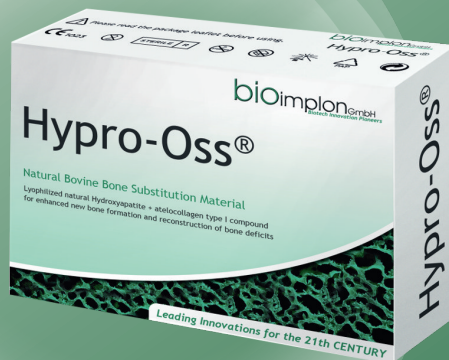


## Hypro-Oss®

Patented, native, bovine bone graft composite



The innovation of the 21th century

## General information

Hypro-Oss® is a patented, lyophilized natural bovine bone graft incorporated with atelo-collagen Type I resulting from 6 years of intensive research and experimental cooperation between the scientific teams of the companies BIOIMPLON GmbH and HYPRO OTROKOVICE S.R.O.; both teams include very experienced chemistry engineers under the leadership of engineer Antonin Galatik and medical researchers under the leadership of Dr. med. Sami Watad, who initiated the Hypro-Oss® project and cooperated very closely with several biomaterial academic institutes and universities in Europe. This continuous, intensive cooperation and focused work, following the vision of innovation, resulted in a revolutionary bone graft material that has superior properties: Hypro-Oss®.



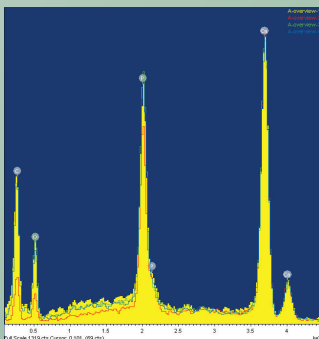
## Hypro-Oss® - innovative concept and properties

Our concept for the development of the Hypro-Oss® product line was conceived with the idea of an ideal biomaterial in mind, a material with the highest biocompatibility and affinity to the new endogenous bone. In order to accomplish this purpose, we implemented our proprietary atelo-peptidation and lyophilization technologies that preserve natural collagen components of bone material within bone structure after modifying the collagen to a non-immunogenic atelo-collagen. This preserves the natural crystalline structure of the hydroxyapatite as well as the collagen components by completely avoiding the heating (thermo) processing method that other manufacturers still use.

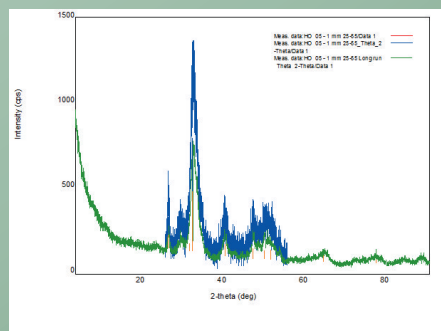
Thanks to our proprietary innovative processing technology, Hypro-Oss® has the following important characteristics:

1. native bovine bone graft components for enhanced new bone formation
2. telopeptide free collagen components; non-immunogenic peptide
3. acceleration of physiological tissue healing process
4. protects grafting site from infection (bacteriostatic effect of atelo-collagen)
5. hydrophilic property, optimal cell adhesion and blood absorption and capability to carry medication to the surgical site
6. highest biocompatibility; absence of any foreign body response
7. natural structures of collagen and hydroxyapatite due to lyophilization processing
8. osteoinductive atelo-collagen components & osteoconductive hydroxyapatite components
9. native crystalline structure guarantees long-term dimensional stability

These characteristics allow enhanced and consistent new bone formation, and persistent integration between mature new formed bone and existing bone material.



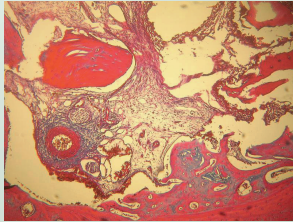
Hypro-Oss® - EDS-Energy dispersive spectroscopy



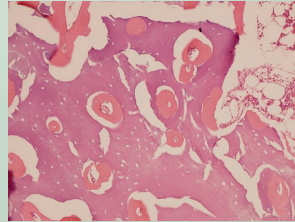
X Ray Diffraction, Hypro-Oss®

## Atelo-collagen's vital role in Bone Regeneration Process

Atelo-collagen Type I is the most appropriate carrier for promoting osteoinductive signal activity. In vitro studies show that collagen is capable of inducing differentiation of mesenchymal osteoprogenitor stem cells into osteoblasts, and that the association of atelo-collagen Type I with a scaffold of natural hydroxyapatite significantly enhances the proliferation rate of osteoblasts. This important scientific evidence provides the rationale behind the development of Hypro-Oss® products' line. Hypro-Oss® atelo-collagenated bone graft provides the natural substrate for correct bone tissue regeneration and repair, facilitating and accelerating the physiological regeneration process, and allowing optimal results within a reasonable period of time.



