Title: Approaching Advanced Recycling Challenges with Twin Screw Extrusion Technology Innovations

Abstract:

Plastic recycling presents several complex challenges, and twin screw extrusion technology offers promising solutions. The presentation will focus on three technological approaches to show how Coperion covers the requirements of advanced recycling applications. These are chemical recycling, solvent based recycling and energy efficiency via filtration compounding.

First, chemical recycling. Coperion uses the twin screw extruder to efficiently melt and degas the post-consumer waste-melt as a preparation for the subsequent reactor with throughputs of up to 12.500kg/h. The presentation covers the challenges and their technological solutions in this field. Methods and results from development-trials can be shown.

Next, we'll introduce our approach in the field of solvent based recycling. Circulating the solvent in the process with minimal losses is key for an economical product. Solvents pose risks regarding ATEX that must be considered when bringing this process to a commercial production level. Results of trials can be shown.

Last, we'll address energy efficiency. Recycling processes can be quite energy-intensive while responsible energy management is essential. This approach is matched by our latest innovation, the Filtration Compounder, which filters and compounds the polymer melt in one extruder only. Making the recycling process more sustainable and cost-effective.

The presentation will provide a practical overview of how twin screw extrusion technology is addressing key challenges in advanced plastic recycling. It's designed to offer valuable insights for anyone interested in the advancements and future of plastic recycling, making the topic accessible and engaging for an international audience.