

Laboratory of Plastics Processing

Principal goals and activities

- Research, processing technologies and application of plastics and polymer composites.
- Monitoring and identification of injection moulding technology parameters.
- Application of technology during mould design.
- Research of progressive cooling methods in technological processes.
- Research of the influence of heat-stress effects on the final and utility properties, dimensions and structure of parts.
- Research of application possibilities for technology in many industry branches (consumer, automotive, medical, military, sports, etc.).

Specific instruments and outcomes

- ARBURG 270S 400-100 hydraulic press, including manipulator*.
- ARBURG ALLROUNDER 470 S 1000-400 hydraulic press*.
- ARBURG ALLROUNDER 520 S 1600-290 hydraulic press*.
- ENGEL Victory 80/25 hydraulic press.
- Classic high-speed baking, high-temperature sintering and vacuum furnace*.
- ZAMAK EHP-2x130di extruder, compounder unit with a granulation head.
- GM 251 blowing machine.
- Retsch SM 300 cutting mill, Dukane ultrasonic welder.

General focus of laboratory

- Injection moulding of silicones, composites and nanocomposites with a (bio-)polymer matrix, hybrid composites.
- Two-component injection moulding.
- MuCell microcellular injection moulding.
- PIM technology for injection of polymers with metallic and ceramic materials (MIM, CIM).
- Compounding of polymers, recycling of polymers.
- Bionics – research of natural reliefs application possibilities.
- Mould sampling and testing.
- Extrusion blowing.
- Ultrasonic welding of polymers.

Offer of technology and expertise

- Research in plastics processing, reduction of part weight, improvement of process and part quality.
- Research and development in new composite systems with a polymer matrix.
- Application of technology during part design.
- Numerical simulation of technological processes.
- Manufacturing of testing specimens, short series, and sampling.
- Training/seminars for the industry in the field of polymers, technology for processing them and mould design.

** in cooperation with the Department of Nanomaterials, Advanced Technology and Innovation at TUL*

