

Context/challenge

Development of **advanced mechanical recycling solutions** for PP and PET to enhance their properties and circular value.

Our expertise

- **Reactive extrusion** for polymer branching and chain extension
- **Chemical synthesis** & reaction mechanism **expertise**
- Formulation development and **precise control** of final material properties

Added Value

- **Lifetime extension** of recycled plastics
- **Adaptability** to various plastic waste streams
- **Multi-scale** capability (lab → pilot → semi-industrial production)
- Improvement of material properties according to precise specifications



Experimental platform

- **Various extruder** types and configurations
- **Precise control** of chemistry and final properties
- **Characterization** of chemical, mechanical, thermal, rheological, and structural properties
- **Expertise** in chemical synthesis and reaction mechanisms for polymer design

Key results

- **MFI decrease/IV increase** and **melt strength** enhancement
- Improvement of polymer formulations for **high-value materials** and **precise performance** requirements
- **Scale-up** from lab to pilot/semi-industrial production



Process 11 Twin-screw extruder
11 mm, L/D 40
50g/h to 2kg/h



2 Leistritz twin-screw extruders
18 mm, L/D = 50 & 40
10 kg/h



Collin Twin-screw extruder
35 mm, L/D= 56
30 kg/h

