

FRAUNHOFER INSTITUTE FOR CHEMICAL TECHNOLOGY (ICT)

Foundation

- 1959

Employees

- 539

Branches

- Plastics processing industry
- Consumer goods
- Automotive industry
- Building industry

Key materials

- Biopolymers and recyclates
- Biopolymer composites
- Natural and technical fibres
- (Biobased) additives for functionalization, compatibilization and processing aids

Key products/services

- Development of bio-based materials, products and their processing technologies
- Pilot and small scale production of bio-based plastics and compounds
- (Re)-formulation and recipe development
- Functional and fibre reinforced compounds
- Particle and extruded foam development
- Foaming process development
- Functional and fibre reinforced compounds

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Fraunhofer ICT

Institute

The Fraunhofer ICT focuses on the scalability of processes and the transfer of research results from laboratory scale to pilot plant scale and in some cases to pilot-level application.

Well-equipped laboratories with cutting-edge safety features and energy-saving technology are available at the institute, as well as all the analysis and testing procedures needed for research in our specific fields. The Fraunhofer ICT supports its clients and project partners from the original idea to the prototype phase or even to small-series production, according to their requirements. Clients and project partners are mostly from the automotive and transport sectors, as well as the fields of energy, environment, defense, security, and chemistry and process engineering.

Services

The advanced facilities available at the Fraunhofer ICT enable biopolymer processing in a complete product cycle, from a tailored compound to the final product. Main processes used are:

- **Material development and compounding**

We are working on the development of new formulations for biobased polymer compounds and their material-specific adaptation to the manufacturing processes.

The material properties and functionalities are designed to the requirements of the final products and adapted to the various forming and finishing processes (e.g. foaming). Compounding and reactive extrusion is carried out with our co-rotating twin-screw extruders in lab and pilot plant scale.

- **Foaming**

We are working on the development of thermoplastic bio-based foams having tailored properties with regards to mechanical properties, density, geometry, flame retardancy, etc..

Both, bio-based particle foams and 3D-parts and extruded semi-finished foams (e.g. boards, films) can be produced on a foam extrusion line with underwater pelletizing or respectively on a KraussMaffei Berstorff Schaumtandex laboratory line ZE 30/ KE 60.

The further processing of complex molded parts made from biopolymer particle foams is carried out using either laboratory or industrial (Erlenbach) steam chest molding equipment or radiofrequency controlled molding (Kurtz Wave foamer).

R&D offer

- Material development and modification for the production of tailored biopolymers, e.g. for foaming or injection moulding
- Additivation of biopolymers according to their application field, for example the addition of halogen-free flame retardancy, fillers and reinforcing materials
- Process and material development for the production of foamed elements like extrusion or particle foams
- Product development using biopolymeric foams
- Characterization of matrix materials and foams

