Press release E-OilÉ

From waste to sustainable packaging: the Horizon Europe Project E-OilÉ launches across Europe

A new Horizon Europe-funded research project, E-OilÉ, has officially launched to pioneer safe and sustainable biodegradable monodose packaging solutions for oily food and cosmetic products.

E-OilÉ, a new Horizon Europe-funded research project, has officially launched on 1 June 2025 to tackle one of today's most persistent environmental challenges: **plastic packaging waste**. The project brings together 15 partners across Europe **to develop biodegradable, high-performance packaging** specifically designed for oily products such as olive oil, sauces, body oils, and cosmetic serums.

Monodose packaging, while convenient and consumer demanded by safety and hyigene, poses significant challenges for conventional end-of-life (EOL) recycling systems due to their small size, material complexity, and risk of contamination. These products often bypass traditional recycling streams and contribute disproportionately to plastic pollution. **E-OilÉ aims to deliver an innovative solution by developing biodegradable alternatives** that align with existing standards and guidelines, ensuring they do not compromise biodegradability or hinder established recycling processes.

In addition, traditional plastic packaging comes at a high environmental cost, contributing to landfill overflow, marine pollution, and greenhouse gas emissions. Even current bioplastics often fall short of expectations: they degrade too slowly in real-world conditions, lack compliance for food-grade applications, or rely on feedstock imported from outside Europe.

E-OilÉ sets a new standard by applying Sustainability by Design (SSbD) principles throughout the product life cycle. The project will use renewable feedstocks from European olive by-products to create biodegradable polyesters and polysaccharide-based blends, engineered to meet rigorous functional and environmental requirements.

These novel materials will be validated through industrial manufacturing processes such as film blow extrusion, injection moulding, and thermoforming. Prototypes will undergo comprehensive biodegradability tests, environmental and health risk assessments, and consumer acceptance evaluations to ensure their readiness for market adoption.

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The project will also **employ digital twins and AI-driven tools** to predict degradation performance, accelerate optimisation, and reduce testing costs—paving the way for faster deployment of sustainable packaging innovations.

Coordinated by Gaiker, a Spanish technology center specialising in sustainable materials, waste recovery, and advanced plastic solutions, E-OilÉ aims to deliver market-ready, safe, and affordable alternatives that meet both performance and sustainability benchmarks.

Figure 1.E-OILÉ partners in the Kick-off meeting in Bilbao

"*With E-OilÉ, we are rethinking packaging. Not just how it's made, but how it performs for challenging products like oils, how it biodegrades in real environments, and how we can use European olive by-products to create smarter, safer, and sustainable materials for a circular future*" — said Maria José Suárez, project coordinator.

The project officially kicked off in Bilbao, Spain, in June 2025 and will run for four years.

"Biodegradable by Design, Sustainable by Nature"

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