

PRESS RELEASE

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Bio-based polyesters for demanding long-term applications

Current bio-based plastics are limited to short-life applications, such as packaging, as they have insufficient long-term properties. The new project "Bio-based polyesters for demanding long-term applications" by Fraunhofer Institute for Structural Durability and System Reliability LBF aims to improve the long-term properties of biopolymers through tailored additivation enabling their use in technical applications. Therefore, the researchers are looking for partners along the value chain that would like to substitute petro-based plastics with bio-based solutions for durable products.

In the planned project, bio-based materials will be optimized through tailored additivation to be competitive with petrochemical plastics. Researchers from the Fraunhofer Institute for Structural Durability and System Reliability LBF have conducted research in the field of polymer additives in numerous projects in recent years and have been able to improve the long-term properties of polymers made from both fossil and renewable raw materials. The aim of the project is the sustainable substitution of petro-based engineering plastics based on previously gained knowledge on material optimization and implementation along the entire value chain.

Minimal changes in the manufacturing process

The project addresses the challenges of the long-term properties of biopolymers. Existing data on long-term stability and the stabilizers used are compiled in a comprehensive literature review. Together with the project partners, material specification is drawn up which defines the properties to be achieved. Market-available biopolymers and additives are identified and tested regarding their properties. The biopolymers are modified by developing new formulations on a pilot plant scale. The aim is to enable material substitution with minimal changes to existing manufacturing processes.

The Fraunhofer scientists are looking for partners along the value chain, from manufacturers of polymers and additives to manufacturers that want to substitute individual components in their designs, with a particular focus on developers and producers of finished components.

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Securing competitive advantages together: Sustainable, sophisticated plastic products

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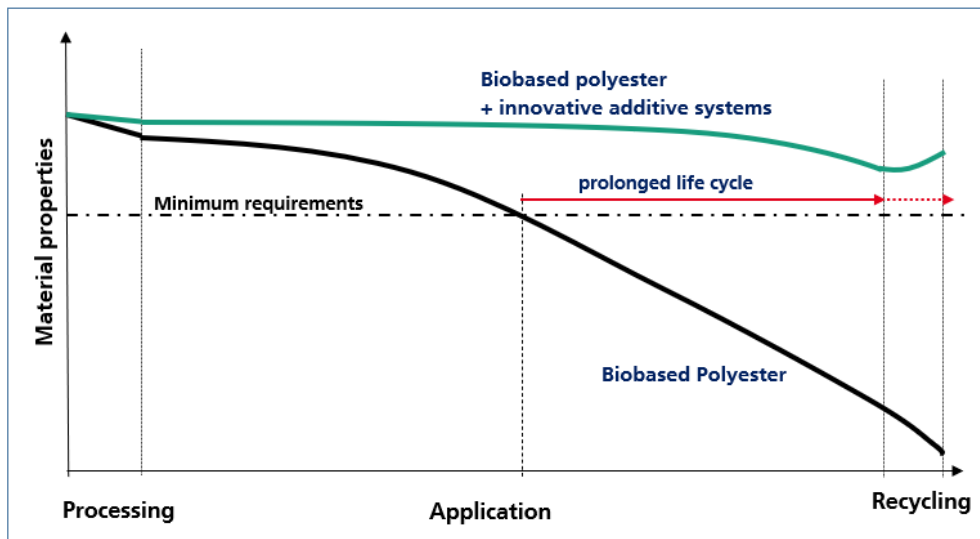
OEMs and manufacturers of plastic components from the construction, automotive, sports and leisure, electrical and electronic components and household appliances sectors who want to substitute petro-based polymers with bio-based solutions will gain sufficient knowledge to optimize their own research and development, by participating in the new project "Bio-based polyesters for demanding long-term applications". They benefit directly from new insights and thus secure competitive advantages. Raw material and additive manufacturers can expand their existing product portfolio with new application possibilities and compounders can prepare themselves for future challenges in the use of biopolymers.

More information on [the projekt](https://www.lbf.fraunhofer.de/en/research-projects/bio-based-polyesters-long-term-applications.html?utm_campaign=pi-bio-based-polyesters-projekt-bio-based-polyesters)

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The life cycle of bio-based polyesters is to be extended using innovative additive systems. Graphic: Fraunhofer LBF

The **Fraunhofer Institute for Structural Durability and System Reliability LBF** in Darmstadt has stood for the safety and reliability of lightweight structures since 1938. With its expertise in the fields of structural durability, system reliability, vibration technology and polymer technology, the institute today offers solutions for three important cross-cutting topics of the future: lightweight system design, functional integration and cyber-physical mechanical engineering systems. The focus is on solutions for social challenges such as resource efficiency and emission reduction as well as future mobility, such as electromobility and autonomous, networked driving. Clients come from sectors such as vehicle construction, aviation, mechanical and plant engineering, energy technology, electrical engineering, medical technology and the chemical industry. They benefit from the proven expertise of around 400 employees and state-of-the-art technology in more than 17,900 square meters of laboratory and testing space. www.lbf.fraunhofer.de

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