



Fraunhofer

CCPE

FRAUNHOFER CLUSTER OF EXCELLENCE
CIRCULAR PLASTICS ECONOMY CCPE

CIRCULAR PLASTICS ECONOMY

We keep plastic in the loop



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Towards a circular Plastics Economy

There's no mistake about it: It is neither possible nor sensible to renounce plastic. After all, the versatile material shapes our lives and makes them easier. It can be found in electronics, cosmetics, and furniture, and is used in almost all areas of medicine. However, one thing is certain: Because of inappropriate or inefficient recycling systems, too much plastic is currently released into the environment. In Germany alone, more than half of the collected and sorted plastic is incinerated.

Therefore, what needs to change is how we deal with this polymer all-rounder. We have to find the path from a linear to a circular plastics economy in which fewer fossil resources are extracted, products are used for longer, and end-of-life losses are reduced.

This is where the Fraunhofer Cluster CCPE comes in. Six institutes of the Fraunhofer-Gesellschaft are working with partners from industry to develop system services for a functioning circular plastics economy. What do plastic products, for instance, need to be like in order for them to no longer end up in the environment after use? And how can the plastics that nevertheless end up in the environment be degraded quickly and without leaving any residues? Answering these questions takes place in three divisions: materials, systems and business.



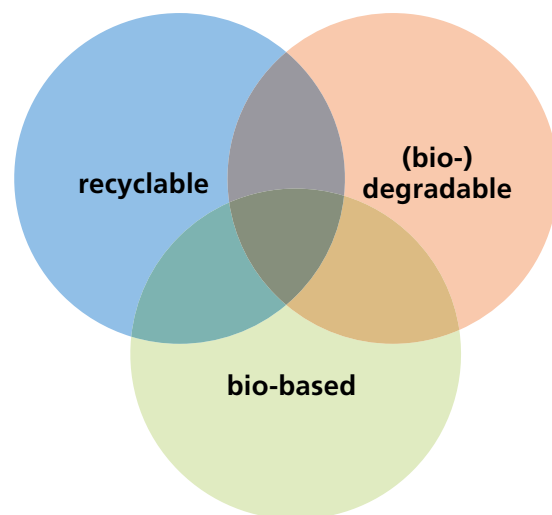
Further information

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[in s.fhg.de/linkedin-fraunhofer-ccpe](https://www.linkedin.com/company/fraunhofer-ccpe)

Developing circular materials

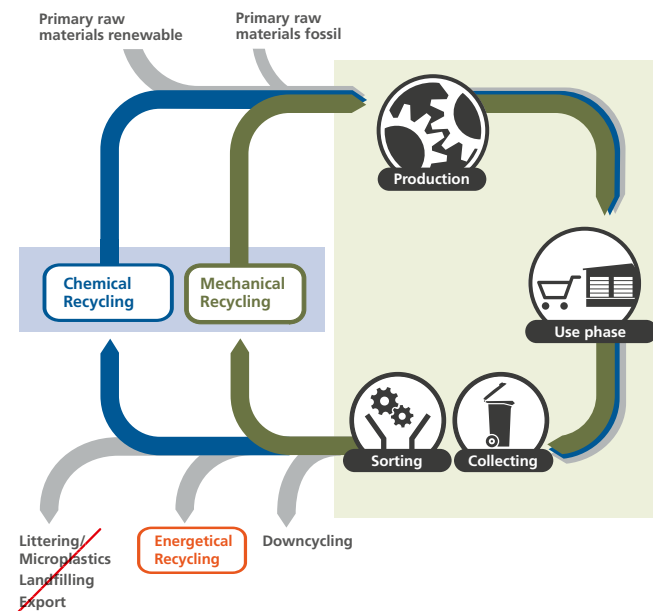
In the **division "Materials"**, plastics are developed from a sustainable mix of resources. They are used to produce functional and durable materials that serve to close material cycles. Formulations for polymers and compounds are based on circular principles. New additive systems are environmentally friendly. They provide for stable recyclates, multiple recycling loops, and – where necessary – managed and time-controlled degradation in the environment.



Are you interested in further information about the division "Materials"? Then send us an email to materials@ccpe.fraunhofer.de.

