SpherHA

SpherHA Granules & Chips

Dense granules and porous chips available in two different granulometries (0.5-1 mm and 1-2 mm) and multiple formats (from 0.5 cc to 2 cc).
Dense granules are compact and similar to human cortical bone; their remodeling time is slower than porous chips, which look alike cancellous bone.
The spherical shape and uniform size of SpherHA granules allow the optimal filling of large irregular defects and the formation of homogeneous inter-granular pores, improving osteointegration and bone remodeling.

Indications

Filling of small and medium size bone defects, maxillary sinus lifts, periimplant defects and post-extraction sockets.

SpherHA Injectable Paste

Injectable paste with a high-density mixture of nano-crystals and micro-powder of nano-structured hydroxyapatite, in a phosphate-buffered saline solution with physiological pH; available in a wide range of formats (from 0.25 cc to 2 cc).
To precisely allow in situ application, a small tip is available inside the package.

Indications

Filling of periodontal and peri-implant defects, maxillary sinus augmentation with crestal access.

SpherHA Mouldable Crunch

The Crunch formulation, with the addition of micro-granules with specific granulometry, shows a higher nano-structured hydroxyapatite amount than the injectable paste, resulting in an extremely mouldable and stable mixture even in a bleeding environment. The open-mouth syringes allow the extrusion of the product in a cylindrical shape, easily adaptable and conformable to any implantation site.

Indications

Filling of paradontal, peri-implant and post-extractive bone defects.
It is also indicated for sinus lift with vestibular access.

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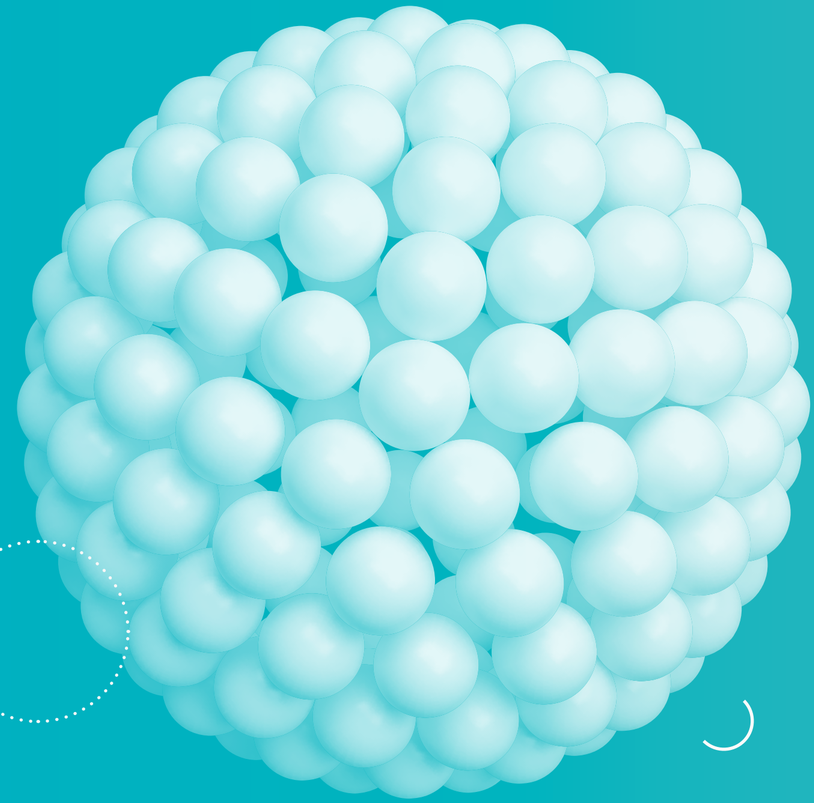
SpherHA
Dental



The shape of bone healing

Nano-structured bio-mimetic HydroxyApatite

Nano-structured bio-mimetic HydroxyApatite

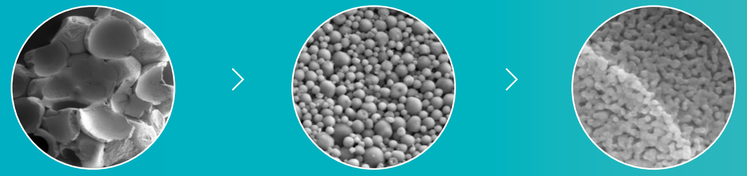
SpherHA is a line of innovative synthetic bone substitutes, based on bio-mimetic nano-structured hydroxyapatite.

