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

Subproject 4.1

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

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

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:
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

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Waste containing PLA (Fraunhofer IVV)

Reactorsystem for the production of dilactide (Fraunhofer IAP)

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Biobased plastics in the post-consumer recycling stream and 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

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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

Subproject 3

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

- 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 recycle quality and economic efficiency

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

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Subproject 1

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 recycle quality and economic efficiency

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