

Regeneration

# SinossCatalouge

SinossGraft  
SinossGraft Perio  
SinossInject  
SinossMem  
SinossFleece  
SinossCone

SinossGraft

SinossGraft Perio

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SinossCone

SinossGraft

Regeneration

## SinossGraft

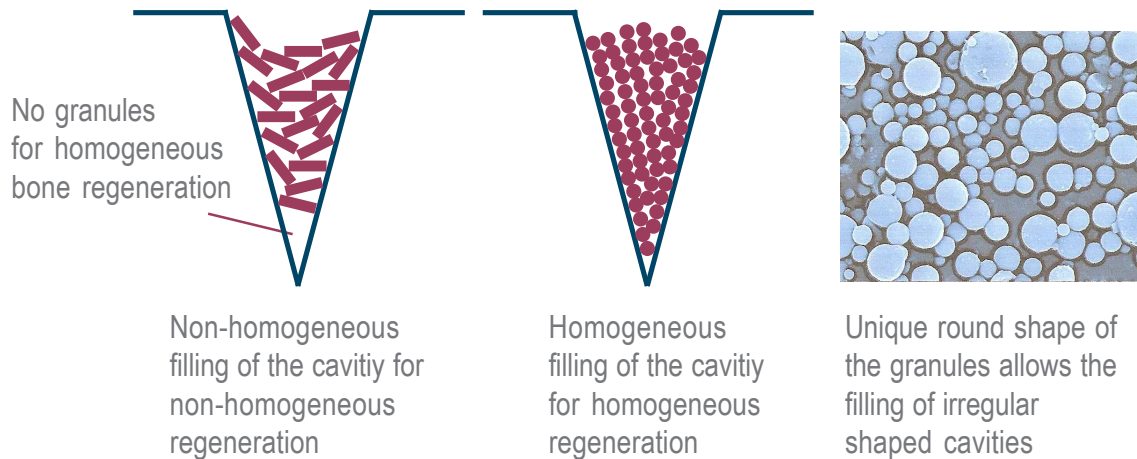
The Bioactive Bi-Phasic  
Calcium Phosphate for  
Homogeneous  
Regeneration



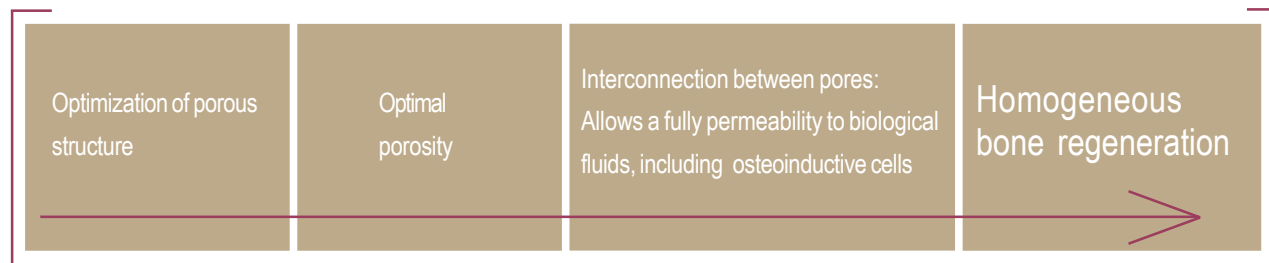
## High bioactivity for accelerate bone remodelling

SinossGraft is an innovative, safe, pure, reliable and fully synthetic bone graft material in a porous matrix form similar to that of cancellous bone for controlled resorption. The homogenous composition of 75% hydroxyapatite (HA) and 25% beta-tricalcium phosphate ( $\beta$ -TCP) results in two mineral phases of bioactivity: it supports the formation of new vital bone and maintains the volume and mechanical stability over a long time period. SinossGraft provides a porosity of up to 80%.

### The geometrical problem-solution concept of SinossGraft for homogeneous regeneration



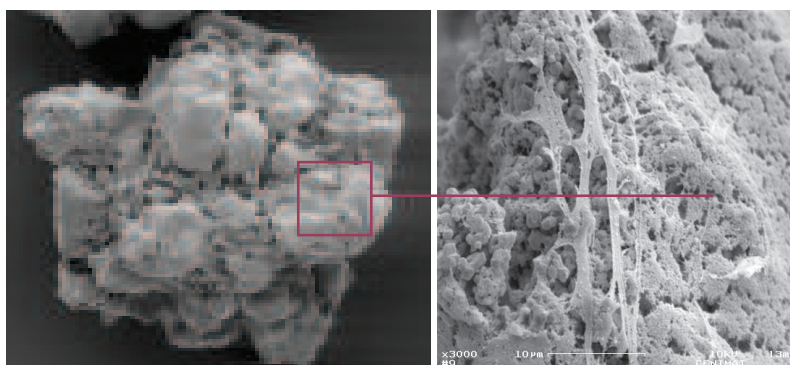
## The design optimization of SinossGraft



