

ReInvent

Novel Products for Construction and Automotive Industries Based on Bio Materials and Natural Fibres

Type of Action:
Innovation Action -
Demonstration

Value Chain: Across VCs

Start date: 01 June 2018

End date: 31 May 2022

BBI JU contribution: €
6,525,275

Summary

The automotive industry is constantly looking for new materials in order to reduce the vehicle weight and comply with legislation while Buildings consume large amounts of resources to construct and operate. Europe's construction and automotive industries are seen as having strong potential when it comes to implementing the EU's Bio economy for Europe action plan.

The ReInvent project aims to deliver novel bio based rigid moulded and spraying insulation foam systems for the construction industry and novel bio based soft and semi-rigid foams for the automotive industry.

The products derived in the ReInvent project will be validated for their enhanced properties, sustainability and low cost, and compared to currently available petroleum- and bio-based counterparts. To enhance the sustainability of these products and materials, new energy and cost-efficient recycling technologies will be developed.

Objectives

The overarching objective of The ReInvent project is to develop and combine bio-based materials and fibres that can replace the petroleum based polyurethane (PUR) insulation and structural products used in buildings and soft foams for vehicle interior products. Specifically it sets out to:

- Deliver specifications and requirements to the fibre and foam composites to be used in construction and automotive industries;
- Develop a portfolio of bio-based, multifunctional, sustainable and low-cost rigid and soft foams with high insulating effectiveness and an exploitation property profile as per the end user's requirements;
- Develop bio-based components for the formulation and production of novel cellular materials and products;
- Up-scale production of the newly developed materials to be used in the novel bio-based foam formulations;
- Up-scale production of bio-based novel rigid and soft foams and NFRP nanocomposites for the construction and

Expected impacts

Expected impacts of the ReInvent project include:

- Creating at least one new cross-sector interconnection in bio-based economy clusters;
- Creating at least three new bio-based materials with high potential marketability;
- Creating at least four new demonstrated consumer products based on bio-based chemicals and materials that meet market requirements;
- Delivering quantified benefits such as better performances, lower costs and improved environmental sustainability of the target bio-based materials compared with identified benchmarks for the same large-volume application;
- Delivering an overall reduction of at least 10% in the carbon footprint of the considered bio-based operation compared with the state-of-the-art.



automotive industries;

- Demonstrate novel products as alternatives to available petroleum and bio-based insulation materials;
- Develop recycling technologies using cost-efficient chemical and enzymatic processes for the developed materials allowing re-use in various industrial sectors.

Project coordination

- Centro Ricerche FIAT (Italy)
- Centitvc - Centro de Nanotecnologia e Materiais Tecnicos Funcionais e Inteligentes Associacao (Portugal)
- Institut Fuer Verbundwerkstoffe GMBH (Germany)
- Universitat Politecnica De Catalunya (Spain)
- Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung EV (Germany)
- Consiglio Nazionale delle Ricerche (Italy)
- Aunde Italia SPA (Italy)
- Adler Evo SRL (Italy)
- Kroppenstedter Olmuehle Walter Doppelheuer GMBH (Germany)
- Aep Polymers SRL (Italy)
- Netcomposites Limited (United Kingdom)
- Acciona Construcccion SA (Spain)
- Ritols (Latvia)
- Project SAS Di Massimo Perucca (Italy)
- Osm-Dan Limited (Israel)
- Melodea Limited (Israel)
- Silcart SPA (Italy)
- Aerofly 360 Industrial – Sociedad Limitada (Spain)
- Logstor AS (Denmark)

Organisation name: Centro Ricerche FIAT (Italy)