SpherHA is available in dense granules, porous chips, injectable paste and mouldable crunch in a wide range of sizes, to respond in a practical and functional way to multiple implant requirements.

SpherHA hydroxyapatite is a calcium phosphate biomaterial that is remarkably similar to the human mineral bone matrix in terms of composition, structure and sizes of nano-crystals. Ca / P ratio of 1.67 is the same of the human bone apatite.

SpherHA is a bio-mimetic bone substitute. Its high surface/volume ratio makes it an ideal scaffold for osteointegration and regeneration of bone defects. The highly porous and interconnected structure is optimally osteoconductive, promoting cellular colonization, nutrients exchanges and rapid vascularization.

Thanks to specific composition and nano-metric dimension of composing crystals, SpherHA bone substitutes are completely degraded by osteoclastic activity and physiologically remodelled into new vital bone tissue.



MACRO-POROSITY
200-500 µm

MICRO-POROSITY
2-3 µm

NANO-POROSITY
40-80 nm

- Complete biocompatibility.
- Highly porous and interconnected structure to support optimal osteoconduction.
- High surface/volume ratio for a better biological response.
- Excellent chemical-physical stability.
- Complete remodeling in physiological times.

Product list

CE mark approval pending

SpherHA

Dense Granules

SHA-D0501	SpherHA dense granules (0,5-1 mm)	1 btl.	0,5 cc
SHA-D0506	SpherHA dense granules (0,5-1 mm)	6 btl.	0,5 cc
SHA-D1001	SpherHA dense granules (0,5-1 mm)	1 btl.	1 cc
SHA-D1006	SpherHA dense granules (0,5-1 mm)	6 btl.	1 cc
SHA-D2001	SpherHA dense granules (0,5-1 mm)	1 btl.	2 cc
SHA-D2006	SpherHA dense granules (0,5-1 mm)	6 btl.	2 cc
SHA-D4001	SpherHA dense granules (0,5-1 mm)	1 btl.	2 cc
SHA-D4006	SpherHA dense granules (0,5-1 mm)	6 btl.	2 cc
SHA-D20201	SpherHA dense granules (1 -2 mm)	1 btl.	2 cc

Porous Chips

SHA-P0501	SpherHA porous chips (0,5-1 mm)	1 btl.	0,5 cc
SHA-P0506	SpherHA porous chips (0,5-1 mm)	6 btl.	0,5 cc
SHA-P050S1	SpherHA porous chips (0,5-1 mm)	1 syr	0,5 cc
SHA-P050S3	SpherHA porous chips (0,5-1 mm) (filter cap syr)	3 syr	0,5 cc
SHA-P1001	SpherHA porous chips (0,5-1 mm)	1 btl.	1 cc
SHA-P1006	SpherHA porous chips (0,5-1 mm)	6 btl.	1 cc
SHA-P20101	SpherHA porous chips (1-2 mm)	1 btl.	1 cc
SHA-P20106	SpherHA porous chips (1-2 mm)	6 btl.	1 cc
SHA-P20201	SpherHA porous chips (1-2 mm)	1 btl.	2 cc
SHA-P20206	SpherHA porous chips (1-2 mm)	6 btl.	2 cc

