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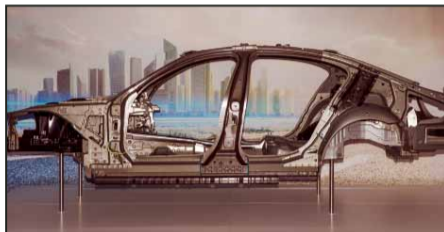
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AmericanRecycler.com

FOCUS: Auto Recycling

Future challenges for auto recycling processes



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Making inroads with tire pyrolysis

by MAURA KELLER

mkeller@americanrecycler.com

According to the U.S. Environmental Protection Agency (EPA), about 100 million pounds of tire components discarded during the manufacturing process are dumped in landfills nationally each year because the body ply – the tire’s largest component – can’t be effectively recycled. That is, until tire pyrolysis gains more of a foothold throughout the industry.

Pyrolysis of scrap tires offers an environmentally and economically attractive method for transforming waste tires into useful products, heat and electrical energy.

As Salmon Zafar, chief executive officer of waste management consulting firm, BioEnergy Consult explained, tire pyrolysis is one of the most popular methods for disposal of scrap tires in many parts of the world. Tire-derived fuel (TDF) or pyrolysis oil is one of the largest applications of scrap tires in U.S., however it is currently being challenged by crumb rubber due to the steep fall in oil prices in recent years. Cement plants are the biggest consumers of TDF in the country.

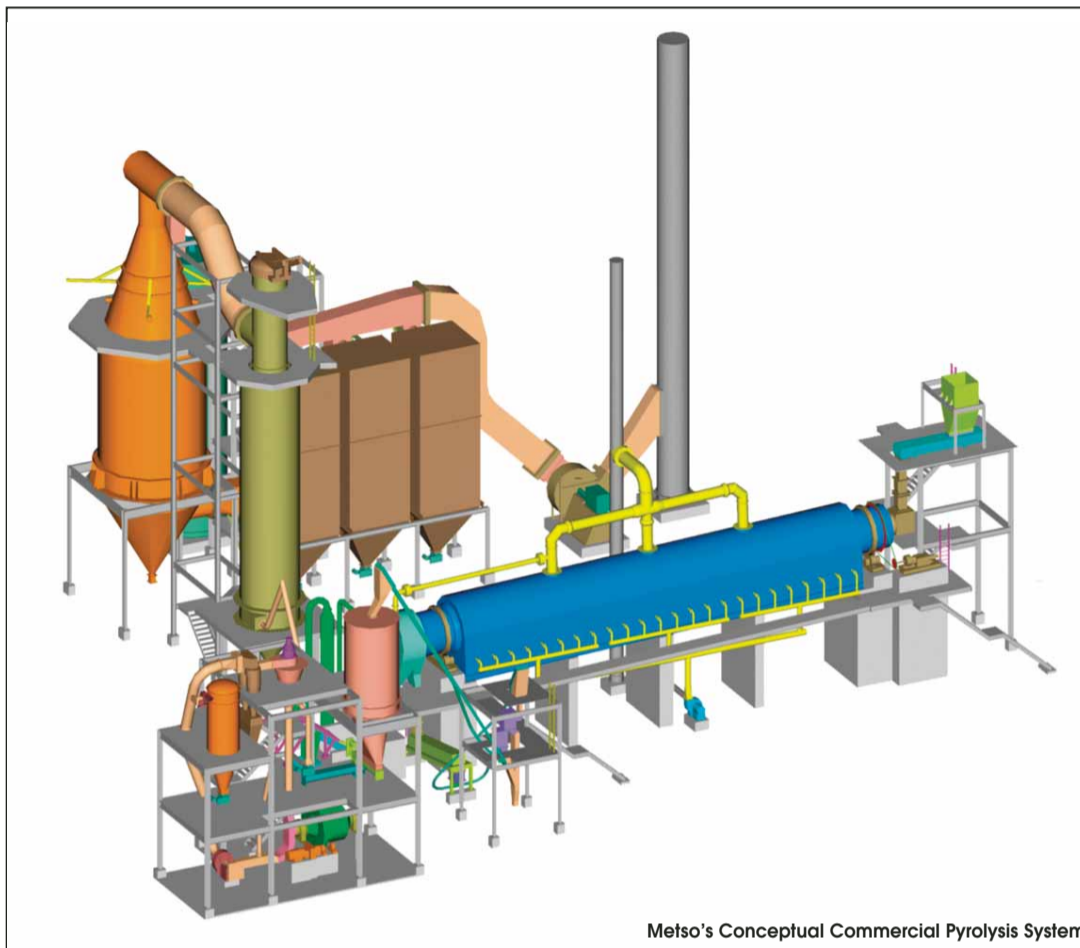
The EPA described TDF as a high Btu-value fuel with lower emissions, including lower greenhouse gas emissions, than comparable traditional fuels, in a 2009 Advanced Notice of Proposed Rulemaking. In earlier studies, the EPA concluded, “With proper emission controls, burning tires for their fuel energy can be an environmentally sound method of disposing a difficult waste.”

Klean Industries in Vancouver, BC, has been building and operating tire carbonization facilities at a scale north of 100 metric tons per day since the 1980s.

According to Marc Smith, business development and sales at Klean Industries, the recovery of valuable resources, such as tires, done in the right format delivers the highest possible returns both financially and environmentally, without the need for subsidies.

“Sadly, however, little money has been invested over the decades into new tire recycling methods and infrastructure, as the current market is largely supported by recycling subsidies that support a broken industrial model where by the consumers have been paying for the down cycling of tires in to lower value materials and or into a tire derived fuel to only see tires be incinerated or landfilled,” Smith said.

Currently, Klean Industries is seeing a glut of low value product on the



Metso's Conceptual Commercial Pyrolysis System

market and a saturation of raw materials from tires that have a very low economic value.

“This saturation is what is also driving change in the marketplace as industry is now looking for more valuable products that have a wide range of applications in order to monetize the value position further, while offsetting costs and delivering better returns,” Smith said. “The benefits of a circular economy are slowly coming to light and are now starting to be understood and acted upon.”

At Its Core

In the past, the main approach to tire disposal was to get paid for the disposal of tires with secondary interest in the oil.

But as the environmental concerns surrounding tire disposal and recycling continue to emerge, tire pyrolysis is gaining momentum throughout the industry.

The pyrolysis method for scrap tire recycling involves heating whole, halved or shredded tires in a reactor containing an oxygen-free atmosphere and a heat source. In the reactor, the rubber is softened after which the rubber polymers disintegrate into smaller molecules, which eventually vaporize and exit from the reactor.

“These vapors can be burned directly to produce power or condensed into an oily type liquid, called pyrolysis oil or bio oil,” Zafar said. “Some molecules are too small to condense and remain as a gas, which can be burned as

fuel. The minerals that were part of the tire, about 40 percent by weight, are removed as a solid in the form of carbon black.”

According to Metso Corporation, a leading provider of tire pyrolysis, from a single tire, approximately one third of the weight is steel, one third becomes pyro black (carbon black plus additives) and the final third, pyrolysis system, are carbon black char, oil, steel and non-condensable gases.

Metso’s tire pyrolysis process involves a pyrolysis reaction in which the chips go through three stages inside the kiln. First, the rubber becomes brittle and separates from the steel, resulting in rubber char. In the second stage, the oil and gas are forced from the rubber char and swept from the kiln. In the last tire pyrolysis stage, the char is fully processed into a carbon black-like substance and separated from the steel wires.

The char is sent through a processor to cool it and then sent to a grinding, pelletizing and bagging system where it is packaged for transport. The steel is cooled and the steel wires are compacted and made available for transport to a steel recycler or steel-processing furnace. The Metso two-stage condenser system is where the off-gas is pulled through and the oil is extracted.

Metso Corporation developed its tire pyrolysis system to produce a high-quality carbon product that could be used in rubber manufacturing. As a

See TIRE PYROLYSIS, Page 4

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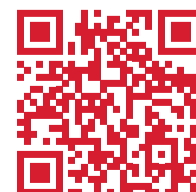
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Recycling created for oyster shells

The Alabama Coastal Foundation (ACF) and Republic Services, Inc. are partnering in support of the Alabama Oyster Shell Recycling Program, the first-of-its-kind in the local area. Funded through a grant from the National Fish and Wildlife Foundation, the program helps to support the sustainable growth and rehabilitation of oyster harvests in Alabama, as well as the livelihood of the fishing industry in the Gulf of Mexico.

With 28 restaurants currently committed to the program, and plans to expand, they plan to collect oyster shells from coastal restaurants three times per week. The shells are then transported to the Alabama Marine Resources Division where they undergo a curing process. Once ready, the repurposed shells are then deposited in designated locations along the Alabama coast where they become the building blocks of newly restored oyster beds.

Over 40 percent of the nation's seafood is derived from the Gulf Coast. Replenishing the habitat for the Gulf Coast marine life is imperative.

Pennsylvania DEP encourages Legislature to maintain recycling law

Recycling means green for Pennsylvania communities and workers

The Pennsylvania Department of Environmental Protection (DEP) officials urged the Joint Legislative Conservation Committee to permanently reauthorize a crucial component of the landmark Act 101 of 1988 that established Pennsylvania's recycling program.

A \$2.00 per ton fee on non-recycled trash is set to expire January 1, 2020, and would affect grants for local municipality recycling collection programs, as well as other recycling services if it is not extended.

As a result of Act 101, about 90 percent of the Commonwealth's population now has access to some type of recycling. In 2015 alone, Pennsylvania recycled more than 10.3 million tons of materials. Before Act 101 established the recycling program, Pennsylvania had approximately 1,500 local municipal dumps, many at or near capacity. The \$2.00 fee, called a tipping fee, helped establish modern recycling programs and facilities in Pennsylvania.

"There is still work to be done to bring Pennsylvania's recycling and waste management programs into the

21st century," noted George Hartenstein, DEP deputy secretary for Waste, Air, Radiation and Remediation in testimony before the committee.

The environmental benefits of recycling match the economic gains it generates. Recycling plastic, metal and paper products in Pennsylvania drives employment of more than 170,000 direct and indirect jobs in the state, and more than \$1.7 billion in state and local government tax revenues, according to a new report from the Pennsylvania Recycling Markets Center (RMC).

"In many ways, Act 101 was a landmark effort. In addition to modernizing waste disposal planning in the state, the Act took on waste minimization. And now, recycling has been woven into the fabric of our economy and into the behaviors of Pennsylvania residents," said DEP secretary Patrick McDonnell. "After 30 years, a whole generation has never known a time when you didn't separate recyclables and place them at the curb or look for separate recycling containers in schools, public spaces, and offices."

DEP has previously awarded multi-year grants to local governments using proceeds from the tipping fee through the Recycling Development and Implementation (Section 902) Grants. Applications for 902 Grants regularly exceed available funds, and grants have not been awarded since 2015 due to lack of funds and uncertainty of the future of the program.

"Recycling isn't just a good environmental practice – it supports Pennsylvania workers and communities financially as well," said McDonnell. "We need to make sure that we continue to have the resources to support this tremendous sector of our economy."

RMC was established by DEP to perform market studies and analysis and to undertake projects to stimulate the demand for recyclable materials.

For a direct link to DEP testimony, view this article on www.AmericanRecycler.com.

Proposal to eliminate North Carolina's recycling division

The North Carolina State Senate has approved a budget that eliminates Division of Environmental Assistance and Customer Service (DEACS) in the Department of Environmental Quality. DEACS is home to the recycling office, formally called the Recycling and Materials Management Section, which would also be eliminated in this action.

The North Carolina House will consider and pass its own version of the budget, and then will conference with the Senate to pass a final State budget to submit to Governor Roy Cooper.

The Association of Plastic Recyclers (APR) is asking you to contact the NC House to request that DEACS and the North Carolina state recycling program remain fully funded, and that the House adamantly support this funding in conference.

North Carolina has long been a strong example of a successful state recycling program, including the investment of recycling carts that deliver more tons. Many recycling organizations, such as APR and The Recycling Partnership, also regularly use data and concepts pioneered by North Carolina. Collaboration with state recycling programs like North Carolina deliver tremendous benefits to hundreds of community programs that in turn provide recycling to millions of households.

•DEACS is a non-regulatory Division in NC DEQ offering no-cost assistance to industry, businesses, local governments, and individual citizens on

a wide range of environmental concerns. NC DEACS also helps businesses and citizens understand complex regulations and help them avoid costs of non-compliance.

•The program creates jobs. DEACS studies have documented that 17,000 North Carolinians are employed directly by the state's recycling industry. Many of the largest recycling manufacturers are in rural counties, employing thousands of people to support those local economies.

•The program has saved money for thousands of local governments, manufacturers, small businesses, non-profits, and state agencies. DEACS helps its partners find market solutions for discarded materials, saving on landfill tipping fees and solid waste costs. DEACS assistance has helped leading manufacturers and other employers in the state achieve the goal of sending zero waste to landfills.

•The program fuels manufacturing in the state. DEACS technical assistance and grants create critical private investment in processing and manufacturing infrastructure for recyclable materials, providing markets for local government collection programs and vital feedstocks for new products.

•The program helps communities save money. DEACS assistance to rural communities has streamlined drop-off programs, increasing material collection while lowering costs and helping rural

counties avoid expensive disposal charges.

•The program is a recognized national leader. With technical assistance and grants from DEACS, more than 300 municipal curbside programs

servicing 2 million household have completely transitioned to cost efficient cart-based collection, delivering an annual increase of 100,000 tons of recyclable material to North Carolina processors and manufacturers.

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—Will Rogers

Tire pyrolysis

Continued from Page 1

result, the company's plant design and recycling process follows the same principles as that of a chemical processing plant.

When performed well, the tire pyrolysis process is a very clean operation and has nearly no emissions or waste.

Diran Apelian, Alcoa-Howmet Professor of Mechanical Engineering at Worcester Polytechnic Institute, said tires are a great example of what can be done economically as long as there is a collection system in place.

"Rubber tires, when exposed to liquid nitrogen, undergoes a transformation and becomes brittle like a glass, and rubber tires can be pulverized, which are further reused as additives in highway surfaces, parks, stadiums, and many other surfaces," Apelian said. "It's a great way to recover and reuse the product at end of life."

On the Horizon

The tire recycling industry in the U.S. is among the strongest and most diverse worldwide. In fact, according to Zafar most of the states have their own

laws regarding disposal of waste tires along with environmental stewardship programs and highly developed end-products.

