

# BIOMOTIVE

Advanced BIObased polyurethanes and fibres for the autoMOTIVE industry with increased environmental sustainability



## Summary

Automotive manufacturers are under growing pressure to either use less fuel or go further on same battery charge. Much of this improved performance will come from making cars lighter – lightweighting – i.e. decreasing the weight they need to move. Every 10% reduction in vehicle weight delivers a 5-7 percent reduction in fuel usage.

As a result, manufacturers are showing increasing interest in lightweight material; a noticeable fraction (around 20%) of modern cars is made of plastic and such an amount is expected to increase thanks to the recognized properties of polymers in absorbing sound and vibration. Despite these advantages, there is no single bio-based plastic that provides the aesthetics and haptics that the automotive manufacturers seek in tandem with the technical properties (shock resistance, heat resistance, fire resistance and weight reduction) they require.

The BIOMOTIVE project aims to demonstrate, in relevant industrial environments, the production of innovative and advanced bio-based materials (i.e. thermoplastic polyurethanes, 2-k thermoset polyurethane foams and regenerated natural fibres) specifically for the automotive industry. The improved performance of these materials within the automotive sector, will allow massive penetration of bio-based polyurethanes and regenerated fibres into additional “large volume” markets.

<http://www.biomotive.info>

### Type of Action:

Innovation Action -  
Demonstration

**Value Chain:** Across VCs

**Start date:** 01 June 2017

**End date:** 31 May 2021

**BBI JU contribution:** €  
10,659,352.50

## Objectives

The BIOMOTIVE project has a number of objectives:

- From a scientific and technological perspective, it intends to demonstrate the production of bio-based raw materials and building blocks for the subsequent application in the formulation of bio-based polyesters-polyols and bio-based thermoplastic TPUs (Thermoplastic PolyUrethane).
- From a final application validation perspective, BIOMOTIVE aims to validate, on an industrial scale, the bio-based polymers in producing interior fascia or door handles of cars, the foams for production of bio-based seats and the

## Expected impacts

BIOMOTIVE expects the project will deliver the following impacts:

- Demonstrate the improved mechanical and functional properties of the developed products against the products already available in the market.
- A total reduction in GHG emissions of up to 58% for the final products through formulating bio-based PUs and foams with bio-based monomers with improved environmental profile
- Potential creation of approx. 400 new jobs in the bio-based sector.

regenerated fibre for producing bio-based textile for covering vehicles seats.

- From an environmental, safety and resource efficiency perspective, BIOMOTIVE aims to reduce primary energy consumption and GHG emission of the developed processes and improve the recyclability of the end-of-life bio-products through eco-design strategies
- From a socio-economic perspective, BIOMOTIVE aims to create new jobs in the bio-based, green chemistry sectors and agricultural sectors, while paving the way for additional investments in the bio-based economy in Eastern European countries. In addition, it seeks to expand the market for thermoplastic polyurethanes and regenerated fibres into the construction and the textile sectors.

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- Metsä Fibre Oy (Finland)
- Novamont Spa (Italy)
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- Instytut Ci??kiej Syntezy Organicznej Blachownia (Poland)
- Nadir Srl (Italy)
- E-Office7 Spółka Z Ograniczon? Odpowiedzialno?ci? (Poland)
- Leda Polymers Sp. z o.o. (Poland)
- I.s.c. Ro Technology Srl (Romania)
- Intap Tobik Spółka Jawna (Poland)
- Università di Pisa (Italy)
- Patentopolis B.V. (Netherlands)
- Fundacion Cartif (Spain)
- UITP - Union Internationale des Transports Publics (Belgium)
- RINA Services Spa (Italy)

## Project coordination

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