WŁAŚCIWOŚCI KOMPOZYTOWEJ WARSTWY TI3P WYTWORZONEJ NA STOPIE TYTANU W ASPEKCIE ZASTOSOWANIA NA IMPLANTY KOSTNE

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[Inżynieria Biomateriałów, 46,(2005),1-3]

PROPERTIES OF TI3P COMPOSITE LAYER OBTAINED ON TITANIUM ALLOYS FOR BONE IMPLANT APPLICATIONS

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ACETYLACETONIAN CYRKONU (IV) JAKO NOWY INICJATOR KOPOLIMERYZACJI TMC I DMC Z LAKTYDAMI I E-KAPROLAKTO-NEM

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[Inżynieria Biomateriałów, 46,(2005),3-5]

ZIRCONIUM (IV) ACETYL-ACETONATE AS NEW INITIATOR OF TMC AND DMC COPOLY-MERIZATION WITH LACTIDES AND E-CAPROLACTONE

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[Engineering of Biomaterials, 46,(2005),3-5]

BADANIA STRUKTURY WARSTWY PASYWNO-WĘGLOWEJ NA STENTACH WIEŃCOWYCH ZE STALI Cr-Ni-Mo

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STRUCTURE INVESTIGATIONS OF PASSIVE-CARBON LAYER ON THE CORONARY STENTS OF CR-NI-MO STEEL

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UMOCNIENIE WYDZIELENIOWE STOPU NiTi DLA ZAINDUKOWA-NIA NADSPRĘŻYSTYCH WŁAS-NOŚCI PIERŚCIENI UŻYTYCH W KOREKCJI CZASZKI

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Streszczenie

Podstawowym założeniem było osiągnięcie ciągłej, stałej siły w szerokim zakresie deformacji nadsprężystych pierścieni użytych w korekcji czaszkowej. Nadsprężyste własności pierścieni uzyskano w procesie starzenia uprzednio ukształtowanych pierścieni, które powoduje znaczące umocnienie, jako rezultat wydzielania koherentnych cząstek Ni4Ti3.

[Inżynieria Biomateriałów, 46,(2005),9-12]

PRECIPITATION HARDENING OF NiTi ALLOY FOR INDUCING SUPERELASTIC BEHAVIOUR OF RINGS USED IN CRANIAL CORRECTION

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Abstract

The basic assumption was to achieve a continuous and constant force in a wide range of deformations superelastic rings used for cranial correction. Superelastic properties of the rings were induced in the process of ageing of the already formed rings which causes significant hardening as a result of the precipitation of coherent Ni4Ti3 particles.

[Engineering of Biomaterials, 46,(2005),9-12]

WARSTWY WĘGLOWE WYTWORZONE NA IMPLANTACH ZE STOPU TI6AL7NB

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[Inżynieria Biomateriałów, 46,(2005),12-15]

CARBON LAYER ON THE TITANIUM ALLOY IMPLANT'S SURFACE

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[Engineering of Biomaterials, 46,(2005),12-15]

WPŁYW PARAMETRÓW WYŻARZANIA NA PODATNOŚĆ MAGNETYCZNĄ STOPU KOBALTU

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[Inżynieria Biomateriałów, 46,(2005),15-17]
THE INFLUENCE OF ANNEALING PARAMETERS ON MAGNETIC SUSCEPTIBILITY OF COBALT ALLOY
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[Engineering of Biomaterials, 46,(2005),15-17]

OCENA PRZYDATNOŚCI OBRÓBEK ELEKTROCHEMICZNYCH DO MODYFIKACJI POWIERZCHNI IMPLANTÓW KRĘGOSŁUPOWYCH
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[Inżynieria Biomateriałów, 46,(2005),18-21]
EVALUATION OF THE USEFULNESS OF ELECTRO-CHEMICAL TREATMENTS FOR SPINE IMPLANTS SURFACE MODIFICATION
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[Engineering of Biomaterials, 46,(2005),18-21]

THE EFFECT OF DIFFERENT POLYMER LAYERS ON PROPERTIES OF STAINLESS STEEL FOR BIOMEDICAL APPLICATIONS
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Abstract
The effect of different polymer layers (polysulfone and polytetrafluoroethylene) on mechanical properties of stainless steel plates was studied. The "in vitro" behaviour of examined samples was determined on the basis of pH variations of the Ringer fluid during the incubation, also by conductivity measurements and by sample weight variations during 10 weeks immersion in solution. Scanning electron microscopy helped to co-relate the properties of stainless steel with different polymer layers applied on its surface. Layers adhesion to stainless steel surface was observed in more detail.
Results showed that pH values of the Ringer fluid for polysulfone coated samples of stainless steel were lower than those for bare steel. Fluid conductivity presented continuous increase during incubation. The SEM micrographs showed that layers adhesion to stainless steel surface was better in the case of polytetrafluoroethylene.
[Engineering of Biomaterials, 46, (2005), 22-24]

DESIGNING POLYMER/CERAMIC NANOCOMPOSITES OF TAILORED STRUCTURE AND PROPERTIES FOR BIOMEDICAL APPLICATIONS
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PRODUCTION OF TITANIUM AND HYDROXYAPATITE COMPOSITE BIOMATERIAL FOR USE AS BIOMEDICAL IMPLANT BY MECHANICAL ALLOYING PROCESS

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Abstract
Mechanical alloying is a ball milling process where a powder mixture placed in the ball mill is subjected to high energy collision form the balls. As the power particles in the vial are continuously impacted by the balls, cold welding between the particles and fracturing of the particles take place repeatedly during the ball milling process. In this article you will be presented with the case of mechanically alloying a metal such as titanium with hydroxyapatite, a ceramic consisting of calcium, phosphate and hydroxyls. The composite material will be used as a biomaterial used for implants. The starting powders were weighted, mechanically alloyed in an inert atmosphere, pressed and then thermally treated up to 1150oC in a thermal cycle. The samples were then analyzed by TGA-TG, optical microscope, XRD, and SEM.
After the thermal treatment, the samples had an outer shell that was composed of hydroxyapatite, and an inner core that consisted of titanium. Mechanical alloying of titanium and hydroxyapatite did not give a uniform distribution of the powders, but titanium particles were covered by hydroxyapatite fragments only on the surface of the specimens.
Keywords: Titanium, hydroxyapatite, mechanical alloying, biocompatibility
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