

INSIGHT & EXPERIENCE: ELIMINATING WASTE BEFORE IT EVEN HAPPENS

Turning Waste into Blended, Alternative Engineered Fuel for a Zero Waste Solution



BRINGING CUSTOMERS ONE STEP CLOSER TO ZERO WASTE

From diapers to plastic packaging, manufacturing and distribution sites across a variety of industries have an excess of non-viable material to include consumer items unfit for retail sale, contaminated consumer product packaging, non-recyclable plastics and other waste streams. Traditionally sent to a landfill or a disposal facility for incineration, select waste streams can be consolidated, taking on a new life as a fossil fuel alternative.

Clean Earth's Advanced Waste Lifecycle Program – called Fullcircle™ – implemented a recycling solution that involves these materials being consolidated, blended and properly sized for feed into cement kilns, allowing them to be used as an alternative fuel to heat kilns to offset the use of fossil fuels such as coal or natural gas. Across multiple customers throughout the country, Fullcircle's engineered fuel solution diverted 60 million pounds of this waste in 2021, bringing customers one step closer to achieving a circular process.

FINDING THE RIGHT SOLUTION

Most anything that comes off of a production line as waste can be evaluated to determine its best recycled use. First, the materials are identified along with how much of it can be recycled when pulled out as a single commodity and transformed into feed for another product. This can be the case with something like metals, electronic components or acceptable recycled plastics.

Then, the remaining waste mix is evaluated to determine its most sustainable reuse option. At this stage, many products are deemed fit for the engineered fuel solution by Clean Earth's Fullcircle™ Advanced Waste Lifecycle Program, which has the end goal of turning the waste into a fuel used by cement kilns. Once enough volume is collected and shipped to Clean Earth, the material is consolidated at a Clean Earth or partner site and combined with other materials if needed to meet the engineered fuel solution requirements.

Clean Earth and its trusted partners complete all of the sorting, segregating and consolidation of the various waste streams, tailoring the blended feed of products to meet all necessary sizing, moisture content, and other specifications for a given kiln. It also ensures that the engineered fuel mix meets the proper British Thermal Unit (BTU) value to burn well as an alternative fuel at a kiln. The proper mix is then sent outbound and ultimately into the kiln as a fuel.

Notably, engineered fuel is a more sustainable option than the waste-to-energy (WTE) process, as it is truly zero waste. WTE generates ash, which ends up in a landfill. With engineered fuel, the cement kiln provides full waste destruction with no ash residual for landfill. Engineered fuel also burns much hotter than a WTE facility, producing less ash on the back end to be put back into the kiln as fuel.

HIGHLY EXPERIENCED & RESULTS DRIVEN

Fullcircle™'s high-touch service offerings equal an attentive partnership with customers to ensure all goals, compliance and brand protection standards are met. Solutioning for non-viable materials requires immense amounts research, industry know-how, and vitally clear communication across a multitude of parties in the industry.

The Fullcircle program provides results that fuel continuous improvement for the customer's waste generation. As such, over the years, Clean Earth's Fullcircle team has worked with customers to increase materials eligible for the engineered fuels solution. Originally focused on paper-like consumer products such as paper packaging, diapers and feminine hygiene products, the program now incorporates additional products which have been tested and approved as suitable waste streams to be added to the mixture, in turn increasing the volume of materials going to kilns for reuse, rather than traditional disposal.

The success of the engineered fuel solution is one small piece of the many waste management methods Clean Earth offers to a variety of Fullcircle customers. Fullcircle's high-touch service provides Clean Earth customers with customized waste solutions that take their entire operations into account. The expertise, efficiency and innovative results that are derived from Clean Earth's Fullcircle Program make it a go-to partnership model for customers. This program not only provides a way to manage non-viable waste in a sustainable manner, but it aligns with the customers' long-term waste management goals and provides strong brand protection and recognition.

Our Process



Innovation & Research

- Permits
- State Evaluations
- Products & Processes
- Risk Analysis
- Quality Assurance / Quality Control
- Waste Mapping / Process Flows



Pilot Programs

- Multi-Customer
- Develop, Build, & Sample
- Risk Avoidance / Brand Protection



Vendor Facilities

- Training
- Certifications
- Qualification Analysis
- Compliance Audits



Program Development

- Locations, Logistics, & Teams
- Paperwork Flow & Requirements



Continuous Improvement

- Evaluate results at each touchpoint to continually improve sustainability goals, maintain exceptional compliance records, train teams and expand into other areas of waste generation.

FULLCIRCLE™ VALUE ADD



60 million pounds of material was diverted to this recycle solution in 2021 across a variety of customers.



Each customer that has utilized the solution has seen an increase in the percentage of their material being handled in a sustainable manner, resulting in waste minimization that allows them to achieve their sustainability goals.

BENEFITS OF THIS UNIQUE FULLCIRCLE™ PROGRAM

Flexibility & Know-How

Our program has the flexibility and insight to focus on our customer's short and long-term sustainability goals simultaneously so we can make a positive environmental impact now and in the future.

Network of Vetted Partnerships

Our network of partnerships in the waste industry and beyond opens doors to innovation and efficiency like no other program in the country.

We Never Stop Working for You

Clean Earth's Fullcircle Program is here even after your journey to zero-waste. Our deep knowledge of compliance and environmental innovation will keep your company's waste generation ahead of the curve – always focused on eliminating the waste before it happens.

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