SURFACE TREATMENT OF BIOMEDICAL TITANIUM AND TI-ALLOYS

An innovative solution that uses deep eutectic solvents based on choline chloride (vitamin B4) and proton donors (such as ethylene glycol, carbamide or glycerol) for effective electrochemical surface treatment of Ti and Ti-alloys.

AREA OF APPLICATION

The innovative solution can be used in various fields: in the field of aviation, specifically for rocket technology and shipbuilding, for Ti-based materials for galvanochemistry and for photocatalytic applications. At the same time, it is possible to use a new solution to modify the surface of biomedical products based on Ti and Ti-alloy (especially implants and prostheses).

STAGE OF DEVELOPMENT AND PROTECTION

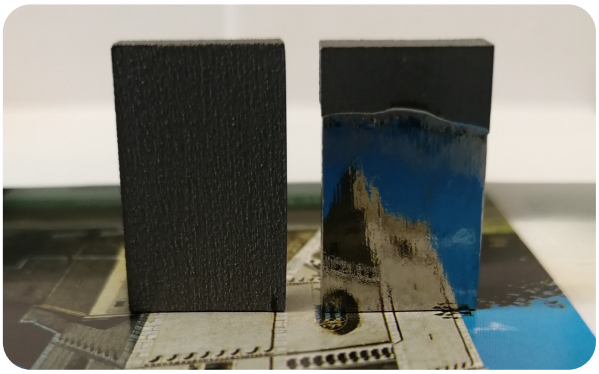
- **functionality verified** in laboratory conditions
- **European patent application**

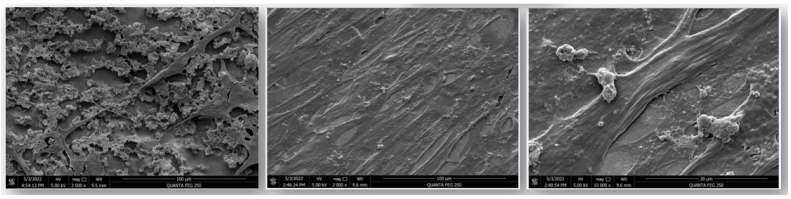
COMPETITIVE ADVANTAGE

- the possibility of electrochemical treatment of Ti and Ti-alloy surfaces at room temperature in eco-friendly media without any toxic substances, which prevents passivation and contamination
- the possibility to carry out adjustments to modify the surface for prostheses and implants of complex shapes
- the possibility of achieving a high range of desired surface topographies
- the possibility of obtaining nanostructured surfaces for drug delivery
- the possibility of simplifying the process of electrolyte utilization due to the biodegradation

This kind of treatment is environmentally safe and allows to improve the surface chemistry, morphology, topography and such surface properties as wettability, corrosion resistance and biocompatibility, which is very important for Ti and Ti-alloys for biomedicine.

WE ARE LOOKING FOR AN INDUSTRIAL PARTNER FOR LICENSING/SELLING THE TECHNOLOGY





Fibroblast cells on surfaces of Ti6A14V alloy samples sandblasted and electrochemically treated in DES

CEMEA

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