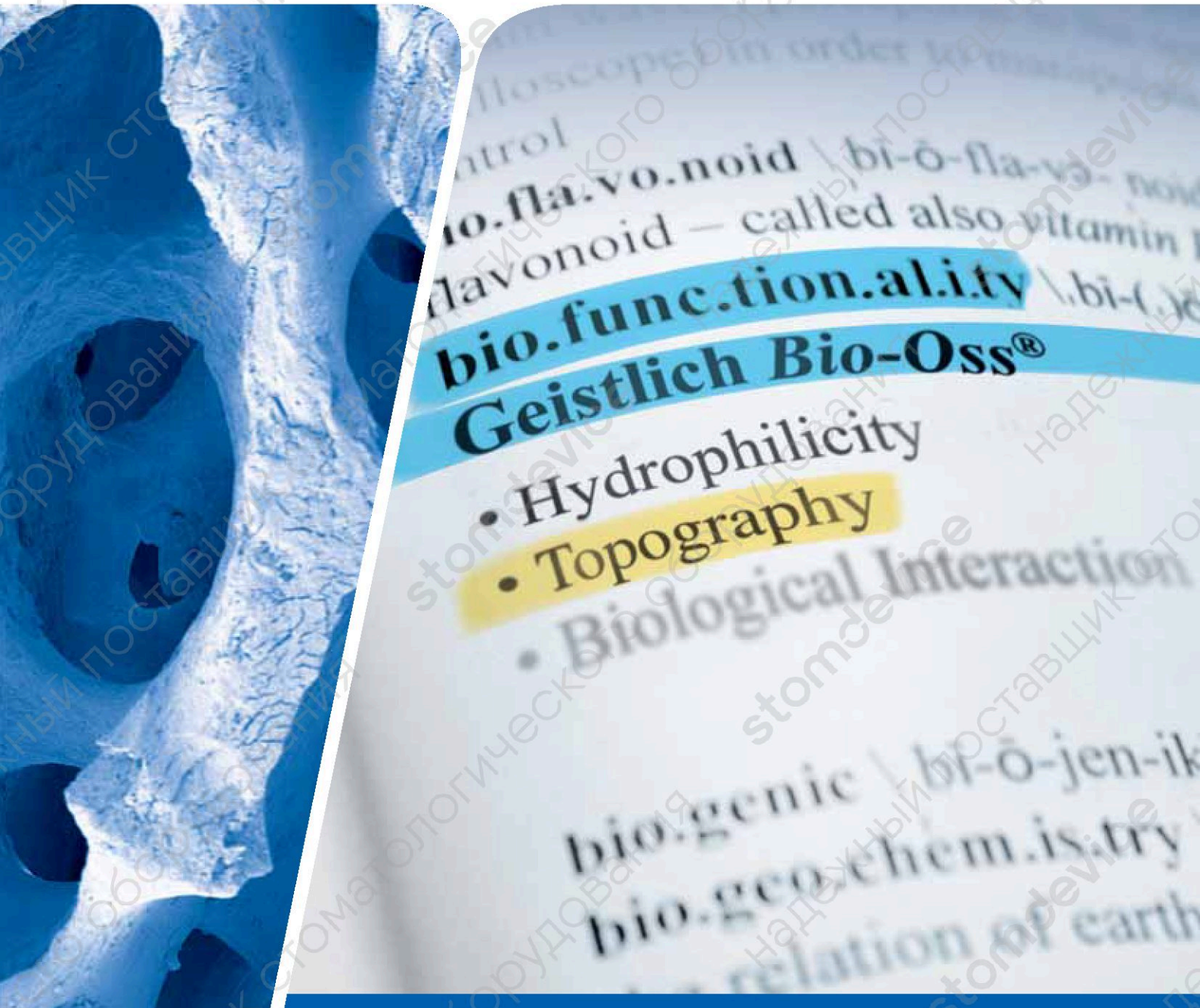
stomdevice

Geistlich
Bio-Oss®

Topography – a key factor for the Biofunctionality of Geistlich Bio-Oss®



swiss made

LEADING REGENERATION

https://stomdevice.ru - стоматологическое и зуботехническое оборудование с доставкой по России и СНГ

stomdevice

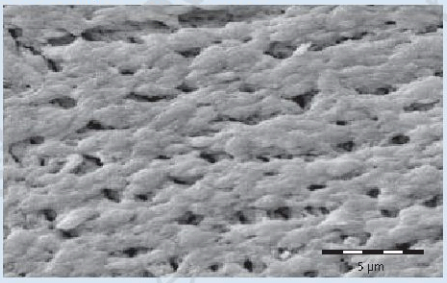
The unique Topography of Geistlich Bio-Oss® is one of the key factors ...

