Indicated in regenerative medicine, GlassBONE™ combines a natural biological action and optimum safety for reliable and reproducible results.

A good solution for easy filling, effective bone regeneration.

Ease of handling

Highly hydrophilic and cohesive

GlassBONE™ has a strong affinity for biological fluids, facilitating its handling. When mixed with the patient’s blood or physiological saline solution, it forms a cohesive mass enabling easy implantation in the patient’s mouth.

Stabilises bone filling

Bioactive

The dissolution of GlassBONE™ induces ion exchanges with biological fluids enabling the formation of a mineral layer, direct biological binding between the biomaterial and the bone. This mineral layer prevents any micromovements of granules in the bone defect, which impede their osteointegration.¹ ⁴ ⁶

Osteointegration of the biomaterial provides stabilization of bone defect in respect of the anatomical alignment and reduces the migration of the product.

Mechanism of action

Bioactivity

Mineral phase. Formation of an active biological mineral layer, responsible for direct binding of the biomaterial and the bone.

Osteostimulation

Cellular phase. The increase in the silicium ion concentration genetically stimulates the differentiation and proliferation of osteoblasts, which are involved in bone regeneration.

Hydrophilic properties and cohesiveness

Affinity with biological fluids, favourable for handling.

Scanning Electron Microscope characterisation of the mineral layer formed on GlassBONE™ granules.
When mixed with autologous bone, GlassBONE™ multiplies natural bone regeneration two-fold, enables easier handling of the bone substitute-autologous bone mixture and inhibits local bacterial growth.\(^5\)\(^7\)

### Did you know?

The dissolution of GlassBONE™ gives rise to the release of silicium ions causing the pH and the osmotic pressure to rise in the defect, inducing local antibacterial activity.\(^7\)\(^8\)

### Optimum safety

**Antibacterial**

The dissolution of GlassBONE™ gives rise to the release of silicium ions causing the pH and the osmotic pressure to rise in the defect, inducing local antibacterial activity.\(^7\)\(^8\)

### Speeds up bone regeneration by a factor of 2

**Osteostimulating**

The ability to osteostimulation of GlassBONE™ induces the vascularization of bone defect and recruitment of osteoblasts to promote the stimulation of bone regeneration.

The release of silicium ions makes it possible to genetically stimulate the recruitment and proliferation of stem cells, and the differentiation and proliferation of osteoblasts in the defect with a view to full natural bone remodelling.\(^2\)\(^3\)

The intrinsic properties of 45S5 bioactive glass give it the ability to promote the natural bone regeneration process by releasing mineral ions.\(^5\)

### Reliability, Predictable and Reproducible Results

GlassBONE™ is a member of the bioactive glass family consisting of natural elements naturally present in the human body and known to play a physiological role in the bone formation and mineralisation process.\(^2\)\(^3\)

This composition prevents pathogenic agent transmission risks, postoperative pain associated with an extraction site, and guarantees a high level of safety for patients and surgeons.

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**Antibacterial**

Increase in pH and osmotic pressure.

**Volume maintenance**

Dissolution in biological fluids, absorption in proportion to bone formation for very satisfactory bone volume maintenance.

**Fully regenerated natural bone**

GlassBONE™ offers to your patients, safety during implantation with a natural and effective bone restoration in the intraoperative filling of interbody arthrodesis cages and the surrounding space, or posterolateral arthrodesis.

Histological section at 26 weeks of the filling of a sinus floor in a human.
References


GlassBONE™, bone graft substitute is a mechanical device class III, manufactured by NORAKER SAS and whose conformity assessment was conducted by LNE / G-MED (0459). GlassBONE™ is indicated for filling bone defects.

The synthetic bone graft substitute GlassBONE™ is indicated in the filling temporary of bone defects caused of traumatism, pathology or surgery in order to bone remodeling:

- Vertebral Arthrodesis,
- Filling bone defects (after tumour resection, after removing iliac bone...),
- Prosthesis revision,
- Traumatology,
- Tibial Osteotomy.

If you are looking for more information on the product, request the scientific and clinical information file or download the iPad app.

**NORAKER is a French manufacturer specialised in the research and development of innovative products based on 45S5 bioactive glass for medical applications.**

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