"The carbon black market has historically displayed a steady growth profile and there is increasing demand for carbon black from the tire industry and other end users," Zafar said.

Smith said the industry is on the precipice of change on a global basis with respect to energy and raw material costs, specifically with the massive boom in population growth that is taking place around the planet. "We are going to see consumption habits and the volume of consumption significantly change over the coming decades. This then combined with the pressure on the environment is also going to create change," Smith said. "We see nothing but significant growth in our future, and that's not just in tire pyrolysis, but also in plastic recycling and creating energy from waste as a whole."

Rubber Recycling Innovations

Recognizing the detrimental effect that discarded tires has on the environment, RVS Rubber Solutions, a student startup based at Case Western Reserve University, has developed a viable solu-

tion to this environmental hazard: A new technology that extracts the rubber and steel from within the components in a cost-effective and environmentally friendly way.

The brainchild of Pavel Galchenko, a Case Western Reserve sophomore studying biochemistry and applied data science, and Yohann Samarasinghe, a sophomore studying nanoengineering and business at the University of California, San Diego, RVS Rubber has developed a process to repurpose the rubber within the material, reducing and potentially eliminating waste, while providing rubber products manufacturers with high quality material to make them less dependent on environmentally harmful virgin rubber for a range of applications.

Here's how it works: RVS Tech induces vibrations within the plies to break the rubber off the steel to create an almost perfect separation of the base components. This is also done without degrading the quality of the rubber, resulting in various reusable applications in the consumer marketplace.

RVS Rubber Solutions expects its technology to revolutionize the rubber recycling process.

"We recycle the component materials from tires rejected during their manufacturing in a very cost-efficient process," Samarasinghe said. "We are a 'negative-waste company,' meaning we are actually reducing the amount of waste material entering landfills from other producers by reintroducing the rejected tire component into the consumer market after our RVS Tech has processed it."

METAL RECYCLERS

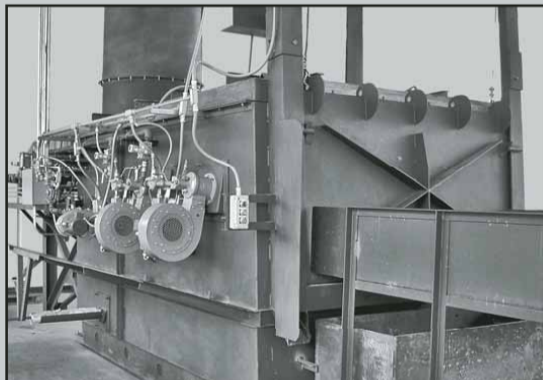
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August 9th-11th

Missouri Recycling Association Conference. Tan-Tar-A Resort, Osage Beach, Missouri.
866-667-2777 • www.moraconference.org

August 21st-23rd

Waste Conversion Tech Conference & Tradeshow. Hyatt Regency Mission Bay Spa & Marina San Diego, California.
850-386-6280 • wasteconversionconference.com

August 23rd-25th

Agricultural Plastics Recycling Conference & Trade Show. Hyatt Regency Mission Bay Spa & Marina San Diego, California.
850-386-6280 • www.agplasticconference.com

September 12th-14th

The Battery Show Exhibition & Conference 2017. Suburban Collection Showplace, Novi, Michigan.
855-436-8683 • www.thebatteryshow.com

September 18th-20th

ARC's Annual Conference & Trade Show. Best Western Inn of the Ozarks, Eureka Springs, Arkansas.
866-290-1429 • www.recycleark.org

September 25th-27th

SWANA's WASTECON. Baltimore Convention Center, Baltimore, Maryland.
800-467-9262 • www.swana.org



NewsVoice of Salvage, Waste and Recycling

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American Recycler is published 12 times per year, postage paid at Columbia, Missouri.

SUBSCRIPTIONS: Call our offices at 877-777-0043 or visit www.AmericanRecycler.com. US 1 year \$48; 2 years \$72.

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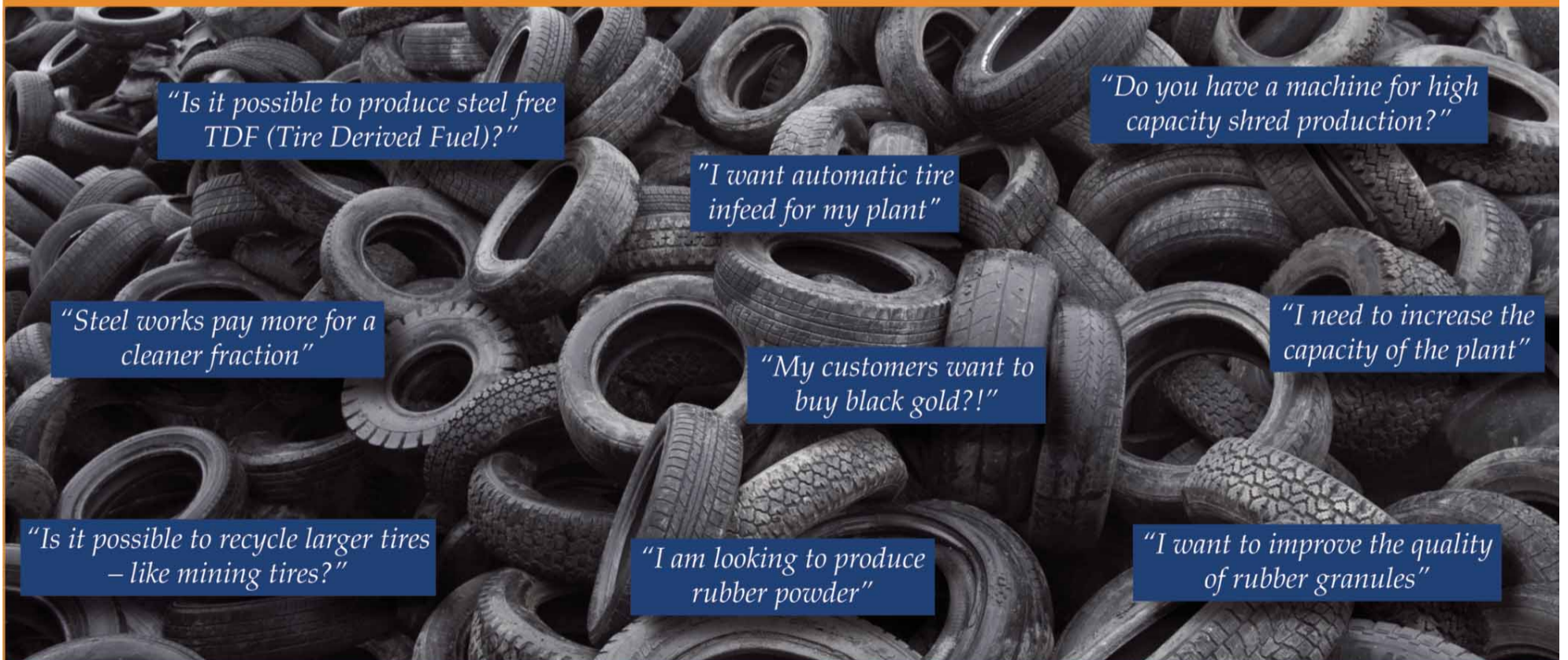
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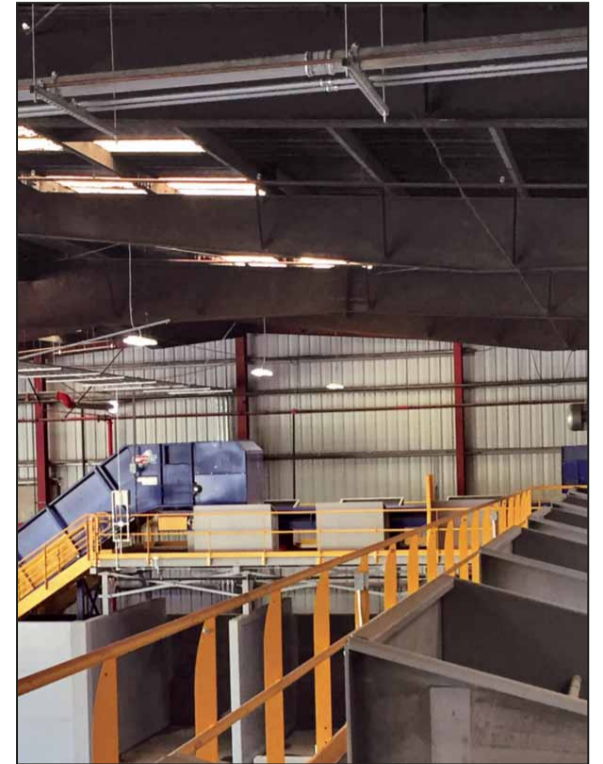
Republic Services celebrated its enhanced recycling facility that will enable Sonoma County to achieve their sustainability goals for years to come. The Sonoma County Recycling Center is capable of processing more than 200 tons of recyclable material per day, and is expected to increase the recycling capacity in the region.

“The new enhanced Recycling Center offers significant environmental benefits to the community and the customers we are fortunate to serve,” said Mike Caprio, area president of Republic Services. “We now have the ability to increase recycling efforts, while diverting valuable materials from the landfill. The facility has the potential to significantly reduce greenhouse gas emissions, which offers a substantial contribution to the community’s climate protection goals.”

The existing 32,000 square foot Recycling Center was expanded with an additional 6,000 square feet constructed by ET Environmental, bringing the new combined square footage to 38,000. The processing system was designed and installed by the CP Group.

The facility offers a variety of features to provide flexible processing capabilities. The equipment includes two material processing options. The first is an in-feed conveyor for collected commercial materials such as cardboard, mixed paper, containers, film and plastics.

The second is a hopper-fed construction and demolition (also known as C&D) conveyance system with multiple sorting stations. The system includes a baler for packaging recy-



clable materials such as cardboard, mixed paper and other materials. The facility also has a separate bale storage building to protect the finished products from rain prior to shipment to market.

The enhanced Recycling Center was part of a three year Solid Waste Advisory Group (SWAG) collaborative process between multiple municipalities, the county and a diverse group of public stakeholders. They identified three underserved waste streams; self-haul, commercial dry waste, and C&D waste materials that could be addressed with a robust recycling center and program.

Republic Services of Sonoma County employs 26 employees. They serve over 265 commercial customers as well as thousands of residents throughout the year. Republic also operates the Central Landfill and five transfer stations in the County of Sonoma.

Kentucky awards \$4.6 million in environmental grants

The Kentucky Energy and Environment Cabinet’s Division of Waste Management announced that 53 recycling grants, 28 household hazardous waste grants, and 5 composting grants totaling \$4,619,960 have been awarded to Kentucky counties. The purpose of these grants is to expand recycling infrastructure, reduce the amount of solid waste going into landfills, ensure proper management of household hazardous waste, and help grow and improve composting operations across the state.

The 86 grants are funded from the Kentucky Pride Fund, which is generated by a \$1.75 fee for each ton of

municipal solid waste disposed of in Kentucky landfills.

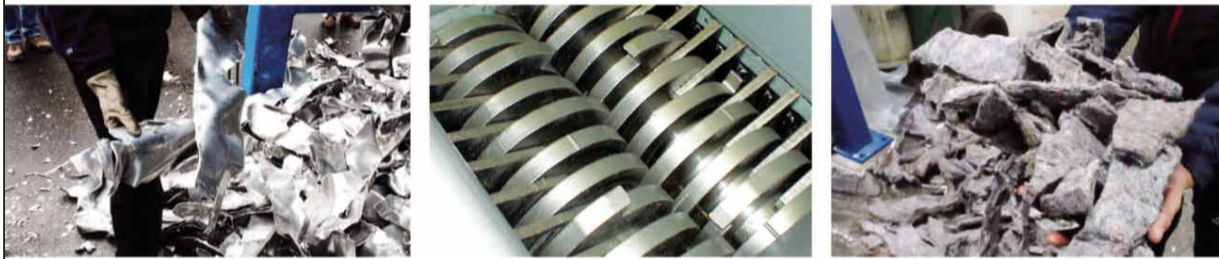
“Recycling is one of the best ways to protect and promote our environment,” said Energy and Environment Cabinet Secretary Charles Snavey. “These grants will help keep our beautiful natural resources cleaner and will help promote a better environment for all Kentuckians.”

The grants require a 25 percent local match in the form of cash or “in kind” contributions. “In kind” expenditures can include items such as personnel time, educational activities or advertising.

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Plastipak Packaging has received recognition of its innovation and excellence by winning a silver DuPont Award for Packaging Innovation. Now in their 29th year, the DuPont awards are the industry’s longest running, global, independently judged celebration of innovation and collaboration throughout the value chain.

Direct Object Printing (DOP) is Plastipak’s patented technology for packaging decoration. Utilizing specially developed inks that are fully compatible with closed-loop recycling and cured using low energy LED lights, images are directly ink-jet printed on to plastic bottles and containers, eliminating the need for separate labels, liners and adhesives.

Ink-jet printing facilitates variable data printing, meaning that each and every bottle printed can carry a different design without costly plate changes, label stock-holding and downtime associated with label change-overs. There

are no minimum print runs for each design.

In practical terms for beverage and other companies, the benefits include rapid label changes for language or regulatory content as well as saving on logistical costs and processes associated with physical labels, all contributing to a package with a lower carbon footprint.

However, the biggest advantage is for marketers, where Direct Object Printing’s inherent flexibility and speed-to-market opens up the opportunity for more-targeted, regional and customized campaigns that can revolve around specific events or changing consumer trends.

Speaking about Direct Object Printing, Lead Judge David Luttenberger said “Judges for the competition were especially impressed with the degree of vibrancy of the ink on the container. This represents more than a step change in package decoration”.

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PLASTICS

Plastic makers strive to prevent marine litter

The United Nations Ocean Conference concluded on June 9, 2017 with a "Call For Action" for voluntary commitments on marine litter. American Chemistry Council (ACC) issued the following statement, which may be attributed to Steve Russell, vice president of plastics:

"Experts agree: to stem the tide of marine debris, we must prevent land-based trash from reaching our oceans in the first place. We must do so urgently, with an initial focus on parts of the world where such systems are lacking. This includes reducing waste, improved collection and sortation, matched with the latest recycling and recovery technologies.

