Thousands of Net Tons)					
Preliminary	APR 2022	MAR 2022	Prev 12 mths to APR 2022	Prev 12 mths to APR 2021	% Change 2022 Prev 12 mths vs. 2021
CANADA	613	653	6,970	5,588	24.7%
MEXICO	395	541	5,342	3,375	58.3%
BRAZIL	241	347	3,690	3,417	8.0%
SOUTH KOREA	250	321	2,828	2,175	30.0%
RUSSIA	58	55	1,637	420	289.5%
VIETNAM	121	167	1,323	329	302.4%
GERMANY	111	66	1,298	903	43.7%
JAPAN	98	103	1,165	845	37.8%
TAIWAN	106	104	1,089	577	88.8%
TURKEY	91	87	1,088	617	76.2%
NETHERLANDS	47	24	625	467	33.8%
CHINA	70	43	592	388	52.5%
INDIA	50	691	592	160	270.5%
ALGERIA	48	72	540	79	580.1%
ROMANIA	54	74	439	203	116.3%
All Others	376	373	4,204	2,552	64.7%
TOTAL	2,729	3,092	33,422	22,097	51.3%

Novelis to build new \$50 million recycling center in South Korea

Novelis Inc. will invest approximately \$50 million to build a recycling center at its Ulsan Aluminum joint venture in South Korea. Fully funded by Novelis, the Ulsan Recycling Center will have an annual casting capacity of 100 kilotonnes of low-carbon sheet ingot. Once online, we expect the recycling center to reduce the company's carbon emissions by more than 420,000 tons each year.


"This latest capital investment in recycling is another example of our company purpose of 'Shaping a Sustainable World Together' in action," said Pierre

Labat, senior vice president, chief strategy and sustainability officer, Novelis Inc. "I am excited by the actions Novelis is taking to increase aluminum recycling worldwide and the benefits this will have for our customers and in making aluminum the preferred material for all the markets Novelis serves."


Novelis, which already operates Asia's largest aluminum recycling center in Yeongju, South Korea, as well as the world's largest aluminum recycling center in Nachterstedt, Germany, is making this investment to meet the growing global demand for

sustainable aluminum products. In January, the company also announced it would build a new U.S. recycling center in Guthrie, Kentucky. Using recycled aluminum as input material requires only 5 percent of the energy used to make primary aluminum, thus avoiding 95 percent of the carbon emissions associated with production.

Construction of the Ulsan Recycling Center is expected to begin in October, with commissioning expected in early 2024.



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Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
#1 Bushelings	per gross ton	\$419.00	430.00	450.00	549.00	685.00
#1 Bundles	per gross ton	406.00	412.00	440.00	538.00	670.00
Plate and Structural	per gross ton	395.00	425.00	469.00	510.00	545.00
#1 & 2 Mixed Steel	per gross ton	361.00	428.00	453.00	473.00	510.00
Shredder Bundles (tin)	per gross ton	219.00	224.00	289.00	281.00	297.00
Crushed Auto Bodies	per gross ton	219.00	224.00	289.00	281.00	297.00
Steel Turnings	per gross ton	205.00	210.00	270.00	265.00	340.00
#1 Copper	per pound	4.26	4.25	4.42	4.12	4.45
#2 Copper	per pound	4.04	4.03	4.21	3.90	4.23
Aluminum Cans	per pound	.86	.87	1.04	.89	.91
Auto Radiators	per pound	2.01	1.89	2.35	2.44	2.54
Aluminum Core Radiators	per pound	.81	.75	.75	.79	.82
Heater Cores	per pound	1.58	1.62	1.64	1.82	2.01
Stainless Steel	per pound	.89	.89	1.04	.96	1.04

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

DISCLAIMER: American Recycler (AR) collects pricing and other information from experienced buyers, sellers and facilitators of scrap metal transactions throughout the industry. All figures are believed to be reliable and represent approximate pricing based on information obtained by AR (if applicable) prior to publication. Factors such as grades, quality, volumes and other considerations will invariably affect actual transaction prices. Figures shown may not be consistent with pricing for commodities associated with a futures market. While the objective is to provide credible information, there is always a chance for human error or unforeseen circumstances leading to error or omission. As such, AR is not responsible for the accuracy or completeness of the information provided, or for outcomes arising from use of this information. American Recycler disclaims any liability to any person or entity for loss or damage resulting from errors or omissions, including those resulting from negligence of AR, its employees, agents or other representatives.

METALS

Mark Millett named 2022 AIST Steelmaker Of The Year

Mark D. Millett, president and chief executive officer of Steel Dynamics Inc., will be named the Association for Iron & Steel Technology (AIST) Steelmaker of the Year at AISTech 2022 – The Iron & Steel Technology Conference and Exposition. One of AIST’s highest honors, the Steelmaker of the Year Award is given to an industry leader who has had significant impact on the industry and on his or her business.

Millett is awarded Steelmaker of the Year in recognition of his innovative and steadfast leadership to guide the strategic growth of Steel Dynamics Inc. by fostering a culture recognized for valuing personal safety, customer service, social responsibility and shareholder value; his commitment to transformational technologies and green steelmaking; his advocacy on behalf of the North American steel industry; and

his more than 40 years of dedication to the advancement of iron and steel.

Mark D. Millett co-founded Steel Dynamics in 1993 and has been instrumental in building the company from its inception to its current status as one of the largest steel producers and metals recyclers in the U.S.

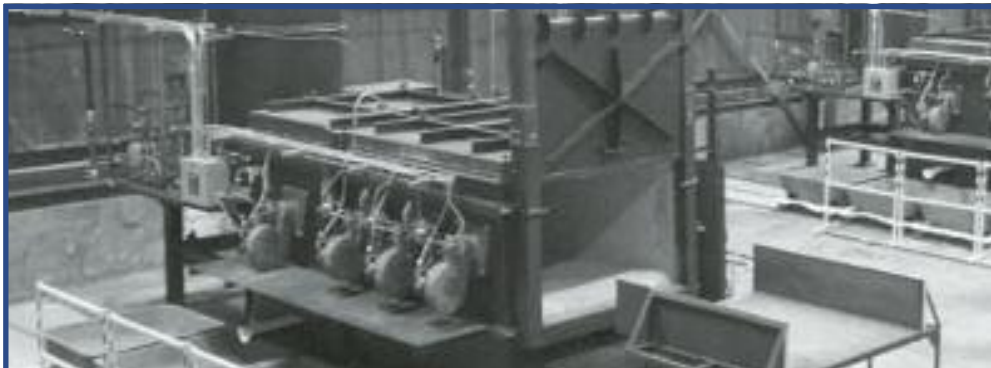
Millett has served on the company’s board of directors since its inception and was named chief executive officer in January 2012. Since that time, the company has grown significantly through organic growth investments, the transformational acquisition of the Columbus Flat Roll Division, and the acquisition of the Heartland Flat Roll Division. Under his leadership, the company is continuing its extensive growth strategy through the greenfield construction of a technologically advanced, state-of-the-art, electric arc furnace flat-roll steel mill in Texas.

February 2022 steel shipments up 7.4 percent from prior year

The American Iron and Steel Institute (AISI) reported that for the month of February 2022, U.S. steel mills shipped 7,232,679 net tons, a 7.4 percent increase from the 6,753,067 net tons shipped in February 2021. Shipments were down 6.8 percent from the 7,757,672 net tons shipped in the previous month, January 2022. Shipments

year-to-date in 2022 are 14,990,351 net tons, a 5.9 percent increase vs. 2021 shipments of 14,155,883 for 2 months.

A comparison of shipments year-to-date in 2022 to the first 2 months of 2021 shows the following changes: corrosion-resistant sheet and strip, up 3 percent, hot rolled sheet, up 3 percent, and cold rolled sheet, down 4 percent.