## Indications: Implantology, Periodontology, Oral Surgery & CMF

1. Sinus lift; 2. Ridge augmentation; 3. Furcation defects; 4. Extraction sockets; 5. Osseous defects; 6. Intraosseous defects

### The macroporosity of SinossGraft



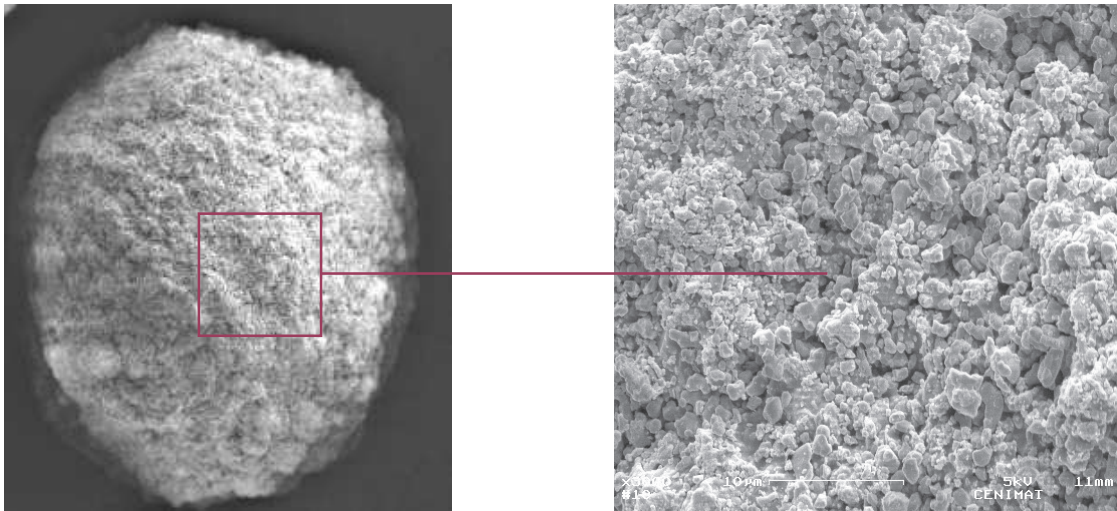
#### Macroporosity:

- Colonization of the granules by bone cells. **The total porosity of SinossGraft is of up to 80%.**

## Interconnective and high porosity for a high new bone formation

The macro-porous structure of SinossGraft ensures fast cell colonization for an optimal resorption and substitution. The macroporosity of SinossGraft offers a fully interconnected structure similar to human cancellous bone and provides an ideal environment for the ingrowth at a controlled rate. That very high porosity of SinossGraft allows a rapid bone ingrowth throughout the pores. The product provides support without significantly limiting natural bone density. Microporosity of SinossGraft within the HA/TCP structure assists the transfer of essential nutrients. A fully interconnected structure similar to human cancellous bone provides an ideal environment for the ingrowth of new bone and a high dimension stability. **The total porosity of SinossGraft is of up to 80%.**

### The microporosity of SinossGraft



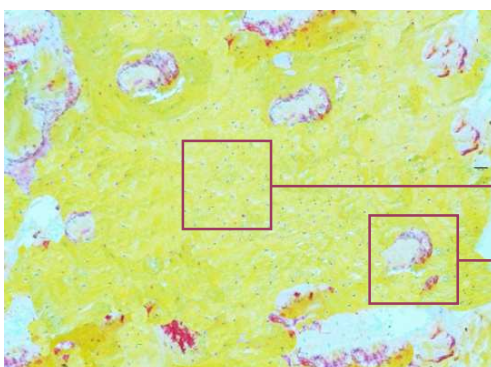
#### Microporosity:

- Biological fluid diffusion and ionic changes. Partial dissolution and biological apatite precipitation.

### Properties of SinossGraft - Controlled Resorption

- |                                   |  |              |
|-----------------------------------|--|--------------|
| - Synthetic, resorbable & safe    | - 75% HA / 25% beta-TCP                    | - Radiopaque |
| - Volume and mechanical stability | - Osteoconductive                          |              |
| - High interconnected porosity    | - Total porosity of up to 80%              |              |
| - Ultra porous                    | - Cancellous structure                     |              |
| - Macroporosity                   | - Microporosity                            |              |
| - Pore size: 200-500 microns      | - Compressive strength > 0,5MPa (7•-13MPa) |              |