While we congratulate the United Nations on its tremendous work this week to prioritize this important issue, we had hoped the outcomes would focus more on building political and financial support for improved waste management, or on deploying innovative recycling and energy recovery. Recommendations to instead ban or reduce the use of specific products may give the illusion of progress, but in fact

don't help us solve the bigger problem.

"Nevertheless, our industry remains committed to delivering solutions. Plastics makers currently have more than 260 projects around the world either planned, underway or completed to combat marine litter. Our combined efforts, to research and prevent marine debris around the world under our "Declaration of the Global Plastics Industry for Solutions on Marine Litter," have grown each year since 2011, when it was launched. Signed by 70 plastics associations in 35 countries, the declaration focuses on education, public policy, best practices, plastics recycling and recovery, plastic pellet containment, and research.

"In addition, we are working with leaders in regions where ocean plastic inputs are the highest, to ensure that waste management systems are a priority, and to catalyze investment in those systems. And we are working with the UN to provide technical expertise and a range of commitments under the Global Partnership on Marine Litter.

PepsiCo joins Plastics Economy Initiative as core partner

PepsiCo has joined the New Plastics Economy initiative as a core partner, signaling the global food and beverage company's continued commitment to reduce packaging waste.

Led by the Ellen MacArthur Foundation, the New Plastics Economy is bringing together industry, government, NGOs, scientists, students and citizens to build a more sustainable global plastics value chain.

PepsiCo's participation in the initiative supports the company's previously announced goals to strive for 100 percent of its packaging to be recoverable or recyclable by 2025 and to partner to increase packaging recovery and recycling rates. These goals are part of PepsiCo's Performance with Purpose vision to deliver top-tier financial performance over the long run by integrating sustainability into its business strategy.

PepsiCo's involvement in the New Plastics Economy is one of a series of collaborations the company is already

undertaking to tackle packaging waste:

•PepsiCo announced an agreement with biotechnology leader, Danimer Scientific in March 2017, on the development of biodegradable film resins for thin film packaging.

•PepsiCo, through the PepsiCo Foundation, was a founding member of the Closed Loop Fund, which is investing \$100 million to raise recycling rates in the United States, including through improved curbside recycling and materials processing.

•PepsiCo Recycling works with schools K-12, college and university campuses and local communities in the United States through various programs and initiatives to boost recycling infrastructure and raise awareness. In the almost 4,000 schools that PepsiCo Recycling has partnered with since 2010, 93 million cans and bottles have been recycled and over \$1 million in prizes and incentives have been distributed to participating schools.

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Antonis Mavropoulos, President, International Solid Waste Association



Steve Jones, CEO, Covanta



Jim Fish, CEO, Waste Management



Gary Crawford, Vice President, International Affairs, Veolia



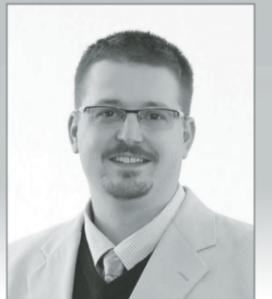
Nate Morris, CEO, Rubicon Global



Kathryn Garcia, Commissioner, New York City Department of Sanitation



David Biderman, Executive Director & CEO, SWANA



Jim McKay, General Manager, Solid Waste Management Services, City of Toronto

* Testimonial *

I received your publication by mail. I can confirm I have never seen it before in its hard copy version. I like the layout and it is very informative, in a league of its own in terms of quality information. No wonder it is the only recycling publication quoted on Lumistar's blog. I look forward to upcoming issues.



I have read issues of your publication in the past by accessing digital archives at one of two libraries I am a member of. Your website is also fantastic.

—Paul Angel, LUMISTAR CORPORATION

WASTE

Pennsylvania DEP issues environmental assessment letter to Keystone Landfill

The Pennsylvania Department of Environmental Protection (DEP) issued its second environmental assessment letter to Keystone Sanitary Landfill regarding the facility's permit application for expansion in the boroughs of Dunmore and Throop in Lackawanna County. The department has identified several outstanding issues including tracking of dirt and mud, over weight trucks, groundwater impacts and the location of the regional ground water table in relation to the proposed liner system.

The letter is the second and most recent evaluation by DEP of the potential environmental impacts and benefits of the proposed expansion. The first environmental assessment letter was

issued in October of 2015. The review letters are standard steps to ensure that all the information in the application is complete and relevant.

The environmental assessment process is part of the permit application review under the municipal waste landfill regulations.

"DEP staff continues to take a meticulous and thorough approach to review this permit expansion application to ensure that all information is included," said DEP Northeast regional director Mike Bedrin. "In this letter, the department is asking for more information on both the harms and benefits of this project and how those harms will be mitigated."

Keystone Landfill filed an application with the department in March of 2014 for a vertical expansion within 435 acres in its existing permitted area. That expansion was modified by Keystone in May of 2016 to limit the height. The permit application is still under review by the department. In addition to the first technical review letter, a 60 day comment period was held in early 2015 to hear citizen concerns, as well as a meeting with municipality officials. A public hearing on the expansion application was held on July 18, 2016.

Keystone will have 90 days from the time it receives the most recent letter to respond to the environmental assessment.

Meridian Waste reports first quarter results

Meridian Waste Solutions, Inc., a vertically integrated, non-hazardous solid waste services company, reported financial and operational results for the three-month period ended March 31, 2017.

Key Financial Highlights for First Quarter 2017

- Record revenues of \$10.9 million, increased 46 percent compared to the first quarter ended March 31, 2016; primarily due to the acquisition of the CFS Group.

- Organic revenue growth of 9.2 percent.

- Adjusted EBITDA of \$3.2 million; includes a full quarter pro-forma effect of the CFS acquisition.

Meridian Waste's revenue is generated primarily by collection services provided to residential customers, as well as commercial and temporary roll-off customers. With respect to its platform operation in St. Louis, the company is focused on building in and around this initial marketplace, focusing on bidding for additional municipal contracts in the St. Louis market, as well as pursuing acquisitions in the Midwest to drive this plan.

The recent acquisition of the CFS Group demonstrates a key element of Meridian Waste's strategy to create the vertically integrated infrastructure needed to expand its operations, as the company was able to acquire underutilized assets such as a landfill and integrate these assets into the company's collection and transfer network to improve the efficiencies and margins of the company's operations in the market. Meridian Waste continues to evaluate many potential acquisitions both within its existing markets and new geographic areas.

As revenues continue to grow in existing markets, Meridian Waste plans to increase the rate of this growth by increasing its presence in the commercial and roll-off business. Roll-off service is the hauling and disposal of large waste containers (typically between 10 and 40 cubic yards) that are loaded on to and off of the collection vehicle. Management also expects continued growth through additional mergers and acquisitions.

Gross profit improved by \$0.9 million to \$3.9 million in the three months ended March 31, 2017, as compared to a \$3.0 million gross profit in the three months ended March 31, 2016. The CFS Group's operating expenses are currently significantly higher than that of the other operating subsidiaries. For the three months ended March 31, 2017, CFS's operating expenses were approximately 74 percent of revenue, while the Midwest segment's operating expenses were approximately 61 percent of revenue.

Hundreds of volunteers collect trash at beach cleanup

In the beachside town of Encinitas, California, 150 professionals from the legal cannabis community dedicated their mornings to helping the environment, at an event sponsored by online medical marijuana marketplace BudTrader.com. During this 4 hour event, volunteers cleaned up approximately 400 to 500 lbs. of garbage and other pollutants from the beaches and waterways of Encinitas in San Diego County, including the scenic Moonlight Beach area.

"The representative from 1-800-GOT-JUNK estimated that the trash we collected was between 400 and 500 lbs.," BudTrader.com chief executive officer Brad McLaughlin explained.

The family friendly event brought together volunteers from the community and beyond including BudTrader.com chief executive officer Brad McLaughlin and his team, along with the site's promo models, the BudTrader Babes.

Covanta extends partnership for waste disposal

Covanta announced a new agreement with the Delaware County Solid Waste Authority (DCSWA) for sustainable waste disposal at the Covanta Delaware Valley Energy-from-Waste facility located in Chester, Pennsylvania. The new 5 year agreement, which includes extension provisions, continues a 25 year partnership between Covanta and Delaware County.

Delaware County generates approximately 360,000 tons of municipal solid waste annually. Residue from the energy-from-waste process will continue to be beneficially reused as daily cover at the county's landfill.

Since 1992, Covanta Delaware Valley has provided reliable and sustainable waste management to municipalities in Delaware County and neighboring communities. The facility converts up to 3,500 tons of municipal solid waste per day into 80 megawatts of clean, renewable energy. The facility also recycles over 35,000 tons of metal annually.

Energy-from-waste facilities such as Covanta Delaware Valley provide a sustainable and safe alternative to landfills, recycle metal and reduce greenhouse gases. During its 25 years of operation, the facility has:

- Saved over 200 acres of land from landfilling

- Reduced net greenhouse gas emissions by 25 million tons, the equivalent of removing nearly five million passenger vehicles from the road for one year

- Recovered 750,000 tons of metals for recycling, equivalent to the steel that would be used to build nearly 10 Ben Franklin Bridges (Philadelphia, PA)

- Generated 15 million megawatt-hours of electricity, the equivalent of powering over 1.3 million homes for one year

Covanta Delaware Valley has been designated a Voluntary Protection Program Star facility by the U.S. Occupational Safety and Health Administration.

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WASTE

National Waste Management Holdings reports revenue growth

National Waste Management Holdings, Inc. announced financial results for the full year ended December 31, 2016, demonstrating continued revenue growth and strength in acquisition based growth strategy.

Full year 2016 highlights:

- Revenues for the 12 months ended December 31, 2016, increased 161 percent to \$6.3 million;

- Cash flows from operating activities for the 12 months ended December 31, 2016, increased to over \$1.0 million;

- Acquired Northeast Data and Recycling, LLC and Sivart Services, LLC during the year ended December 31, 2016;

- Continued to see positive results from acquisitions of WRE and Gateway.

Revenue for the 12 months ended December 31, 2016, increased 161 percent to \$6.3 million, as compared to revenue of \$2.4 million reported for the full year ended December 31, 2015. This increase is due to a stronger national economy, better utilization of resources, the WRE and Gateway acquisitions during 2015, and the May 2016 acquisition of Sivart, which added Cooperstown, New York, to National Waste's geographical footprint in Upstate New York.

Net loss for the 12 months ended December 31, 2016, was \$(765,208), as compared to a net loss of \$(132,503) for the comparable period of 2015. Depreciation and amortization expense increased to \$1.0 million during 2016, as compared to \$271,311 in 2015. Adjusted earnings after adding back non-cash depreciation and amortization expense and a one-time non-cash impairment charge related to intangible assets of \$159,977 in 2016 were \$460,912 and \$138,808, an increase of \$322,104, or 232 percent. The increased adjusted earnings is attributable to the acquisitions of WRE and Gateway in 2015, Sivart in 2016, and increased operations at the Central Florida landfill.

California implements all-electric trash truck

The City of Sacramento will soon be home to the state's first all electric automated left side loader garbage truck. The fundamental technology powering the Electric Refuse Vehicle (ERV) is Motiv Power Systems' scalable and modular All-Electric Powertrain. The Class 8 vehicle will be built on a Crane Carrier chassis, and the body will be built by Loadmaster. The City of Sacramento aims to run the ERV on residential and recycling routes and expects to save as much as 6,000 gallons of fuel per year. The Sacramento ERV will be one of only two all electric refuse trucks in operation within North America, both powered by Motiv.

"The City of Sacramento has a very pro-active sustainability policy, showcased by being voted the #1 Government Green Fleet in North America in 2013. Reducing harmful vehicle emissions in



The Motiv All-Electric Powertrain, installed on the Sacramento electric refuse truck, transforms a chassis meant to be diesel powered to one with zero emission all electric drive, giving fleets an easier transition to a fossil fuel free future.

the Sacramento region is a primary focus of our Sustainability Policy, and the most effective way to achieve that goal is to implement electric vehicles into our fleet," said Mark Stevens, fleet manager for the City of Sacramento.

Sacramento specified that this ERV must meet the demanding requirements placed on all of its garbage trucks. This includes three routes per day to remove trash, recycling and green waste in a

downtown Sacramento neighborhood. To supply enough electricity to move the truck and power the hydraulics all day, the ERV is equipped with 10 battery packs, expandable to 12 packs if needed for future route expansion. Using the Motiv Universal high power Charger, the ERV batteries will easily reach full charge overnight.

Currently the only technology of its kind in the trucking market, Motiv's All Electric Powertrain uses off-the-shelf batteries and motors, which can be mixed and matched to fit the exact size and duty cycle of the electric truck needed. It can handle EV trucks from medium duty to heavy duty, weighing 14,000 lbs. to 60,000 lbs. The Motiv All Electric Powertrain is designed to be assembled using the existing diesel chassis infrastructure already established throughout the world.

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the time, I washed her contaminated hands with antibacterial soap. After sitting down to finish eating her pickle, I asked her, "How did you kill

that fly all by yourself?" Between bites, she said, "I smacked it with my pickle."