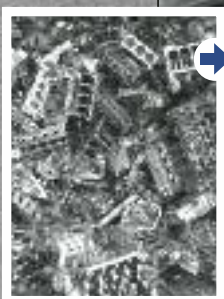
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AUTOMOTIVE

US Department of Labor fines New Jersey auto parts seller \$1.2M for 33 violations

The Occupational Safety and Health Administration initiated an inspection of My Auto Store after a vehicle lift crushed a worker's hand in Camden, New Jersey. The agency determined that The Auto Store LLC – operator of the automobile dismantling company – failed to have proper safeguards in place to protect employees from an accidental machine startup.

The inspection identified 33 workplace safety and health violations – including willful, repeat and serious citations – and resulted in proposed penalties totaling \$1,260,275. OSHA's inspection found that the store:

- Willfully failed to develop and use lockout/tagout and machine guarding procedures to prevent employees from being hit by the moving conveyor line.
- Willfully did not prevent fires, which happened frequently along the conveyor line when sparking tools ignited gasoline vapors.
- Willfully failed to keep an emergency egress clear.

- Did not protect employees from being caught in automobile lifts.

- Failed to equip employees with personal protective equipment or provide fire extinguisher training.

- Exposed workers to electrical, noise, machine guarding, crushing and flammable material hazards.

“By disregarding required safety protections, My Auto Store contributed to a worker's serious and life-altering injury. If this company had complied with basic workplace safety standards and implemented safety programs, this incident could have been prevented,” said OSHA regional administrator Richard Mendelson. “OSHA has extensive resources available to help employers recognize and minimize hazards, and ensure their employees are properly protected.”

A subsidiary of European Metal Recycling USA Holdings Limited, The Auto Store LLC sells wholesale and retail parts salvaged from used vehicles through an assembly line process.

Greenwave Technology to install second auto shredder

Greenwave Technology Solutions, Inc. announced that its subsidiary, Empire Services, Inc., is in the process of installing a second automotive shredder to double its processing capacity, which could result in its dealer scrap product line generating an additional \$8 to 15 million in revenue over the next 18 months.

Further, Greenwave is installing a downstream processing system capable of recovering millimeter-minus pieces of metal from its shred residue or “fluff” as it is known in the industry. Greenwave expects that by recovering the metals from its shred residue, this new product line could generate an additional \$10 to 20 million in revenue over the next 18 to 24 months and significantly increase Empire's profit margins.

Empire generated \$27.5 million in revenue in fiscal year 2021. It has expanded to 11 locations in North Carolina and Virginia with 96 employees over the past 20 years, primarily by re-investing its profits into growing the business.

“With the installation of this second automotive shredder, Empire's operational infrastructure has the capacity to support significant growth with the goal of generating \$100 million in annual revenue by 2025,” stated Danny Meeks, chief executive officer of Greenwave. “Prices for scrap metal are on the rise driven by depleted inventories and robust demand, with many analysts projecting they could go much higher. We believe Greenwave is one of the most attractive companies in the scrap metal industry given its current valuation and potential for significant growth. We appreciate Greenwave's shareholders for their trust and support the past several months as we cleaned up our capitalization structure, closed a \$37.7 million offering, and put systems in place to position the company for rapid expansion.”

For additional growth in 2022, the company plans to focus on acquiring profitable metal scrap yards in localities where the number of licenses is capped by local ordinance or policy.

A mechanic is working late one night when a man walks into his shop.

Man: “Can you help me? I think I'm a moth.”

Mechanic: “I'm a mechanic. You need a psychiatrist.”

Man: “Yeah, I know.”

Mechanic: “Well, why did you come here then?”

Man: “Your light was on.”

SALVAGING Millions

by Ron Sturgeon
Autosalvageconsultant.com

Don't lose your best people to competitors in this rising pay environment

According to Alex Alonso from the Society of Human Resource Management, the number one reason people leave their jobs is for more money. I personally have lost two employees in the last two months. Both loved working here and had been here a long time, but they left for a noticeable increase in pay.

If you are paying your people based on performance with a fair and competitive plan and treating them fairly with respect, you can likely skip this month's article. Those of you who do not have a strong pay for performance program for employees likely need to read on.

What is a shame is that when you lose a quality salaried employee who isn't on pay for performance, you will likely have to pay more to get a replacement, plus your training costs. I don't know any large progressive operators who aren't paying for performance, but I am sure some are lagging in this 20+ year old trend.

The sad part is that if you are

paying for performance, your employees are making more than those of your competitors, but you are getting significantly more production, so your unit cost is likely lower than your competitors. There really is no reason not to put in pay for performance if you have not already done so.

Of course, pay for performance does not change the fact that you still must be kind, respectful and an effective leader. You still have to offer lots of training, and competitive benefits for all your staff.

There is a lot of information out there on how to do pay for performance, so immerse yourself in understanding it, and then pull the trigger. You will be amazed at the increased sales with lower costs you will get if you do pay for performance properly.

Covid has accelerated issues for most of us, and it will never be the same again, but those who are paying attention are doing the best they ever have.

Remember, only you can make BUSINESS GREAT!

This article was provided by autosalvageconsultant.com, which was formed in 2001 by recyclers for recyclers, to help them improve their businesses.

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RUBBER

TSBC's recycling program marks 30th anniversary

Tire Stewardship BC (BC), a not-for-profit group dedicated to the collection and recycling of scrap tires in British Columbia, Canada, announced that BC's scrap tire program has been recycling tires for over 30 years and is the oldest recycling program in Canada. Since 1991, over 100 million tires have been recycled.

Due to 30th anniversary celebrations being pandemic-postponed, BC will be celebrating throughout 2022 by partnering with other organizations and events that focus on recycling and environmental sustainability. In addition, several community tire collection events are scheduled across the province throughout the year.

"Tire Stewardship BC and all our dedicated tire processors, haulers and retailers across the province have worked extremely hard over the years to create an effective and efficient tire recycling program, and as a result it has grown into the most successful recycling program in North America. Every year, the equivalent of over five million scrap tires are recycled into new, durable and environmentally friendly products, with 100 percent all scrap tires collected re-purposed within the province," said Rosemary Sutton, executive director, Tire Stewardship BC.

Bridgestone partners with LanzaTech to pursue tire recycling technologies

The goal is a waste management strategy for end-of-life tires

Bridgestone Americas announced an exclusive partnership with carbon capture and transformation company, LanzaTech NZ, Inc. to address end-of-life tire waste. The two companies will co-develop the first dedicated end-of-life tire recycling process leveraging LanzaTech's proprietary CCT technology, creating a pathway toward tire material circularity and the decarbonization of new tire production.

According to the Tire Industry Project operating under the umbrella of the World Business Council for Sustainable Development (WBCSD), more than one billion tires globally reach the end of their useful service life each year. Bridgestone and LanzaTech will work to address this issue by converting end-of-life tires into new materials, including exploring processes to create sustainable synthetic rubber that does not rely on petrochemicals.

"We are excited to join forces with LanzaTech to co-create a more sustainable pathway for end-of-life tires," said Paolo Ferrari, president & chief executive officer, Bridgestone Americas. "The steps we take today are determining the health of our planet for future generations. We are determined to meet the moment with sustainable innovation that transforms the way tires

are made and promotes end-to-end material circularity."

"LanzaTech and Bridgestone are working together to find solutions to some of our world's greatest challenges," said Dr. Jennifer Holmgren, chief executive officer, LanzaTech. "We have already proven that we can convert unrecyclable, unsorted municipal solid waste to ethanol and then make products we use in our daily lives. With our partnership with Bridgestone, we are developing a circular pathway to use tires to make tires. This partnership exemplifies what we call a Post Pollution Future."