histology after 4 weeks



histology after 14 weeks

## Hypro-Oss® accelerats bone formation

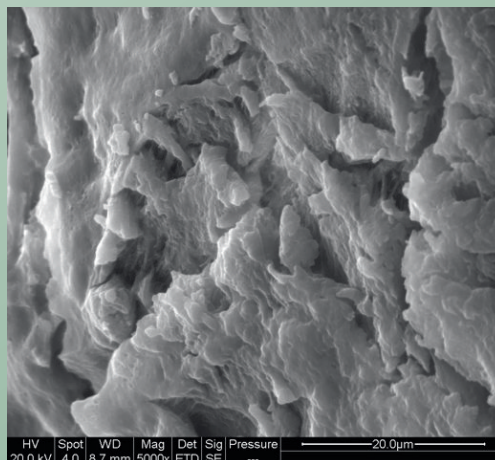
Clinical application of Hypro-Oss® guarantees maximal possible safety and predictability. The atelo-collagenated bone graft material of bovine origin Hypro-Oss® facilitates and accelerates the physiological regeneration process, allowing optimal new bone formation and consolidation results within a reasonable short period of time. Hypro-Oss® covers a broad spectrum of indications and offers so many options for effective and safe prognoses in everyday clinical routine.

## Storage conditions

Hypro-Oss® must be stored in a dry place at room temperature. Hypro-Oss® is not damaged by temperatures from 0°C to +50°C. It needs to avoid sources of heat and direct sun light.

## Composition

Hypro-Oss® is a natural bovine bone graft material, consists of approximately 70% pure hydroxyapatite and about 30% pure crystalline atelocollagen Type I. It is manufactured in a patented atelo-peptidation processing method and lyophilization technology for preserving the native bone structure as is, but sterile and safe.



Hypro-Oss®, SEM, scanning electron microscopy, may 2012

## Indications

Implantology, Periodontology and Oral Surgery

- Sinus lift
- Vertical & Horizontal augmentation
- Intraosseous defects
- Peri-implant defects
- Extraction sockets
- Furcation defects
- Filling of cyst
- Periodontal defects

Orthopedic & Spinal Surgery

- filling of bone defects in juxta-articular fractures
- filling of defects of the acetabulum on change of prosthesis
- filling of bone defects after excision of benign tumors
- filling of bone cysts
- filling of tissue defects in cartilage and bone transplants
- filling of bone defects at donor sites after harvest of autogenous bone



Courtesy of Dr. med. dent Fahim Atamni (specialist for oral surgery) - Hypro-Oss® and Hypro-Sorb® membrane cases

## Sterilization and Gamma irradiation

In the course of production, the raw materials are treated with bactericidal solutions of sodium chloride, peracetic acid and saturated solution of calcium hydroxide in order to control the risk of contamination with bacteria, viruses and yeasts. After final packaging, Hypro-Oss® undergoes Gamma Irradiation as final sterilization step. Gamma radiation sterilization is a process that effectively kills or eliminates almost all microorganisms like fungi, bacteria, viruses and spore forms. Collagen treated this way and used in the production of Hypro-Oss® consists of prion-free tissues, which are fully safe as TSE is concerned. Hypro-Oss® is absolute BSE free.

## Packaging sizes

Cat. No.	Name	Grain size	Volumen
070	Hypro-Oss®	0.5 - 1 mm	0.5ml
071	Hypro-Oss®	0.5 - 1 mm	1.0ml
072	Hypro-Oss®	0.5 - 1 mm	3.0ml
073	Hypro-Oss®	0.5 - 1 mm	5.0ml
074	Hypro-Oss®	1 - 2 mm	0.5ml
075	Hypro-Oss®	1 - 2 mm	1.0ml
076	Hypro-Oss®	1 - 2 mm	3.0ml
077	Hypro-Oss®	1 - 2 mm	5.0ml

Hypro-Oss® is a sterile medical device class III. CE and ISO certified.

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