„EMPHATI Jahrestagung“
22.10.2024
TKT Kunststofftechnik GmbH
Bad Laer

Feasibility study presentation

arweco
ADVANCED BIOBASED COMPOUNDS
a brand of westerkamp
MODERN MATERIAL MILLING

arweco – Holzmühle Westerkamp GmbH

- development of compounds since 2019
- registration of the trademark/brand arweco in 2023
- product types **Otura®** and **Lignura®**
  - **Otura®** → wood
  - **Lignura®** → oat hulls
- market launch in 2024
- compounds „made in Lower Saxony, GER“

arweco
ADVANCED BIOBASED COMPOUNDS

Biobased polymers with natural fibers

Objectives:

- development of biobased and/or biodegradable, natural fibre reinforced compounds
- distribution of compounds to injection moulders, and others

Properties:

- biobased (=> CO_2 reduction)
- highest possible fibre content (=> cost and CO_2 reduction)
- sidestream raw material (=> saw dust and oat husks)
- compostability (=> closing natural loops)
- good colourability (=> harmless colours)
- Recyclability (=> compatible with circular economy)
- possibility to use additives to improve certain properties (=> flame retardancy, flow properties, brittleness)

HOME OK compost

TÜV AUSTRIA HOME S2776

Status Quo

Polymers:

- Bio-PE ✓
- PLA ✓
- PBS, PBSA ✓
- PHA (✓)

- Bio-PA ?

-> temperature?

challenges:

- fibres are sensitive to heat
- thermal degradation at ≥170 °C
- processing information important
- difficulties to mold in hot runner
- high shear forces (fiber deterioration)

fibre content:

- 30-50 % for injection molding

- up to 70 % for extrusion

- customizable (3D-printing e. g. 10-20 %)

Feasibility study (open project part)

Title: *Feasibility study on oat fiber-reinforced PHA compounds for injection molding applications*

Project start: 01.11.2024; duration max. 6 months
Partner: H&P Moulding Emmen B.V.
Budget: 19.912,00 € (Westerkamp: 12.478 €; H&P: 7.434 €; 50 % subsidy)

Interreg
(Ko-)finanziert von der Europäischen Union
(Mede) gefinancierd door de Europese Unie
Deutschland – Nederland
EMPHATI

Objectives:

Testing the feasibility of an formulation with at least 30 % oat fiber content and a PHA grade for injection molding.

Westerkamp	**H&P**
• Manufacturing oat fibers from hulls (O120 grade) • Research and purchase of suitable PHA grade • Development of a scalable formulation • Compounding via sub-contract	• Testing and evaluation of compound for injection molding • Manufacturing tensile bars/“dog bones“

Thanks for your attention

Otura®
Lignura®

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