The peerless Geistlich Bio-Oss® pore structure leads to better bone regeneration

Geistlich Bio-Oss®

Micropores

1 Ultraporous surface



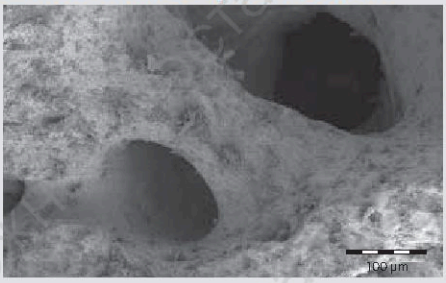
The micropores (5000×) ensure the high capillary action, and consequently the fast liquid uptake in Geistlich Bio-Oss®.

› Ideal environment for new bone formation[1]

› Excellent handling properties

Macropores

2 Internal Macropore Network



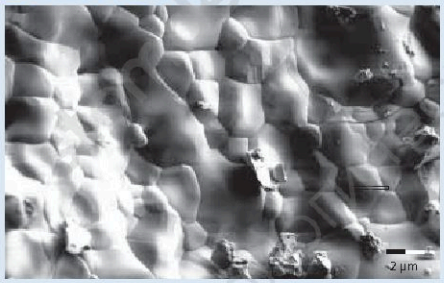
The interconnected macropores (200×) allow blood cells, osteoblasts, osteoclasts and proteins to enter into the Geistlich Bio-Oss® particles enabling effective osseointegration of Geistlich Bio-Oss® particles.

› Excellent osseointegration[2]

Ceramic Bone Substitute

Micropores

1 Dense Surface

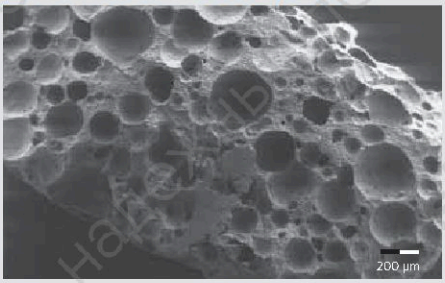


A dense, pitted surface impedes liquid uptake (13000×).

› Suboptimal environment for new bone formation[3]

Macropores

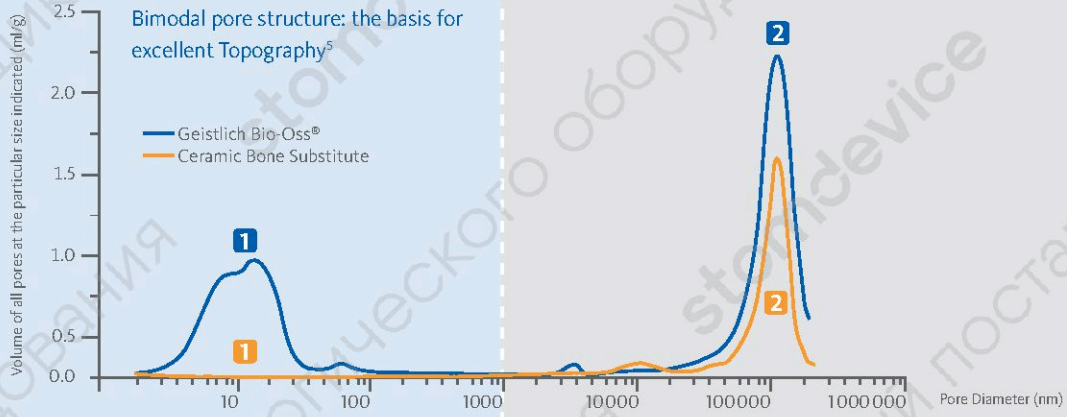
2 No interconnected pores



Crater-like structure with no interconnected macropore system (107×).

› Reduced penetration of fluids and cells[4]

Bimodal pore structure: the basis for excellent Topography[5]



