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Bioactive Ceramics products

NikBone®

(special NCR product)

DiaBone®

(special NCR product)

Bioactive Glass (BG)

Hydroxyapatite (HA)

(Natural & Synthesise)

Fluorohydroxyapatite (FA)

Tricalcium phosphate (TCP)

Amorphous Calcium phosphate (ACP)

Spinal and Cervical implants

Pedicle Screw

Bone Screw

Drawing Screw

Fusion Cage

Adjusting Rod

Screw Fixing Seat

U-shaped Pedicle Screw

Spine Titanium Plate Fixation System

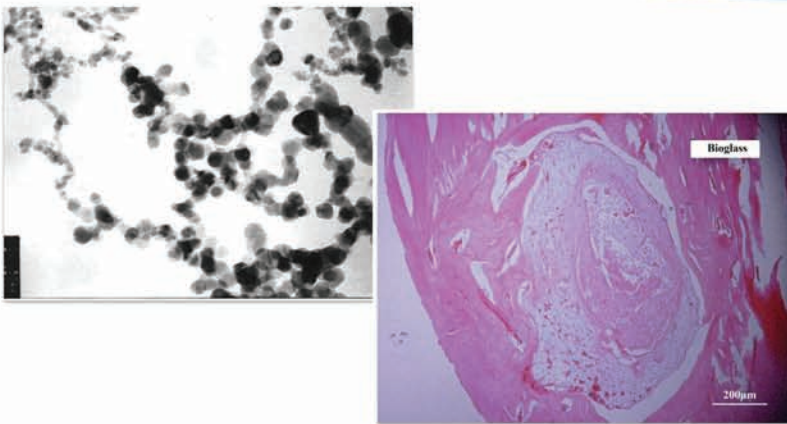
NCR- *Bioactive Glass (BG)*

Nikceram-Bioactive Glass with particle size between 40-70 nm increases bioactivity properties and promotes damaged bone's restoration.

NCR- *Spinal & Cervical Implant*

The Brief system introduction

- All corrections allowed:
Distraction, Contraction, Translation, In-Situ contouring
- Biomechanical stability in all planes



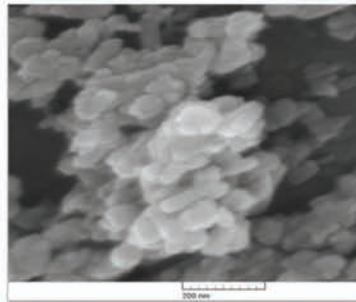
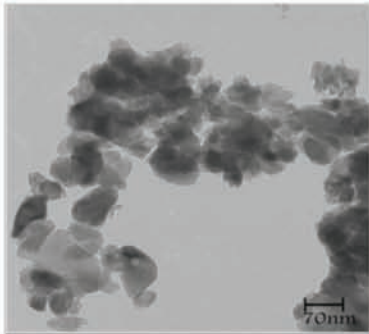
NikCeram Razi Co. studies on various combinations of bioactive glass (45S5, 58S, 63S, ...) has shown that using bioglass as osteo conduction substances inside human bodies will not have local or systemic toxic effects and no inflammation will be followed. The substance can contribute to a faster stabilizing of bone and dental implants along with a decrease in the treatment duration.

- Easy removal after consolidation of the fusion
- New closure mechanism
- For degenerative, deformity, trauma/tumor
- Five-point contact between screw and rod for superior construct stability

Live healthy with NCR products ...

NCR-Fluorohydroxyapatite(FA)

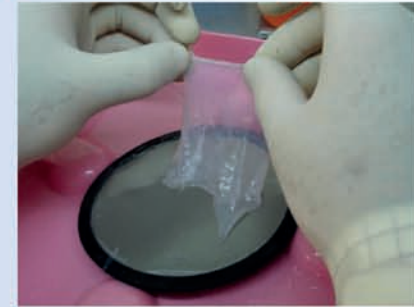
Hydroxyl group substitution by fluorine contributes to the formation of a new composition which is called fluorhydroxyapatite that removes the short comings of hydroxyapatite. Having fluore ion in calcim-phosphate solution acts as a catalyst and increases the hydrolysis rate and also the formation rate of intermediate phases in order to achieve the final product.



Its advantages over pure hydroxyapatite in a biological environment include: faster apatite formation, better absorption of proteins and osteoblasts on the surface, lower dissolution rate, higher chemical stability, improved mechanical properties, higher resistance to acidic environments, and improved cell adhesion and proliferation rates. This product is prepared from sol-gel methods and the size distrubution is between 40-70 nm.

NCR-Collagen

Collagen is a protein made up of amino-acids, which are in turn built of carbon, oxygen and hydrogen. Collagen contains specific amino acids – Glycine, Proline, Hydroxyproline and Arginine.



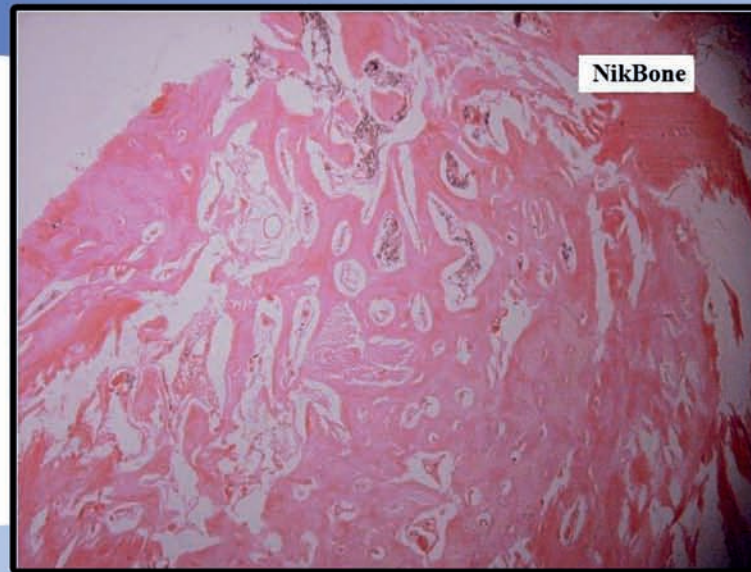
Laboratory tests on bovine collagen type 1 and fish cartilage-derived collagen:

- Gelation test
- Mycoplasma test
- LAL assay
- MTT assay according ISO 10993
- Amino acid analysis
- Electrophoresis test
- Inciting test according ISO 10993-10
- Sensitivity testing

Live healthy with NCR products ...

