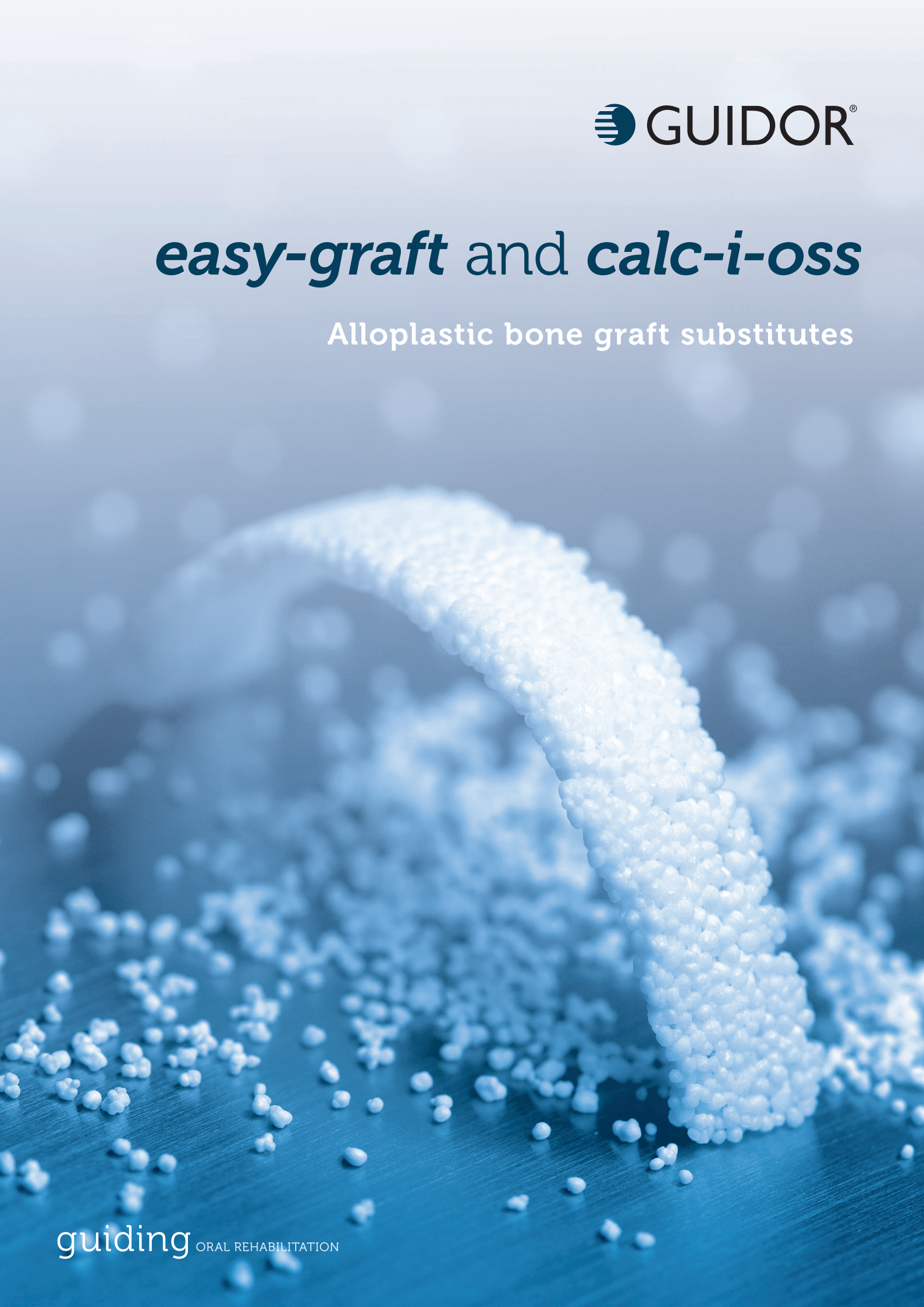
GUIDOR®

easy-graft and *calc-i-oss*

Alloplastic bone graft substitutes



guiding ORAL REHABILITATION

GUIDOR *easy-graft*

Soft from the syringe.
Hard in the defect.

