Chrome plating without toxic Cr(VI). An ecofriendly electroplating for automotive plastic parts.

FreeCr^{6}Plat

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 829535

MAIN TECHNICAL ADVANTAGES OF THE PROJECT

Chrome plating without toxic Cr (VI)

Eco-friendly electroplating for automotive plastic parts

Unique and complete solution

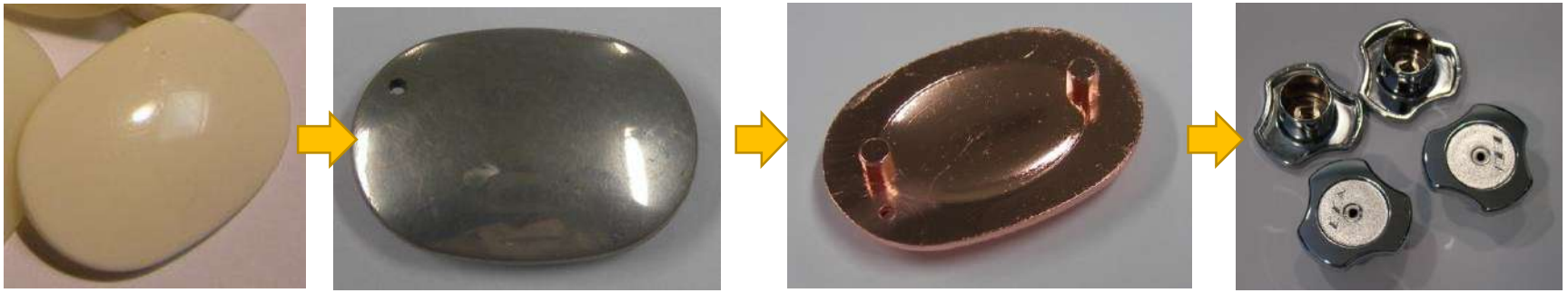
Hassle free adaption

Continues working in the same facilities, with minimum changes

COMPETITIVE ADVANTAGE

Quality and flexibility	Environment	Cost
✓ High adhesion ✓ Resistant and appealing finishing ✓ Wide range of plastic materials	✓ Cr(VI) free ✓ 30% less chemical use ✓ 35% less water use ✓ 50% less energy consumption	✓ 25% less process timings ✓ 20% less water treatment costs

THE PROCESS



Plastic part **Nickel coated part** **Copper electroplated** **Final part**

THE PROBLEM

The chromium (VI) problem, widely used in electroplating techniques

- ✓ Used as etching agent, Cr (VI) is a **highly toxic heavy metal**, being mutagenic and carcinogenic for humans, together with other toxic effects for workers.
- ✓ EU has included Cr(VI) in the restricted substances under REACH directive and its use is banned from 2018 onwards. However, due to the **inexistence of alternative technologies**, its use continues.
- ✓ **Impact:** Almost the 100% of the companies, that metallized plastics are using chrome (VI) and palladium/tin. This represents an average consumption of **175,000 kg / yr of Cr (VI)** and **1,000,000 kg / year of other chemicals**.

Unmet use restrictions
IPCC Directive (2008/01/EC)
WEEE Directive (2008/98/EC)

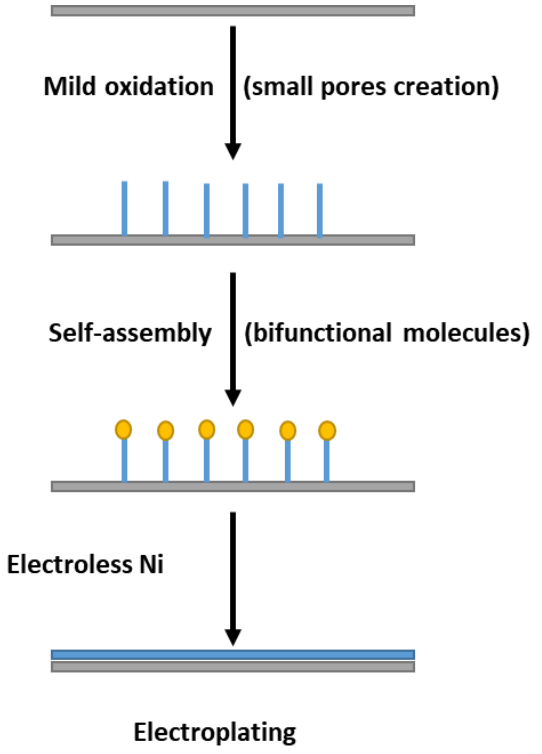
THE SOLUTION

The solution: Cr-free high-performance electroplating pre-treatment for plastic surfaces

- ✓ Using proprietary Molecular Self Assembly (SAM) nanotechnology, **Avanzare eliminates the need for chemical etching with Cr (VI)** acids and electroless nickel plating.

freeCr6plat technology :

- ✓ Market creating innovation: opens the doors for metallizing many types of polymers
- ✓ Game-changer methodology: improving production performance drastically reducing the huge environmental impact of it.



TIMELINE OF THE PROJECT