

Modified bioglass for production of bioactive polymer composites and method of modifying bioglass for production of bioactive polymer composites

About the invention

The invention concerns modified bioglass in the form of particles with a covalently functionalized surface using L-lysine, designed for the production of bioactive polymer composites used in bone tissue regeneration.

The developed two-step chemical modification method with silane precursors produces a material with enhanced osteogenic potential, improved bioactivity, and greater cell adhesion and proliferation.

The introduction of L-lysine enables stable bonding of functional groups to the glass surface, enhancing biomaterial integration with natural tissue and supporting bone regeneration.

The invention represents a new generation of fillers and composites suitable for use in orthopedic and implant applications.

IP protection

The invention is protected by a patent application filed with the Polish Patent Office No. **P.440261**

Technology readiness level

TRL 4 – Technology validated in laboratory conditions



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Applications

- Polymer composites for bone tissue regeneration and reconstruction,
- Implant materials with enhanced bioactivity and osteointegration,
- Component of biomaterials used in orthopedics and dentistry.

Possible cooperation

- Joint research on development and testing of bioactive composites,
- Technology licensing or industrial implementation,
- Partnership with companies in biomaterials and implantology sectors.