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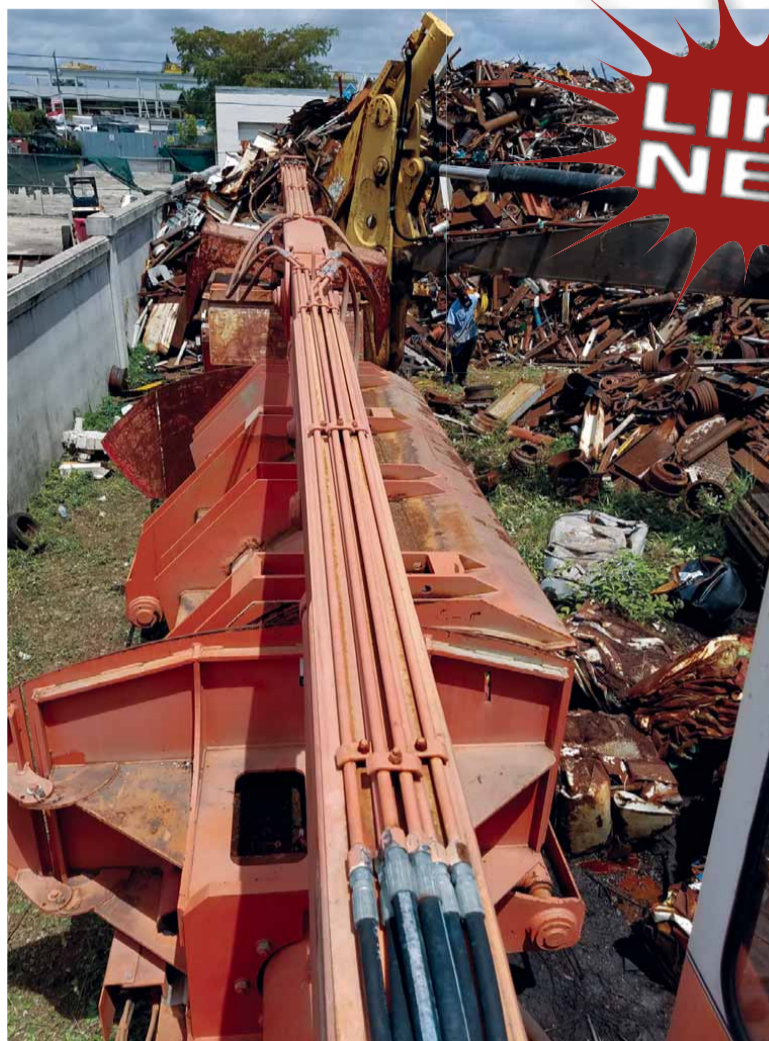
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METALS

Finished steel import market share at 26 percent

Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the U.S. imported a total of 3,315,000 net tons (NT) of steel in April 2017, including 2,496,000 net tons (NT) of finished steel (down 3.1 percent and 1.7 percent, respectively, vs. March final data). Year-to-date (YTD) through four months of 2017, total and finished steel imports are 12,270,000 and 9,444,000 NT, up 22.6 percent and 11.5 percent, respectively, vs. the same period in 2016.

Key finished steel products with significant import increases in April compared to March include oil country goods (up 30 percent), heavy structural shapes (up 23 percent), sheets and strip hot dipped galvanized (up 23 percent), hot rolled bars (up 20 percent), sheets and strip all other metallic coatings (up

U.S. IMPORTS OF FINISHED STEEL MILL PRODUCTS BY COUNTRY OF ORIGIN (Thousands of Net Tons)					
	APR 2017	MAR 2017	2016 Full Year	2017 Annualized	% Change 2017 Annual vs. 2016
SOUTH KOREA	320	317	3,812	3,628	-4.8%
TURKEY	183	298	2,416	2,951	22.2%
JAPAN	136	135	1,798	1,551	-13.7%
TAIWAN	118	91	1,083	1,271	17.3%
GERMANY	112	93	1,192	1,018	-14.6%
VIETNAM	34	70	960	851	-11.4%
CHINA	66	62	862	774	-10.2%
RUSSIA	133	41	310	750	142.0%
All Others	1,393	1,430	13,905	15,539	11.7%
TOTAL	2,496	2,538	26,338	28,332	7.6%

15 percent) and mechanical tubing (up 14 percent). Major products with significant YTD import increases vs. the same period last year include oil country

goods (up 210 percent), cold rolled sheets (up 40 percent), sheets and strip all other metallic coatings (up 39 percent), mechanical tubing (up 28 per-

cent), standard pipe (up 28 percent), sheets and strip hot dipped galvanized (up 26 percent), tin plate (up 25 percent) and line pipe (up 11 percent).

In April, the largest volumes of finished steel imports from offshore were from South Korea (320,000 NT, up 1 percent from March final), Turkey (183,000 NT, down 39 percent), Japan (136,000 NT, up 1 percent), Russia (133,000 NT, up 224 percent) and Taiwan (118,000 NT, up 30 percent). For the first four months of 2017, the largest offshore suppliers were South Korea (1,209,000 NT, down 2 percent vs. the same period in 2016), Turkey (984,000 NT, up 16 percent), Japan (517,000 NT, down 13 percent), Taiwan (424,000 NT, up 90 percent) and Germany (339,000 NT, down 6 percent).

Steel import permit applications increased in May

Based on the Commerce Department's most recent Steel Import Monitoring and Analysis (SIMA) data, the American Iron and Steel Institute (AISI) reported that steel import permit applications for the month of May totaled 3,598,000 net tons (NT). This was a 2.2 percent increase from the 3,519,000 permit tons recorded in April and a 7.4 percent increase from the April final imports total of 3,351,000 NT. Import permit tonnage for finished steel in May was 2,593,000, up 2.6 percent from the final imports total of 2,528,000 in April. For

the first five months of 2017 (including May SIMA permits and April final data), total and finished steel imports were 15,904,000 NT and 12,069,000 NT, up 23.4 percent and 14.3 percent, respectively, from the same period in 2016. The estimated finished steel import market share in May was 27 percent and is 26 percent year-to-date (YTD).

Finished steel imports with large increases in May permits vs. the April final included standard rail (up 119 percent), reinforcing bars (up 67 percent), cut lengths plates (up 40 percent), plates

in coils (up 30 percent), wire rods (up 28 percent), tin plate (up 25 percent), standard pipe (up 16 percent) and line pipe (up 12 percent). Products with significant year-to-date (YTD) increases vs. the same period in 2016 include oil country goods (up 233 percent), cold rolled sheets (up 37 percent), sheets and strip all other metallic coatings (up 36 percent), standard pipe (up 33 percent), mechanical tubing (up 29 percent), sheets and strip hot dipped galvanized (up 25 percent) and hot rolled bars (up 21 percent).

In May, the largest finished steel import permit applications for offshore countries were for South Korea (308,000 NT, down 4 percent from April final), Turkey (190,000 NT, up 2 percent), Germany (149,000 NT, up 33 percent), Japan (146,000 NT, up 2 percent) and Taiwan (93,000 NT, down 22 percent). Through the first five months of 2017, the largest offshore suppliers were South Korea (1,518,000 NT, down 5 percent from the same period in 2016), Turkey (1,178,000 NT, up 18 percent) and Japan (668,000 NT, down 6 percent).

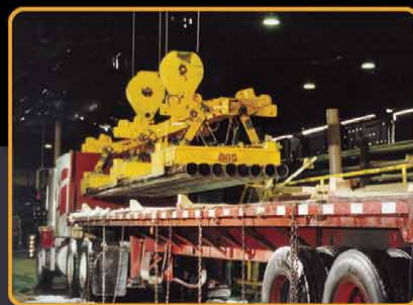
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METALS

CMI asks Trump administration to exclude tinplate from tariffs

Can Manufacturers Institute (CMI) executives told the U.S. Commerce Department that tinplate steel, the material used to make food cans, should be exempt from tariff and other restrictions because of the role it plays in the U.S. economy.

CMI president Robert Budway provided this perspective at the U.S. Department of Commerce Bureau of Industry and Security public hearing, where secretary of Commerce Wilbur Ross presided over the hearing investigating the effects of steel imports on U.S. National Security.

Tariff or trade restrictions will have severe economic impact on the can manufacturing industry and its employees. The dominant issue is that U.S. tinplate steel production does not meet domestic demand. In 2016, U.S. demand was 2.1 million tons, while domestic tinplate production was 1.2 million tons, which means that only 58 percent of domestic demand can be met by U.S. tinplate producers.

Tinplate steel is a unique type of steel that is specifically made for food cans. Approximately 2 percent of all steel is tinplate. In citing the U.S. Department of Commerce and the U.S. International Trade Commission, acknowledging this fact, Budway stated that a separate category of tinplate steel requires its own consideration as it is not used in any U.S. defense or national security applications.

There has been a noticeable decline in the quality of domestic tinplate. In Budway's statement, he said, "The rejection rates of domestically produced tinplate are approximately 300 percent to 500 percent higher versus foreign suppliers."

At the hearing, Budway noted that the steel cans manufacturing industry provides U.S. jobs that produce quality containers

for nutritious, affordable, accessible food. A tariff on tinplate steel would provide economic harm because the U.S. material would be insufficient and it would put food cans at a disadvantage versus competing packaging materials, such as plastic and glass, which are not subject to tariffs. Budway said, "Even a small increase in the price of raw materials would create a destructive competitive disadvantage, forcing possible closures of can manufacturing plants in the United States and negatively impacting the 10,000 workers. One could easily foresee where finished cans or even cans with food products made overseas could be imported at lower costs than U.S. produced cans."

Finally, the vast majority of steel cans are used for canned food, which offers an affordable solution in feeding the nation. Budway reminded the committee that access to affordable nutrition is vital for the 42 million Americans that live in food insecure households. Additionally, those on government food assistance, including the USDA Supplemental Nutrition Assistance Program (formerly known as food stamps), consume canned fruits and vegetables at an even higher rate than the average American, at a cost 20 percent less than fresh food. "Tariffs or any trade barriers would have harsh consequences for those less fortunate," said Budway, "and diminish the value of taxpayer-funded federal food assistance programs."

In conclusion, Budway said, "For all of these reasons, we ask that the Commerce Department keep American can manufacturing competitive and exclude tinplate products from this investigation or any future tariffs or actions against this important product."

SMDI presents Lifetime Achievement Awards

The Steel Market Development Institute (SMDI), a business unit of the American Iron and Steel Institute (AISI), presented Michael F. Engestrom (retired, Nucor-Yamato Steel) and Ronald P. Krupitzer (retired, SMDI) with SMDI Lifetime Achievement Awards for their lasting contributions to the steel construction and automotive markets, respectively. The awards were presented by AISI chairman John Ferriola, chairman, chief executive officer and president of Nucor Corporation, during the Institute's General Meeting in Washington, DC.

The SMDI Lifetime Achievement Award recognizes individuals who, over the course of their careers, have had significant impacts in advancing the competitive use of steel in the construction, automotive and packaging markets.

Michael Engestrom was a driving force behind advancing the competitive use of steel in the short span bridge market, defined as bridges up to 140 feet in length. He was a founder and the first chairman of the Short Span Steel Bridge Alliance (SSSBA), a group of bridge and buried soil steel structure industry leaders whose efforts delivered innovations such as the web-based design tool eSPAN140 and press-brake-formed steel tub girder technology. Engestrom's contributions were essential to the SSSBA's success in simplifying the design of

short span bridges, making them more economical to fabricate as well as easier and faster to install.

Engestrom also contributed technical and marketing expertise on several SMDI and AISI committees, including the Construction Sustainability Council and the Steel Industry Code Forum. He was technical marketing director at Nucor-Yamato Steel before his retirement.

Throughout his career in the steel and automotive industries, Ronald Krupitzer was involved in the development of advanced high-strength steels that increase the safety of vehicles while reducing their total weight, which is critical to enabling automotive manufacturers to reach stringent fuel efficiency standards.

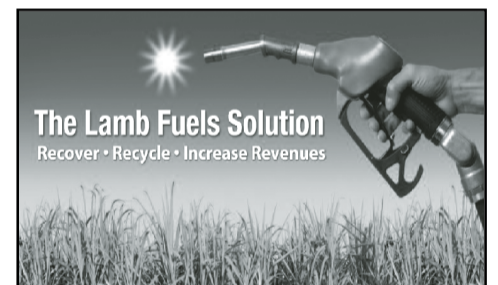
While vice president, automotive market at SMDI, he worked with North American steel producers and automotive manufacturers on research to incorporate advanced high-strength steel technologies in various automotive components and to provide technology transfer opportunities for automotive engineers and designers. His efforts were critical to introducing next-generation steel technologies to the automotive industry to help them meet safety and efficiency goals while ensuring the competitive use of steel.

DJJ's recycling facilities participate in safety events

The David J. Joseph Company (DJJ), in conjunction with Nucor Corporation, participated in OSHA's Safety + Sound Week, from June 12 - 18, 2017 and the Institute of Scrap Recycling Industries' (ISRI's) June 14 National Safety Stand-Down day.

Throughout the week of June 12, all DJJ recycling facilities conducted daily field based safety awareness meetings, which focused on three key measures needed to proactively identify and manage hazards before they cause an incident. These measures, which include teammate participation, safety leadership and an established system to find and fix hazards, are vital to incident prevention efforts. DJJ is committed to making our nation's roads safer and our "Forget the Phone" program discouraging texting while driving will also be highlighted during Safe + Sound Week.

DJJ supports such outreach initiatives that greatly enhance cooperation between OSHA, ISRI and employers to work toward the same goal: a safe and healthful workplace.



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Shredder Bundles (tin)	per gross ton	174.00	170.00	164.00	170.00	215.00
Crushed Auto Bodies	per gross ton	174.00	170.00	164.00	170.00	215.00
Steel Turnings	per gross ton	95.00	98.00	99.00	190.00	186.00
#1 Copper	per pound	2.34	2.28	2.41	2.32	2.48
#2 Copper	per pound	2.21	2.15	2.20	2.15	2.33
Aluminum Cans	per pound	.59	.59	.64	.62	.60
Auto Radiators	per pound	1.55	1.59	1.55	1.58	1.59
Aluminum Core Radiators	per pound	.63	.60	.54	.55	.61
Heater Cores	per pound	1.10	1.09	1.15	1.21	1.30
Stainless Steel	per pound	.55	.54	.57	.55	.56

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

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INDUSTRY PROFILE

A Closer Look

by Donna Currie

Cherry Companies

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Leonard Cherry, the owner of Cherry Companies, described the founding of the company in a very simple way – his parents started a house moving business in 1952 with their four sons. “I’m number two,” Cherry said. “We were all raised in the business.”

While house moving didn’t involve people’s household possessions – the company moved whole houses – Cherry noted that if people left possessions in the house, they were moved right along with it. One memorable move included a grandma who rode along on the porch during the move.

House moving wasn’t enough work, so “we looked for business opportunities for expansion.” Over the years, the company added more and more services including demolition and interior gut-outs. In the early 1990s, the company opened its environmental company that handled asbestos abatement.

In 1993, the industrial division opened, followed by concrete recycling. Cherry said that they always focused on ways to re-use or recycle everything, so nothing was wasted.

The expansions continued, adding more services like commercial demolition and industrial dismantling as well as new equipment, like a portable crusher. In 2001, they got involved in the stabilizer business, where concrete, aggregate and water are mixed to make a ground stabilizing mixture.

Now, the company no longer moves houses, and instead focuses on recycling materials like concrete, asphalt, tires, aggregate and metal while they continue with crushing, dismantling and demolition.

Cherry said that “it’s been a natural progression” from one business and one material to the next. “We were recycling before it became a buzzword,” he said. Looking towards the future, he said the company will continue doing the things they’ve always done, asking “what’s the long term plan?” and moving the company into the third generation of ownership.