Injectable Paste

SHA-PA0251	SpherHA injectable paste	1 syr.	0,25 cc
SHA-PA0253	SpherHA injectable paste	3 syrs.	0,25 cc
SHA-PA0501	SpherHA injectable paste	1 syr.	0,5 cc
SHA-PA0503	SpherHA injectable paste	3 syrs.	0,5 cc
SHA-PA01001	SpherHA injectable paste	1 syr.	1 cc
SHA-PA01003	SpherHA injectable paste	3 syrs.	1 cc
SHA-PA2001	SpherHA injectable paste	1 syr.	2 cc

Moldable Crunch

SHA-CR0051	SpherHA mouldable crunch	1 syr.	0,5 cc
SHA-CR0053	SpherHA mouldable crunch	3 syrs.	0,5 cc
SHA-CR0101	SpherHA mouldable crunch	1 syr.	1 cc
SHA-CR0103	SpherHA mouldable crunch	3 syrs.	1 cc
SHA-CR2001	SpherHA mouldable crunch	1 syr.	2 cc

List of publications related to nano-structured hydroxyapatite composing SpherHA bone substitutes

Nano-HA based POWDERS & GRANULES

1. G. Iviglia, C. Cassinelli, E. Torre, F. Baino, M. Morra, C. Vitale-Brovarone, "Novel bioceramic-reinforced hydrogel for alveolar bone regeneration" Acta Biomaterialia 44, p. 97 (2016).
2. M. Morra, G. Giavaresi, M. Sartori. A. Ferrari, A. Parrilli, D. Bollati, R.R. Baena, C. Cassinelli, M. Fini, , "Surface chemistry and effects on bone regeneration of a novel biomimetic synthetic bone filler" J Mater Sci: Mater Med 26(4), p. 159 (2015).
3. M.S. Laranjeira, M.H. Fernandes, F.J. Monteiro, "Response of Monocultured and Co-Cultured Human Microvascular Endothelial Cells and Mesenchymal Stem Cells to Macroporous Granules of Nanostructured-Hydroxyapatite Agglomerates", Journal of Biomedical Nanotechnology, 9(9), p. 1594 (2013).
4. M.S. Laranjeira, M.H. Fernandes, F.J. Monteiro, "Innovative macroporous granules of nanostructured hydroxyapatite agglomerates", Journal of Biomedical Materials Research Part A, 95A(3), p. 891-900 (2010).
5. J. Idaszek, T. Brynk, J. Jaroszewicz, F. Vanmeert, A. Bruinink, W. Święszkowski, "Investigation of mechanical properties of porous composite scaffolds with tailorable degradation kinetics after in vitro degradation using digital image correlation ", Polymer Composites, Polymer Composites, 38(11), p. 2402 (2017).

Nano-HA based PASTES

1. Y. Ryabenkova, A. Pinnock, P.A. Quadros, R.L. Goodchild, G. Möbus, A. Crawford, P.V. Hatton, C.A. Miller, "The relationship between particle morphology and rheological properties in injectable nano-hydroxyapatite bone graft substitutes", Materials Science and Engineering: C, 75, p. 1083 (2017).
2. V. Hruschka, S. Tangl, Y. Ryabenkova, P. Heimel, D. Barnewitz, G. Möbus, C. Keibl, J. Ferguson, P. Quadros, C. Miller, R. Goodchild, W. Austin, H. Redl, T. Nau, "Comparison of nanoparticular hydroxyapatite pastes of different particle content and size in a novel scapula defect model", Nature Scientific Reports 7, Article number: 43425; doi: 10.1038/srep43425 (2017).
3. N. Ribeiro, S.R. Sousa, C.A. van Blitterswijk, L. Moroni, F.J. Monteiro, "A biocomposite of collagen nanofibers and nanohydroxyapatite for bone regeneration", Biofabrication, 6(3), (2014).
4. E. Pires, "Effect of the nanohydroxyapatite Formulation Paste on the Proliferation and Osteogenic Differentiation of Human Bone Mesenchymal Stem Cells", Integrated MSc Thesis in Bioengineering, Faculty of Engineering, University of Porto (2013).