

Pioneering Purity: Transformative Advances in Chemical Polymer Recycling

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The imperative to develop sustainable recycling processes for polymers has never been more urgent. As a leader in the field, Sulzer Chemtech has made significant advancements in chemical polymer recycling, focusing on purification processes to enhance the quality of recycled materials. The presentation will highlight three key innovations for the purification of streams in chemical recycling processes:

1. Removal of Bromine from Polystyrene: Expanded Polystyrene (EPS) is widely used in packaging and insulation, but its recycling is hampered by the presence of brominated flame retardants (BFRs). Sulzer has developed a novel process for the efficient removal of bromine from polystyrene melts. This method not only ensures the safety and purity of the recycled material but enables the thermal depolymerization of PS by preventing bromine-induced corrosion of pyrolysis reactors.

2. Purification of BHET from PET Glycolysis: Polyethylene terephthalate (PET) glycolysis produces Bis(2-Hydroxyethyl) Terephthalate (BHET), a key monomer for PET recycling. However, the presence of impurities can hinder the re-polymerization process. Sulzer has made significant progress in the purification of BHET, employing advanced crystallization techniques to achieve high purity levels.

3. Introduction of a New Quenching Product Line: Addressing the critical operational issue of fouling caused by high molecular weight products in pyrolysis, we have developed an innovative quenching product line. This new system not only tackles fouling effectively but also features a unique design that enables the use of standard steel grades, reducing costs and improving accessibility. This advancement ensures more reliable and efficient operation in pyrolysis processes, while enhancing the overall process control through rapid quenching.

These innovations reflect Sulzer Chemtech's commitment to advancing the field of chemical polymer recycling. By improving purification processes, we are not only enhancing the quality of recycled polymers but also supporting sustainable practices that align with global environmental goals.

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