NCR- *NikBone*[®]

NikBone[®] is a unique bioactive composite which is osteo-integrating and restorable. NikBone[®] enhances the ability of signal, recruit, proliferate and differentiate bone building cells.

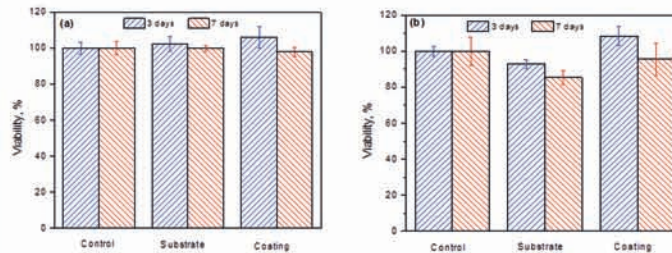
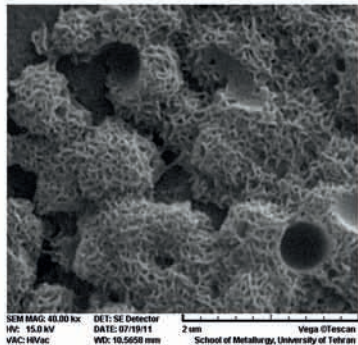


NikBone[®] is engineered to accelerate the body's natural healing process with a measured release of ions and changes in surface chemistry that supercharge cellular activity with preferential development of cells from new bone. *In vitro* and *in vivo* experiments have shown high bioactivity and osteo-integrating capability of this novel material.

Live healthy with NCR products ...

NCR - *DiaBone*[®]

DiaBone is relatively new class of biomaterials that has recently attracted interest for medical applications use as carriers' drugs and enzymes.

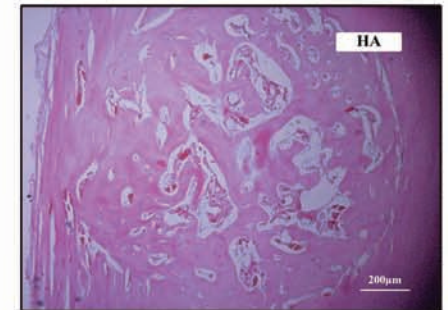
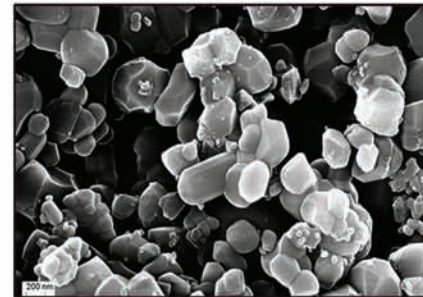


Cell viability of DiaBone[®] (a) Fibroblast cells; (b) Osteoblast cells

This substance with some especial additives make porouse morphology of apatite into bone defects and improve Osteoblast differentiation and bone formation with good mechanical strength.

NCR - *Hydroxyapatite (HA)*

Hydroxyapatite is one of the most important bioceramics which are being used in medical and dental applications. Considering the unique biological properties of this substance, along with its great structural similarity to hard bone tissue, it has attracted much attention during recent years. The synthetic and natural (bone-driven) hydroxyapatite are produced by this company.



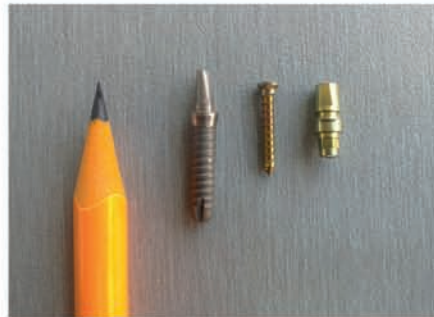
Nikceram-Hydroxyapatite with particle size less than 150 nm, increase bioactivity properties and promote damaged bone's restoration. This product has no tricalcium phosphate phase.

Extensive in vitro and in vivo experiments have been carried out to study its bioactivity and osteo-integrating capability. The efficacy of the material in repairing infra-bony defects has been

Live Longer by NCR products ...

NCR-Dental implant

If one or more of your teeth are missing, there are a number of ways to replace them. An alternative to bridges, partials or complete dentures may be dental implants with NCR implants. They are comfortable and look like natural teeth.



NCR- Tricalcium phosphate (TCP)

The absorbable β -Tricalcium phosphate phase is gradually dissolving in human body. It acts as a substrate for ossification and release phosphate and calcium ions.



NCR- Amorphous calcium phosphate (ACP)

With no side-effects and temporary effects like swelling and discomfort around implant area after operation because of special engineered surface.

Amorphous calcium phosphate (denoted as ACP) is commonly found in biological system (such as soft bone tissue). ACP plays a vital role in the biomineralization of bone because it is a precursor to crystalline bone apatite. This material can be used in various applications such as coated implant, filler and bone cements, because of its high bioactivity and excellent biodegradable property.