### The histology

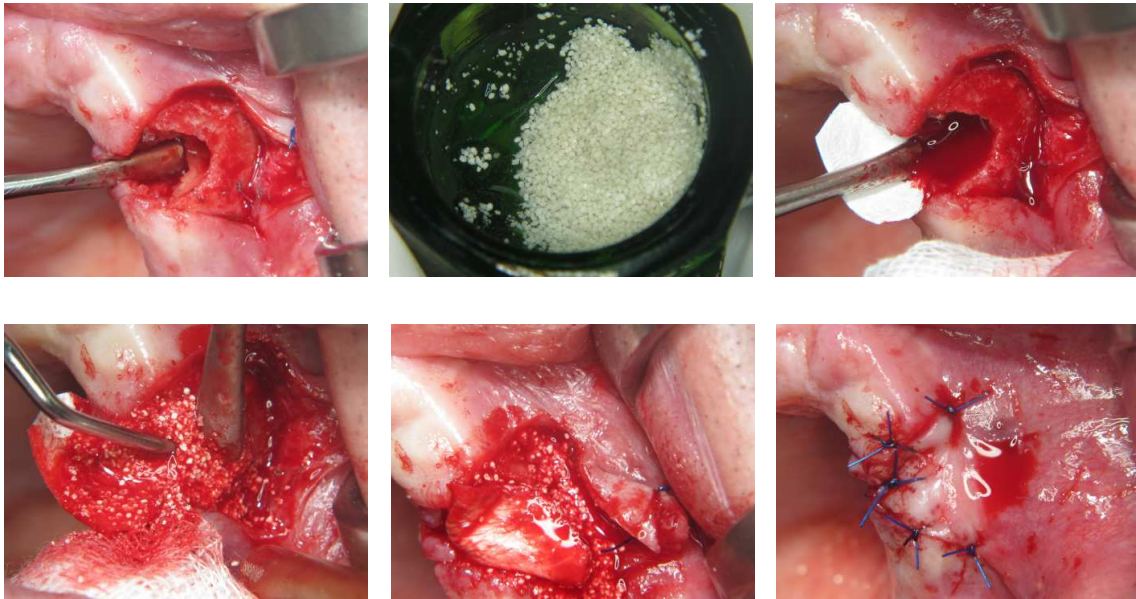


New bone formation (tissue)

Granules (resorption in progress)

## Case report with SinossGraft

### The clinical evidence of SinossGraft



### Conventional sharp granules vs particles of SinossGraft for homogeneous regeneration



### Order information

Code	Brand	Particle size	Quantity/unit
1710	SinossGraft	0,5g 0,5-1mm	1
1711	SinossGraft	1,0g 0,5-1mm	1
1712	SinossGraft	2,0g 0,5-1mm	1
1713	SinossGraft	0,5g 1-2mm	1
1714	SinossGraft	1,0g 1-2mm	1
1715	SinossGraft	2,0g 1-2mm	1



SinossGraft Perio



Regeneration

## SinossGraft | Perio

The bioactive biphasic calcium phosphate for a homogeneous regeneration in periodontal surgery



## SinossGraft Perio for the regenerative treatment of periodontal bone defects

SinossGraft Perio is a safe, phase-pure, reliable and synthetic osteoinductive bone graft material in three different grain sizes for individual treatment claims and the highest infection safety. The matrix of SinossGraft has a porosity of up to 80%, and is similar to the cancellous human bone. The homogeneous composition of 75% hydroxyapatite (HA) and 25% beta-tri-calcium-phosphate (beta-TCP) results in two mineral phases of bioactivity and supports therapies to restore new cementum, periodontal ligament and alveolar bone with functional fiber orientation.

### The Properties of SinossGraft Perio

The SinossGraft Perio meets all requirements of an ideal bone graft material.

No risk of sensitization and rejection	No risk of infection / no transfer of bacteria, viruses and prions	High biological potency	No donor site morbidity
High stability	Controlled resorption	Easy-to-use	High sterility

### The Periodontal design of SinossGraft Perio

The interconnecting pores of SinossGraft Perio offer 3 individual particle sizes of 75-125mm and 125-355mm and 355 - 500mm and support individual defect-oriented therapies.

### The Advantages of SinossGraft Perio

The SinossGraft Perio offers the advantages of faster bone regeneration by the proportion of  $\beta$ -TCP and a long-term volume stability through the slowly resorbing hydroxyapatite.

### The Indications in Periodontology

1. Periodontal / Intrabony defects; 2. Extractions; 3. Furcation defects (class I-II); 4- Peri-implant defects; 5. Cyst defects

#### Order information

Code	Brand		Particle size	Volume/unit
1716	SinossGraft Perio	1,0g	0,75-125microns	1
1717	SinossGraft Perio	1,0g	125-355microns	1
1718	SinossGraft Perio	1,0g	355-500microns	1

SinossInject

Regeneration

# SinossInject

The Bio-Active Nanocrystalline  
Bone Graft Material:  
Synthetic and Injectable Paste





## New bone formation with bio-active injectable synthetic bone graft paste SinossInject

SinossInject is a new unique and highly innovative injectable, but volume maintaining bone paste with improved controlled resorption properties. The unique nanocrystalline hydroxyapatite provides a high bio-active regeneration. SinossInject supports the formation of new vital bone, maintains volume and mechanical stability and is gradually replaced by mature new bone. The highly viscous SinossInject paste allows perfect shaping, molding, fitting and complete bone bonding to the surrounding bone surface of the defect. The use of e.g. SinossInject and SinossGraft, alternatively another combination with SinossInject (see table) are able to improve the handling properties and the mechanical and biological performance. SinossInject is a nano-crystalline hydroxyapatite with the advantages of a easy handling, close contact with the surrounding tissue and the quick resorption characteristics.

