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

PROJECT COORDINATOR
Prof. Costas A. Charitidis
National Technical University of Athens
charitidis@chemeng.ntua.gr

DISSEMINATION MANAGER
Isella Vicini
beWarrant - Tinexta Innovation Hub
isella.vicini@tinextainnovationhub.com

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BioPackMan

BIODEGRADABLE PACKAGING MATERIALS ADVANCING CIRCULARITY, SUSTAINABILITY & ECO-INNOVATION

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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

Smart Bio-Additives

Sustainable additives for functional performance and tuneable biodegradability

Digital Bio-Design

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

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.

Rigid vs Flexible packaging

Liquid vs Solid formats

Food & Detergents

Expected Results

- Reduce CO_2 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