Bridgestone and LanzaTech seek to develop a new business model that will create a post-consumer waste management strategy for end-of-life tires, while also driving increased adoption of sustainably sourced chemicals for commercial applications. Applying LanzaTech's carbon capture and gas fermentation process to end-of-life tires yields sustainably produced chemicals such as ethanol that can be converted to materials such as PET for packaging, polyester yarn and surfactants used in consumer home goods like laundry detergent. In addition, Bridgestone and LanzaTech will jointly explore opportunities to co-

develop proprietary microbe technology to produce more efficient pathways to produce butadiene, a key ingredient in new tire production, realizing true circularity for end-of-life tires.

Headquartered in Skokie, Illinois, LanzaTech transforms waste carbon into materials such as sustainable fuels, fabrics, packaging and other products. Using a variety of waste feedstocks, LanzaTech's technology platform highlights a future where consumers are not dependent on virgin fossil feedstocks for everything in their daily lives. LanzaTech's goal is to challenge and change the way the world uses carbon, enabling a new circular carbon economy where carbon is reused rather than wasted, skies and oceans are kept clean, and pollution becomes a thing of the past.

Bridgestone is aiming to achieve carbon neutrality and make tires from 100 percent renewable materials by 2050. The company is actively researching a range of solutions to support the recycling of materials from end-of-life tires and promote the replacement of non-renewable materials such as oil, silica and virgin carbon black in new tires.

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PLASTICS

PureCycle breaks ground on new recycling facility



PureCycle Technologies, Inc. broke ground on its second U.S. plastic waste purification facility in Augusta, Georgia, which will enable PureCycle to expand production of its ultra-pure recycled (UPR) resin. Initial construction activities began immediately following the groundbreaking ceremony.

This facility, located in Augusta Corporate Park, is designed to transform No. 5 plastic waste into a sustainable material that can be used to make products consumer use on a regular basis such as yogurt cups, cosmetics, plastic containers and even car parts. PureCycle's Augusta location can support up to 8 purification lines, which collectively are designed to produce approximately 1 billion pounds of like-new recycled plastic annually.

"This is an exciting time for PureCycle as we expand our operations into the Southeast and bring our versatile, recycled plastic to the region," said Mike Otworth, chief executive officer,

PureCycle. "Our second facility, when completed, will transform No. 5 plastic waste – one of the most commonly used and least recycled plastics in the world – into an ultra-pure material that can be used to make consumer products, ultimately helping reduce our reliance on single-use plastics that contaminate our oceans and waterways."

The groundbreaking and start of construction in Augusta come on the heels of the recent announcement of PureCycle's \$250 million private equity capital raise, which will help support the build out of the Augusta facility. The recycled resin produced at the Augusta facility will be used by PureCycle's customers as a more environmentally sustainable resin for producing products. PureCycle expects the first two Augusta purification lines to be completed in the fourth quarter of 2023, with a capacity to produce 260 million pounds of like-new recycling resin annually.

BRIEFS

Rehrig Pacific partners with newBin to recycle plastics

■ The first free on-demand recycling service to collect any and all types of plastics, newBin, has established a plastics recycling partnership with Rehrig Pacific Company.

Rehrig Pacific will be a leading supporter of newBin and its collection pilot in the City of Erie, Pennsylvania, that will launch this summer. The initial roll-out of the newBin program will involve pop-up "drop off" events and neighborhood cleanups around the city — involving Erie residents by providing jobs for at-risk youth, education about the importance of recycling and grass-roots activism; encouraging all households to participate.

Rehrig Pacific has agreed to donate free recycling bins for plastics to be utilized in commercial venues, including local restaurants, and at concerts and parks, as well as provide front-load commercial containers for residential bag drops.

"Rehrig Pacific's 100 year history is built on family, service, innovation, intrapreneurship and of course sustainability," said Haag. "We understand the importance of supporting the communities where we operate and we believe that open and inclusive collaboration results in more impactful and scalable solutions that support systemic change."

The newBin app will let users schedule recycling pickup at their convenience and earn digital rewards that can be redeemed for goods and services with participating partners. newBin's vision is to offer simple, no-sort recycling of all plastics that incentivizes Americans to recycle more. A crowd-funding campaign for newBin, currently underway, offers an opportunity for investors, both large and small, to share in newBin's mission to stop waste plastic piling up in landfills, parks, and waterways. Participants in the crowd-funding enjoy direct ownership in the recycling startup.

Avis Industrial Corporation acquires FEMCO

■ Avis Industrial Corporation of Upland, Indiana, has completed the acquisition of the assets of FEMCO Machine in Punxsutawney, Pennsylvania. Avis Industrial holds a portfolio of wholly owned subsidiary companies and is adding FEMCO, a nationally recognized provider of machining, aftermarket and OEM parts, and repair and field services.

The business has been renamed FAMCO Service and Machine, Inc., reflecting the robust combination of the Femco and Avis companies and will continue to operate, as it has since 1964, in Punxsutawney. With vast service, machining and production capabilities, FAMCO will continue to serve current customers and industries while being able to support the installed base of equipment across the Avis portfolio companies, including Harris Equipment.

REE Automotive appoints Josh Tech as COO

■ REE Automotive has appointed Josh Tech as the company's chief operations officer (COO). Tech joins REE after serving on Tesla's operations leadership team as head of the new product/manufacturing introduction group. Previously, he oversaw manufacturing development and launch at a worldwide leader in automotive exterior design, development and manufacturing, and most recently served as vice president of manufacturing and engineering for one of America's most advanced construction technology firms, Plant Prefab. Based in the U.S., Tech replaces Michael Charlton, who will serve as strategic advisor on manufacturing, extending his decades of global automotive and manufacturing expertise to the REE leadership team.

Tech brings over 23 years of experience to REE in complex product development & launch, industrialization, infrastructure development, engineering, supply chain, quality, and operations management. As REE's COO, Tech will be based in the U.S. and lead all aspects of REE's operations, manufacturing and global expansion management, including leveraging his unique talent for the launch of REE's integration centers in Austin, Texas and Coventry, UK.

Peak Equipment expands Vortex's reach to Wyoming

■ Vortex Global, a solids and bulk handling components company, named Peak Equipment as its official representative for the state of Wyoming. In addition to Wyoming, Peak will continue to be Vortex's representative in Colorado and New Mexico and will be responsible for creating customer relationships, arranging site visits, and following up on Vortex customer inquiries received in the three states.

Peak Equipment is a family run, full service manufacturer's representative agency based in Mead, Colorado and was established in 1994. They specialize in design and sales for several leading manufacturers of processing and packaging equipment.

Peak Equipment offers its clients slide gates, diverter valves and loading spouts for the handling of dry bulk solid materials from the Vortex Global line of products.

MOL Group acquires ReMat in Hungary

■ MOL Group acquired ReMat Zrt., a recycler with production plants located in Tiszaújváros and Rakamaz, Hungary, and a logistics hub in Bratislava, Slovakia. ReMat is a market leading plastics recycler in Hungary with an annual processing capacity of 25,000 tons and almost 200 employees. The transaction fits into MOL's portfolio and its goal to become a key player in the low carbon circular economy in Central and Eastern Europe.



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BRIEFS

Granutech launches Cutter Sales & Rebuild Division

■ Granutech-Saturn Systems, a manufacturer of the Saturn and 3TEK brand industrial and mobile shredders announced their new Cutter Sales Division. The new division delivers new and rebuilt cutters for up to 30 percent faster lead times. It provides legacy customers of dual and quad shaft industrial Saturn shredders with replacement rebuilt cutter blades, including spacers or brand new blades. Additionally, Granutech-Saturn is poised to support major OEM brand shredder customers by meeting their needs with spec-match replacement cutter manufacturing.

Seasoned recycling and automation professional, Jonathan Maly, is the national sales manager for the new division.

Carton Council chooses Zodda as a new VP

■ The Carton Council of North America has appointed Lena Zodda as vice president of sustainability and school recycling.