Designing circular systems

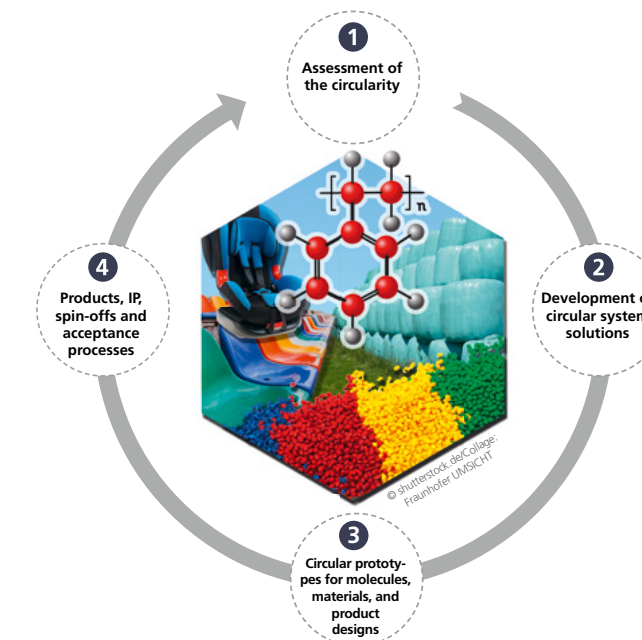
Efficient collection and transport technologies go hand in hand with new material recycling processes. Digitally mapped processes, which lead to optimal value creation cycles, are created in the **"Systems" division**. Intelligent collection, sorting, and recycling technologies allow polymers and monomers to be recovered and fed back into production. Digitalization, marking, and system analysis help to establish efficient logistics and to evaluate the life cycles of circular products. Plastic waste thus becomes "recycled content".



Are you interested in further information about the division "Systems"? Then send us an email to systems@ccpe.fraunhofer.de.

Testing circular product designs

The **"Business" division** offers comprehensive system services for plastics within the circular economy across industry boundaries: from evaluation tools, circular product designs, prototypes, and recycling to acceptance processes and business models. New developments from the divisions "Materials" and "Systems" are demonstrated using prototypes and tested in practice. Specifically, this involves reusable transport containers for online retail and child car seats. Separate marketing strategies are developed for such circular products.



Are you interested in further information about the division "Business"? Then send us an email to business@ccpe.fraunhofer.de.

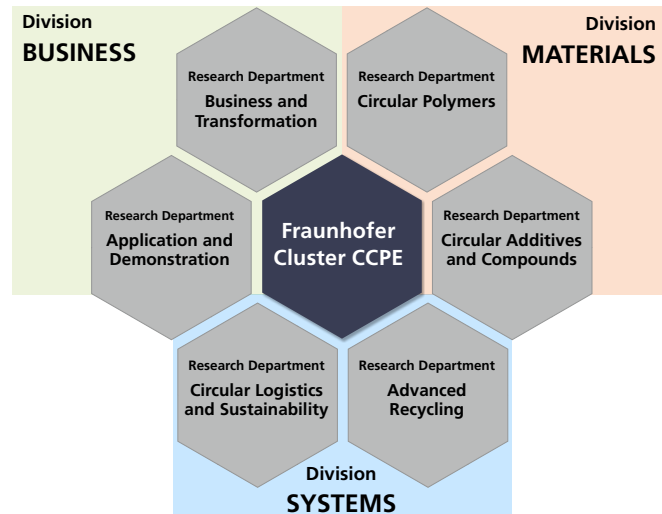
The research cluster at a glance

WHO? The Fraunhofer Cluster of Excellence Circular Plastics Economy CCPE combines the competences of the six Fraunhofer Institutes IAP, ICT, IML, IVV, LBF, and UMSICHT (management).

WHAT? Together, we want to shape the switchover from a linear to a circular plastics economy. To achieve this, we are working on technical and social innovations for the sustainable transformation of the entire plastics value creation chain.

WHY? More resources are currently consumed worldwide than the existing ecosystems can supply. In order to achieve sustainable development, both the management of goods and the lifestyles of society must fundamentally change.

Research agenda and structure



Board of Management

Shape the circular plastics economy!

The aim of the Fraunhofer Cluster CCPE is to establish a virtual institute with international visibility. Economic developments and social consequences of the plastics industry are analyzed and a sustainable change process is designed – from the linear to the circular plastics economy.

Join us in this!

Cluster Management

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