“We continue to look for business opportunities that connect with what we do,” Cherry said. Expansion is likely to be about new products and industries, rather than geographically, since he said that recycling tends to be “regional and not national.”

That philosophy has worked well. “Our business has grown every year for the past 22 years, except 2008,” Cherry said. He expects an eight percent growth rate for this year by “expansion of output rather than the newest widget.”

Although Cherry wants to recycle every bit of material, he said that landfill disposal fees can affect customers’ interest in recycling. However, “we will continue to add items we can recycle at a profit.” And that’s the key. “If it costs \$5 to put it in a hole or \$8 to recycle, what are you going to do?” he said.

The company remains a family business, with two brothers-in-law, two sons-in-law, and one aunt working. But that doesn’t mean that it’s a free ride for family members. “Family will get you hired, but it will not prevent you from getting fired,” he said.

While it’s still a family company, it’s no longer small. As Cherry said, it started with “Mom, dad, and we 4 boys, and we were the crew,” and now the company has 300 employees, 3 portable recycling plants, 5 permanent recycling facilities, and 10 pug mills. Cherry said that they’re the largest recycler in the state of Texas and one of the top 10 demolition companies in the country.

The demolition work provides raw material for the stabilizing material the company sells, but that’s not enough for their needs so they buy about half of the raw materials from their competitors in the demolition industry. The finished material is sold for pipe bedding, for road grading and temporary roads, and for construction sites.

Recycled aggregate, another important part of the business, has the same specs as new material, Cherry said. They sell eight different types of aggregate material along with two types of recycled asphalt.

Cherry said that the good thing about the recycling industry is that it converts a waste stream into a commodity that can be sold. In his market, he can afford to pay for asphalt and concrete, while he accepts roofing shingles for free – which is still better than paying to have them landfilled.

Sometimes it’s not enough to be able to recycle the materials, though – there has to be a willing market for them. Cherry said that right now recycled asphalt products can be a tough sell because oil prices are relatively low, so the company is working on establishing new markets for the materials.

“I love my job,” Cherry said. “I love the interaction with co-workers while we try to solve a new problem or find a new market. I like the people and I like the challenge.”

He also credits the employees for the company’s success. “Our business model has exceeded everything beyond my wildest expectations,” Cherry said. “Primarily because of our employees.”



—Leonard Cherry

PAPER

Using robotics helps recycle consumer cartons

Contributed by DERRIC BROWN

When consumers think of recycling, an image of the chasing arrows and the 1970s “reduce, reuse, recycle” slogan might come to mind. Those of us in the industry know that technology has played an important role in the evolution of recycling, so it was just a matter of time before robots got involved.

That’s right. Robots have started sorting food and beverage cartons at recycling facilities.

Cartons are one of the most sustainable, in-demand packages available, made mainly from paper, a renewable resource from well-managed forests. Aseptic cartons (or shelf stable) contain on average 74 percent paper, 22 percent polyethylene and 4 percent aluminum. Gable top (or refrigerated) cartons contain about 80 percent paper and 20 percent polyethylene.

Cartons have a low carbon footprint, as well as a low package-to-product ratio at 94 percent product and just 6 percent packaging. This helps companies ensure they are using the least amount of materials possible, helping to preserve Earth’s resources. No longer used just for milk and juice products, companies are packaging soup, water, nutritional shakes, broth, cream, wine and even tomatoes and beans in cartons.

Recognizing the growth in cartons’ popularity in the U.S., the next step was to make sure they could be readily recycled. That’s why the Carton Council of North America formed in 2009: to help reduce the number of cartons going to landfills and build an infrastructure for recycling them via local recycling programs. Funded by carton manufacturers Elopak, SIG Combibloc, Evergreen Packaging and Tetra Pak, and associate member, Nippon Dynawave, the group promotes recycling technology and works with local collection programs, including this pilot program that utilizes robots to sort cartons.

A lot of progress has been made. Earlier this year, cartons reached the 60 percent household access threshold. This means that more than 70.7 million households in 12,800 communities can recycle their cartons via curbside and drop-off locations across the United States, and cartons can now carry the standard “Please Recycle” logo per the Federal Trade Commission Green Guidelines.

Robotics and Recycling

The Carton Council of North America wanted to explore new, innovative

solutions for sorting cartons once they arrived at materials recovery facilities (MRFs). In March, they announced a partnership with AMP Robotics and Alpine Waste & Recycling for a pilot program that uses artificial intelligence to improve the efficiency and effectiveness of carton recycling.

A robotic system with spider-like arms and specially designed grippers has learned to identify the various food and beverage cartons to grab and separate them from the recycling stream. Nicknamed “Clarke” after the sci-fi author and futurist Sir Arthur Charles Clarke, the system uses an optical scanning system to recognize thousands of images of cartons, including their logos and artwork.

Installed in late 2016, Clarke has achieved a pickup rate of 60 cartons per minute, a considerable increase from the human average of 40 picks per minute. It can operate around the clock without interruption and requires little maintenance, allowing MRFs to process a steady flow of the valuable carton material.

Clarke’s accuracy is constantly evolving as he learns to recognize more kinds of food and beverage packages. One of the major benefits to the system is that everything Clarke learns is transferable to robots at other MRFs.

The robot can be added to existing recycling facilities at other MRFs and takes up little space. The systems are available for sale or lease, and are believed to pay for themselves after one or two years. The robot should be a cost-effective alternative to other methods for sorting and separating recyclable materials.

While Clarke is great news for the carton industry, it also presents major opportunities for the recycling industry. Not only can these systems be trained to pick out other recyclables that don’t always represent large volume in the recycling stream, but unique grippers can be developed to identify and pick contaminants, which is one of the biggest issues the recycling industry faces today.

Ultimately, the advances in carton recycling robotics will help to achieve a goal that should be top of mind for everyone: ensuring the least amount of materials possible end up in landfills.

Derric Brown is vice president of sustainability for the Carton Council of North America.

AF&PA releases updated paper reports

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

Containerboard

Containerboard production was 4.8 percent higher compared to April 2016. The month-over-month average daily production compared to March 2017 was 2.7 percent higher.

The containerboard operating rate for April increased from 96.7 percent to 97.1 percent, which was 1.9 percent higher compared to April of last year.

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ALTERNATIVE ENERGY

**Mercedes-Benz Energy
and Vivint Solar team up**

Mercedes-Benz Energy and Vivint Solar disclosed an exclusive strategic collaboration to bring the Mercedes-Benz customizable home energy storage system to the U.S.

The two companies will introduce a joint offering that will provide customers with the German engineering and performance of Mercedes-Benz batteries coupled with Vivint Solar's expertise in designing, installing and servicing solar energy systems.

For Vivint Solar, which has a proven track record of installing solar energy systems in more than 100,000 homes across the U.S., this is the first collaboration to integrate batteries with its offering. This will also be Mercedes-Benz Energy's first collaboration with a U.S. solar provider, bringing its high-performance, road-tested technology for home use to the residential battery market. These storage systems are made to Mercedes-Benz quality standards and based on the same automotive-grade battery technology used in its electric and hybrid vehicles.

"As Mercedes-Benz electrifies its vehicle fleet, solar plus storage is essential to enable those vehicles to be powered by clean energy," said Boris von Bormann, chief executive officer of Mercedes-Benz Energy Americas, LLC. "With batteries featuring the best in automotive engineering from Mercedes-Benz, and high-quality solar energy systems from Vivint Solar, our solution allows customers to take the

next step toward a sustainable energy future. The launch of our home battery system in Europe has been successful."

With energy storage to complement rooftop solar, Vivint Solar customers will be able to have more control over the renewable energy they generate. In addition to providing a backup power source if the grid goes down, the new combined solution may help customers reduce energy costs. For instance, in areas with time-of-use electricity rates, customers can store excess solar energy produced by the system during the day in the batteries and then consume it during periods of peak energy usage in the evening and at night when electricity rates are typically higher.

Each energy storage system will consist of modular 2.5 kWh batteries that can be combined to create a system as large as 20 kWh, making it easy to scale and tailor energy storage systems to individual customer profiles. Vivint Solar will customize each system based on the customer's individual energy consumption needs, providing consumers with an important tool to help them manage their energy costs while utilizing clean energy.

California is the first U.S. market where Vivint Solar will offer this solution directly to homeowners. Beginning in Q2, new customers in California will be able to buy the offering outright or finance the purchase, either through one of the institutions Vivint Solar has relationships with or their preferred lender.



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BUSINESS BRIEFS

Nucor to pay 177th consecutive cash dividend

■ The board of directors of Nucor Corporation declared the regular quarterly cash dividend of \$0.3775 per share on Nucor's common stock.

This cash dividend is payable on August 11, 2017 to stockholders of record on June 30, 2017, and is Nucor's 177th consecutive quarterly cash dividend.

Bunting Magnetics adds to international sales team

■ Bunting® Magnetics Co., a leader in moving, removing and holding metal through a line of metal detection and magnetic separation equipment, has appointed David Bocanegra as its newest member of the international sales team supporting existing customers and generating sales throughout Mexico. Bocanegra joins Bunting Magnetics with 10 years of sales and engineering experience. Bocanegra's focus will be face-to-face customer contact, training distributors and providing on-site customer support and advice on solving metal contamination problems.

Based in Querétaro, Mexico, Bocanegra will be responsible for selling the complete line of Bunting products including magnetic separation, metal detection and recycling equipment throughout Mexico.

After studying robotics engineering in Mexico City, Bocanegra spent 10 years in the automation industry in engineering and quality. Prior to joining Bunting Magnetics, Bocanegra held a senior sales position for a multinational corporation focused in the packaging industry.

UNTHA America adds to sales engineer to staff

■ Untha shredding technology America, Inc. continues to grow and has added another member to its staff. Located in Hampton, New Hampshire, Untha America is a division of the Austrian based Untha shredding technology GmbH, providers of size reduction equipment for the recycling industry.

Joining the U.S. team is Kenneth Tran as a sales engineer. Tran will service clients throughout the U.S. and Canada, and will specialize in those involved in the recycling of plastics. He will primarily be based at Untha's Nashville, Tennessee office, but will also work out of the Hampton headquarters.

Tran has an extensive background in recycling sales, especially in the area of equipment for recycling plastics. He notes that there is an extensive need for recycling equipment that can handle plastics in a multitude of industries.

ALLU Group welcomes new territory manager

■ ALLU Inc., based in Teterboro, New Jersey, named Scott Stogsdill as its new territory sales manager for the western U.S. He will be responsible for working with ALLU's dealers in the Western U.S., as well as field sales activities.

Stogsdill brings decades of construction and technology sales experience to ALLU. Prior to joining the company, he served four years as sales manager, western U.S. and Mexico, for Sandvik Mining & Rock Technology's Conveyor Products Division.

Seth Myones joins GBB as special principal associate

■ Gershman, Brickner & Bratton, Inc. (GBB) disclosed that Seth Myones has joined the firm as special principal associate – financial advisory services. He has over 30 years of experience in the waste and environmental services, industrial services and waste-to-energy with in-depth strategic, commercial, operational, and technical expertise.

Myones is a progressive, integrity-driven senior executive with extensive execution experience and skill in establishing and heading world-class business and operations, both domestically and globally, and expertise in project & debt financing and restructuring. He also has a strong history in profit & loss leadership roles and in significantly growing enterprise value by improving revenues and operating margins through greenfield, organic growth, and mergers and acquisitions business development activities as well as tightly managing operating costs including instituting process and continuous improvement initiatives and organizational restructurings.

Myones recently served as an operating advisor at Pegasus Capital Advisors, a private equity firm, on its recycling and environmental services portfolio companies and related industry opportunities. He was previously employed by Covanta Energy Corporation for more than 25 years in profit & loss leadership roles and was a member of the senior executive team for over 15 years, with roles as chief operating officer, president – Covanta Americas, and senior vice president of business.

Timken board elects Harrell as a director

■ The Timken Company board of directors has elected Elizabeth A. "Ann" Harrell a director of the company, effective August 1, 2017, for a term that expires at its May 2018 annual meeting. The election will bring The Timken Company board to 12 members.

Harrell is a retired major general, serving more than 30 years with the U.S. Air Force. During her military career, Harrell held a wide range of positions in the U.S., Germany and South Korea specializing in aircraft fleet maintenance and sustainment. As the director of maintenance and logistics stationed at Langley Air Force Base, Virginia, she was influential in the planning and execution for F-22 and F-35 platforms and worked closely with manufacturers in the civilian sector to develop airframes, engines and components for aircrafts.

Harrell is a member of the Advisory Board for the Museum of the United States Air Force and has also served on the General Electric Corporation Senior Advisory Committee for its Internal Veterans' Network.

She holds a bachelor's degree in history from Emory University and a master's degree in human resource management from Troy State University. Harrell is also a distinguished graduate of the Squadron Officer School at Maxwell Air Force Base, Alabama.

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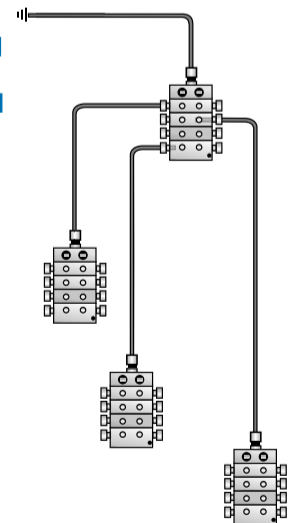
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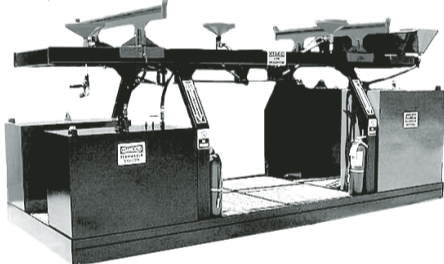
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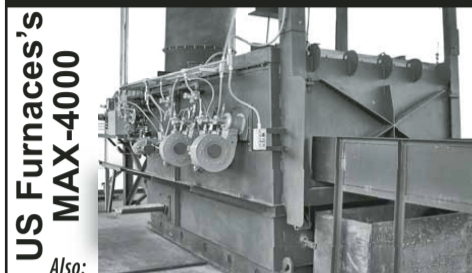
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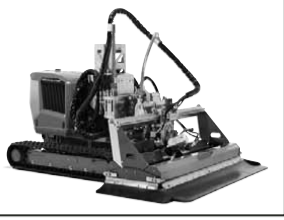
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BUSINESS BRIEFS

Titanium shifts company's management team

■ Titanium Corporation Inc. announced that Dr. Kevin Moran, executive vice president and chief technology officer (CTO) was promoted to the role of executive vice president & chief technology officer. In this role, Dr. Moran will be responsible for developing the company's technology, focusing where he can create the greatest value for customers and shareholders. He oversees the company's technology development initiatives, IP programs and works closely with our customers, planning emerging projects at oil sands sites.

