

Project Partners



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Project Coordinator

TECNALIA RESEARCH & INNOVATION

Parque Científico y Tecnológico de Gipuzkoa, Mikeletegi
Pasealekua 2, 20009 Donostia, San Sebastián, Spain

Contact



www.lignicoat.eu
info@lignicoat.eu



Sustainable COATings based on LIGNIn resins and bio-additives with improved fire, corrosion and biological resistance

Project Details

Start Date: 1 June 2021

Duration: 3,5 years

Overall Budget: EUR 5.214 Millions



Main Goals of the Project

LIGNICOAT project proposes the development of eco-innovative materials from lignocellulosic biomass in order to obtain bio-based sustainable coatings considering the availability and carbon footprint of resources.

The LIGNICOAT project aims to increase the bio-based content of the coatings while ensuring performance and providing anti-corrosive, fireproof, and antimicrobial features. The ambitious goal of the project is to assist in the transition of the Paints and Coatings industry from fossil-based to bio-based products.

LIGNICOAT's Technologies

- Lignin depolymerized fractions
- Synthesis of lignin polyols (LPOs)
- Synthesis of bio-based alkyd
- Synthesis of bio-based Polyurethane alkyd (PUA)
- Synthesis of bio-based PUD
- Formulation of bio-based epoxy resins
- New biobased-additives (e.g. enzymes)
- Lignin based polyacids for polyester coatings
- Antimicrobial coatings
- Low VOC coatings
- Anticorrosion coatings
- Fire-proofing coatings

A 42 Month Workplan

- WP1: Lignin based intermediates [Months: 1-18]
- WP2: Bioresins based on lignin [Months: 12-29]
- WP3: Bioadditives for coatings [Months: 1-29]
- WP4: Biocoatings formulation [M20-42]
- WP5: Sustainability assessments [M1-42]
- WP6: Dissemination and exploitation [M1-42]
- WP7: Management [M1-42]
- WP8: Ethics requirements [M1-42]



Project's Objectives

- To develop new intermediate chemical modification routes based on lignin.
- To develop bioresins based on lignin intermediates.
- To improve the sustainability of coatings based on the developed bioresins with similar performance to fossil alternatives.
- To demonstrate specific high-volume market functionalities based on lignin-based additives.
- To boost significantly the industrial net competitiveness.

Impact

- Establishing a new cross-sectoral interconnection between the lignin supply chain and the industrial partners, i.e., the resin and coating manufacturers.
- Creating a new bio-based value chain, opening up new paths for lignin use in developing new bio-coatings.
- Investigating the feasibility of three new lignin-based bio-based chemicals, namely lignin polyols, lignin epoxies and lignin polyacids as well as three new bio-based materials PU resins, alkyd resins and epoxy resins.
- Contribution to the EU bio-economy, in line with the EU's 2050 long-term strategy for a climate-neutral Europe.
- Marketability of new coatings with at least 25% bio-based content.
- Creation of new job opportunities in the area of bio-based materials and processing.