GUIDOR *easy-graft*
The Handling Advantage

Simplifying bone regeneration techniques

In their forward thinking 2003 article, Hämmerle & Jung[1] stated: "Developments in bone augmentation procedures can be related either to simplification of the clinical handling or to influencing of biological processes. To simplify clinical handling, new materials should comprise a matrix with optimal cell ingrowth capacities and good mechanical properties, providing space for tissue regeneration. No membrane and no specific procedures for mechanical fixation should be necessary.
This would reduce the technique sensitivity and increase the predictability of bone augmentation. The use of synthetic (alloplastic) materials would result in lower surgical risks and lower morbidity in augmentation procedures and would represent an important step forward in simplifying bone regeneration techniques."…

…with GUIDOR easy-graft and its easy handling such considerations become reality.

GUIDOR *easy-graft*
Mouldable from the Syringe, *in situ* Hardening

Principle

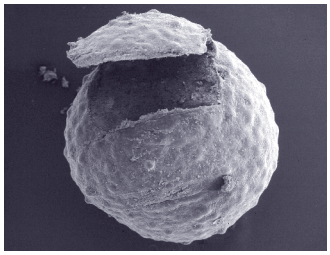


Fig 1

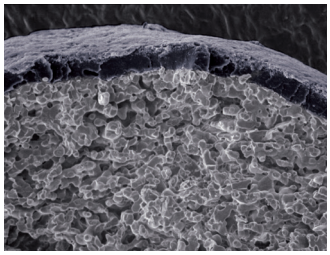


Fig 2

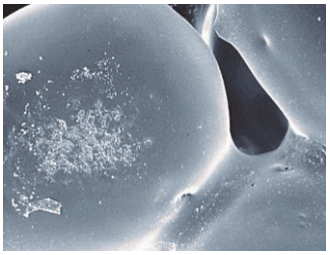


Fig 3

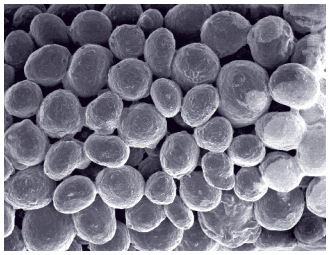


Fig 4

Each granule is pre-coated with a polylactic-co-glycolic acid (PLGA) polymer layer of 10 µm.

When the supplied BioLinker is added to the syringe contents it softens the polymer coating of the granules creating a sticky yet mouldable mass.

Handling

Fig 1
Add BioLinker in the syringe.

Fig 2
Pulling back the plug of the syringe slightly facilitates the wetting of the granules, as does moving back and forth the plunger and the plug 1-3 times.

Fig 3
Discard excess of BioLinker.

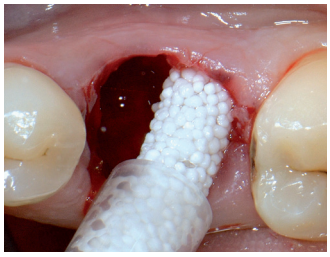


Fig 4
Direct application of the product into the defect.

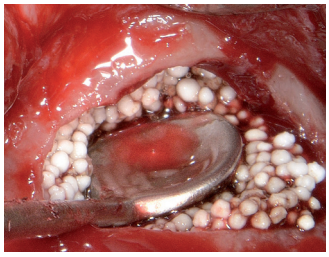


Fig 5
GUIDOR *easy-graft* granules are pressure-resistant and should be condensed in the defect.

