

## Novel Porous Ti-Based Alloys for Implants with Enhanced Bioactivity

Adriana Bernatíková<sup>1</sup>, Pavel Novák<sup>1</sup>, Dana Rohanová<sup>2</sup>

<sup>1</sup>University of Chemistry and Technology, Prague, Department of Metals and Corrosion Engineering, Technická 5, 166 28 Prague 6, Czech Republic, bernatia@vscht.cz

<sup>2</sup>University of Chemistry and Technology, Prague, Department of Glass and Ceramics, Technická 5, 166 28 Prague 6, Czech Republic

**Porous titanium implants are increasingly used for excellent corrosion resistance, mechanical properties similar to bone, biocompatibility and good osseointegration ability. The advantages of porous structure are lower density which causes better ingrowth of bone tissue. Changing the porosity influences resulting mechanical properties. Higher porosity decreases the elasticity modulus and tensile strength. Newly developed alloys based on titanium and silicon can be used as bone fillers, artificial interverbal discs, augmentations or dental implants. Titanium and silicon are nontoxic elements for human body, which is very important for biocompatibility. Another advantage of these alloys is that they have an ability to spontaneously create porous structures without pore forming agent. Pores support implant ingrowth. Varying the concentration of silicon influences the porosity of the alloys prepared by reactive sintering. The best mechanical properties were achieved in the case of alloys with 2-7 wt. % of silicon.**

**Keywords:** Titanium implants, porous titanium, mechanical treatment, bioactivity.

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