

TOXIC FREE METALLIZATION PROCESS FOR PLASTIC SURFACES

SCOPE:

FreeMe is an EU-funded research and innovation project contributing to the development of safe- and sustainable-by-design metallic coatings and engineered surfaces. The FreeMe project aims to eliminate the use of toxic and carcinogenic hexavalent chromium (Cr 6+) and critical raw material palladium (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.



OBJECTIVES:

1. To implement a safe and sustainable by design (SSbD) strategy
2. To develop a metallization technology of plastic surfaces based on REACH compliant sprayable UV-curable composite biobased resins.
3. To develop Cr 6+ free etching technologies for plastics pre-treatment.
4. To develop in-silico techniques (simulation and modelling)
5. To develop fast and accurate inspection method for the QC of the process
6. To assess the recyclability of coated polymers
7. To develop a data driven Decision Support Tool
8. To facilitate the acceptance of the new technologies by the market through standardisation activities

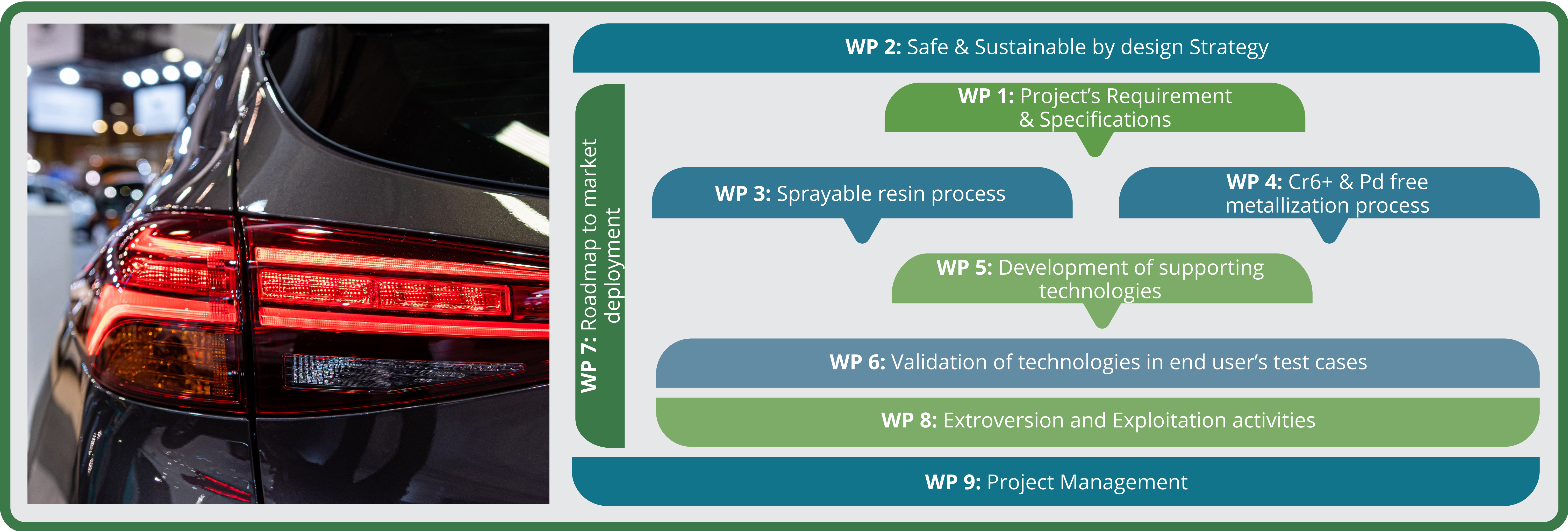
TECHNOLOGIES:

- Sprayable Composites resins process
 - o Preparation of composite resins
 - o Application of composite resins on plastic surfaces
 - o Reduction and metallization steps
- Cr6+ & Pd free metallization processes
 - o Development of novel Cr6+ free surface etching
 - o Development of novel Pd free surface activation processes
 - o Metallization process of polymeric activated surface
- Supporting technologies (in silico modelling, in line optical inspection)



END USER APPLICATIONS:

- Automotive: Decorative automotive parts for interior and exterior use
- Aerospace: EMI shielding on 3D-printed antenna parts
- Home appliances: Applications on washing machine parts



PROJECT PARTNERS

