

## Biobased Polyester for Cosmetics and Coatings

*The Biomac Open Innovation Test Bed (OITB) launched an open call in 2023 that selected a series of project proposal that will be upscale from lab stage to Industrial prototypes. In this factsheet, we are looking at the BioPolCosCo from Worlée.*

**Worlée Chemie GmbH** is a company producing materials for the cosmetics and coatings industries, they have presented a proposal for a research and development project called BioPolCosCo answering the BIOMAC's open call to benefit from the services offered by the Open Innovation Test Bed. The main objective of the project is to improve Worlée's existing products by leveraging bio-based materials to meet the growing demand for biodegradable and sustainable raw materials.



### The value proposition

Worlée has already made significant progress in developing products aligned with these needs, but it aims to go further with BioPolCosCo. The project plans to integrate monomeric blocks derived from BIOMAC, and nanocellulose. These new elements aim to further improve the application properties of the products and increase the bio-based content while maintaining the high performance that characterizes Worlée's products.

However, the company recognizes that introducing new materials requires careful evaluation. Before being able to commercialize the developed products, it will be essential to validate the approach in terms of: Techno-economic feasibility, Regulatory compliance, Sustainability requirements.

For this reason, the company has applied to the Biomac Open Call to receive such services issued by the OITB partners.

Worlée is aware of the need to reduce dependence on the petrochemical industry and is actively committed to incorporating bio-based raw materials into its products. This transition, however, presents challenges, the primary one being the need to maintain the same application properties as traditional petrochemical materials. To fully develop its vision the company will be supported by Biomac partners to fill the gaps identified, in particular, the BioPolCosCo project aims to:

- Develop (modified) polyesters that meet the industrial needs for bio-based and sustainable alternatives, particularly for cosmetic and coating applications.
- Leverage the experience and expertise of the BIOMAC partners to utilize the monomeric blocks developed in the project and improve the properties and bio-based content of existing products.

In particular, BioPolCosCo foresees the production of bio-based polyester at the Resins Pilot Line (provided by Fraunhofer-WKI) and subsequent evaluation of its properties at the Coating Formulation Pilot Line (provided by ITENE). Worlée will then test the polyester in specific cosmetic and coating applications to verify its suitability.

## The Final product

The final goal is ambitious: to develop a polyester with at least 75% renewable raw materials, whose properties are comparable to those of synthetic polyesters. The use of cellulose is one of the key elements to achieve this goal.

In summary, Worlée's proposal highlights the growing attention of the industry towards bio-based materials and biodegradability and underlines the company's commitment to leading this transition. Thanks to the collaboration with BIOMAC partners and the integration of their expertise, Worlée aims to improve its product offering and consolidate its position as an innovative and sustainable company in the market.

