New GRECO project on greener and safer bioplastics for food packaging

Berlin, 6 May 2025 – The new Horizon Europe-funded GRECO project provides innovative biobased, biodegradable and recyclable food packaging based on novel PLA copolymers, functional coatings, additives and green catalysts. GRECO aims to demonstrate the life cycle and techno-economic feasibility of greener and safer bioplastics value chains for the food packaging sector, based on a safe and sustainable-by-design strategy.

The GRECO project kick-off will take place in Valencia, at AIMPLAS, on 16-17 June 2025. European Bioplastics and its members, including TotalEnergies Corbion, AIMPLAS, and INNOTECH COEXPAN-EMSUR, are among the 21 partners that have joined forces to develop and implement "Innovative biobased, biodegradable, recyclable, safe, and circular food packaging" under the lead of the Aristotle University of Thessaloniki (AUTH).

Dimitrios Bikiaris (AUTH), GRECO coordinator, indicates that "*The GRECO project aligns with the new Packaging and Packaging Waste Regulation by developing biobased, biodegradable, and recyclable PLA copolymers for food packaging. Our goal is to create sustainable and circular solutions that reduce waste and environmental impact*".

At a demonstrative scale and in the real operational environment, GRECO will design, demonstrate and scale up food packaging materials (e.g., flexible and rigid applications for cheese, processed meat, fresh meat, berries, and nuts) that can meet diverse application needs, preventing moisture and aroma loss and increasing shelf life.

Novel PLA copolymers will be developed and optimised with the modelling tools to drive the design of the polymers to improve the biodegradability, performance, production rates, yield, and quality in an iterative strategy.

"*As part of GRECO, TotalEnergies Corbion is contributing to the development of new PLA copolymers that deliver improved packaging performance and functionality, while boosting recyclability and biodegradability*", said Jenifer Mitja from TotalEnergies Corbion. She added: "*Significantly reducing carbon footprints, PLA's versatility, biobased origin, and wide industrial availability make it a key enabler in addressing the performance and sustainability requirements set by the new Packaging and Packaging Waste Regulation*".

GRECO will work on different end-of-life (EoL) scenarios, including testing the recyclability of the biobased polymers and materials with mechanical and chemical recycling (both in open and in closed loop systems). Innovative recycling technologies will also be used on post-consumer plastic packaging approved for food contact and deliver decontaminated recycled-biobased polyesters.

At the same time, a biodegradability assessment will be performed for aerobic and anaerobic biodegradation. The biodegradability of the developed materials will be tested in marine, water, and soil environments. The materials will also be tested for industrial composting conditions and home composting. The certification bodies TÜV AUSTRIA Belgium and DIN CERTCO will benefit from the results of biodegradability testing in open environments and use the inputs to plan changes and revisions in their certification schemes.

AIMPLAS is contributing to several tasks in GRECO. "*We are particularly excited to implement reactive extrusion (REX) as a green chemistry technology for developing tailor-made and safe-and-sustainable-by design PLA-based copolymers for the food packaging sector, scaling them up to TRL 7*", said Belen Monje Martinez. "*Specifically, the contribution on the development of PLA-copolymers by reactive extrusion and on the production of additives by mechanochemistry is novel and groundbreaking and will make it possible to achieve more sustainable, biobased, recyclable and biodegradable PLA-compounds and coatings*".

The consortium will also collect and analyse qualitative and quantitative data on consumer needs and their perceptions to ascertain how GRECO products align with the perceptions of consumers and their related values, such as sustainability, usability, and accessibility.

GRECO's results are foreseen to provide a concrete contribution to several European action plans and strategies, such as the Plastics Strategy, the Single-Use Plastics Directive, the Circular Economy Action Plan, and the Packaging and Packaging Waste Regulation.

Hasso von Pogrell, Managing Director of European Bioplastics indicates that "*European Bioplastics strongly believes that an actionable EU Bioeconomy Strategy should be a top priority to safeguard the strength of our European industries. This is only possible with a strong collaboration between all stakeholders, more policy support, and technological advancement. This project is an outstanding example of this collaboration and will bring great advancement to the development of circular bioplastics".*

GRECO has received 7.6 million Euro funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement No. 10117766.

Find out more about the project at https://www.european-bioplastics.org/research-projects/greco-2/.

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About European Bioplastics
European Bioplastics (EUBP) is the European association representing the interests of the bioplastics industry along the entire value chain. Its members produce, refine and distribute bioplastics i.e. plastics that are biobased, biodegradable, or both. More information is available at www.european-bioplastics.org

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