[1] Berglundh T, Lindhe J: Healing around implants placed in bone defects treated with Bio-Oss®. An experimental study in the dog. Clin Oral Implants Res 1997; 8(2): 117–24.
[2] Traini T, Valentini P, Iezzi G, Piattelli A: A histologic and histomorphometric evaluation of anorganic bovine bone retrieved 9 years after a sinus augmentation procedure. J Periodontol. 2007 May; 78(5): 955–61.
[3] Klenke, F.M., et al., Impact of pore size on the vascularization and osseointegration of ceramic bone substitutes in vivo. J Biomed Mater Res A, 2008. 85(3): p. 777–86.
[4] Bufler MA. The wettability of biomaterials: comparative studies and new insights. Department of analytical research, Geistlich Biomaterials, Wolhusen, Switzerland.
[5] Bufler MA, Department of analytical research, Geistlich Biomaterials, Wolhusen, Switzerland.
[6] Aghaloo TL, Moy PK: Which hard tissue augmentation techniques are the most successful in furnishing bony support for implant placement. Int J Oral Maxillofac Implants 2007; 22(Suppl): 49–70.
[7] Schafer B, Department of core technology, Geistlich Biomaterials, Wolhusen, Switzerland.
[8] Cardaropoli G, et al.: Dynamics of bone tissue formation in tooth extraction sites. An experimental study in dogs. J Clin Periodontol 2003; 30(9): 809–18.
[9] Degidi, M., G. Daprile, and A. Piattelli, RFA values of implants placed in sinus grafted and nongrafted sites after 6 and 12 months. Clin Implant Dent Relat Res 2009. 11(3): 178–182.
[10] Galindo-Moreno P, et al.: Optimal microvessel density from composite graft of autogenous maxillary cortical bone and anorganic bovine bone in sinus augmentation: influence of clinical variables. Clin. Oral Impl. Res. 21, 2010; 221–227.
[11] Schlegel KA, Fichtner G, Schultze-Mosgau S, Wiltfang J. Histologic findings in sinus augmentation with autogenous bone chips versus a bovine bone substitute. Int J Oral Maxillofac Implants. 2003 Jan-Feb; 18(1): 53–8.
[12] Weibrich G, Trettin R, Gnoth SH, Götz H, Duschner H, Wagner W. Determining the size of the specific surface of bone substitutes with gas adsorption. Mund Kiefer Gesichtschir. 2000 May; 4(3): 148–52.
[13] Degidi M, Artese L, Rubini C, Perrotti V, Iezzi G, Piattelli A. Microvessel density and vascular endothelial growth factor expression in sinus augmentation using Bio-Oss. Oral Dis. 2006 Sep; 12(5): 469–75.

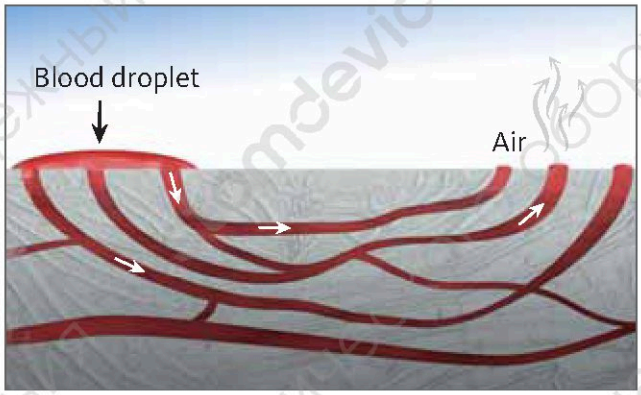
https://stomdevice.ru - стоматологическое и зуботехническое оборудование с доставкой по России и СНГ

stomdevice

... for the outstanding clinical success[6]

Benefits of the interconnective pore system of Geistlich Bio-Oss®

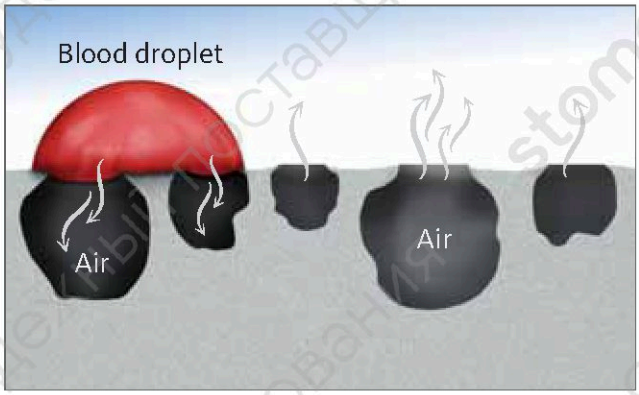
Geistlich Bio-Oss®



Interconnective pore system

› Fast and complete wetting of the whole structure[4]
› Binding and storing of proteins and growth factors[7]
› Right conditions for de novo bone synthesis[1, 8]
› Effective bone regeneration and implant stability[9]