Zodda joins the Carton Council from Pactiv Evergreen, where she serves as the director of sustainability. As supply chains and recycling markets continue to be under pressure, her 22 years of experience working in the paper and packaging industry promoting the recyclability of other paper-based packaging will be valuable in helping drive the Carton Council's goals.

In addition to bringing her expertise and relationships to all facets of the Carton Council efforts, Zodda's role will also focus on strengthening school carton recycling programs across the country. More than four billion milk and beverage cartons are consumed in schools each year with the average U.S. school of 545 students consuming around 75,000 cartons each year. There are approximately 11,000 carton recycling programs operating in schools across the country, leaving opportunity for further expansion.

IRG purchases former Hammermill Paper site

■ International Recycling Group (IRG) finalized the purchase of 25.48 acres of the former Hammermill Paper site from SB3, LLC. The company announced that the property, located in Erie, Pennsylvania, is now officially the home of what will become the country's largest plastics recycling plant.

The country's first SuperPRF™ will revolutionize the recycling of plastics by accepting all forms of post-use plastics, including cups, lids, tubs, single use plastics, drink containers, and milk cartons from residential and commercial sources. Right now, almost two-thirds of the plastic Erie households generated are not accepted for recycling. IRG, with its sister company, newBin, promise to ensure not a pound of plastic goes into landfill or the environment.



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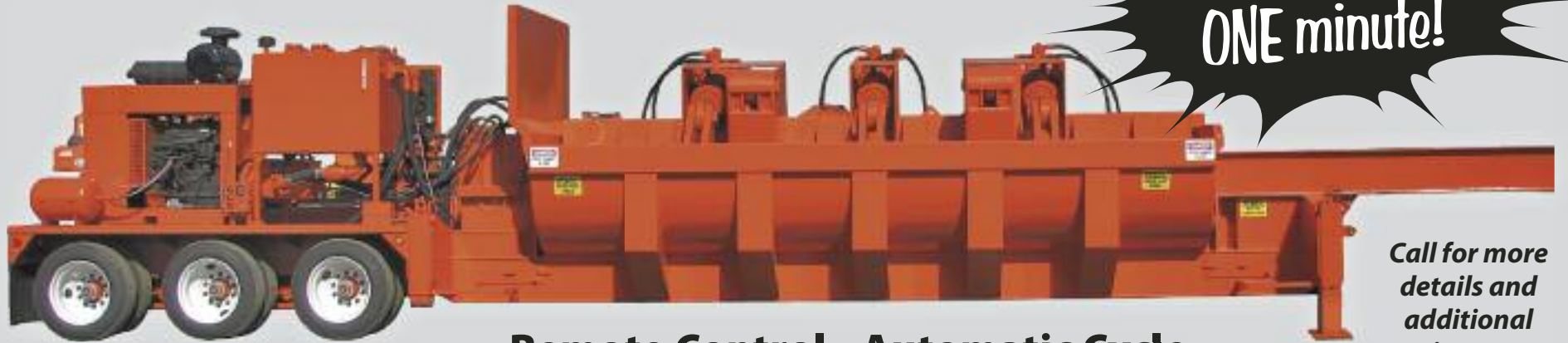
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New trends in mattress recycling develop

by MAURA KELLER

mkeller@americanrecycler.com

For over six years, the Mattress Recycling Council (MRC) has operated statewide mattress recycling programs in California, Connecticut and Rhode Island. As such, the organization has its proverbial finger on the pulse of the mattress recycling industry and the trends that affect recyclers handling mattress recycling.

According to Mike O'Donnell, managing director at the Mattress Recycling Council, in the six years that the Mattress Recycling Council has orchestrated mattress recycling programs, the organization has seen the number of units recycled increase each year while recyclers are finding ways to recycle more of the material. MRC educates the mattress industry and consumers about mattress recycling laws and works closely with local governments, waste management professionals, recyclers and others to create an accessible and efficient mattress collection and recycling network. In addition, through the organization's Sleep Products Sustainability Program (SP2) and in response to the industry's increased commitment to environmental stewardship, the MRC pushes its sustainability efforts by helping mattress manufacturers reduce waste while increasing operational efficiencies.

"We've also invested over \$3.5 million in research to improve the efficiency of mattress collection, transportation and recycling," O'Donnell said. "Our research team is also focused on new end market development."

While mattress recycling efforts remain strong across



More states are beginning to establish programs specifically covering the recycling process for mattresses.

PHOTO COURTESY OF THE MATTRESS RECYCLING COUNCIL

the U.S., internationally, MRC's research team is closely following exciting progress in advanced recycling of mattresses. For instance, in the European Union (EU), four different companies are each investing in the chemical recycling of post-consumer polyurethanes.

"These processes convert material like polyurethane foam back into new polyols," O'Donnell said. "These polyols can then be used to create new polyurethane products including mattresses." The MRC is also encouraged by big investments in technology and automation to increase the speed and throughput of mattress recycling facilities.

"We are seeing mattress recycling grow. In fact, MRC just recycled our 10 millionth mattress," O'Donnell said. As a result, more than 380 million pounds of steel, foam, fiber and wood have been diverted from landfills and recycled into new products.

"Oregon's Governor recently enacted a law creating an industry-led mattress recycling program and there are other states considering similar legislation including Minnesota, Massachusetts, New York and Maryland."

While more and more states are evaluating the potential for mattress recycling programs in their states, California, Connecticut and Rhode Island are definitely

leading the way in their well-established programs.

"These are the states where the Mattress Recycling Council's programs operate. Together, they have recycled over 10 million mattresses since 2015. With supporting legislation, MRC is able to expand our operational footprint to new states," O'Donnell said.

Facing Ongoing Challenges

Thanks to advancements in technology, most mattress recyclers are able to extract and recycle about 75 percent by weight of mattress and box spring components, including steel springs, foam, fibers and wood. The biggest challenge for recyclers is clean separa-

tion of component material for end markets.

To accomplish this, the best mattress recyclers are employing lean manufacturing techniques, automation and shredders to create high-value commodities.

As O'Donnell further explained, one of MRC's recent research projects looked at the percentage of material that isn't being recycled. "We conducted a waste characterization study at California mattress recycling facilities and found the top three waste categories as a percentage of total waste are shoddy felt pad (22.0 percent), mixed non-woven fibers (19.8 percent) and quilt panels (17.3 percent).

See MATTRESSES, Page B6

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US Ecology to be acquired by Republic Services

Republic Services, Inc. and US Ecology, Inc. have entered into a definitive agreement under which Republic Services will acquire all outstanding shares of US Ecology for \$48 per share in cash, representing a total value of approximately \$2.2 billion including net debt of approximately \$0.7 billion.

US Ecology is a provider of environmental solutions offering treatment, recycling and disposal of hazardous, non-hazardous and specialty waste. US Ecology's trailing 12-month revenue as of September 30, 2021, was \$968 million and adjusted EBITDA was \$156 million.

The transaction is not subject to a financing condition. Republic Services intends to finance the transaction using existing and new sources of debt.

Following completion of the transaction, Republic Services expects to maintain a strong balance sheet and solid investment-grade credit rating.

The transaction was unanimously approved by the boards of directors of both companies and is expected to close by the end of the second quarter, subject to the satisfaction of customary closing conditions, including receipt of regulatory approvals and approval by holders of a majority of the outstanding shares of US Ecology's common stock.

The waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, which applies to the proposed acquisition by Republic Services of US Ecology, expired at 11:59 p.m. Eastern Time, on March 30, 2022. The transaction is expected to close during the second quarter, subject to approval by US Ecology's stockholders and satisfaction of the remaining conditions to closing.

SWACO community waste reduction grants awarded

The Solid Waste Authority of Central Ohio (SWACO) announced it will be awarding more than \$94,289.85 in grant funding to nine local organizations, city governments, schools and non-profits in Central Ohio as part of its annual Community Waste Reduction Grant program.