Dr. Moran previously served as the company's vice president, process development, where he was instrumental in the creation of Titanium's industry leading CVW™ technologies, designed to recover valuable commodities from oil sands tailings and reduce environmental impacts. Prior to joining Titanium, Dr. Moran held senior research positions with Syncrude Canada.

Niel Erasmus, vice president, mineral sands has re-joined the company in the newly created position of vice president, mineral sands, where he will be responsible for the engineering, construction, staffing and operations of mineral sands facilities.

Erasmus will work closely with oil sands customers and engineering firms to ensure the optimal recovery of valuable minerals from oil sands tailings and maximize value for customers and our Company. A professional engineer and metallurgist, Erasmus brings extensive experience in both the oil sands and mineral sands industries. He most recently served as an oilsands project manager for an international engineering firm and previously led Titanium's technology development and piloting programs. Erasmus started his career in the mineral sands industry in South Africa, where he held increasingly responsible technical and management positions with a major minerals sands producer.

Oppermann joins Stellar as assistant product manager

■ Adam Oppermann has joined the Stellar team after spending the last seven years as a customer success manager at AGDATA in Mason City. While there he was responsible for managing various projects that aligned with company initiatives and customer implementations. He has a Bachelor of Arts in Marketing from the University of Northern Iowa and is currently pursuing his Masters of Business Administration, also from UNI.

As the newest member of the product management team, Oppermann will be instrumental in helping plan, organize and control new product development from conceptual stage thru the product life cycle to optimize profits and meet the Stellar marketing, financial and corporate growth objectives.

River City Hydraulics named Dealer of the Year

■ Petersen Industries, Inc., a waste and recycling industry's knuckleboom manufacturer, recently honored River City Hydraulics as their 2016 Dealer of the Year. Petersen gives this prestigious award to the dealer who sells the most Lightning Loader® units for the prior year throughout their nationwide network.

Company owners, Casey Hardee and Sam Petersen, presented River City Hydraulics', regional sales managers, Roger Williams and Jamie McCoy, with a personalized trophy and an Authorized Dealer Petersen Industries' logo sign at the recent Waste Expo in New Orleans, Louisiana. River City Hydraulics was previously awarded Dealer of the Year in 2014.

Eriez vice president to serve on MANA board

■ Charlie Ingram, Eriez vice president of sales and marketing, has been named to the board of directors of the Manufacturers' Agents National Association (MANA). According to MANA president Charley Cohen, Ingram is the first manufacturer to serve on the MANA board since its founding in 1947.

Eriez has been a MANA member since 1990. Ingram joined Eriez in 1994 after serving as manager of international marketing at Chicago Pneumatic Tool and also as general manager of Chicago Pneumatic Tool's Canadian affiliate. Ingram has been Eriez' lead company representative for MANA since 1994.

In his time with MANA, Ingram has served as a presenter and panelist for MANA at events such as Keystone, MANAFest, Teleforums and Manufacturer Seminar. He has also written numerous articles for MANA's Agency Sales magazine. In 2013 he launched a one-year Eriez-sponsored membership to MANA for all Eriez representatives.

Travis Body adds Florida Utility Trailers as dealer

■ Travis Body & Trailer, Houston has added Florida Utility Trailers, Inc. to its network in North America.

Florida Utility Trailers, Inc., Apopka, Florida, is a Travis Trailer dealer representing the full Travis Trailer product line. Florida Utility Trailers has been central and south Florida's complete semi-trailer dealership for 30 years. The company serves customers from its four locations in Orlando, Lakeland, Tampa and Miami.

The new dealership brings the total number of Travis dealerships and locations to 43 and 102, respectively.

Wife: "There's trouble with the car. It has water in the carburetor."

Husband: "Water in the carburetor? That's ridiculous. You don't even know where the carburetor is! Where is the car right now?"

Wife: "In the pool."

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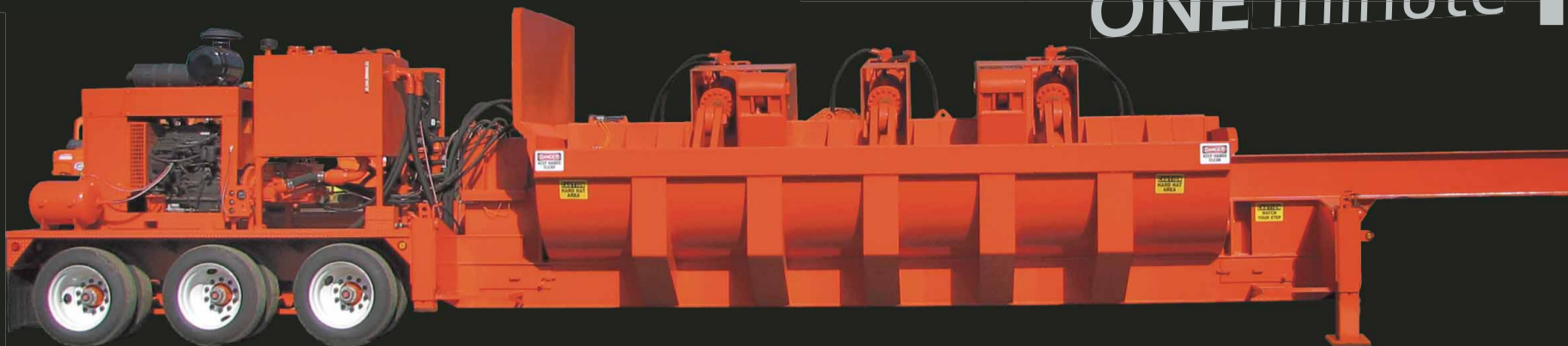
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Future challenges for auto recycling processes

by MAURA KELLER

mkeller@americanrecycler.com

As the automotive manufacturing industry continually advances, so too do the types of materials being used in the construction of vehicles. At the recent 17th International Automobile Recycling Congress (IARC) held in Berlin, Germany in March, focus was put on the new materials being used in today's automobiles and how the increased amount of mixed-used plastics may pose challenges to recyclers and dismantlers of end-of-life vehicle.

The increase use of plastics and plastic composites, including carbon fiber-reinforced plastics (CFRPs) is the goal to make cars lighter and thus more fuel efficient.

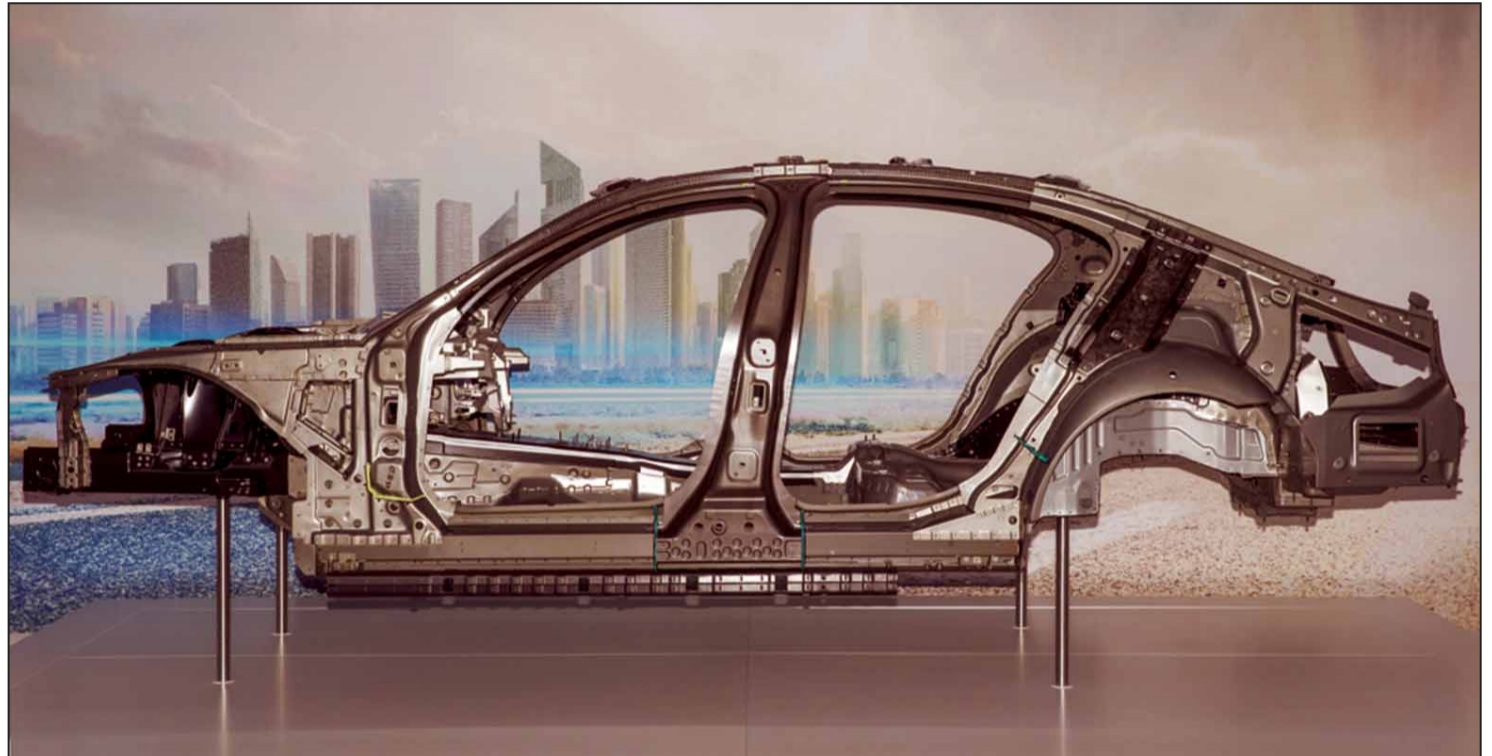
In today's automobiles, plastics can be found throughout the vehicle. From windows to taillights, from fuel lines to braking systems, plastic components are readily used in all aspects of vehicle production. Plastics can even be found in lithium polymer car batteries that power some hybrid and electric vehicles.

According to a study by the United Nations Environment Programme, vehicle manufacturing is the most environmentally damaging human activity. Increasingly, original equipment manufacturers (OEMs) are recognizing resource intensive manufacturing processes are not only hard on wallets but also on the planet.

The latest trends in automotive manufacturing and the changing composition of materials, such as an increased use of mixed plastics and carbon fibers are predicted to pose challenges for end-of-life vehicle dismantlers.

As Diran Apelian, Alcoa-Howmet Professor of Mechanical Engineering at Worcester Polytechnic Institute, and the founding director of WPI's Metal Processing Institute, explained, the concept of circular economy is catching on in that manufacturers are addressing the recovery and reuse of materials.

"Manufacturing with the 'end of life' in mind has changed the way we



BMW's 7 Series auto incorporates a carbon-fiber door sill which keeps the car from bowing inward on side impact.

design and manufacture," Apelian said. "Being able to disassemble products at end of life is becoming more and more important. There are some products that are difficult to disassemble, recover and reuse."

Bill McDonough, one of the authors of the book *Cradle to Cradle*, called such products: "hybrid monsters."

"It is our aim to move away from such hybrid monsters and to simplify the way we make things so that they can be reused," Apelian said. "For example, Kevlar and carbon fiber composites are difficult to recover and reuse, whereas aluminum is so easy. A good example is the Ford F150 truck, which has an all-aluminum body."

Presently autos are shredded and broken down into two main products: ferrous and nonferrous. Apelian pointed out that this may be too simplistic, and in the future we will need to carry out intelligent sorting to recover certain materials that may be included in the ferrous or in the nonferrous batch that need to be recovered.

"A good example is the rare earth

elements that are present in magnets which end up in the ferrous batch when the cars are shredded," Apelian said. "We are finding that the rare earth metal is ending up in the slag in steel-making, which is most inefficient. So in brief, intelligent sorting technologies are being developed, and more will be developed in the near future."

According to Michael Bassipour, president and partner at GLR Advanced Recycling, like in any business, if you don't adapt to your elements you will not survive. That's why automotive recyclers need to be aware of the mixed-use materials being used in today's vehicles so they are readily prepared when these automobiles are ready to dismantle.

"As of today, the increased use of plastics and carbon fibers have had little to no impact on us," Bassipour said. "We are buying primarily older vehicles, so new materials aren't relevant and won't be for at least five to ten years for our business."

New markets will inevitably emerge and more sophisticated ways of recycling will always be presented."

Modified Processes

In addition to the types of mixed-used materials being used in today's autos, OEMs are also using modified production processes that will also play a role in the eventually recycling of these vehicles.

David Schroeder, director, national accounts, Covanta Environmental Solutions, said the global auto industry is a major consumer of water and we are currently seeing a growing shift towards energy savings and water conservation.

"Look at the painting process, for example, it is both extremely water-intensive and the most expensive component of the automotive assembly plant to build, operate and maintain," Schroeder said. "It's also the largest non-hazardous waste stream at facilities."

As such, we are seeing new technologies enter the paint shop that reduce environmental impact by removing paint particles from the air without the need for chemicals, water or other additives. These paint particles

See CHALLENGES, Page B6

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Canadian companies receive \$11.5 million to develop technology for cars of the future

Up to 80 automotive sector jobs will be created in British Columbia, Ontario and Quebec as a result of a Government of Canada investment.

The funding of up to \$11.5 million for six new projects will support the development of lighter, more fuel-efficient cars that produce less air pollution and emit fewer greenhouse gases that cause climate change.

Minister Bains made the announcement at Datec Coating Corporation in Mississauga, Ontario. Datec, which supplies heating solutions to the automotive sector, will receive a contribution of up to \$1.3 million to develop technologies that will improve heating management systems for vehicle cabins, lithium-ion batteries and engine fluids. These technologies will maximize the performance of electric and hybrid cars and make them more fuel efficient.