Ceramic bone substitute



Non-interconnective pores

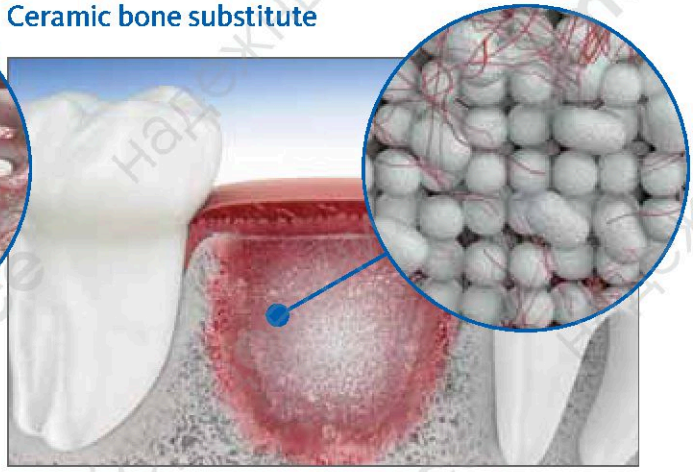
› Low porosity and interconnectivity[3, 4]
› Degassing not possible

Geistlich Bio-Oss® provides the space vascularisation needs[10]



› The blood clot stabilisation and early vascularisation is crucial for a good bone formation[10, 13]

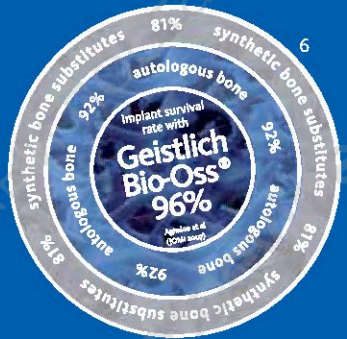
Ceramic bone substitute



› Reduced volume of newly-formed bone deposited in the dense ceramic particles
› Inferior vascularisation of the ceramic material[3]

Geistlich Bio-Oss® Topography:

› Unique pore structure provides better bone regeneration
› More space for vascularisation
› More space for new bone



Biofunctionality of Geistlich Bio-Oss® for outstanding success in bone regeneration.

https://stomdevice.ru - стоматологическое и зуботехническое оборудование с доставкой по России и СНГ

stomdevice

Geistlich
Biomaterials



Geistlich Bio-Oss® spongiosa granules



Geistlich Bio-Oss® Collagen



Geistlich Combi-Kit Collagen

Topography – a key factor for the **Biofunctionality of Geistlich Bio-Oss®**

The **Biofunctionality** of Geistlich Bio-Oss® is the sum of its characteristics and is the basis for its clinical success. One of the most important biofunctional characteristics is Topography. The **Topography** of Geistlich Bio-Oss® plays a decisive role in guiding bone regeneration. In addition to Hydrophilicity, Topography is part of the family of characteristics that define the Biofunctionality of Geistlich Bio-Oss®. Topographical features, such as an **ultraporous surface**, an **interconnecting pore system** and a structure that provides precisely the right conditions for de novo bone synthesis, synergize and induce a chain of events that lead to the long-term benefits associated with Geistlich Bio-Oss®.

The **ultraporous surface** of Geistlich Bio-Oss® functions like a microsponge and is the portal for biofunctional bone-forming interactions. While the micropores facilitate rapid liquid uptake from the biological environment in vivo, the large interconnected macropore system[12] ensures complete fluid permeation of the biomaterial. A three-dimensional microenvironment created by the **unique surface structure** of Geistlich Bio-Oss® leaves space for new bone while filling the defect.

With its osteoconductive, biomimetic[2] stable structure, Geistlich Bio-Oss® protects newly formed bone from premature resorption[11] and leads to reliable long-term space maintenance of the augmented region.

Topography and **Hydrophilicity** are not the only characteristics that determine the Biofunctionality of Geistlich Bio-Oss®. The third chapter in the Biofunctionality trilogy will unravel how **Biological Interactions** with Geistlich Bio-Oss® lead to effective **osseointegration** and enable **superior bone regeneration**. Stay tuned!

Biofunctionality of Geistlich Bio-Oss®
Clinical success through unique characteristics

31472.1/1104/e

Subsidiary Great Britain, Ireland
Geistlich Biomaterials
Geistlich Sons Limited
Long Lane
GB-Chester CH2 2PF
Phone +44 1 244 347 534
Fax +44 1 244 319 327
www.geistlich.co.uk

Manufacturer
©Geistlich Pharma AG
Business Unit Biomaterials
Bahnhofstrasse 40
CH-6110 Wolhusen
Phone +41 41 4925 555
Fax +41 41 4925 639
www.geistlich-pharma.com

More details about our Geistlich Biomaterials distribution partners:
www.geistlich-pharma.com/mycontact

https://stomdevice.ru - стоматологическое и зуботехническое оборудование с доставкой по России и СНГ