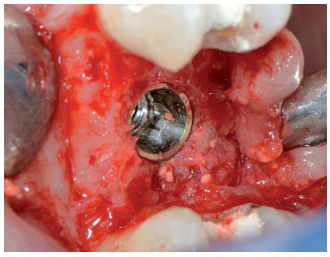
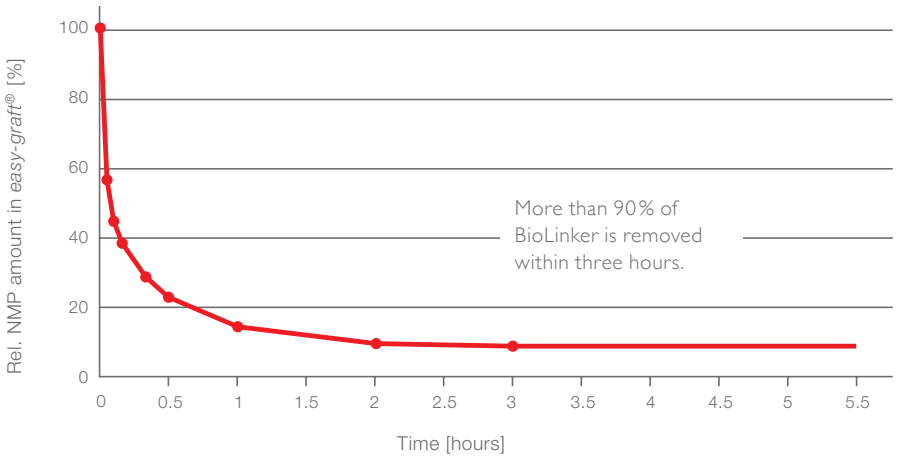
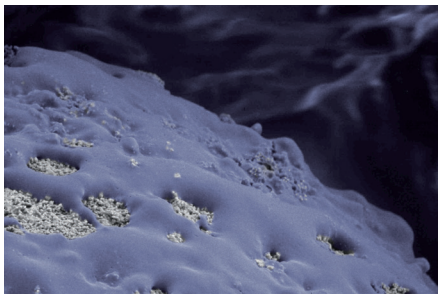


Fig 6
Depending upon time scale, granules embedded on the surface of new bone will be observed. Excess granules can sometimes be seen in the soft tissue and can easily be removed at re-entry if desired.

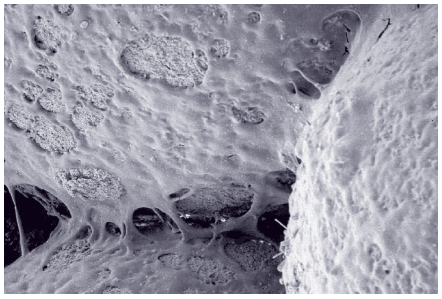
GUIDOR *easy-graft*
Resorption Process for BioLinker and PLGA Polymer Coating



Stage 1
BioLinker is extracted within hours.
BioLinker is extracted by incoming blood, promoting rehardening of the material. More than 90% of BioLinker is removed from the bone graft substitute within three hours [1] and excreted through the urine within 1-3 days [2]. BioLinker contains N-Methyl-2-pyrrolidone (NMP), a solvent widely used in pharmaceutical and medical devices such as dental membranes, subcutaneous drug-release systems etc.



During resorption
Colored electron microscope image of GUIDOR *easy-graft* CRYSTAL during resorption. The resorption of the PLGA coating (blue) exposes the biphasic calcium phosphate (white).



Resorption of the PLGA coating
Electron microscope image from an *in vitro* degradation experiment