These grants will help local organizations support SWACO's broader strategy to increase waste diversion from the Franklin County Sanitary Landfill to 75 percent by 2032. Since the grants program was reimaged in 2016, SWACO has awarded \$770,000.00 in grant funding to support local waste diversion initiatives across the region. During that same period of time, Franklin County's diversion rate has grown from 45 percent to today's record high rate of 51 percent.

This year's projects include everything from the installation of refillable water bottle filling stations in a local school district to the development of a Zero Waste Plan at a local university. Notably, 25 percent of the funding will go toward supporting food waste diversion initiatives, underscoring the community's acknowledgement of food waste as the single largest source of material entering the landfill. In fact, a recent study by SWACO found that 83 percent of residents are concerned about the amount of food wasted every day and 89 percent of residents support Central Ohio's goal of achieving a 75 percent diversion goal by 2032.

"Central Ohio is home to so many schools and organizations that are committed to creating a healthier, more resilient community – not just today, but for future generations of Ohioans as well," said Hanna Greer-

Brown, SWACO's communications manager. "As our population continues to boom, addressing our waste systems and ensuring the protection of our environment and economy will become a shared responsibility. We're so pleased to be able to partner with and support the waste reduction and diversion journeys of these incredible community partners. Through our work together, we will continue to make a big difference for central Ohio."

The following is a list of the 2022 Community Waste Reduction Grant recipients:

1. All Saints Episcopal Church New Albany (\$1,784.00) to help implement a residential food waste drop-off location.

2. Bexley City Schools (\$12,033.00) to help underwrite the installation of refillable water bottle filling stations across the district.

3. Columbus Fashion Alliance (\$20,000) to help support activities related to textile waste reduction and recycling.

4. City of Gahanna (\$7,371.00) to help implement a residential food waste drop-off location.

5. City of New Albany (\$13,042.00) to support the implementation of single-stream recycling in city buildings.

6. City of Reynoldsburg (\$12,488.82) to help implement single-stream recycling in city buildings and improve and expand the existing single-stream recycling at city parks.

7. The Ohio State University (OSU) (\$9,571.03) to support the development and implementation of a food waste drop-off location for staff at OSU Wexner Medical Center.

8. Otterbein University (\$16,900.00) to assist in the development of a Zero Waste Plan.

9. Plain Township (\$1,100.00) to help implement single-stream recycling at the Plain Township Aquatic Center.

The Community Waste Reduction Grant program is an important opportunity for local organizations to bring their waste-reduction ideas to life, among both their customers and staff.

Last year, SWACO awarded \$224,000 across 15 local organizations, schools and non-profits in Central Ohio. More grant funding was awarded in 2021 due to the increase in waste material created as a result of residents and families spending the majority of their time at home during the height of the pandemic.

SWACO began accepting applications for 2023 projects in April 2022.

EPA selects projects for implementation

The U.S. Environmental Protection Agency (EPA), in coordination with the North American Development Bank (NADB), has selected eight environmental and public health projects to be implemented on both sides of the border in the California/Baja California and Arizona/Sonora border regions through the new U.S.-Mexico Border 2025 program. The agency will award \$552,899 for the programs, and an additional \$574,949 will be matched by the recipient organizations.

The projects meet the objectives of the U.S.-Mexico Border 2025 program: to reduce air pollution; improve water quality; promote sustainable materials management and waste management; and improve joint preparedness for and responses to environmental emergencies.

Project Descriptions:

•Secretaría de Salud del Estado de Baja California (Ministry of Health of Baja California) will develop a GIS-based analysis of existing air monitoring data, population information, and data from medical facilities in Mexicali and Imperial Valley. The project will help to determine the relative vulnerability of the populations and use this information to guide the development of a public health outreach campaign.

•Proyecto Fronterizo de Educación Ambiental (Border Environmental Education Project) will develop a pilot project to prevent dumping of garbage in overburdened communities in Tijuana near the Alamar River.

•Instituto de Planeación Ambiental y Calidad de Vida (Institute of Environmental Planning and Quality of Life) will strengthen the Solid Waste Management Plan of the Kumiai Indigenous community of San Antonio Necua.

•Environmental Health Coalition, a binational non-profit, will conduct a socio-environmental vulnerability and solid waste analysis in the forested area of the Alamar River.

•Arizona State University will work with emergency preparedness and response leaders and key stakeholders to evaluate and enhance six binational Sister-City Joint Contingency plans.

•Secretaría de Desarrollo Urbano y Ecología (Urban Development and Ecology Secretariat of Sonora) will identify alternatives for water reuse to reduce heavy metals in the Nogales International Wastewater Treatment Plant in Rio Rico, Arizona.

•Cocopah Indian Tribe will assess water quality in the Colorado River upstream of Cocopah tribal lands. The tribe will also develop a design for a wetland/riparian restoration project to reuse treated water.

•Borderlands Restoration Network seeks to improve best management practices for sediment control on both sides of the Arizona/Sonora border.

AR EQUIPMENT SPOTLIGHT

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UPCOMING TOPICS

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SEP Attachments

OCT Balers

NOV Primary Reduction

For additional information and a link to the application, view this article on www.AmericanRecycler.com.

Rubicon signs agreement extension with Tuesday Morning

Rubicon Technologies, LLC, a digital marketplace for waste and recycling and provider of innovative software-based solutions for businesses and governments worldwide, has signed an extended two year agreement with Tuesday Morning, Inc., a destination for unique home and lifestyle goods, to continue to increase the retailer's waste diversion from landfill, consolidate service, and provide enhanced account management across its portfolio of stores.

Rubicon's market leading RUBICONConnect™ product is currently deployed across all Tuesday Morning locations in the U.S., numbering 490 in total, assisting with waste and recycling programs and delivering enhanced sustainability data, analytics, and reporting capabilities.

Headquartered in Dallas, Texas, Tuesday Morning specializes in name-brand products for the home, selling high quality goods at prices below those found in boutique, specialty, and department stores. When Tuesday Morning first began working with Rubicon in September 2018, its goal was to recycle more of its wasted cardboard while providing cost savings.

Over the next three years, Tuesday Morning, working with Rubicon, increased not only its cardboard recycling, but also its mixed recycling, construction and demolition recycling, and its organics recycling as well.

As a result, in 2021 Tuesday Morning had an overall diversion from landfill rate of 43.7 percent – which included 9,685 tons of cardboard, and 1,439 tons of mixed recycling – all while keeping its bottom line in check.

Waste is a global challenge and a global opportunity. Rubicon partners with businesses and governments around the world to advance its mission through zero-waste, landfill diversion, and smart city solutions. Rubicon's suite of cloud-based products helps waste collection companies digitize their operations, while equipping municipalities and businesses of all sizes with the tools to adopt a fully digital model, in service of initiating or growing their waste and recycling management capabilities.

In this extended agreement, Rubicon will continue to bring its suite of cloud-based software products, and the power and scope of its network of more than 8,000 hauler and vendor partners, to bear in providing scalable waste, recycling, and sustainability solutions to Tuesday Morning in support of the company's environmental and business goals.

Settlement reached with Arbor Hills Landfill

Following more than a year of negotiations, Michigan attorney general Dana Nessel and Michigan Department of Environment, Great Lakes and Energy (EGLE) director Liesl Clark announced a successful settlement agreement with the owner and operator of the Arbor Hills Landfill in Salem Township. The settlement includes requirements to resolve the issues at the landfill, as well as environmentally beneficial projects and fines that amount to more than \$2.3 million.

In 2020, Nessel filed suit on behalf of EGLE due to the landfill failing to comply with state and federal regulations and creating a public nuisance. The action sought to require Arbor Hills Landfill, Inc. to abate the nuisance and operate its landfill in compliance with state and federal laws, alleging that the company failed to install an adequate collection and control system to capture gas generated from the landfill and failed to address leachate issues.