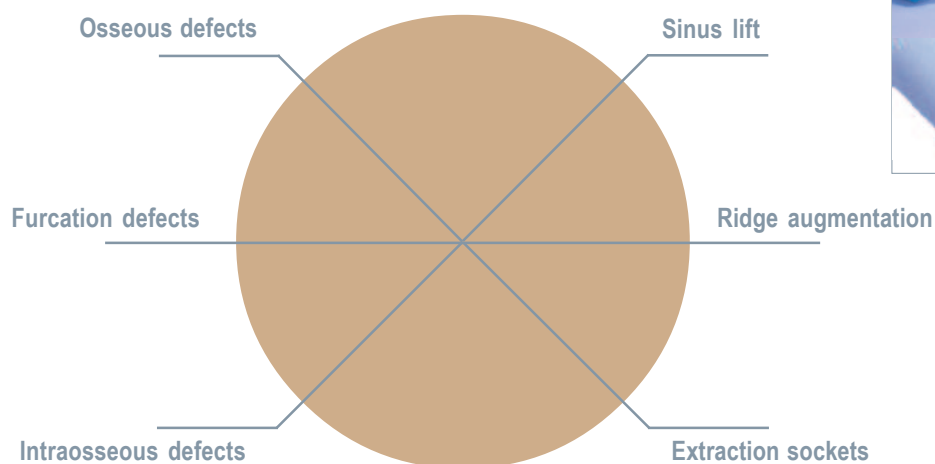
### The material of „your“ combination

SinossInject is able to be used in combination as demonstrated in the table or in smaller defects as a single material.

The mixture of SinossInject, SinossGraft and other bone graft materials (general options)		
SinossInject + SinossGraft		
SinossInject + Bovine bone		
SinossInject + Human bone		
SinossInject + Synthetic bone		

The nano-crystalline paste SinossInject tend to fill the inter-particle spaces and also the pores of the SinossGraft granules.

### A wide spectrum of indications



## The unique benefits of SinossInject provide the surgeon with ideal handling and moldability

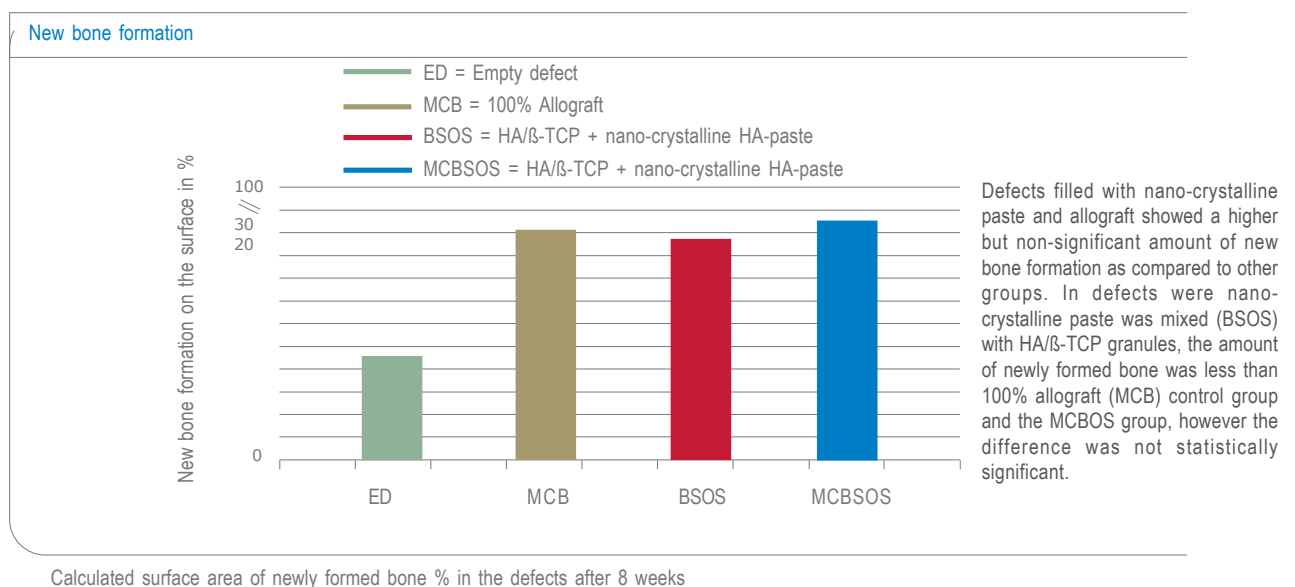
SinossInject represents an innovative breakthrough in bioresorbable implants. The SinossInject offers value to the surgeon and patient through each stage of the grafting procedure and throughout the healing and recovery process. The unique benefits of SinossInject provide the surgeon with the ideal handling and moldability during the surgical procedure. Additionally, because of its radiopaque nature, the physician can further validate the graft's resorption and bone regeneration during post-recovery check-ups. The patient also benefits since the bioresorbable implant is designed to resorb at a rate similar to the bone's natural regeneration thus providing the ideal matrix needed as the bone is restored.

