

## Brewer Science: Small Devices, Big Sustainability Achievements

Nestled in the small city of Rolla, Missouri is Brewer Science—a technology company that is a giant within the space of developing and manufacturing innovative materials and processes that enable the reliable fabrication of cutting-edge microdevices.

Used in tablets, smartphones, digital cameras, televisions and more, this global leader's anti-reflective coatings revolutionized microelectronics manufacturing and ushered in today's high-speed, lightweight electronic devices that are now so often taken for granted. Beyond driving innovation in the microprocessor world, the company is also leading the way in sustainability for both its industry peers and local neighbors.

### Setting Green Goals

As early adopters of sustainability and environmental responsibility, Brewer Science leaders made finding ways to better the environment a priority for their business. In fact, a handful of their achievements and some of the history of their efforts in this space over the last 20+ years have been published on their Going Green web page.

The page contains other information too, such as their Corporate Sustainability Report, which contains data on the health, safety and environment at Brewer Science; how they utilize Geothermal heating/cooling at a top manufacturing facility; and showcasing positive changes other companies can make to also become an environmentally-conscious workplace.

"Since we began our efforts more than 20 years ago,

we've done a lot of work with each part of the facility (manufacturing, shipping and the workshops) to identify waste streams and educate our employees about why this [kind of reuse and recycling] is the right thing to do," said Rory McCarthy, an Environmental Manager at Brewer Science. "We even had employees involved in 'dumpster diving' to assess what materials could be used outside of a landfill."

Cameron Stover, an Environmental Engineer at Brewer Science, added, "As part of our culture, new employees are engaged on sustainability and our way of working right from the new hire orientation. It's not a matter of a few executives pushing through a pet project, but rather, the desire to be an eco-friendly company—it has truly been a grassroots effort. It's the committed employees who have made sustainability and environmental stewardship part of the Brewer Science brand."

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The team wanted to take the next step and reach an important sustainability goal: getting down to zero waste-to-landfill and getting verified by a third-party for achieving this milestone. However, the challenge was effectively managing the waste that couldn't be reused or recycled.

Approximately, 7% of the waste, which included cafeteria and bathroom garbage, as well as floor sweepings, was preventing the company from acquiring that status.

## The Need for a Capable Partner

Eventually, the team decided they needed to bring in a partner to help them get past this last obstacle. After some careful consideration, Brewer Science and Reworld™ began discussions about how a service partnership would not only help them reach their zero waste-to-landfill goal, but ultimately enhance Brewer Science's sustainability efforts across the board.

"It took almost two years to get the relationship going," said McCarthy. "We did several visits to Reworld™ sites to see their functionality, check compliance and to ensure that we had the right partner who shared our overall goals and vision for the environment."

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In the end, this measured approach paid off. It resulted in the transition to and implementation of a new sustainable waste solution. The partnership included the installation and operation of new equipment for the bulk accumulation and transport of compacted materials to the Reworld™ thermomechanical treatment facility in Tulsa, OK.

One piece of new equipment was a large compactor, which was selected to facilitate the in-plant collection and accumulation of non-recyclable materials, and to optimize load weights of outbound shipments to Reworld™. Not only did its size enabled Brewer Science to reduce the number of hauling trips, but it reinforced the magnitude of their goal as they pursued zero waste-to-landfill.

"The compactor was an important step because it gave us a place to put the waste we couldn't recycle or reuse," said McCarthy. "It served as a visual reminder of what we were doing to get to zero waste-to-landfill and it got our employees even



more involved since ‘feeding’ the compactor properly became a slogan to educate employees about what should and shouldn’t be placed in there.”

Since its installation, the compactor has been picked up every four months. When the compactor, filled with non-recyclable waste items, arrives at Reworld™, it is mixed with municipal solid waste and metered onto the state-of-the-art grate system where the combustion process occurs.

During the combustion process, water in steel boiler tubes is heated up and converted into high temperature steam. The steam is then used to power a turbine that generates renewable, carbon-negative energy that is sold to Public Service Company of Oklahoma to power local homes and businesses.

With a viable landfill diversion strategy that had sent approximately 77 tons of non-hazardous waste to Reworld™ over the span of two years, Brewer Science achieved their company-wide goal.

This milestone was independently verified by GreenCircle Certified, LLC, a third-party auditor of environmental and sustainability claims. After its completion of extensive reviews to verify Brewer Science’s sustainability achievements in contributing zero waste-to-landfill, GreenCircle certified the company, making Brewer Science the first and only business in the microelectronics and semiconductor industry to earn this environmental recognition.

“Before the compactor, all of this waste was going to the landfill,” said Stover. “This certification is more than a major milestone or a point of pride. In many ways, it represents years of effort and dedication from people at all levels of the company, united and forming a collective mindset to reduce waste and remain stewards of the environment.”

## Achieving Sustainability Success

Achieving zero waste-to-landfill certification wasn’t

easy, nor was it a one-shot deal.

“While we celebrated our success and thanked all of our employees for getting us to certification—twice—we can’t sit still,” said McCarthy. “Continually driving sustainability is part of the Brewer Science DNA, and as our customers are getting increasingly more savvy, they expect more from us.” He added, “We take it seriously—not only by finding new ways to improve our efforts within the facility, but we also participate in Adopt-a-Highway programs and collaborate with other companies and the city to bring environmental programs to the forefront in the Rolla community.”

Reflecting on the journey that brought them to being the first zero waste-to-landfill certified company in the semiconductor and microprocessor industry, McCarthy credits Reworld™ for getting them over the line, but founder Dr. Terry Brewer for getting it all started. He saw the immediate return on investment for the environment despite the incremental costs incurred by sustainability programs.

“We believe that protecting our environment and conserving resources are essential to running a successful, mindful business,” said McCarthy. “The key to success is having leaders who understand that there are other forms of measurement outside of the accounting numbers. We’re doing this today for the people of tomorrow.”

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