The other companies receiving funding are:

•Tyromer Inc. in Windsor, Ontario (up to \$3.4 million), which is using recycled scrap rubber to seal car windows and doors.

•Eurospec Manufacturing Inc. in Newmarket, Ontario (up to \$1.7 million), which is developing a best-in-class automotive seat adjustment mechanism.

•Loop Energy Inc. in Burnaby, British Columbia (up to \$787,000), which is developing a fuel cell that will generate more power.

•TM4 Inc. in Boucherville, Quebec (up to \$4 million), which is developing a low cost, high performance electric engine for light trucks.

•Advanced Technology Emission Solutions Inc. in Hamilton, Ontario (up to \$272,000), which is developing a catalytic converter to reduce greenhouse gas emissions from car tailpipes.

The funding is being allocated through the Automotive Supplier Innovation Program, which supports research and development activities by companies that provide components, parts and production systems for the cars of the future. This investment is part of the Government of Canada's Innovation and Skills Plan, which aims to make this country a global center for innovation.

"If Canada is to succeed in making the cars of the future, we must embrace greener, more sustainable technologies. The advanced research and development projects that give rise to these technologies create the well-paying middle-class jobs of the future and challenge today's auto workers to enhance their skill set. By having a workforce with skills that are in demand and the technologies that will shape the future of the industry, Canada's auto sector can secure its place in the global supply chain of tomorrow," said Navdeep Bains, minister of innovation, science and economic development.

•The automotive sector is one of Canada's largest manufacturing industries, producing more than 2 million vehicles a year. That translates to roughly 1 car being manufactured every 14 seconds.

•The auto sector employs more than 500,000 Canadians directly and indirectly. The sector creates more spinoff jobs than any other. For every job created on an automotive assembly line, six jobs are created in various other sectors of Canada's economy. This sector contributes \$18 billion to the Canadian economy.

Ford appoints new CEO

Jim Hackett was named as Ford Motor Company president and chief executive officer, succeeding Mark Fields, who is retiring. Hackett, who will report to executive chairman Bill Ford, is recognized as a transformational business leader.

Hackett led Steelcase Inc.'s turnaround to become the world's No. 1 office furniture maker, served as interim Athletic director at University of Michigan and has led Ford Smart Mobility LLC since March 2016. He served on Ford's board from 2013 to 2016.

Ford also named leaders to three new roles under Hackett. Jim Farley is appointed executive vice president and president, Global Markets, Joe Hinrichs is appointed executive vice president and president, global operations, and Marcy Klevorn is appointed executive vice president and president, mobility.

Mark Truby is appointed vice president, communications, and elected a company officer. He succeeds Ray Day, who plans to retire from the company next year and will provide consulting services until then.

Paul Ballew is appointed vice president and chief data and analytics officer.

Volvo receives steel award

The Steel Market Development Institute (SMDI), a business unit of the American Iron and Steel Institute (AIS), honored the Volvo Car Corporation body structure team with its Automotive Excellence Award for its advanced high-strength steel (AHSS) innovations in the 2016 Volvo XC90.

Henric Lindberg, system attribute leader - body structure at Volvo, received the award for his presentation, "Advanced High-Strength Steel Technologies in the 2016 Volvo XC90."

Volvo created a new generation architecture for the XC90, the Scalable Product Architecture, which achieved a stiffer, stronger, larger and lighter body structure to optimize driving performance through extensive use of AHSS. This achievement earned the vehicle a

Top Safety Pick by the Insurance Institute for Highway Safety (IIHS) in 2015 as well as North American Truck of the Year in 2016.

The SMDI Automotive Excellence Award is presented each year. Individuals or teams from automakers, suppliers or the academic community who embrace innovation and make significant contributions to the advancement of steel in the automotive market are recognized for their innovation. Award winners are chosen from presenters at the previous year's GDIS seminar. Candidates are rated in several categories, including: challenges and benefits associated with cost, mass reduction and performance; overall contribution to the advancement of steel; and implementation in production.

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GM produces first round of self-driving test vehicles

General Motors has completed production of 130 Chevrolet Bolt EV test vehicles equipped with its next generation of self-driving technology at its Orion Assembly Plant located in Orion Township, Michigan. The vehicles will join the more than 50 self-driving Bolt EVs already deployed in testing fleets in San Francisco; Scottsdale, Arizona; and metro Detroit.

"This production milestone brings us one step closer to making our vision of personal mobility a reality," said GM chairman and chief executive officer Mary Barra. "Expansion of our real-world test fleet will help ensure that our self-driving vehicles meet the same strict standards for safety and quality that we build into all of our vehicles."

GM became the first company to assemble self-driving test vehicles in a mass production facility when its next generation of self-driving Chevrolet Bolt EV test vehicles began rolling off of the line in January.

The self-driving Chevrolet Bolt EVs feature GM's latest array of equipment, including LIDAR, cameras, sensors and other hardware designed to accelerate development of a safe and reliable fully autonomous vehicle.

"To achieve what we want from self-driving cars, we must deploy them at scale," said Cruise Automation chief executive officer Kyle Vogt. "By developing the next-generation self-driving platform in San Francisco and manufacturing these cars in Michigan, we are creating the safest and most consistent conditions to bring our cars to the most challenging urban roads that we can find."

GM and Cruise Automation engineers have been testing Chevrolet Bolt EVs equipped with self-driving technology on public roads in San Francisco and Scottsdale, Arizona, since June 2016 and on public roads in Warren, Michigan, since January 2017.

Honda targets intro of level 4 automated driving capability

Honda is targeting the year 2025 for the introduction of vehicles with highly automated driving capability in most driving situations (SAE Level 4). This new goal builds upon earlier-announced plans for Honda and Acura vehicles to have highly-automated freeway driving capability (SAE Level 3) by 2020. These are critical steps in Honda's commitment to contribute to a collision-free society.

The announcement was made by Honda Motor Co., Ltd. president & chief executive officer Takahiro Hachigo at a media briefing held at Honda R&D Co., Ltd. in Japan, where media were able to test drive Honda automated vehicle technologies in several complex driving scenarios, including systems with advanced artificial intelligence (AI).

The freeway driving test-drive demonstration was conducted on a closed test course using a vehicle equipped with an advanced suite of sensors, showing the capability for automated driving system utilization on a multi-lane freeway in the presence of traffic. The test vehicle utilizes an advanced sensor package which includes multiple cameras, as well as five LiDAR and five radar sensors.

The SAE defines automated driving based on six levels of capability, from zero to five. SAE Level 4 or "high automation" means the vehicle can handle all driving tasks in most driving

situations, with possible exceptions including inclement weather conditions or unusual driving environments, where the driver would be required to resume control.

Honda is rapidly advancing its deployment of advanced safety and driver-assistive technologies in Honda and Acura vehicles on the road, through its Honda Sensing® and AcuraWatch™ suite of features, which serve as both a perceptual and technological bridge to the highly-automated vehicles the future. Nearly a half-million Honda and Acura vehicles on U.S. roads today are equipped with these technologies, which include autonomous emergency braking via the Collision Mitigation Braking System, Lane Keeping Assist, Road Departure Mitigation and Adaptive Cruise Control.

Honda Sensing was first introduced on the 2015 Honda CR-V and has since been applied to the Honda Civic, Pilot SUV, Ridgeline pickup and just-launched 2018 Odyssey minivan. AcuraWatch was first introduced on the 2015 Acura RL Sedan and is now available on the RDX five passenger SUV and standard on the MDX three row SUV and 2018 Acura TLX sedan.

Today, approximately one-third of new Honda models sold are equipped with Honda Sensing, while upwards of 70 percent of Acura sales are of vehicles equipped with AcuraWatch.

My 10 month old was sitting in her high chair, twisting and moving all over the place. My wife said to me, "Straighten her up."

I looked at my daughter and said, "What are you doing with your life? Do

you want to be this way forever? It's time to grow up."

My wife hasn't asked me to do anything since.

Supreme Court decision delivers major victory for auto aftermarket

In a major victory for the auto care industry, the Supreme Court upheld the legal precedent of patent exhaustion, which states that a company's right to protect its patent ends when the product is sold to the end user. Information from an amicus brief submitted to the Supreme Court by the Auto Care Association was used by Chief Justice John G. Roberts Jr. in reversing the Federal Circuit decision that would have been damaging to the manufacture and sales of aftermarket parts.

The case, Impression Products, Inc. v. Lexmark International, Inc., involved the ability of Lexmark to restrict purchasers from reusing their printer cartridges or providing the used cartridges to anyone other than Lexmark. The Federal Circuit case determined patent holders can retain rights after sale as long as the restrictions on use are clearly communicated.

"While the case applied to printer cartridges, the impact of the Federal Circuit decision would have been extensive, restricting the ability of companies to produce and sell aftermarket and remanufactured parts based on the fear of violating a car company's patent," said Bill Hanvey, president and chief executive officer, Auto Care Association.

If upheld, the Federal Circuit decision would have provided patent holders with extensive power over how consumers repair and maintain the vehicles

that they own. Understanding this impact, Chief Justice Roberts used the following analogy in the Supreme Court ruling:

"Take a shop that restores and sells used cars. The business works because the shop can rest assured that, so long as those bringing in the cars own them, the shop is free to repair and resell those vehicles. That smooth flow of commerce would sputter if companies that make the thousands of parts that go into a vehicle could keep their patent rights after the first sale. Those companies might, for instance, restrict resale rights and sue the shop owner for patent infringement. And even if they refrained from imposing such restrictions, the very threat of patent liability would force the shop to invest in efforts to protect itself from hidden lawsuits. Either way, extending the patent rights beyond the first sale would clog the channels of commerce, with little benefit from the extra control that the patentees retain. And advances in technology, along with increasingly complex supply chains, magnify the problem."

"This important decision is clearly a victory for the consumer and for the independent auto care industry, which provides motorists with an affordable, convenient and effective alternative to the vehicle manufacturers' parts and service network," said Hanvey.

Cunningham Brothers recognized as supplier of the year

Cunningham Brothers Auto Parts was recently named a GM Supplier of the Year by General Motors. Cunningham Brothers Auto Parts located in Rustburg, Virginia and they have been members of ARA for over 25 years. This is the second time Cunningham Brothers has received the award.

"Benny along with his brothers Jimmie and Danny have been strong supporters of ARA for years," said Michael E. Wilson, chief executive officer of the Automotive Recyclers Association. "We are proud to have them as members of ARA, they are truly among the best in the professional automotive recycling industry."

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EQUIPMENT SPOTLIGHT

Auto Loggers, Crushers & Balers

by MARY M. COX

maryc@americanrecycler.com

Because efficiency in operations increases the bottom line, auto recyclers have been using car balers, crushers and loggers for decades, to optimize the space required for processing of inventory and for the transport of recycled vehicles.



Iron Ax

Iron Ax manufactures a 20' and a 16' baler. Both units can be equipped with a crane but standard build for inventory consists of a 20' baler with no crane. "If a customer wants a baler with a crane we can certainly accommodate them. Our machines are heavy duty and built to last. They all feature remote control and automatic cycle and our balers offer a high speed baling cycle – it is approximately one minute long. Baler hydraulic pressure can be adjusted at the touch of a button. The benefit of having adjustable pressure is that you can make either a tight or a loose bale with our machine. Set up time for our baler is minimal. Our unit is designed to increase production and efficiency all the way around. After the baler is unhooked from the truck and the outriggers have been lowered, the machine is ready to process. Set-up only takes a matter of minutes," explained John Kitchens, vice president.

He said that Iron Ax owns and operates six scrap yards in the state of Georgia and the firm has been in the scrap business for almost 50 years. He added, "Over 25 years ago, we started making products for our own use in our scrap operation. It was a natural transition to introduce our products in the marketplace. We know the scrap industry because we are in the same industry as our customers. We know what they need to get the job done, and it gives us a unique perspective

that our customers seem to really appreciate."

Kitchens said their product is popular for a number of reasons. "One reason is the fact that our company is stable. We have had the same ownership since day one. When customers call they are talking to the same staff they have been talking to for over 20 years. When it comes to service, our customers know that we are there for them."

Iron Ax has seen baler sales continue to improve, year after year because yard owners realize the need for a baler. "With a car crusher you are limited to crushing cars. With a baler you can process cars, white goods, loose iron, etc. A baler is such a versatile machine that it can actually open up new streams of scrap. A lot of customers have discovered that they can now purchase more material or even different types of material than they could prior to getting a baler, because they are now able to process it with ease," said Kitchens.

According to Dave Van Vleet, sales manager, the portable E-Z Log Baler made by RM Johnson produces a bale in a fast, neat manner. After a fluid level check, it is ready to go and an operator can move the grapple crane up to 400°, reach out 23' and lift 2,000 lbs. The company offers three other logger models as well. By selecting the metal type and volume of each bundle, a user can produce log bales to fit the requirement of the desired market and the E-Z Log Baler can operate from the control platform. The unit can be

moved to the same location as the scrap that must be processed.

"Even expensive machines are worthless if the final product can't be shredded. Our innovative hydraulic compression sequence solves this problem. Once the loose scrap is loaded into the baling chamber, the E-Z Log Baler 'rolls' the scrap. An interwoven, low density bundle of about 35 lbs. per cubic foot is the result. Rolling the material, as opposed to mere compressing, produces a log that will stay together even when dropped. Yet the rolled logs remain loose and low density enough for a 1,500 hp shredder to easily process them," Van Vleet stated.

He claims the simple but unique design of the machine, with easily accessible components, aids trouble-free operation and servicing. He added, "Fewer moving parts and smaller hydraulic cylinders produce a better bundle at a lower processing cost than other loggers. All of the hydraulic cylinders are manufactured with high-grade seamless polished steel at our own factory. All E-Z Log Balers also use standard parts and components. Operating instructions are provided by our trained specialists



The RM Johnson Co., Inc.

and baler options include stationary or portable; diesel, gas or electric engines. Custom designs and specifications are also available.

"Sierra International Machinery is the highest production car logger in the world and our RB6000 car logger/baler has set the standard for production," Jose Pereyra, general sales manager, said. The RB6000 is a mobile machine which comes in two options: The original RB6000, a "big

brother" to the RB5000 car logger/baler, is mounted on a three-axle trailer which can be transported quickly and easily from site to site. The RB6000-SL is an alternate self-loading version of the standard RB6000. The machine is equipped with hydraulic legs that lift and lower the unit, making it possible for a low-boy trailer to be backed underneath it for easy transport.