### The advantages throughout each stage of the process include:

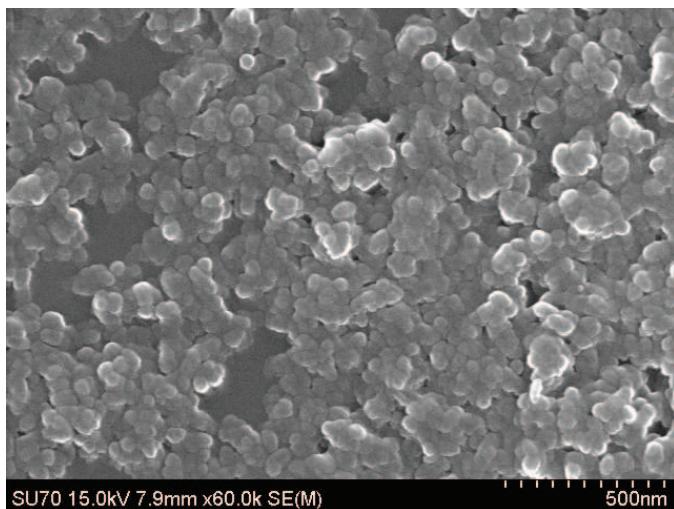


<b>Handling</b>  SinossInject handles optimally in the hands of the surgeon and the graft site	<b>Moldability</b>  SinossInject is malleable so that the targeted void space can be filled and the shape maintained when implanted	<b>Stability</b>  SinossInject maintains volume and mechanical stability and is gradually replaced by mature new bone. No wash-out effect.
<b>Resorption</b>  SinossInject is a nano-crystalline bone graft scaffold that is resorbed and replaced by the growth of new bone	<b>Bone Formation</b>  The porous nano-crystalline characteristics of SinossInject are designed to encourage the flow and circulation of biological fluids for initiating the healing process	<b>Radiopaque</b>  The radiopaque nature of SinossInject enables the surgeon to visualize graft placement and location

### A higher amount of bone formation might be explained by an improved angiogenesis, possibly induced by a nano-crystalline paste\*



SEM: SinossInject surface structure



#### Ordering information of SinossInject

Article	Size	Code	Description
SinossInject	1,0cc	1810	1 x Syringe
SinossInject	3,0cc	1811	1 x Syringe
SinossInject	5,0cc	1812	1 x Syringe

#### Shelf life

The product is safe for 3 years. SinossInject is a medical device class III.

SinossMem



# SinossMem

Regeneration

Pericardium  
Membrane



## Resorbable Pericardium Collagen Membrane SinossMem: translucent, resilient, flexible

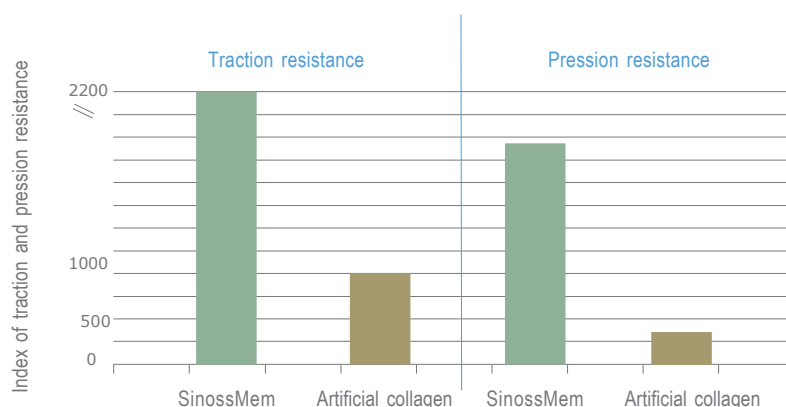
SinossMem is a resorbable Pericardium collagen membrane for application in Guided Bone Regeneration (GBR) and Guided Tissue Regeneration (GTR). It achieves these conditions and has a mechanical resistance as to enable suturing to the surrounding tissue under strong tension. SinossMem is a micro thin network made of natural connective fibres which prevents the cell migration and maintains the barrier function, without creating necrosis, until it is integrated in the surrounding connective tissues. SinossMem does not need to be removed, does not give an inflammatory response without toxicity. The ideal membrane to obtain guided osseointegration has to be adaptable to every shape, thin, but at the same time as much strong enough to be strongly sutured to the surrounding tissue, perfectly integrating into the receiving tissues and reabsorbable without an inflammatory response. SinossMem is protein-free equine pericardium. It is made of a connective fibre network mainly made of collagen with structure and strength which cannot be imitated by synthetic collagen obtained from artificial methods. For this reason, the thickness of 0,1-0,2 mm offers a mechanical strength higher also than other animal biological sheets with which SinossMem has been compared.

