ABSTRACT

Global population growth is significantly impacting the environment. To ensure sustainability in food, water and materials, whilst also combatting climate change, a systemic switch from linear to circular is required.

In response to this challenge Fiberight has developed an innovative resource recovery platform - HYDRACYCLE™, which increases the capture of materials from waste and converts these into market-ready products for the circular economy. The process is robust and works with mixed, contaminated waste inputs which are typically burnt or buried, including rejects from mixed recyclables sorting processes (MRF Rejects), refuse derived fuel (RDF) and Municipal Solid Waste (MSW) from households and businesses.

Fiberight's HYDRACYCLE™ process generates several value-added resource streams including paper/card pulp, rigid/flexible plastics, food waste, and aggregate. These homogenous streams are then upgraded to high-value products or materials through secondary processing bolt-ons which are integrated with the core HYDRACYCLE™ process.

One such bolt-on is Fiberight's pulp-to-sugar platform. Here Fiberight have developed a hydrolysis technology to convert recovered pulp (from paper and card) through to second generation sugars for industrial biotechnology applications.

The company is currently leading a consortium within a BBI JU funded project, VAMOS (www.vamosbbi.com), to showcase the production of platform sugars from waste derived paper and card. This sugar is then being converted into products including, lactic acid and PLA, PLA/Fibre composites, and a thermoset resin binder. Outside of VAMOS Fiberight are also working on a pulp-to-ethanol chemical pathway.

A second chemicals route in which the company are engaged is the recovery of plastics from waste and the conversion of these to oils and waxes through chemical recycling. Mixed waste contains a high content of polyolefin plastic and Fiberight's HYDRACYCLE™ process recovers, sorts and cleans this into different purity grades for use in both chemical and mechanical recycling applications.

By demonstrating and commercialising the pathways above Fiberight aims to help in delivering the EU's green deal and net zero ambitions.

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