The RB6000 boasts a large 20 foot by 8 1/2 foot folding box that can log any automobile, even full size vans and SUVs. In addition to logging cars, the RB6000 can also make short work of white goods, tin, clips, and sheet iron. The power for the RB6000 is generated through a Cummins six

See AUTO BALERS & CRUSHERS, Page B5

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Auto balers & crushers

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cylinder turbo diesel engine. Pereyra noted, "This engine is strong and capable of generating enough torque to handle the toughest of jobs. In addition to the Cummins engine, the RB6000 utilizes Rexroth hydraulics to create a maximum operating pressure of 4020 PSI."

The power generated by the machine is utilized to drive two main compression rams and six folding door rams. Each of the main compression cylinders applies a force of 170 tons for a total of 340 tons of main compression force. Each of the folding door rams, three per side, apply

88 tons of force for a total of 264 tons of force per side. These forces, coupled with the curved door design of the folding box, ensure tight and compact logs and bales. The log size produced by the RB6000 is 40 x 24" x variable in size, at an average density of 25 to 35 lbs. per cubic foot and an average weight of 1,200 lbs. The bales produced are 40 x 24" x variable in size, with an average weight of 850 lbs.

"When logging white goods and tin the RB6000 can produce upwards of 27 tons per hour. When logging automobiles, it can produce up to nearly 50 tons per hour. The RB6000

production is the highest among car loggers on the market today. Each and every part on it is designed for longevity so repairs and equipment life will not be a constant concern. Sierra is committed to customer satisfaction and



Sierra International

is proud to stand by our long, distinguished record of service," said Pereyra.

The RB6000 comes standard with a full functioning crane, capable of working independent of the baler, and has continuous rotation capabilities. The boom length is 26'3" and it has a 5,000 lb. capacity when fully extended. Rexroth hydraulics are used on the crane as well, to ensure that power is never an issue. The crane comes standard with a four point, extremely sturdy grapple, designed specifically for working with automobiles.



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SALVAGING Millions

by Ron Sturgeon
Autosalvageconsultant.com

Tools for Success – Know when it's showtime!

The first article in this series listed more than 25 tactics to increase your business success, all of them based on my experience.

When I was just starting my business career, before I owned salvage yards, I fixed, bought and sold automobiles. I was fortunate to sell one to very successful local real estate agent. He had been selling luxury homes for most of his life and was buying a car for his teenaged son.

I remember him and the transaction because he was an excellent negotiator, but also because he gave me a piece of advice about building my auto-sales business. He said, "When you're in front of a client, remember, its show time."

He meant that the appearance that you project to those you want to business with (or those you are doing business with) matters. I certainly would not have looked the part for my work as a mechanic selling cars dressed in suit and tie as he was, but I understood his point: The image that I (and my business) project is an important key to success.

As customers, we make judgments about businesses based upon appearances. The impression made by uniformed parts delivery people in clean trucks is different from the impression made by the same delivery from a sloppily dressed driver in a dirty, rusted truck.

How do the customer facing parts of your business look? Are you projecting the image that you want to project to your customers?

The other part of projecting a show-time image is how your team

members interact with one another when they are in front of customers. Are they working as a team to make one another perform better and look good in the eyes of the customer?

What does your delivery driver say to the customer if a picker picked the wrong part? What does the parts counter person say about the cradle-to-grave dismantler if a part is in the computer but it isn't where it should be on the shelf when a customer arrives to get it?

The wrong answer is to roll a teammate under the bus. Blaming a teammate only diminishes the business in the eyes of the customer. It does nothing to solve a disappointed customer's issue.

Your team's answers should be focused on solving the issue for the customer, not on shifting blame for the failure. A consultant I hired reminded me that, when team members support one another this way, it becomes a virtuous circle.

When they are making one another look good, the whole team performs better because every member trusts his teammates to be truthful and tactful with customers, but to keep the focus on solving the issue. When that customer's issue is fixed, in a place away from other customers, the team can huddle to figure out what went wrong and how to fix it.

One of the tactics that I have used to ensure that those who are serving customers stay in show time mode is to hire mystery shoppers to get a snapshot of customer service and find out whether team members are supporting one another when it's show time.

Remember, only you can make BUSINESS GREAT!

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Challenges

■Continued from Page B1

are eliminated from the end-of-life dismantling process as well.

"Processes like these reduce CO2 emissions, energy consumption and water usage, making the painting process a lot less taxing on the planet," Schroeder said. "Innovation and improvements in automotive manufacturing to reduce OEM's impact on the environment are at a tipping point and that is carrying over to the way automakers deal with their waste and recycling."

The EPA's Design for the Environment program, created to prevent pollution and the risk that pollution presents to humans and the environment, also has come a long way in eliminating hazardous waste streams for end-of-life recycling of automobiles.

One great example is the elimination of mercury in the switches found in many older model vehicles. In addition, Polypropylene (PP) and Polyethylene (HDPE, LDPE) have a strong recycling market; however, certain plastics such as ABS and PVC are still difficult to recycle.

"End-of-vehicle life continues to be a large focus of concern," Schroeder said. "Auto shredder residue (ASR) is a large volume stream that continues to be sent to the landfill instead of being reused. Shredded headliner material and other thermal composites remain difficult to handle."

OEM Efforts With End-of-Life Processes in Mind

When it comes to making meaningful and measurable commitments to managing waste in a more sustainable fashion, the automotive manufacturing industry is leading the way.

As Schroeder explained, an increasing roster of automakers are following the lead of Subaru of Indiana Automotive, Inc. (SIA) – the first automotive assembly plant in the U.S. to achieve zero waste-to-landfill status.

By making the commitment to go zero waste-to-landfill, automakers are committing to ensuring all the solid waste produced at a factory is reused, recycled, composted or recovered for energy generation.

"Between 2000 and 2015, SIA reduced the amount of waste per vehicle produced by 53 percent and cut costs to the tune of millions of dollars each year through adoption of the four "Rs" – reduce, reuse, recycle and recover," Schroeder said. For the nonhazardous waste left over after efforts to reduce, reuse and recycle are exhausted, SIA ships approximately 4 percent of total waste, or 3,000 tons, to Covanta's Indianapolis Resource Recovery Facility for disposal, and energy and metal recovery, annually. At Covanta Indianapolis, SIA's non-hazardous waste is diverted from the landfill and used as fuel to create

steam power for Indianapolis' downtown loop.

Similar to Subaru, Toyota's North American facilities reduced, reused or recycled 96 percent of their non-regulated waste in 2015 totaling over 900 million pounds by focusing on recycling and reusing.

"They even went so far as to incorporate composting into its sustainability programs to achieve zero waste-to-landfill status," Schroeder said. "It's evident that achieving zero waste-to-landfill status is growing in popularity and becoming the industry standard in terms of dealing with waste."

A Steady Stream

As more than 18 million cars are scrapped per year, and recycling companies continue to modify their processes to handle these ever evolving machines, Bassipour said that his business is steady. "I wouldn't say 'growing' nor 'dying' Bassipour said. "Again, if you don't get creative on buying habits, processing efficiencies, and maximizing your sales, you will fall behind to your competition. It's a 'dog eat dog' industry."

While auto recyclers continue to feel the impact of lower prices, they are embracing the creativity that Bassipour alludes to in order to offset these lower prices. In addition to entering new areas of recycling, they are being more creative in their recycling process to make it more efficient.

Every day GLR Advanced Recycling reviews and discusses better buying habits and lean processing procedures. They constantly strive to find better ways to process and to buy.

"This is our approach to offset the low metal prices," Bassipour said. "We also take a hard look at our entire inventory and seek the best consumers that are willing to work with us and our volumes. We are a volume driven operation so every single penny adds up. We are in a very antiquated business and if you don't change with the times, you will be chasing your tail."

Indeed, corporations continue to take sustainability seriously, and more customers and users are also following suit. In a circular fashion, corporations are doing well by doing the "right thing" and gaining loyalty of their customers.

"As the consumer continuously demands reduced prices, there is much pressure on manufacturers to reduce their production costs. So recycling processes that are uneconomical will not be adopted," Apelian said. "The challenge is to develop and discover ways that we can recover and reuse in a way that is economically and commercially feasible. This is what propels us – solutions that are elegant but expensive and that will never be utilized do not interest us here at CR3 (Center for Resource Recovery and Recycling). For solutions to be sustainable, the business model needs to be sustainable."

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Braidy Industries to build \$1.3 billion aluminum rolling mill

Braidy Industries Inc. disclosed that they will build a \$1.3 billion aluminum mill and create 550 advanced manufacturing jobs in Greenup County, Kentucky to produce sheet and plate for the automotive and aerospace industries.

“Braidy Industries’ decision to locate in Eastern Kentucky has the potential to be as significant as any economic deal ever made in the history of Kentucky,” said Gov. Bevin. “This \$1.3 billion investment will create enormous opportunity for people in the region, and would not have been possible without our recently passed right-to-work legislation. I look forward to the success of Braidy Industries as they leverage the incredible work ethic found in Eastern Kentucky. The ripple effect of this investment will be significant and will produce positive change in the region for generations to come.”

Braidy Industries will construct a 2.5 million sq.ft. aluminum mill on more than 300 acres near South Shore in Greenup County. The company expects construction to begin in early 2018 with completion in 2020. Construction will create about 1,000 jobs.

Initially, the facility will produce about 370,000 tons of aluminum per year for the automotive and aerospace industries, with opportunities to expand over time.

The average wage of workers in the new facility will be about \$70,000 per year. The company will also provide low-cost healthy meals, a day care, fitness center and other amenities to create an employee-friendly workplace.

Craig Bouchard, Braidy Industries

chairman and chief executive officer, said the new plant will both revitalize the region and raise the bar for aluminum production globally.

Bouchard, a seasoned executive with a distinguished track record in banking, software development, aluminum and steel manufacturing, founded Braidy Industries earlier this year. He chose Greenup County for its strengths as a location for metal production as well as to spearhead an economic revival in Eastern Kentucky. Bouchard’s team includes experts in the aluminum industry, metallurgical research, international business and a range of other disciplines.

To encourage the investment and job growth in the community, the Kentucky Economic Development Finance Authority (KEDFA) in a special meeting preliminarily approved the company for tax incentives up to \$10 million through the Kentucky Business Investment program. The performance-based incentive allows a company to keep a portion of its investment over the agreement term through corporate income tax credits and wage assessments by meeting job and investment targets.

In addition, Braidy Industries can receive resources from the Kentucky Skills Network. Through the Kentucky Skills Network, companies can receive no-cost recruitment and job placement services, reduced-cost customized training and job training incentives. In fiscal 2016, the Kentucky Skills Network provided training for nearly 95,000 Kentuckians and 5,000 companies from a variety of industry sectors.

Gershow Recycling donates cars for extrication contest



Representatives of Gershow Recycling joined members of the Northport Fire Department at the Tenth Annual Chuck Varese Vehicle Extrication Tournament at Steer's Pit in Northport. Pictured (left to right): Steve Rossetti, vice president of special projects, Gershow Recycling; Robert Varese, ex-chief, Northport Fire Department and director, Chuck Varese Vehicle Extrication Tournament; Brad Wine, chief, Northport Fire Department; Dennis Sheridan, second assistant chief, Northport Fire Department; and Rich D'Angelo, manager, Gershow Recycling's Huntington facility.

In support of local fire departments, Gershow Recycling donated the use of 30 cars for the Tenth Annual Chuck Varese Vehicle Extrication Tournament, which was held at the Northport Fire Department's Training Grounds at Steer's Pit in Northport. Gershow also donated the use of its Huntington facility to enable teams to practice in the week leading up to the tournament.

Twenty-two teams from 10 fire

departments participated in the tournament, which involved groups of 5 firefighters working to extricate a “victim” from a “crash” using the Jaws of Life. Each team was judged on the amount of time it took to perform the extrication, the handling of equipment and the safety procedures they followed. After the tournament, the vehicles were brought back to Gershow's facility where they were shredded and recycled.

General Motors reduces environmental impact

General Motors' sustainability approach enables the company to serve its customers and shareholders, increase operational efficiency, mitigate risk and improve the communities where it does business. GM summarizes its impact in its annual sustainability report at gmsustainability.com.

The report outlines company aspirations, from mobility for everyone to advancing zero-emissions vehicles. Below are some near-term results.

•Innovating toward a lower-carbon future. GM produced 11 vehicle models around the world with some form of electrification, including the Chevrolet Bolt EV, which gets an EPA estimated 238 miles on a charge. Lightweighting helped improve customers' fuel efficiency, with 10 vehicles losing a total of 3,600 pounds. The company's Maven car-sharing service, now in 17 cities, features 100 Bolt EVs capable of covering 250,000 all-electric miles a month.

•Testing autonomous electric vehicles. GM drove more than 50 autonomous Bolt EV cars in San Francisco; Scottsdale, Arizona; and metro Detroit. The company believes autonomous vehicles will help reduce

traffic fatalities and make transportation available to elderly people and people with disabilities.

•Making advanced safety technologies standard. The company offers 61 global models with forward collision alert, 58 with lane departure warning and 40 with side blind zone alert. More than half of the Chevrolet vehicles sold this year will feature GM's Teen Driver system, which encourages safe driving.

•Building a clean-energy economy. GM used 199.8 megawatts of renewable energy in 2016, surpassing its 125MW commitment four years early. The company saves \$5 million a year from these efforts. GM is working toward sourcing all electrical power for 350 facilities in 59 countries with renewable energy by 2050. Efficient manufacturing progress included reducing energy and carbon intensity by 16 percent and water intensity by 12 percent since 2010.

•Driving toward zero waste. The company added 23 new landfill free facilities last year. With 152 such sites worldwide, the company exceeded its 2020 landfill-free target. GM champions the Materials Marketplace, a reuse

network where businesses can use a software program to buy one another's scrap. The company reduced total waste by 27 percent since 2010.

•Serving and improving communities. GM employees contributed 110,000 hours of volunteering with 148 nonprofits in 2016. Each of the company's 171 manufacturing plants engaged in an environmental outreach activity last year.

IAA opens Fort Worth branch

Insurance Auto Auctions, Inc. (IAA), a business unit of KAR Auction Services announced the construction of a new facility near Fort Worth, Texas. The new branch, scheduled to open in November 2017, is strategically located north of the Dallas-Fort Worth area and complements IAA branches in Grand Prairie and Wilmer. This is the 16th IAA location in the state of Texas.

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