PROJECT PARTNERS

Gaser Ossido Duro
Gruppo GASER

POLITECNICO

creative nano

ARISTOTLE UNIVERSITY OF THESSALONIKI

idener.ai

IRIS

UNIVERSIDAD DE BURGOS | ICCRAM

exelisis

incotec
INNOVACIÓN EFICIENTE

STELLANTIS | CRF

Arçelik A.Ş.

IAI

6 Small-Medium Enterprises
(GASER, CNANO, IDENER, IRIS, EXELISIS, INCOTEC)

3 Large Enterprises
(CRF, ARCELIK, IAI)

3 Universities
(POLIMI, AUTH, UBU)

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TOXIC FREE METALLIZATION PROCESS FOR PLASTIC SURFACES

PROJECT DETAILS

Start date: JUNE 2022

Duration: 4 YEARS

EU contribution: EUR 4,8 M.

CHALLENGE

Plastics have been used in industrial applications due to their lightweight, flexible, strong and low-cost properties, being particularly favoured in the automotive industry. To enhance their wear and corrosion resistance, as well as the aesthetic appearance, a metallic coating on the plastic surface is often required. However, most plastics are non-conductive material and require special treatment of the plastic surface, including surface etching and activation, metallization via electroless plating, to finally deposit the metallic coating via Plating on Plastics process. The current pre-treatment processes use toxic substances (i.e. Cr^{6+}) and critical raw materials (i.e. Pd).

OBJECTIVES

▶ To implement a safe and sustainable by design (SSbD) strategy

▷ To develop a metallization technology of plastic surfaces based on REACH compliant sprayable UV-curable composite biobased resins.

▶ To develop Cr^{6+} free etching technologies for plastics pre-treatment.

▷ To develop in-silico techniques (simulation and modelling)

▶ To develop fast and accurate inspection method for the QC of the process

▷ To assess the recyclability of coated polymers

▶ To develop a data driven Decision Support Tool

▷ To facilitate the acceptance of the new technologies by the market through standardisation activities

END APPLICATIONS

AUTOMOTIVE

AEROSPACE

HOME APPLIANCES

The FreeMe project aims to eliminate the use of Cr^{6+} and Pd from the Plating on Plastics (PoP) process, by proposing two safe and sustainable by design approaches for the metallization of polymeric surfaces, based on REACH compliant chemicals:

1. Sprayable composite biobased resins
2. Cr^{6+} & Pd free pre-treatment of the plastic surface

Safe -and sustainable - by - design metallic coatings and engineered surfaces