### The advantages of SinossMem

<b>Resorbable</b>	Easy procedure. There is no second surgery necessary in order to remove the membrane. As the barrier resorbs, a matrix is created that allows fibroblast infiltration
<b>Resilient, adaptable</b>	Easy to handle. The natural collagen structure provides a unique combination of good handling and ideal defect adaptability. Because both sides are smooth, either side may be placed against the defect. The membrane is easy to handle by hydration, can be cut
<b>Translucent</b>	Easy to place. Bone graft material and defect is visible from the beginning. Evaluation
<b>Durable</b>	High resistance. Designed to resist tearing during placement, SinossMem is naturally stronger than other collagen membranes.

### Strong, natural and biocompatible

The high mechanical strength of SinossMem

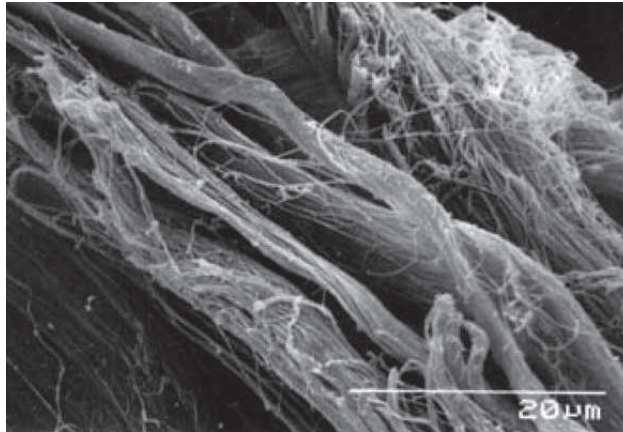
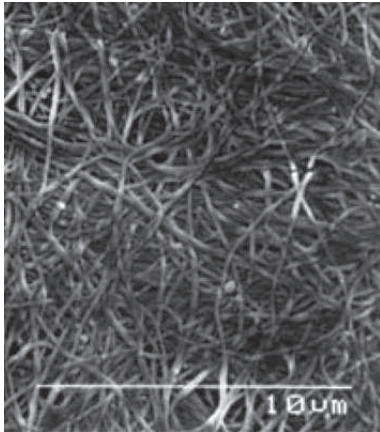


SinossMem presents a high resistance/thickness ratio between e.g. artificial collagen. The thickness of SinossMem is 0,1-0,2mm.

## SinossMem supports attachment and proliferation of osteoblast-like cells

The incomparable micro structure made of fibres interwoven in various sizes, achieves a physical resistance and a reabsorption resistance. For these properties SinossMem offers the possibility of replacing missing or torn tissues. SinossMem can be kept exposed for wide areas which are not covered with tissue, since it does not cause hypertrophy and polypous degeneration of the free flaps as occurs on artificial membranes. Moreover, it acts as a guide for the epithelial tissue new growth. The collagen of SinossMem is impermeable to cells and permeable to liquids. SinossMem has a thickness of 0,1-0,2 mm which is much smaller in diameter than an artificial membrane. It can be placed between tissues without encumbrance and can be cut and sutured under tension.

The dense fibres structure of SinossMem surface

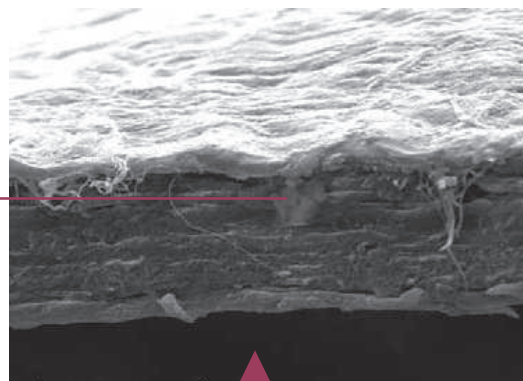
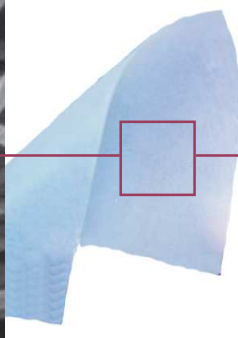
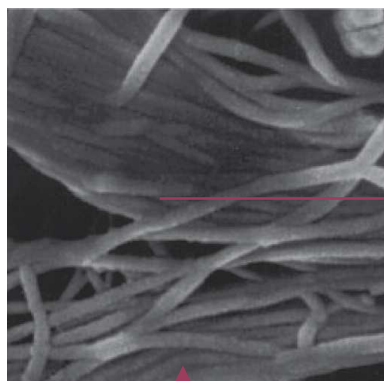


Areas of a fibrillary structure within the dense collagen fiber network of SinossMem facilitate the ingrowth of blood vessels into the defect area through the membrane.

