

TECHNOLOGY FOR MANUFACTURING WEAR-RESISTANT CERAMIC AND COMPOSITE ARTICLES BASED ON ZIRCONIUM NANOPOWDERS



Ceramic plungers for oil station SNT-32

Areas of Application

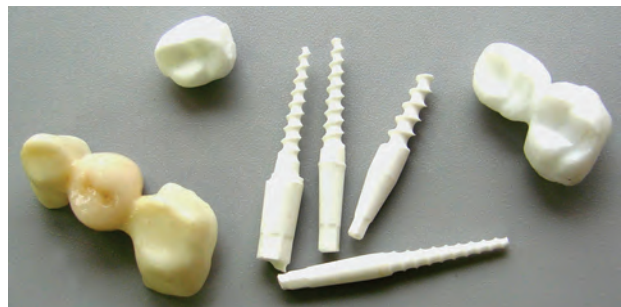
The technology is used for production of figurine-shaped articles for mine and oil industry, machine-building industry, chemical industry, metallurgical industry, power engineering, orthopedics (hip joints), and dentistry (implants and prosthesis)

Specification

Density, %	95 – 99.5
Bending strength, MPa	800
Fracture strength, MPa · m ^{1/2}	7 – 10
Wear resistance, m ³ /km	6 · 10 ⁻⁹



Inserts made of $ZrO_2 - Al_2O_3$ composite



Dental prostheses and implants from ZrO_2

Advantages

The ceramic articles manufactured using the proposed technology have stable properties that are higher than those of the analogs; they have 20 – 50 times longer service life than the conventional metallic parts. In medicine, the zirconium-based ceramic materials have a high biocompatibility, speed up the formation of bone-implant contact, do not cause galvanic effects, allergic reactions or inflammation

Stage of Development.

Suggestions for Commercialization

IRL6, TRL6
Joint venture

IPR Protection

IPR1, IPR2

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