

RESEARCH FOR THE CIRCULAR PLASTICS ECONOMY

Plastics economy must become circular

Nearly 350 million metric tonnes of plastics are produced worldwide each year. The production of plastics is growing and is an important economic factor. The raw material base relies on crude oil but is slowly opening up to biogenic sources. Plastics offer an efficient spectrum of properties and are almost impossible to substitute. They are extremely important for resource-efficient designs. Plastics make products light, functional, and inexpensive, but they are not valued highly by consumers (“disposable products”).

Too much plastic waste ends up in incineration or in the ground and oceans at the end of its life. Governments and authorities around the globe are initiating government measures to combat this development; the EU did so at the beginning of 2018 with its Plastics Strategy. Environmental associations and other stakeholders are adding plastic waste to the list of major global environmental problems and more and more effects of plastic on the environment are being scientifically researched.

Time for a circular plastics economy

The basic idea is simple: minimize the extraction of fossil resources and end-of-life losses and, at the same time, enable real recycling. The new plastics economy must be circular: a circular plastics economy. However, the transition from today’s globally still largely linear system to a circular system necessitates systemic, technical, and social innovations and value creation networks that are adapted to them. This transformation requires a “plastics revolution” that can only be achieved by adopting a multi-stakeholder approach.

Circular Plastics Economy research cluster

The Fraunhofer Institutes UMSICHT (lead institute), IAP, ICT, IML, and LBF thus launched the Fraunhofer Cluster of Excellence ‘Circular Plastics Economy’ in November 2018 with six research departments in three divisions (Figure 1):

- Circular Polymers
- Circular Additives and Compounds
- Advanced Recycling
- Circular Logistics and Sustainability
- Application and Demonstration
- Business and Transformation

The objective of the cluster is to develop system services for the circular plastics economy. What is new is

that science is intertwined with business development in the cluster right from the start in order to provide market-relevant prototypes. The research cluster will run for five years and will be consolidated as a virtual institute.

The first projects on the research agenda are beginning now. Fraunhofer UMSICHT invites stakeholders from industry and science to help shape the circular plastics economy and collaborate on solutions.



Figure 1: Circular Plastics Economy: Cluster and research agenda

Fraunhofer Clusters of Excellence combine the competencies of institutes to investigate relevant topics with scientific excellence. The aim is to establish virtual institutes with international visibility.

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