"This settlement helps to address the years of health and safety concerns community members felt were going ignored," Nessel said. "I appreciate the collaborative work done between my office and EGLE to reach this point. This is a comprehensive agreement with the landfill's new ownership to remedy outstanding issues for those who live and work in the surrounding area."

"This settlement will help ensure Arbor Hills Landfill is not a nuisance to neighbors, and that the facility operates safely in compliance with state and federal laws for air quality and waste management," Clark said.

Specifically, Arbor Hills will:

- Operate a network of monitors along the landfill perimeter to detect hydrogen sulfide and methane before they reach the neighboring subdivisions and cause a nuisance;

- Quickly identify the source of emissions and reduce the concentrations if those gases are detected above thresholds that can cause a nuisance;

- Retain a certified professional engineering firm to evaluate the landfill grade and cover quarterly and implement actions to minimize liquid infiltration;

- Inspect the gas wells twice a month, and install and repair pumps based on a quarterly review performed by another engineering firm to ensure the wells are not flooded and are working properly; and

- Perform monthly measurements of the landfill surface (rather than the quarterly monitoring required by the Clean Air Act and Michigan's Natural Resources and Environmental Protection Act) to detect gas emissions using drones and handheld devices.

The perimeter emissions monitoring network will be operated in conjunction with meteorological equipment and a sophisticated software system that continuously measures perimeter concentrations, notifies Arbor Hills of any exceedances immediately, and identifies where the emissions causing the exceedances are coming from. This aspect of the settlement agreement requires Arbor Hills to operate all the equipment and software for ten years, which incurs a cost of roughly \$800,000.

Another settlement term requires Arbor Hills to construct and operate, as a free service to users for 10 years, a facility to collect household hazardous waste (which includes paints, solvents, automotive fluids, and fluorescent bulbs) so it is not disposed in a landfill. Arbor Hills is also required to plant a vegetative buffer of spruce trees to reduce the transport of particulate matter and odors from the landfill and its adjoining composting facility.

The hazardous waste collection program and tree planting will cost another roughly \$1.15 million. Additionally, the settlement requires Arbor Hills to pay a civil fine a \$355,109.

EGLE began receiving complaints in January 2016 from nearby residents about odor coming from the landfill, which is located at 10690 West Six Mile Road in Washtenaw County's Salem Township.

Firestone to pay \$3.2 million for waste dumping

San Diego County District Attorney Summer Stephan disclosed that Firestone Complete Auto Care has agreed to a more than \$3 million settlement with her office and 28 other prosecutors in an environmental protection case that alleged the company unlawfully disposed of hazardous waste at Firestone service centers across California, including in San Diego County.


On February 4, a judge ordered \$2.87 million in civil penalties to be paid by Bridgestone Retail Operations, LLC, the company that does business as Firestone Complete Auto Care at more than 150 locations in California. The civil complaint, filed in Santa Clara County Superior Court, alleged that the automotive repair company did not properly manage hazardous waste, such as solvents, automotive fluids, aerosols, batteries and electronic devices. The settlement also resolves allegations that the company failed to redact or shred confidential customer information before throwing the paperwork in the trash.

Firestone was also ordered to pay \$350,000 for the cost of the investigation and \$725,000 in agreed-upon compliance and training expenditures. Firestone cooperated with prosecutors and took steps to improve its compliance practices.


The San Diego District Attorney's Office will receive about \$227,000 from the judgment.

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Leaving his office, he stopped and asked me, "By the way, which companies are after you?" I responded, "The gas, electric and cable company."

EQUIPMENT SPOTLIGHT

Sorting Systems

by MARY M. THORNTON

maryt@americanrecycler.com

Equipment used at materials recovery facilities (MRFs) help define the very purpose of an MRF – an essential component in single stream municipality waste operations.

Material brought to the MRF is separated and prepped so it can then be recovered and sold but in any case, is also kept from occupying valuable landfill space. Materials involved typically include plastic, cardboard, paper, glass, metal and cartons. Sorting systems can help in extracting these materials as needed and the following describes some of the sorting products offered by equipment manufacturers.

Action Equipment Company designs, manufactures and installs vibratory equipment for the efficient processing of bulk materials. A key product for sorting is the Dense-Out® vibratory air separator, a rugged vibratory air knife. The conveyor uses air to separate “heavies” from “lights” when processing items such as plastic and paper from glass. The unit can be configured with single or multiple air knives, depending on the level of separation required. An optional Dense-Out addition adds a Taper-Slot® rugged, finger screen at the unit in-feed, which sorts fines from the stream. This product is popular in settings such as construction and demolition recycling, glass cleaning, aggregate cleaning, removing rocks from biomass/hog fuel and auto shredder residue clean up.

“Since 1972, Action has been innovative in bringing vibratory equip-



Action Equipment Company, Inc.

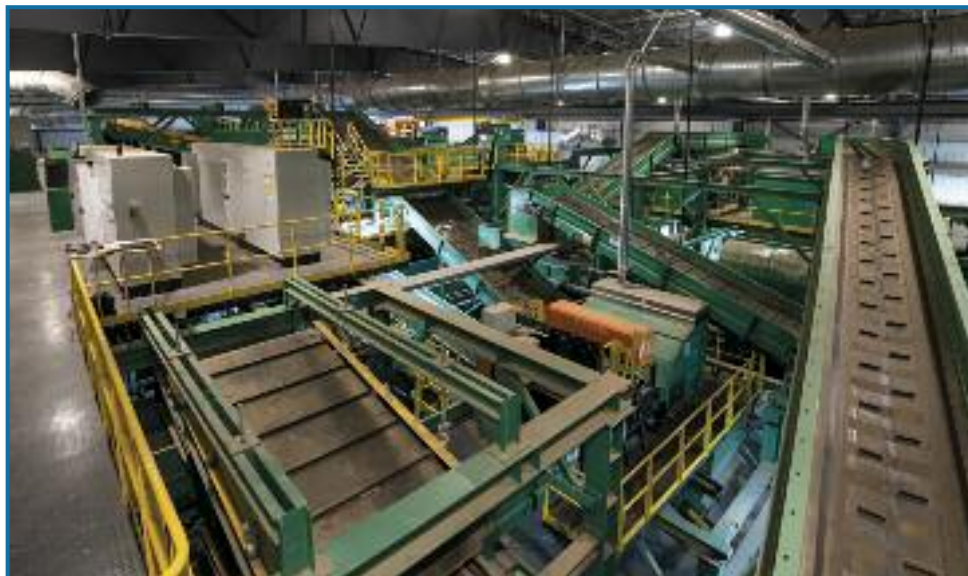
ment to the next level. Our commitment is to never settle and bring better solutions to a technology that has been around for decades,” Andrew LaVeine, president of Action Equipment stated. The firm’s Sub-Pan Free™ Dense-Out/Taper-Slot screen eliminates the sub pan under screens and so removes one additional, large surface area which could attract wet and sticky material. Instead, screened materials drop directly into a bunker or onto a takeaway conveyor. For many customers that handle problematic materials, this option reduces maintenance and cleaning time.

Bollegraaf Recycling Systems, a multinational manufacturer located in the Netherlands, was founded in 1961. The company has since become a global provider of recycling and waste processing equipment, with expertise in complete state-of-the-art recycling installations. Van Dyk, exclusive North American distributor of Bollegraaf sorting systems, helps waste and

recycling processors maximize their profits by supplying equipment solutions via state-of-the-art sorting systems and balers. An MRF designer and equipment supplier in North America since 1984, Van Dyk boasts over 2,400 profitably operating installations. “We supply sorting systems ranging from 10 to 50 tons per hour capacity for the following applications: municipal, single stream, solid, C&D, wood and commercial waste, presorted plastics, glass cleanup, e-waste, waste to energy/fuel, biomass, composting and more. Our key technologies include: Bollegraaf high-capacity balers, optical sorters, starscreens, non-wrapping screens, ballistic separators, density separators, air systems, trommel screens, robotic sorters, shredders, fiber sorting equipment, film recovery systems and more,” stated Mark Neitzey, director of sales.

