

## METAL MATRIX NANO-COMPOSITE COATINGS UTILIZATION AS ALTERNATIVE TO HARD CHROMIUM

### 3<sup>rd</sup> Press Release MOZART Project Brings Revolutionary Nano-Composite Coatings to the Automotive, Manufacturing, and Machining Industries

The MOZART project has been developing, for almost a year now, a ground-breaking technology that aims to eliminate Hard Chromium (HC), a toxic and carcinogenic substance commonly used in the painting and coating industry. The project offers an environmentally friendly and less toxic alternative based on Nickel (Ni) matrix nano-composite electroplating processes.

The coatings are specifically designed to be durable and long-lasting, providing a safer and more sustainable solution that adheres to **Safe and Sustainable by Design (SSbD)** principles.

The project has three end-users who will conduct demonstrations of the novel coatings in different industrial applications.





The first end user, **GROUP KAMPAKAS**, is a Greek leading company in the production of wear-resistant alloys for use in the mining, cement, power, and defence industry that will be testing the coated demonstrators in helical gears used in various types of motors. The coatings will target corrosion, rust prevention, wear resistance, surface roughness, and friction reduction. The target is to identify the most suitable Ni/2D nanoparticles composite coatings based on the reinforcing mean (Graphene – Gr, Tungsten disulfide –  $WS_2$ , Molybdenum disulfide –  $MoS_2$ ).



The second end user is the Turkish dyeing company **Coşkunöz Kalip Makina**, which will be conducting manufacturing demonstration activities. The coatings will be applied in stamping dies, precision tools that cut and form sheet metal into a desired shape or profile. The main goal of this application is to increase the die lifetime and investigate the repairability of the MOZART coatings.



The Italian SME **DIAD Group** is the third end user and will be testing the alternative coatings in the automotive industry. They will be applied to piston rods, used in car engines to join a piston to the crosshead and thus to the connecting rod that drives the crankshaft. The aim is to provide more durable options than those commercially available for this kind of piece, with a focus on hardness, wear, and corrosion resistance.

The industrial end-user cases are crucial to support the MOZART project on the path to revolutionizing the surface finishing industry with the development of the first applicable nano-composite coatings in the world, specifically in the automotive, manufacturing, and machining industries. Since June 2022, the consortium members have been working tirelessly to ensure that the coatings adhere to the SSbD principles while maintaining the necessary durability and quality to make them viable alternatives to replace HC coatings.

The success of the MOZART coatings industrial applications will be a significant step towards the fulfilment of **REACH** requirements and a testament to the power of international collaboration and the importance of developing sustainable alternatives to harmful substances.

Discover more about the MOZART end users [here!](#)

#MOZART



Funded by  
the European Union

Funded by the European Union under GA number 101058450. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.