

PRESS RELEASE

PRESS RELEASESeptember 3, 2025 || Page 1 | 2

Sustainable. Safe. Future-ready. The circular economy meets innovation at the K 2025

How can recyclates be developed to be used safely, efficiently, and sustainably in highly stressed technical applications? From October 8 - 15, 2025, the Fraunhofer Institute for Structural Durability and System Reliability LBF will be answering these and many other questions about future-proof plastics solutions at the K trade fair in Düsseldorf. Visit us at Hall 7.0, Stand 70SC05. Visitors will learn how the circular economy in plastics technology is possible and marketable.

For plastics, particularly recyclates, to be used in demanding, highly stressed components, their property profile must be optimized and adapted to each technical product. Then, they function reliably and can be manufactured efficiently and affordably.

Recyclable components are essential for sustainable product design

Fraunhofer experts will demonstrate how recyclates can be analyzed and optimized early in the product development process, even before series production begins. Visitors will also learn how to identify and adapt alternative plastics to specific applications for demanding components in various industry segments, such as transportation, electronics, construction, and packaging.

A highlight at the stand is an innovative battery housing made of plastic that is 35 percent lighter than aluminum, CO₂-neutral over the entire life cycle under certain conditions and prepared for a second life of the battery cells. This example demonstrates how Fraunhofer LBF develops sustainable lightweight construction solutions with a holistic material concept — from molecular structure and additives to stabilization and application-related testing, such as flame retardancy and media compatibility.

More information on the highlight project: www.lbf.fraunhofer.de/circulus
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More information on the [circular economy](#)

#Recycling #Sustainability #Renewable Energies #Lightweight Construction

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FRAUNHOFER INSTITUTE FOR STRUCTURAL DURABILITY AND SYSTEM RELIABILITY LBF



PRESS RELEASE

September 3, 2025 || Page 2 | 2

Fully recyclable battery housing for successful recycling of structural components.

Photo: Fraunhofer LBF, Raapke

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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 390 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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