The natural dense fibrous network of SinossMem creates a porosity in order to retard epithelial downgrowth and prevent gingiva connective cell migration.

## The micro thin network of SinossMem made of natural connective fibres

The SEM of SinossMem



SEM image of the elementary collagen fibre made of polypeptides chains. The fibre diameter is 0,2-0,5 micron. This is braided in fibre sheafs forming the collagen fibres.

The image demonstrates a thickening and a compressing of the collagen fibers which form the dense multi-layer networks which constitutes the SinossMem. (Thickness: 100 μm)

## Case report with SinossMem

### The clinical evidence of SinossMem



### Indications: Implantology, Periodontology, Oral Surgery & CMF

1. Horizontal and/or vertical ridge augmentation
2. GBR/GTR simultaneous use with bone substitutes
3. Periodontal bone defects
4. Fenestration and dehiscence defects
5. Extraction Surgery

### Product specification

SinossMem is available in 2 sizes and double sterilized packs. It can be applied with any bone graft material, e.g. SinossGraft. SinossMem is safe for 3 years. The SinossMem resorbs within 6-8 months.

### Order information

Code	Brand	Size	Thickness	Quantity/unit
1310	SinossMem	15x15mm	0,1-0,2mm	1
1311	SinossMem	25x25mm	0,1-0,2mm	1

SinossFleece

Regeneration

## SinossFleece

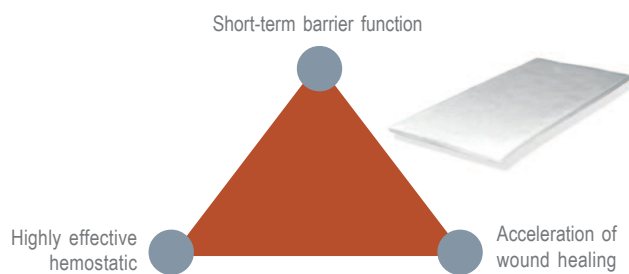
The native resorbable  
collagen fleece for  
highly effective soft tissue  
wound management



## Good barrier function, easy handling and high hemostatic effect for a reliable healing

SinossFleece is an absorbable collagen fleece with superior properties. It provides rapid absorption and high biocompatibility, easy handling and excellent hemostasis to reduce conventional treatment problems. SinossFleece is the ultimate solution for effective soft tissue treatment: It promotes wound healing in conjunction with a short term barrier function of approximately up to 4 weeks. SinossFleece enables the control of bleeding, the stabilization of blood clots and protects the wound to facilitate the healing process.

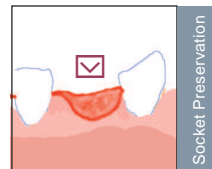
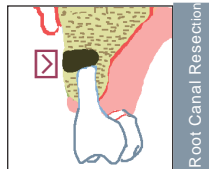
### SinossFleece: The triple mechanism of action



SinossFleece is a pure, native, absorbable, 99% of type I porcine collagen. It is used for hemostasis of capillary and parenchymatous bleeding in the dental surgery and implantology used especially in situations where conventional approaches are inadequate or difficult to perform.

### Indications: Implantology, Periodontology, Maxillo-Facial, Endodontics

1. Minor oral wounds; 2. Closure of grafted sites; 3. Repair of Schneiderian Membrane; 4. Extraction sites; 5. Mucosal flaps;
6. Biopsy sites; 7. Covering the sinus lift window; 8. Periodontal bone defects; 9. Stabilization of the blood clot in osseous defects



### Clinical Case

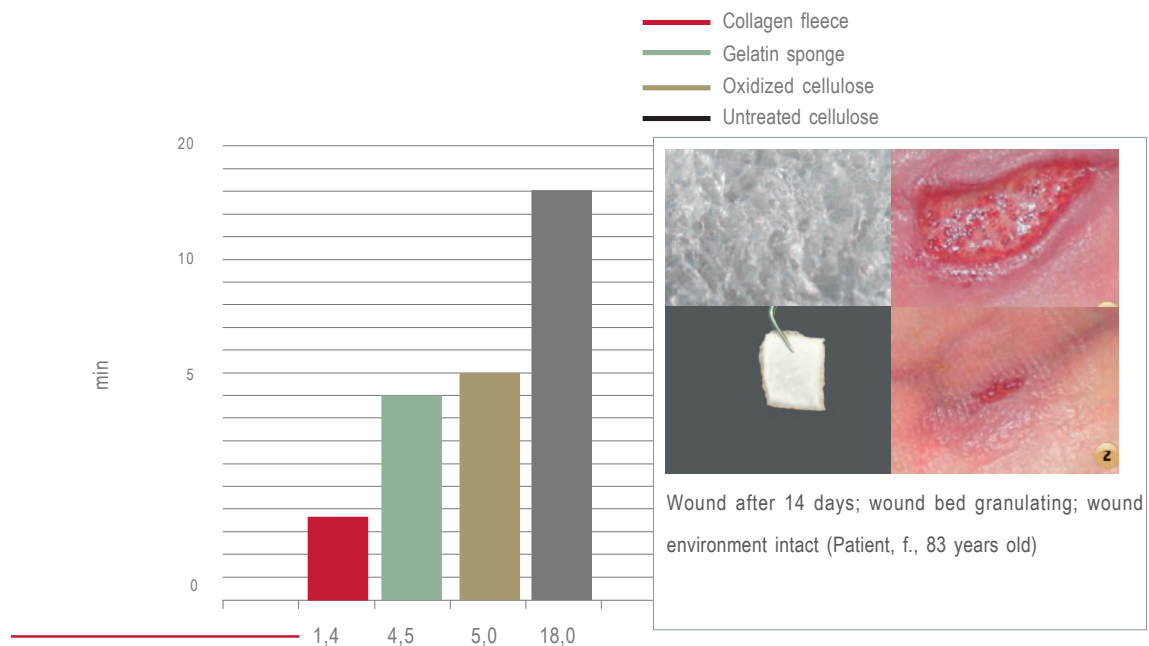
#### Socket Preservation mit SinossFleece / Quelle: Dr. Hotz



