LIFE BIOBCOMPO - Lightweight bio-based polymer composites for lower emission vehicles

LIFE17 CCM/PL/000049

Project description Environmental issues Beneficiaries Administrative data Read more

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Project description:

Background

In 2015, transport was responsible for 25.8% of all greenhouse gases (GHG) emissions in the EU, with road transport accounting for almost 73% of these emissions. Of the road emissions 44.5% were produced by passenger cars, while 18.8% came from heavy-duty vehicles. Transport is the only major sector in the EU where greenhouse gas emissions are still rising. Between 1990 and 2017 the GHG emissions from the transport sector increased by more than 23%. To meet the 60% GHG emission reduction target of the 2011 Transport White Paper, emissions from the transport will need to fall by 68% by 2050.

To reach the target, it will be necessary to reshape policy to reduce transportation needs and introduce restrictions for individual transport. Public transport, the development of low-emission vehicles (e.g. electric cars) and the wider use of alternative fuels (biofuels, natural gas, etc.) should be encouraged. Reduction of emissions can also be achieved by changes to car design: more efficient engines, better aerodynamics and reduced weight of vehicle.

Objectives

The main objective of LIFE BIOBCOMPO is to reduce the environmental footprint of new vehicles through innovative low density thermoplastic composites derived from renewable (bio-based) sources, in order to meet the GHG emission reduction target of the 2011 EU Transport White Paper. To achieve this target, the project will develop very low density thermoplastic materials on an industrial scale that will serve as an alternative in the production of equipment and car parts. Specifically, the project aims to:

- Optimise bio-components that will be used for the production of innovative

materials: the selection of the best matrices, fibres and additives, and the characterisation of the produced materials and their final tuning;
- Optimise injection moulding process, the production and qualification of prototypes, the pre-industrial manufacturing of components made by bio-based composite and their installation on vehicles;
- Develop a recycling process for the composite materials and verify its recycling potential;
- Draw up a business plan and replicate analysis in other market sectors across Europe; and
- Monitor the project's impact, and carry out dissemination and networking activities.

LIFE BIOBCOMPO will also aim to ensure that the production costs of the innovative lightweight composites are viable and that the new materials are fully recyclable at the end of their lifecycle. The project will contribute to achieving the European Commission proposal to reduce transport sector-related GHG by lowering the emission target of new automotive vehicles to 95 g of CO2 per km from 2021.

Expected results:
- Reduction of vehicle CO2 emissions by 8% with respect to current values, thanks to the replacement of polypropylene matrix reinforced with 20% of mineral glass fibres (density of 1.04 g/cm3) with 20% of cellulose fibres (density of 0.96 g/cm3) that ensures a weight saving of 8%;
- Production of automotivecomponents made of bio-based, low density and low environmental impact polymer composites;
- Optimisation of at least one of the bio-based composite for the production of automotive components;
- 30 000 new cars equipped with components made with the new materials;
- Optimisation and full qualification of the bio-based formulations to ensure their industrial exploitation; and
- Optimise of other formulations that can replace commonly used plastic compounds (PP 20% mineral filled, PP filled with 15% of GF and 15% talc and, PP 40% GF).

Results

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Environmental issues addressed:

Themes

Climate change Mitigation - GHG reduction in non EU ETS sectors

Keywords

emission reduction, vehicle, automobile industry, greenhouse gas, transport planning

Target EU Legislation

- Climate Change & Energy efficicency
- COM(2014)15 - Policy framework for climate and energy in the period from 2020 to 2030 (22.01.2014 ...
- COM(2011)112 - "A Roadmap for moving to a competitive low carbon economy in 2050" (08.03.2011)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	SAPA POLSKA Spka z ograniczon odpowiedzialnoci
Type of organisation	International enterprise
Description	Sapa Polska is part of the SAPA Group, a specialist in processes related to mould injection in the automotive field and a supplier to major international car manufacturers. Sapa Polska owns a highly technological injection moulding machine with an automated parameter control that will be useful for qualifying new materials and their moulding. Five associated beneficiaries: Centro Ricerche Fiat, FCA Italy, SAPA Italy, Sòphia CZ and Sòphia High Tech.
Partners	SAPA srl, Italy CENTRO RICERCHE FIAT SCPA, Italy Sòphia CZ S.r.o., Czech Republic FCA Italy S.p.A., Italy Sòphia High Tech S.r.l., Italy

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Administrative data:

Project reference	LIFE17 CCM/PL/000049
Duration	01-JUL-2018 to 30-JUN -2021
Total budget	3,483,094.00 €

EU contribution	1,887,056.00 €
Project location	Piemonte(Italia) Campania(Italia) Slaskie(Poland Polska)

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