SUSTAINABLE STRUCTURAL SANDWICHES AND HOLLOW COMPOSITES PARTS FOR AUTOMOTIVE, BOAT AND AEROSPACE MARKETS

SUSPENS PROJECT

The SUSPENS project aims to develop highly bio-sourced epoxy and polyester resins (over 95%) with new formulations for high performance. These resins will be used with sustainable reinforcements like natural fibers, lignin-based carbon fiber, and recycled carbon and glass fiber to create components for surface transport and aerospace. Recycling solutions for these structures will be developed to cover their entire lifecycle, including an innovative matrix pyrolysis method to reduce energy consumption. They'll also develop a specific solvolysis process to separate the bio-based resins from fibers and study oil and organic component valorization into by-products. The project will demonstrate these methods on representative parts such as a car battery pack, leisure boat components, and an aircraft wingbox section.

TECHNICAL AND ECNOMIC IMPACTS

- Minimum of 20% reduction of CO2-Eq emissions
- 30% lighter weight products in surface transport
- 25% reduction of production costs

BUDGET

4 996 k€

PARTNERS

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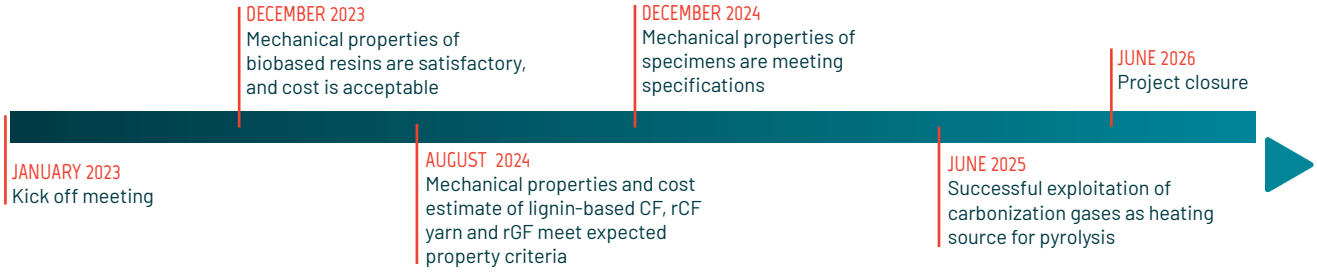
KEY WORDS

Bio-based Epoxy and Polyester resins / Bio-based fibers
Composite recycling / Carbon fibre / Glass fibre



INDUSTRIAL CONTEXT

Recently, an important R&D trend is replacing fossilbased ingredients by lower environmental footprint ingredients (recycled or bio-sourced) for the manufacturing of polymer matrix composites. However, no such product is yet on the market due to tedious industrialisation challenges.

INNOVATIVE FEATURES

- Develop up to 95% bio-sourced thermoset resins
- Bicomponent melt spinning technology for the production of lignin-based precursor fibres
- Mitigate more than 40% of the CO2-eq emissions compared to conventional composites

INDUSTRIAL APPLICATIONS

SUSPENS will deliver novel chemistries for cost efficient fast-cured biobased resins with versatile curing conditions, bio sourced high performance fibres and one-shot production processes for sustainable functionalized sandwich polymer composites & hollow parts for surface transport. SUSPENS will deliver safer, cost-efficient, and low emissions raw materials, such as 95% bio-sourced polymers, natural-based CF, recycled CF/GF to produce sustainable and green composites free of toxic and hazardous substances.

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