

# Master Thesis in Chemistry and Polymer Technology

## Impact of contaminants on processing of post-consumer recyclates

The aim is to explore the effects of temperature, shear rate, solvent, and contaminant concentration on the viscosity of virgin materials to improve solvent-assisted mechanical recycling processes. The project aims to advance understanding and optimization of this recycling process to make it more environmentally benign and aligned with circular economy principles.

## Tasks

- Investigate the influence of temperature, shear rate, solvent type, polymer type and contaminant concentrations on the processability of virgin materials
- Work on a digital twin by modelling the material properties by analytical and heuristic models
- Support the development of more efficient recycling processes that reduce environmental impact
- Enhance existing recycling techniques by examining the interactions between polymers, solvents, and contaminants

## Expertise

- Proficiency in polymer characterization techniques
- Skilled in Data Processing and Experimental Design
- Knowledge in modelling of material properties
- Good analytical and problem-solving skills
- Independence, intrinsic motivation and structured workflow
- Effective communication skills in both English and German

## Offer

- Conduct impactful research in sustainable technologies, contributing to a circular economy
- Collaborate with industry experts and academic leaders, gaining practical experience
- Receive a competitive salary for your contribution to the project and master thesis
- Contribute to the development of solvent-assisted mechanical recycling methods that enhance environmental sustainability