



Clermont-Ferrand, France - 10 September 2025

## The Biolmpulse project demonstrates the relevance of industrial biotechnologies for the production of bio-based ingredients and a new generation of adhesives.

*After six years of collaborative research, the Biolmpulse project confirms the competitiveness of industrial biotechnologies and paves the way for a new generation of high-performance, bio-based adhesive resins free from substances of concern for human health.*

### A collaborative project to accelerate green chemistry

Launched by Michelin and its ResiCare brand, the Biolmpulse project brought together public and private partners<sup>1</sup> with the ambition of developing a new generation of bio-based adhesive resins, free from so-called SVHC<sup>2</sup> ("Substances of Very High Concern"). Building on the production of a bio-based molecule of interest, the project aimed to open new perspectives for industrial biotechnologies in the field of materials and to provide credible alternatives to petro-based phenolic adhesives.

### A competitive bio-based molecule, produced at an unprecedented scale

After six years of work, Biolmpulse today confirms the successful development of a bio-based molecule that was until now scarcely available and produced exclusively through petrochemistry. This breakthrough relies on the development of a unique fermentation and purification process. The process developed by the partners has been successfully scaled up for industrial deployment and validated in 200 m<sup>3</sup> pilot trials.

### Concrete industrial applications

Access to this bio-based monomer enables ResiCare to formulate a new generation of high-performance, competitive adhesive resins while reducing the use of fossil resources and eliminating substances of concern.

Among the first validated applications:

- a formulation for plywood, nearing commercial launch,
- a formulation adapted to carbon/carbon composites, currently under industrial evaluation,
- further potential in other applications: wood panels, insulation, composites, textile reinforcements, molded compounds...

### Cutting-edge scientific and industrial collaboration

Biolmpulse is the result of collaboration between five main partners:

- **Michelin (ResiCare)** – project coordinator and resin developer,
- **Leaf by Lesaffre** – responsible for optimising the fermentation process for the monomer,
- **FCBA Technological Institute** – technical lead for resin characterisation and implementation,

- **INSA Toulouse (CRITT Bio-Industries)** – responsible for developing purification processes in partnership with LGC,
- **INRAE (TWB, TBI)** – in charge of identifying and optimising innovative production pathways, designing microbial strains and developing associated production processes.

Supporting partners included **Alderys (Givaudan group)**, which designed the industrial yeast strain, and **ARD (Vivescia group)**, which carried out the first industrial scale-up step at its BioDemo demonstration facility.

### **A step forward for innovation in Europe**

*“BioImpulse proves that it is possible to produce, at industrial scale, a bio-based molecule that long remained dependent on petrochemical routes. This is a decisive first step, showing that competitive biotechnological solutions can emerge in Europe. For each of our partners, this project acts as a catalyst for innovation and demonstrates that green chemistry is making tangible progress,”* says Sébastien RIFFLART, Programme Manager at ResiCare.

### **Next step: an industrial demonstrator**

Building on this success, Michelin and its partners are now exploring the establishment of an industrial demonstrator, to move from proof of concept to large-scale production.

Through this project, the Michelin Group continues to pursue its “All Sustainable” approach and strengthens its position as a leader in the field of composite polymers.

---

#### **Press contact**

Herve ERSCHLER - Michelin Group Press Office  
[herve.erschler@michelin.com](mailto:herve.erschler@michelin.com)  
 +33 6 70 47 85 04

#### **<sup>(1)</sup>About BioImpulse**

Launched in 2019 and completed in 2025, the BioImpulse project (€28M) brought together Michelin (ResiCare), Leaf (Lesaffre), the FCBA Technological Institute, INSA Toulouse (CRITT Bio-Industries and LGC) and INRAE (TWB, TBI). Its objective: to create a new adhesive resin free from Substances of Very High Concern (SVHC). By developing a bio-based molecule of interest, this project opens new opportunities for biotechnologies in the materials sector. Learn more: <https://www.bioimpulse.fr/>

<sup>(2)</sup> **SVHC**: “Substance of Very High Concern”, as defined in the current state of scientific knowledge by ECHA (European Chemicals Agency).



*Industrial Fermenter – ARD*



*Bio-based adhesive resin – MICHELIN  
ResiCare*



*Biolimpulse Project Partners*



Biolimpulse is supported by **ADEME** (French Environment and Energy Management Agency) under the **Investments for the Future Programme**.