



Venus - Go Live!

Abstract:

We aim to develop a sustainable, eco-friendly surface treatment to replace decorative chrome, free from chromium, nickel, cyanides, and boric acid. The process will be stable, scalable, and applicable to both metal and plastic. The goal is to meet strict environmental standards while enabling new design options, such as colored or metallic black finishes. Expected outcomes include reduced health and environmental impact, improved workplace safety, lower energy use, and increased global competitiveness for European industry.

	<p>Countries involved </p> <p>Application sectors Automotive, Consumer goods</p> <p>Research and innovation domains Advanced manufacturing processes, Sustainable manufacturing</p> <p>Total cost in M€ (millions) 1 M€</p> <p>Starting date 06/01/2025</p> <p>Duration (in months) 36 months</p>
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RATIONALE OF THE PROJECT

“Venus – go Live!” addresses the need for a more sustainable alternative to conventional nickel-chromium and PVD coatings, which involve substances of concern such as nickel (a common allergen), boric acid, and chromium compounds. Although chromium(III) is considered less hazardous, it is often produced from chromium(VI) in earlier manufacturing stages, raising upstream environmental concerns. Venus replaces these with a cyanide- and boric acid-free white bronze plating combined with a polymer-ceramic topcoat, suitable for both metal and plastic substrates. While PVD offers some color variation, it relies on vacuum systems, has high energy demand, and is less efficient for large-scale production. Venus enables broader aesthetic customization—such as metallic black and tinted finishes—while remaining scalable and cost-effective. Building on successful lab results, the project now focuses on industrial validation together with OEM partners, aiming to deliver a viable, environmentally conscious surface treatment.

TECHNOLOGICAL INNOVATION, ACHIEVEMENTS AND RESULTS

“Venus – go Live!” introduces a novel surface treatment combining a cyanide- and boric acid-free white bronze plating with a polymer-ceramic topcoat. This technology offers a rare combination of being nickel- and chromium-free while still meeting functional and decorative requirements on both metal and plastic. Unlike traditional Cr(VI/III) or Ni-based coatings, Venus avoids substances of concern entirely. Compared to PVD, it enables broader customization, lower energy consumption, and simpler scalability.

The white bronze layer is based on a patented cyanide-free formulation developed by La Tecnogalvano, while LVH Coatings contributes advanced nano-enhanced topcoat systems. Provexa brings integration and upscaling expertise, including experience with plating on plastics.

The project builds on earlier lab-scale successes with promising results in UV, abrasion, and adhesion tests. “Venus-go Live!” now aims to demonstrate industrial viability with OEM partners by coating real components, validating aesthetic, functional, and process stability targets. The modular process design allows tailoring for specific needs—such as high gloss, color tinting, or outdoor durability—positioning Venus as a versatile and environmentally sound alternative to traditional and PVD coatings.

MARKET POTENTIAL

There is strong market momentum toward replacing nickel and chromium coatings due to health and environmental concerns. At the same time, demand is rising for varied and expressive finishes—especially matte and glossy black, which are popular in sectors like fitness equipment, bathroom fittings, and interior design. Venus meets both needs with a scalable, nickel- and chromium-free process combining white bronze plating and a customizable polymer-ceramic topcoat.

The coating enables durable, regulatory-compliant finishes on metal and plastic, with a wide range of design options. OEM partners—Stella, OnMar, Eleiko, and Essem Design—ensure real-world validation across faucets, maritime hardware, gym equipment, and furniture hooks. With Provexa, La Tecnogalvano, and LVH Coatings providing access to Swedish, European, and global markets, Venus is well positioned for adoption in sustainability- and design-driven sectors.

IMPACT POTENTIAL

Venus go Live! has the potential to shift the surface treatment industry toward safer, more sustainable practices. By eliminating nickel, chromium, boric acid, and cyanides, it reduces occupational and environmental risks while enabling diverse finishes demanded by modern design. The technology supports EU sustainability goals, improves workplace safety, and reduces energy and water use. Through strong OEM partnerships and market access, Venus can influence both industry standards and consumer expectations.

