From beer to packaging materials

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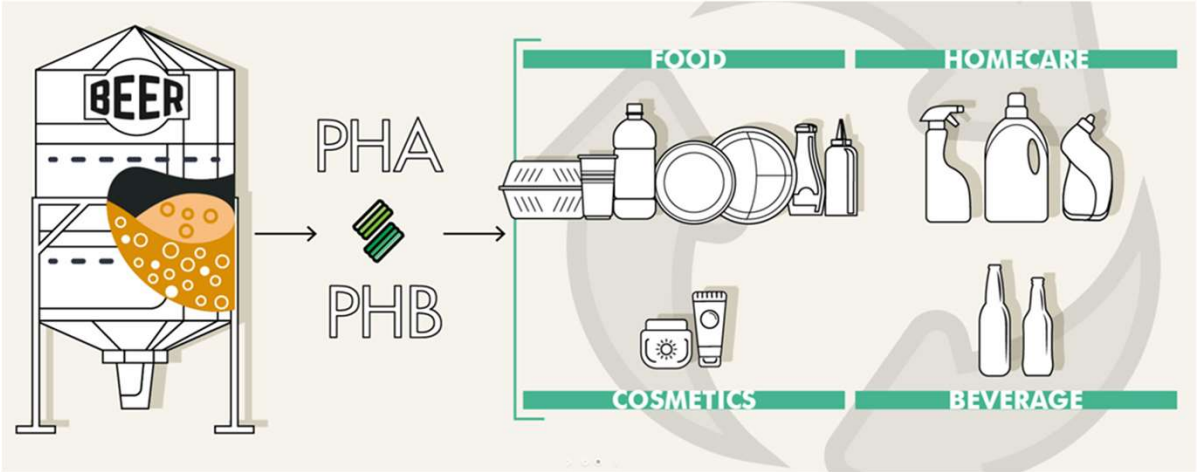
Excellence in Plastics

BIOSUPPACK PROJECT



Upgrading the production and the enzymatic recycling of environmentally friendly **PHA-based rigid packaging** solutions, **using spent grain from beer production** as feedstock units

Creation of a new value chain

MATERIALS & PACKAGING WITH LOWER ENVIRONMENTAL IMPACT

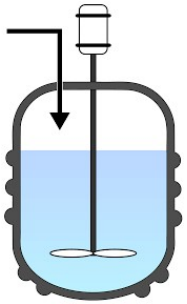
This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme. Nr. 101023685

BIOSUPPACK PROJECT

Barley, malt

Brew Spent Grains (BSG) from beer production

Proteins extraction



Sugars for enzymatic fermentation

Enzymatic recycling: 3HB monomer

Bioplastics (PHAs)

Packaging for food, beverage and cosmetics

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BIOSUPPACK PROJECT

OBJECTIVES

- **Increase the use of renewable resources** (BSG) for PHA formulations up to >85%
- Crafting **highly-performing PHA-based rigid packaging** with properties like those of conventional petrochemical plastics present in the market
- Integration of **plasma technology** throughout the value chain for the pre-treatment of brew spent grains, packaging treatment and finally, for the pre-treatment of packaging waste
- **Ensuring recyclability.** Mechanical & Enzymatic Recycling to reintroduce materials in the production step and recover carbon sources for the fermentation process (>30% carbon source supply)
- Development of a system to **identify and sort BioSupPack waste** (>90%)
- **Upscale** the production of new PHA-based products to **demonstration level**
- Demonstrate **end-user validation and acceptance** of the new BioSupPack products
- Creation of the **new value chain** by **managing** both **brewery and packaging waste flows**
- **Maximization of impact** after the end of the project by exploiting results
- **Sustainability and EU-standards compliance** assessment

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SABIOMATERIALS

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Logoplaste

BIO SUP PACK

Pilot scale production: 125 mL

Large scale production: 300 mL

Body-peeling & sunscreen
Validation & consumer acceptance studies

BBI JU

Bio based Industries Consortium

Horizon 2020 European Union Funding for Research & Innovation

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BIOSUPPACK PROJECT

SABIOMATERIALS

Design and mold production

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Injection moulding production:
50 parts for validation

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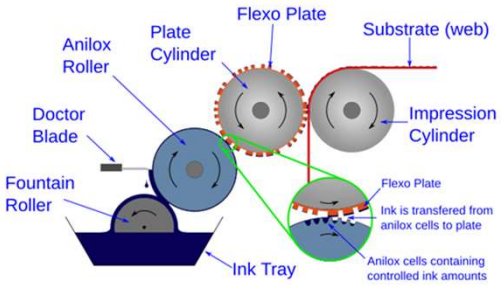
PHB-based coatings for flexoprinting



Graphic Packaging INTERNATIONAL

Tray forming

PHA coated ice-cream trays
Validation & consumer acceptance studies

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BIOSUPPACK PROJECT

TASKS ON-GOING

(up to March 2026)

- Mechanical recycling
- Scale-up of enzymatic recycling
- Packaging prototypes optimization and validation by the end-users
- LCA, LCC and social assessments

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Thank you for your attention!

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