DeZiCom® – NOVEL COMPOSITE MATERIAL FOR BIORESORBABLE IMPLANTS

New type of metal matrix composite material (**DeZiCom®**) for biomedical implants comprising ultrafine-grained zinc (Zn) matrix stabilized with a small fraction of nontoxic nanometric zincite (ZnO) dispersoids.

STAGE OF DEVELOPMENT AND PROTECTION

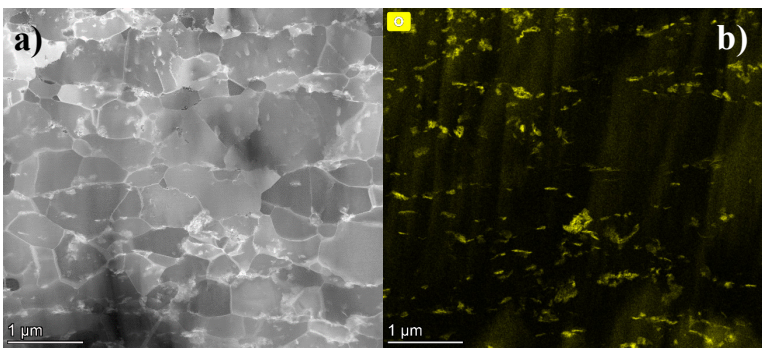
- Proof-of-concept particular model DeZiCom® metal matrix composite was developed and assessed. The processing parameters for production of DeZiCom® were optimized. Post-processing, micro-structural stability, deformation and strengthening mechanisms, corrosion, and in-vitro biological behaviour were complexly assessed.
- **European patent application**
- DeZiCom® **- Registered Trademark**

COMPETITIVE ADVANTAGE

- possibility to manufacture implants with thin strut sections and complex shapes
- the composite material is manufactured using feasible technological approach, which is easily to upscale at reasonable low production costs
- the composite material Zn+ZnO MMC offers an exceptional stability of the mecha-nical properties, such as high tensile strength and ductility, desirable corrosion rate and uniform corrosion behavior, non-toxic biological response, and bacte-riostatic effect during the anticipated service of biomedical device

The mechanical properties and intermediate corrosion rate of **DeZiCom®** provides an engineering advantage to design a thin strut section stents and low-profile fixators, which retain mechanical integrity and full absorption for required times of 3-6 months or 1-2 years, respectively applications.

(a) ADF STEM micrograph of HE Zn+ZnO with **(b)** the corresponding EDS map of O element in HE Zn+ZnO



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

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