He continued, “We specialize in turnkey systems and retrofitting outdated plants with the newer, more efficient machinery needed to produce high quality end product from an increasingly contaminated stream. A complete turnkey experience begins with expert design by our in-house technicians, followed by startup training with our specialist team. After installation, Van Dyk provides lifetime customer service that is unmatched in the industry; including 24/7 phone support and same day shipping on spare parts available 365 days of the year.”

In 1996, Tomra pioneered the world’s first high capacity near infrared (NIR) sensor for waste sorting applications in a unit designed to sort and recover beverage containers.



Bollegraaf/Van Dyk Recycling Solutions

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See SORTING SYSTEMS, Page B5



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ACTION
VIBRATORY EQUIPMENT

Meridian Waste expands in North Carolina

Meridian Waste, an integrated, non-hazardous solid waste services company, has closed on the purchase of Pinnacle Waste, LLC and Triad Waste, LLC, located in Goldsboro, North Carolina and Sanford, North Carolina respectively. Meridian Waste will operate out of Chatham County situated between two of the state's three largest centers of population and commerce, the Triangle Region and the Piedmont-Triad region.

The acquired assets from Pinnacle Waste include an operating construction and demolition transfer station including corresponding heavy equipment and tractor-trailers, roll-off trucks, containers and commercial contracts.

The frontload and roll-off trucks including container assets acquired from Triad Waste will be relocated. Operational and office staff members have transitioned to Meridian Waste. The combined service area from the two acquisitions include Chatham, Lee, Harnett, Moore and Orange counties.

The terms of the asset purchase agreements remain private.

NYC Sanitation launches grant application to improve waste collection

The New York City Department of Sanitation, in partnership with the Department of Small Business Services, launched grant applications for business and community groups seeking to pioneer innovative waste management initiatives in the five boroughs. At least five grants of up to \$20,000 will be made available to business improvement districts (BIDs) and community-based development organizations (CBDOs) for projects that help improve waste management operations and street cleanliness in business districts.

Sample projects could include new litter baskets, compactors, enclosures, containers, organics collection, and other waste management equipment and infrastructure. Rooted in the Department of Sanitation's commitment to equitable waste management, the goals of this project include increasing waste diversion, and reducing vehicle miles traveled and greenhouse gas emissions associated with waste collection.

"As part of our mission to keep streets clean and safe in every neighborhood across the five boroughs, New York's Strongest are seeking to

innovate and reimagine refuse pickup in ways that improve the public realm and create more vibrant commercial districts," said Edward Grayson, commissioner of the New York City Department of Sanitation. "With the help of community-based partners in the business and non-profit sectors, we can reduce the presence of refuse on our sidewalks and make our streets more inviting for all who use them."

The submission must include a submission portfolio that describes the proposed project, the planned implementation timeline, how it would improve waste management in the business district, proposed location(s) or service area(s), and how the BID/CBDO would evaluate the success of the pilot. The BID/CBDO must identify a staff member who will be responsible for overseeing the project. In addition, an itemized breakdown of requested grant funding is required, and the portfolio must include a demonstration of need.

Proposals will be reviewed by representatives from DSNY and SBS, which will rate all responsive submissions based on the following criteria:

- Potential to improve waste management practices, cleanliness, and/or quality of life

- Demonstration of need and/or equity

- Capacity to execute on the project

If a grantee is interested to expand, continue or otherwise improve their project, there will be opportunity to receive a second round of grant funding, up to an additional \$20,000. This additional funding is made available through SBS's Neighborhood Challenge program to help spur innovative thinking and catalytic projects from local organizations that generate impact for their commercial districts. Receipt of this funding would be dependent on the success of the initial pilot, as measured by the evaluation proposed in the Submission Portfolio. In the case where a pilot project is unsuccessful, additional funding would be dependent on improvements proposed by the grantee that DSNY and SBS determine to increase the likelihood of success.

For a direct link to additional information, view this article on www.AmericanRecycler.com.

Sorting Systems

Continued from Page B4

but companies generally run the Autosort system in the 5 TPH range.

Ty Rhoad, regional director Americas for Tomra Recycling, commented, "Sorting circuit automation is key in alleviating challenges faced by recycling facilities. High purity standards in the market make it financially impractical to sort materials manually. MRF plant design is evolving as optical sorting systems move up further in the circuit to optimize sorting of the fiber stream. Our Autosort system has evolved to include a wide range of standard and optional sorting technologies, creating a flexible system that meets the needs of recyclers, both today and in the future. Our integrated standard Sharp Eye technology increases light efficiency while maintaining energy consumption and enhancing sorting sharpness. Also, our Flying Beam® sensing offers better light efficiency, flexible installation and improved detection. Convenient technology add-ons increase system flexibility. Deep Laser delivers deeper sorting sharpness to improve system performance and detects previously undetectable objects like black polymers and glass. Gain uses a deep learning-based sensor to classify objects and sort previously hard-to-sort objects."

Rhoad noted that along with labor availability issues, "the industry faces ever evolving regulations as purity standards are increasing for most markets worldwide. Also, the supply of quality recycled product is low, making it difficult for producers to meet



Tomra Recycling

recycled material targets for their products. Tomra Autosort can play a key role in helping to alleviate these challenges and others, such as sorting complex material fractions."

Since the start of the year, Tomra has celebrated 50 years in the global recycling and waste management industry and the company has installed more than 8,200 systems in more than 100 countries worldwide.

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THANK YOU!

Mattresses

Continued from Page B1

MRC's research team accepts proposals for research projects (up to \$100,000) that use these harder to recycle components in new applications and products as well as in reformulated products.

In addition to conducting and supporting research projects and educating government officials about the importance of establishing mattress recycling programs in their states, the MRC also works closely with recycling companies, regional landfills, transfer stations, public works yards and nonprofit organizations, serving as collection sites or in hosting mattress collection events. The MRC also works with waste haulers that operate curbside bulky item collection programs. To operate each state program, MRC contracts with transporters and recyclers.

Looking Ahead

Educating the consumer base about mattress recycling is paramount to the success of today's mattress recycling programs. The MRC created a consumer-facing brand called "Bye Bye Mattress" for this purpose.

"We established ByeByeMattress.com to provide information about where to recycle, the benefits of recycling and what happens to recycled mattresses," O'Donnell said. "To drive traffic to this site, we have a robust and comprehensive strategy that uses point-of-sale materials for mattress retailers, public service announcements, traditional and online advertising, community events, media opportunities and social media. In addition, the MRC is working with other entities such as hospitals to properly dispose of unwanted mattresses. As the MRC states, through the organization's Commercial Volume Program (CVP), hospitals in California, Connecticut and Rhode Island now have options for hospitals to access no-cost drop-off locations for unwanted mattresses. Depending on the hospital, they may also qualify for no-cost pickup and transportation of unwanted mattresses.

The MRC also relies on local leaders and community-based organizations to raise awareness and the organization provides publicity toolkits to its collection sites and event hosts that help them promote the availability of mattress recycling to their residents."

The MRC is making significant inroads in enticing more states to enact mattress recycling programs. As previously mentioned, Oregon's Governor Kate Brown recently enacted SB1576, creating a statewide mattress recycling program for that state. Specifically, the Oregon Legislative Assembly found and declared that:

"It is in the best interests of the State of Oregon for producers of mattresses to take responsibility for developing, implementing and administering a statewide system for the financing, collection and environmentally sound management of discarded mattresses."

In addition, the Oregon Legislative Assembly stated that it is the State of Oregon's policy that a statewide system for the financing, collection and environmentally sound management of discarded mattresses be established and the state of Oregon should provide "free, convenient and accessible opportunities for collection of mattresses discarded in this state from any person, in both the urban and rural areas of the state."

