Easy to use, Activioss™ speeds up full bone regeneration two-fold, and inhibits bacterial proliferation locally.
Tissue engineering is a science which, using biological mechanisms and biomaterials, stimulates deficient tissue regeneration. Noraker is involved in biomaterial development with the aim of becoming an innovative player in the field of tissue engineering.

The future of medicine is heading towards regenerative medicine.

What is Activioss™?

Activioss™ is a bioactive synthetic substitute, an osteostimulating bone regeneration biomaterial.¹

What does it consist of?

Activioss™ consists of 100% 45S5 bioactive glass. It stimulates bone regeneration and is progressively replaced by new bone tissue.

New technology?

45S5 bioactive glass has clinically proven its remarkable performance filling bone defects in orthopaedics and dental surgery on over one million patients.²

What is it used for?

Activioss™ replaces missing bone tissue and stimulates the bone regeneration process.

What makes it different?

Activioss™ is more reactive than inert materials such as hydroxyapatite, β-TCP or BCP.⁷ After reacting with biological fluids, Activioss™ quickly binds with the bone and progressively releases perfectly biocompatible substances that will activate a mechanism promoting bone growth.

Over time, Activioss™ is fully absorbed and replaced by bone tissue. Activioss™ is thus an ideal filling biomaterial, since it makes it possible to fill the bone defect and be progressively replaced by the patient’s own tissue.

Furthermore

Activioss™ is a biomaterial capable of inhibiting bacterial proliferation.⁹ ¹⁰
Bioactive Stabilises bone filling

Natural remodelling of the patient’s bone is a key factor for the osteointegration of dental implants. Activioss™ enables this natural bone remodelling through its bioactivity, defined as the sequence of biological binding and osteogenesis stimulation. The dissolution of Activioss™ 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.

See the comparative cohesiveness test on the website www.activioss.com

Mechanism of action

Hydrophilic properties and cohesiveness
Affinity with biological fluids, favourable for handling.

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.
Osteostimulating
The release of silicon 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.⁴ ⁶ ⁸ This innovative technology offers a safe and effective solution for dental surgeons and for their patients.

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.

Did you know?
When mixed with autologous bone, Activioss™ multiplies natural bone regeneration two-fold, enables easier handling of the bone substitute-autologous bone mixture and inhibits local bacterial growth.⁷ ⁹

More information on the website www.activioss.com
Antibacterial

Inhibits bacterial proliferation

The dissolution of Activioss™ gives rise to the release of silicium ions causing the pH and the osmotic pressure to rise in the defect, inducing local antibacterial activity. This local antibacterial effect has been demonstrated on supra- and sub-gingival bacteria.9 10

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Kill of bacteria (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. gingivalis</td>
<td>91.2</td>
</tr>
<tr>
<td>F. nucleatum</td>
<td>95.0</td>
</tr>
<tr>
<td>P. intermedia</td>
<td>100</td>
</tr>
<tr>
<td>A. actinomycetemcomitans</td>
<td>98.6</td>
</tr>
<tr>
<td>S. sanguis</td>
<td>71.1</td>
</tr>
<tr>
<td>S. mutans</td>
<td>83.1</td>
</tr>
<tr>
<td>A. viscosus</td>
<td>72.7</td>
</tr>
</tbody>
</table>

Bone volume maintenance

Effective absorption for full remodelling

Your patients’ expectations in terms of aesthetics are possible through bone volume restoration and preservation. Bone volume maintenance is the result of the proportion of bone substitute absorption and natural bone remodelling induced. The absorption of Activioss™ is ensured by dissolution during implantation initiating natural bone remodelling.

100% bioactive glass, 100% synthetic

Reliable, Predictable and Reproducible Results

Activioss™ 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.

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.

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

- Ridge augmentation,
- Sinus floor augmentation,
- Periodontal / Infrabony defects,
- Filling tooth sockets for ridge maintenance following extraction,
- Filling bone defects such as cyst or dental granuloma.

### Bioactive Bone Substitute Osteostimulative Bone Regeneration Granules

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Granules size</th>
<th>Volume ≈ Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT-GS0.5</td>
<td>S 0.04 - 0.5 mm</td>
<td>0.5 cc ≈ 0.5 g</td>
</tr>
<tr>
<td>ACT-GS1.0</td>
<td>S 0.04 - 0.5 mm</td>
<td>1.0 cc ≈ 1.0 g</td>
</tr>
<tr>
<td>ACT-GM0.5</td>
<td>M 0.5 - 1.0 mm</td>
<td>0.5 cc ≈ 0.5 g</td>
</tr>
<tr>
<td>ACT-GM1.0</td>
<td>M 0.5 - 1.0 mm</td>
<td>1.0 cc ≈ 1.0 g</td>
</tr>
<tr>
<td>ACT-GL1.0</td>
<td>L 1.0 - 3.0 mm</td>
<td>1.0 cc ≈ 1.0 g</td>
</tr>
</tbody>
</table>
NORAKER is a French manufacturer specialised in the research and
development of innovative products based on 45S5 bioactive glass for
medical applications.