

Subproject 4



Treatment and material re-use of biobased plastics from industrial waste

Subproject 4.1

- Analysis of the materials contained in the recyclates from the adapted recycling process of subproject 4.2
- Development of high-quality PLA recyclates
- Utilisation-specific optimisation of the recyclates
- Comparison with other recycling methods
- Transfer of results also to other bioplastics

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Subproject 4.2

- Development of processes for the high-quality mechanical recycling of PLA
- Optimisation of the recyclates
- Development of new products based on the recycled bioplastics (in cooperation with subproject 4.1)

Bösel Plastic Management GmbH

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Subproject 5



Recycling of biomaterials for efficient cascade use – ecological and socio-economic assessment for strategy development towards high-quality recycling options

- Life cycle assessment of the subprojects (critical review of one life cycle assessment)
- Assessment of the sustainability of all subprojects
- Identifying and deriving of need for optimisation
- Transfer of results to different PLA plastics
- Interpretation and deriving of recommended actions
- Development of a specific communication strategy for the results of life cycle assessments of PLA plastics

Fraunhofer Institute
for Environmental, Safety, and Energy Technology UMSICHT

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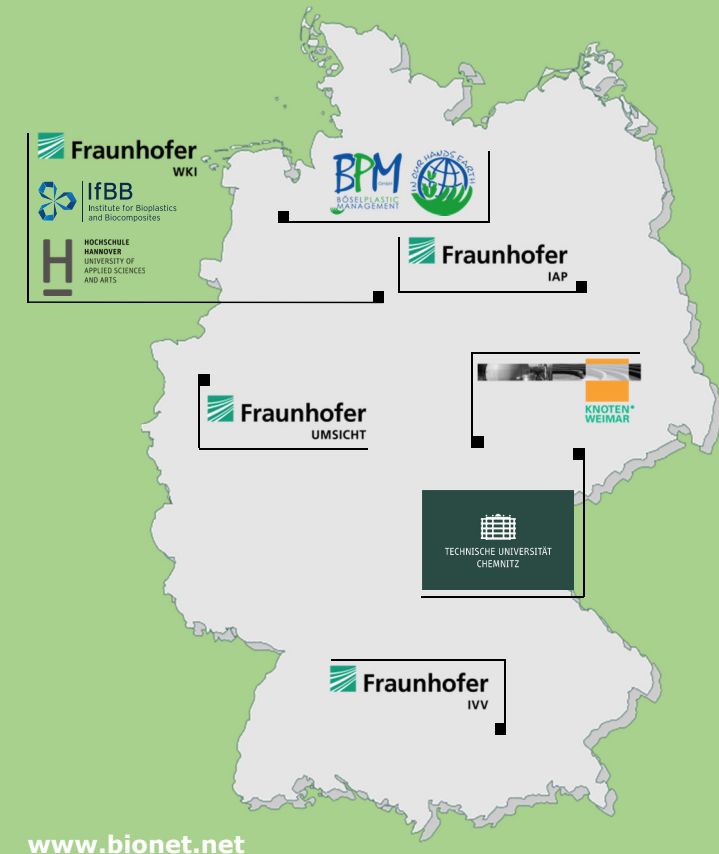
You can find further information on
bionet.net/biobasierte_kunststoffe.html

Scan this QR code with your smartphone to
be directed to the joint project:



Sustainable recycling strategies for products and wastes from biobased plastics

Research Alliance



With support from



by decision of the
German Bundestag



Subproject 1



Biobased plastics in the post-consumer recycling stream and Coordination of the network

Coordination of the network

- Coordination and communication
- Pooling of the activities and results of the subprojects
- Establishing of similar framework conditions for the subprojects
- Compilation and editing of the results

KNOTEN WEIMAR

International Transfer Centre Environmental Technology GmbH

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Biobased plastics in the post-consumer recycling stream (BioRec)

- Analysis of established disposal pathways and recycling options
- Systematic assessment of the preconditions of a reliable detection and separation of biobased plastic wastes existing in practice
- Studies on the compatibility of biobased and petrochemical plastics (component compatibility)
⇒ Development of recycling scenarios

Technische Universität Chemnitz

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KNOTEN WEIMAR

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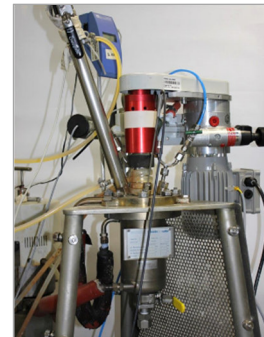
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Subproject 2



Recycling of PLA into dilactide

- Systematic studies on the re-integration of PLA into the synthesis process
 - Influence of the amount of the added polylactide
 - Influence of the molar mass of the added polylactide
 - Comparison of the findings with marketable polylactides, including studies on filled, stabilised or otherwise modified PLA (post-industrial domain, possibly post-consumer domain)
- Evaluation of possible interference factors like e.g. humidity or contamination with other polymers
- Experimental testing and theoretical analysis of the scale-up of the recycling process up to pilot-plant scale
- Production of samples of recycled PLA, assessment of the polymerisation process and of the characteristics of recycled PLAs
- Processing tests with recycled PLA, assessment of the processing procedure and the material characteristics
- Assessment of the possibilities and the feasibility of the method



Reactor system for the production of dilactide [Fraunhofer IAP]

Fraunhofer Institute for Applied Polymer Research IAP

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Subproject 3



Recycling of polylactide (PLA) by selective dissolution from waste streams

Recovery of high-quality and pure PLA recyclates from heterogeneous waste by solvent-based recycling

- Analysis and characterisation of currently accruing PLA waste streams
- Adaptation of existing solvent-based recycling processes to post-consumer PLA waste
- Sample production of high-quality and pure PLA recyclates on an upscale-enabled pilot plant
- Characterisation and application test of the recyclates
- Comparison of solvent-based and thermo-mechanical recycling (re-compounding) with regard to recyclate quality and economic efficiency



Waste containing PLA [Fraunhofer IVV]

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