In 2023, MRC will submit a plan to the Oregon Department of Environmental Quality to implement the new state law.

On the opposite coast of the U.S., Massachusetts is considering a mattresses landfill ban beginning November 1, 2022. According to the Massachusetts Department of Environmental Protection, mattresses are defined in the regulations as "any resilient material or combination of materials that is enclosed by ticking, used alone or in combination with other products, and that is intended for sleeping upon, except for mattresses that are contaminated with mold, bodily fluids, insects, oil, or hazardous substances. Mattress includes any foundation or box spring."

"Mattress" does not include any mattress pad, mattress topper, sleeping bag, pillow, car bed, carriage, basket, dressing table, stroller, playpen, infant carrier, lounge pad, crib bumper, liquid or gaseous filled ticking, including any waterbed and any air mattress that does not contain upholstery material between the ticking and the mattress core, and mattresses in futons and sofa beds."

The increasing number of states implementing laws and regulations surrounding proper mattress disposal is promising. As such, O'Donnell said the future of mattress recycling looks bright. As he explained, companies throughout the mattress supply chain are invested in the success of the MRC's mattress recycling programs.

"While we are encouraged by our current recycling rates, we are mindful that developing new end markets is critical to the long-term sustainability of our programs," O'Donnell said. "The MRC is making the necessary investments today to create a viable mattress recycling industry for the future."

How does the MRC plan on doing this? Quite simply by improving information sharing between mattress manufacturers, component suppliers and recyclers. This is a priority for the MRC and the organization is facilitating several groups to foster innovation and cooperation. Among them is the New Materials Recycling Committee which aims to identify end-of-life challenges posed by new products and materials, advise MRC on anticipated long-term changes in product mix and raise industry awareness about how design and marketing decisions can affect recycling.

"Through the committee's work, MRC can help recyclers adapt the deconstruction process, prepare to handle new materials and improve commodity forecasting," O'Donnell said.

Sanitation districts in Los Angeles County achieve carbon neutrality

The Los Angeles County Sanitation Districts, which manages wastewater and solid waste for over half the residents in Los Angeles County, announced that its operations result in a net reduction of greenhouse gases into the environment. A third party reviewed and verified the Districts' 2021 emissions inventory.

"Our mission is to convert waste into resources. For decades, we and our partners have undertaken activities that reduce greenhouse gas emissions. For example, by converting sewage into recycled water, we reduce the need to import water, the energy used to import water and the greenhouse gas emissions used to create energy," said Robert C. Ferrante, chief engineer and general manager for the sanitation districts. "We're proud to have exceeded carbon neutrality in 2021 and are looking for more ways to reduce regional greenhouse gas emissions."

The Sanitation Districts recently published a document called "Reducing Our Carbon Footprint: The Sanitation Districts' Greenhouse Gas Reduction Initiatives," which is available at lacs.org/GHG. This summary describes the agency's seven biggest initiatives that reduce greenhouse gas emissions. Most of these initiatives

produce green power, which reduces use of fossil fuels, a main contributor to global greenhouse gas emissions. For example, the biogas created at the agency's landfills and wastewater treatment plants is converted into enough

Collectively, these initiatives equalled the impact of taking 78,000 cars off the road.

electricity to meet the needs of 23,000 homes. Other initiatives include converting food waste into vehicle fuel, commodities recycling, water recycling, using alternatives to fossil fuel in vehicles, biosolids management and green waste management. Collectively, these initiatives avoided 362,000 metric tons of carbon dioxide equivalents, which is equivalent to taking 78,000 cars off the road.

The Sanitation Districts are a regional public agency that serves the wastewater and solid waste management needs of 78 cities and unincorporated areas in Los Angeles County.

Partnership formed to expand waste recycling

ML Environmental Group (MLE), parent company to Komptech Americas and Plexus Recycling Technologies, has formed a strategic partnership and exclusive U.S. (excluding California) distribution agreement with Scott Equipment Company, industrial equipment manufacturer of the Turbo Separator and GypStream product lines.

"When we consider a company and brand as a potential solution partner, the most important characteristics we look at are that our company cultures, values and visions align," shares Brandon Lapsys, ML Environmental Group President. "Scott Equipment Company checks all of those boxes and so many more. They have a world-class product that has been proven in the marketplace for nearly three decades. Our team is extremely excited to help bring that product line to our growing family of current and prospective customers across the U.S."

The patented Turbo Separator depackaging technology is a natural fit for many Komptech Americas customers in the food waste and organics recovery market. In addition, many MLE customers are currently looking for a solution to process gypsum wallboard or drywall in the Construction and Demolition recycling market.

"Our recycling systems, including both the food waste organics recovery system and the gypsum wallboard separation and recovery machines, position nicely with ML Environmental Group's vision to offer their customers an end-to-end solution," said Kevin Pedretti, business development and product marketing manager at Scott Equipment Company. "We have been very impressed with the leadership and growth of ML Environmental and look forward to making the world a better place with this partnership."

Benefits of this strategic partnership include:

- Komptech Americas customers gain the ability to implement premier quality, pre-processing and separation systems for food waste depackaging into their organics waste processes.

- The Turbo Separator and GypStream systems effectively complement Komptech Americas' equipment technologies, giving a broader audience reach to both companies, regionally and nationally.

- ML Environmental Group is the exclusive dealer for Turbo Separator organics systems for composting and Gypstream drywall recycling systems in the U.S.

New medical waste transfer station to open in Connecticut

MedXwaste, a provider of medical waste disposal services, has received approval for a new medical waste transfer station located in West Haven, Connecticut. The new facility will be designed to meet all current regulatory requirements for medical waste handling and provide consolidation for waste processing as well as boost energy savings.

The facility will meet current regulatory requirements for medical waste handling and boost energy savings.

As part of the approval, the transfer station, located at 81 Farwell Street in West Haven, Connecticut, will also include a new wash system for reusable sharps and medical waste containers. This will maximize high-level disinfection rates while having a positive impact on the environment. By using a wash system and local transfer station, MedXwaste is reducing their carbon footprint with minimal cardboard use, less non-reusable plastic sharps containers, and fewer materials needing to be processed.

"Our team has worked diligently in collaboration with town and industry officials for over two years to bring the transfer station to life and make it easier for customers to handle waste. Our company is very excited to move into the next phase of opening and utilizing the medical waste processing facility in West Haven, Connecticut. This facility will provide more efficient and streamlined services, while protecting the environment and energy use," said Sean Fredricks, chief executive officer of MedXwaste.

Additional benefits of the newly announced medical waste transfer facility include using tractor trailers for moving materials instead of small trucks for improved efficiency.

MedXwaste provides waste generators located in New York, Connecticut, New Jersey, Pennsylvania, Rhode Island, Massachusetts and Illinois with expert medical waste services to maintain OSHA compliance, keep employees safe and meet environmental responsibilities.

The NY Sanitation Foundation restarts Zero Waste Academy

The Sanitation Foundation, the official nonprofit of the New York City Department of Sanitation, announced the return of "Zero Waste Academy," a program that introduces participants to waste management.

The Zero Waste Academy will consist of eight virtual training modules developed and taught by high-level experts on waste in New York City. The curriculum will explore topics such as:

- The current landscape of waste in NYC, both public and private

- How architecture and the built environment influence recycling and diversion habits

- A focused look at food waste

In addition to the core educational sessions, several optional field trips will allow participants to see recycling and composting in action in New York City. These will include virtual field trips to Cooper Recycling and Sims Municipal Recycling, as well as in-person trips to see Earth Matter's NYC Compost Project operations at Governors Island.

The final module will connect participants with practical ways to actively solve the problems of waste. Upon completion of the program, participants will receive a certificate of completion and be equipped with the knowledge and resources to create change.

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