## Effectiveness of dermal regeneration with porcine collagen: epithelialization, vascularization and matrix integration

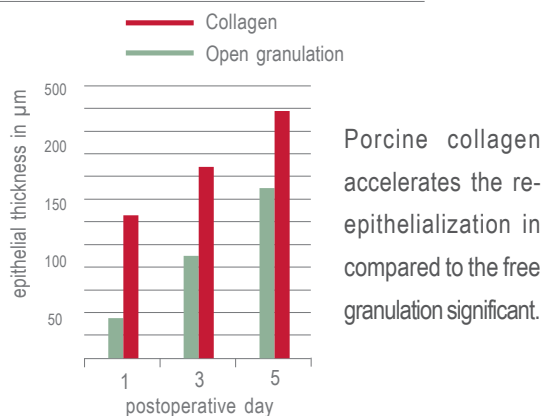
Collagen fleeces demonstrates a significantly higher effectiveness as gelatin or cellulose sponges. In addition, they are rapidly and completely absorbed by the body and promotes granulation and epithelialization of the natural collagen.

Bleeding time in comparison



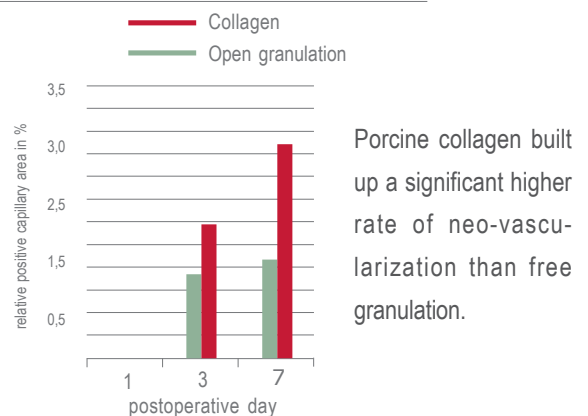
Resorbable collagen are used to dress oral wounds, for closure of graft and extraction sites, and to promote healing. Collagen-based products also have been used in periodontal and implant therapy as barriers to prevent epithelial migration and allow cells with regenerative capacity to repopulate the defect area. Clinical studies showed that epithelial growth and neo-vascularization are very important in order to avoid most critical problems in the healing periods. (Sahota et al., 2003, Sahota et al. In 2004, Schultz et al., 2003).

Epithelial thickness



Dr.med.Falk Wehrhan

Neo-vascularization



Dr.med.Falk Wehrhan

The usage of porcine collagen is able to establish a significant higher rate of new epithelial thickness and neo-vascularization and enables collagen fleeces like SinossFleece to become a matrix for tissue-engineering.



To meet international standards

SinossFleece carries the CE mark. The quality of the product meets the expectations of our customers. SinossFleece comply with the basic requirements defined in the European laws and directives relating to medical devices with regard to product performances and patient safety. Besides EN/ISO 9001 and 13485, the product has also been certified according to EC Directive 93/42/EEC Annex II, Article III Full Quality Assurance System Medical Devices for medical products.

The summary of the benefits of SinossFleece	
	• Fast and sustainable hemostatic effect
	• Accelerated wound healing
	• Stop of bleeding after 10 - 20 sec.
	• Fast decomposition (completed after approx. 30 days)
	• The fleece is replaced with granulation tissue
	• No removal necessary
	• The fleece can be: cutted, rolled or folded
	• Should be used in dry status
	• The fleece is stable even when wet
	• It can be easily placed and replaced, because it becomes not sticky even when bloodily

Product specifications

SinossFleece is a product Class III and supplied in sterile, individual packs in the following configuration.

Order information			
Code	Brand	Dimension/piece	Quantity/unit
1410	SinossFleece	22x27mm	5 pieces

References

The overview of the literature list is available upon request.

