

Partners



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Project details

Project number: 101178576

Project name: BIODEGRADABLE PACKAGING MATERIALS ADVANCING CIRCULARITY, SUSTAINABILITY & ECO-INNOVATION

Project acronym: BioPackMan

Call: HORIZON-CL4-2024-RESILIENCE-01-TWO-STAGE

Topic: HORIZON-CL4-2024-RESILIENCE-01-35

Type of action: HORIZON Innovation Actions

Project duration: 48 months

EU Contribution: 7.999 292,51 Euro

Contacts

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BIODEGRADABLE PACKAGING MATERIALS ADVANCING
CIRCULARITY, SUSTAINABILITY & ECO-INNOVATION

About the project

A New generation of biodegradable packaging materials

BioPackMan pioneers an innovative approach **to packaging design** by merging **biodegradable materials** with advanced modelling tools. The project focuses on **replacing conventional plastics** with modular, **eco-designed solutions** tailored for real-world use and environmental performance.

Objectives



Sustainable Bio-Polymers

Development of competitive and sustainable bio-degradable polymers and blends



Digital Bio-Design

End-to-end digital toolset to accelerate the design and virtual screening of biodegradable compounds



Smart Bio-Additives

Sustainable additives for functional performance and tuneable biodegradability



NextGen Biopackaging

Biodegradable high-performance packaging intermediates

Approach & Innovation

Integration in commercial products



We develop new bio-based and biodegradable plastic materials using **renewable feedstocks** such as PLA (polylactic acid) and PHAs.

The project develops custom material blends with improved **mechanical strength, thermal stability, chemical resistance, and gas barrier properties.**

By combining them with natural additives and applying chemical recycling strategies, we create

customized packaging formats, both **rigid and flexible, suitable** for food and **personal care sectors.**

Case Studies

Scientific Validation of Circular Packaging Solutions

To ensure that our materials and models are robust, scalable, and aligned with market needs, we will test our approach through a set of **strategic case studies**. These case studies reflect a variety of product sectors, material states, and packaging formats, helping us to explore circularity from multiple angles.



Expected Results

- Reduce CO₂ emissions by up to 50–75% compared to fossil-based packaging
- Strengthen EU market leadership in biodegradable packaging
- Create new eco-jobs in materials science, recycling, and digital manufacturing
- Advance European Green Deal, Circular Economy Action Plan, and Fit for 55 targets