FRAUNHOFER INSTITUT FÜR ANGEWANDTE POLYMERFORSCHUNG (IAP)

Foundation
- 1992
- Director Prof. Dr. habil. Hans-Peter Fink

Turnover
- 16 million €

Employees
- 200

Branches
- Polymer industry, Pulp and Paper industry, Chemical industry

Key materials
- Cellulose, xylan, lignin, starch, PLA, PHA, bio-PA, bio-based composite materials

Key products
- Chemical analytics
- Solid state characterization (NMR, X-ray, TEM, REM)
- Synthesis and derivatization
- Compounding and recipe development
- Bio-based precursors for carbon fibers
- Spinning of fibers, films and non-wovens
- Composite development

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Fraunhofer IAP

Much more than plastics

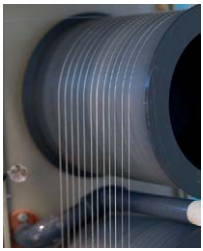
The Fraunhofer Institute for Applied Polymer Research IAP

High-performance fibers for fast cars, organic light-emitting diodes for flat screens or artificial corneas for eye implants – For over 20 years the Fraunhofer Institute for Applied Polymer Research IAP in Potsdam-Golm develops polymers. Our materials and methods cover the entire range of polymer applications. We also create conditions which ensure that the developed methods do not only work on a laboratory scale, but also under production conditions.

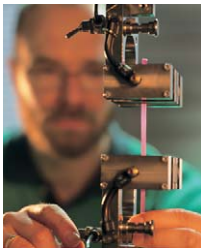
Fraunhofer IAP supports your efforts regarding bio-based plastics and composites along the value chain, from bio-based monomers and native biopolymers via the development of bio-based materials and the related processing technologies up to product development and substantial upscaling.

Services

Polymers from renewable raw materials are synthesized, modified, characterized, compounded, and processed at Fraunhofer IAP. In the focus of interest are natural polymers such as polysaccharides (e.g. cellulose, starch), lignin, and proteins, as well as bio-based polymers such as polylactic acid (PLA), polyhydroxyalkanoates (PHA), and other bio-based polyesters, polyamides, and epoxies. For creating new polymers either monomers are combined into new polymers and copolymers, or existing bio-polymers – utilizing nature's synthesis work – are chemically modified. By the use of additives, polymeric blend partners, reinforcing fibers and nano-fillers, recipes are developed and processing parameters are determined for each application in question. Methods for melt and solution processing include film and blown film extrusion, non-woven melt blowing, injection molding, and fiber spinning. In addition to mechanical properties such as stiffness, strength, and impact strength, also thermal properties such as heat distortion temperature, maximum service temperature, and glass transition temperature as well as permeation properties are optimized. For specific applications, e.g. films, bottles, injection molding parts, or fibers, tailor-made bio-based materials can be developed on your behalf.



Spinning equipment for cellulose fibers



Testing mechanical properties of biobased plastics

Compounding thermoplastics with cellulose man-made fibers