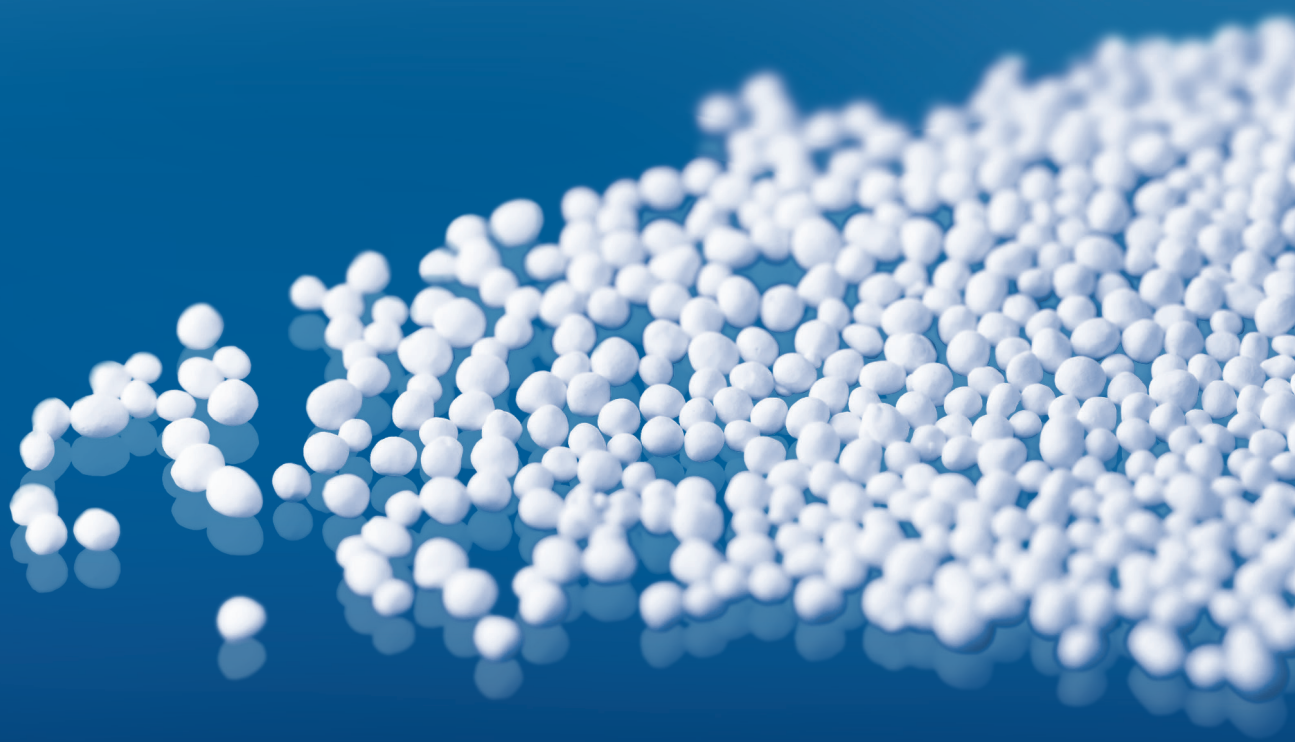
Stage 2
The PLGA polymer coating is resorbed over a few weeks.
In parallel to the healing and regeneration process, the PLGA coating and adhesive connection between the granules gradually weakens (three to six weeks *in vitro*), exposing the microporous, osteoconductive scaffold.

Resorption of PLGA releases small amounts of lactic and glycolic acid. Lactic acid is degraded by metabolic processes. Glycolic acid can be degraded in the body or be excreted with the urine.

PLGA polymers are widely used in devices such as membranes, screws and plates for maxillofacial surgery, suture anchors, and cages for spinal surgery.

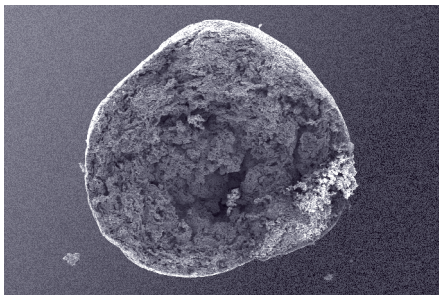
GUIDOR *calc-i-oss*

Traditional Granules.
Versatility.



GUIDOR *calc-i-oss*
Traditional Granules

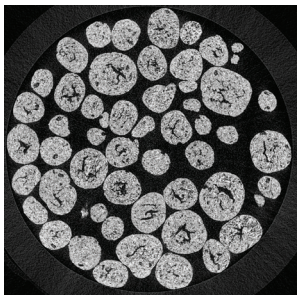
Highly Porous, Osteoconductive Granules



GUIDOR *calc-i-oss* granule

Concept

After several years of refinement, GUIDOR *calc-i-oss* answers the original demand for an alloplast bone graft granule with similarities to natural bone.



Versatility

Versatile Application

Unlike gritty particulates, GUIDOR *calc-i-oss* is presented as stable spherical granules.

The spheres are easy to handle and allow for a variety of application options such as:

- Mixing with blood
- Mixing with blood preparation (e.g. PRP or CGF),
- Mixing with autogenous bone or other bone graft materials

Sterile Double Packaging

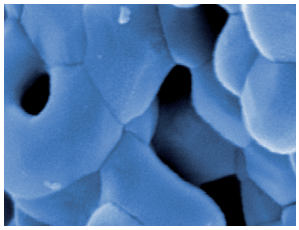
GUIDOR *calc-i-oss* is provided in sterile double packaging to achieve the highest surgical standards.

Choosing between GUIDOR bone graft substitutes

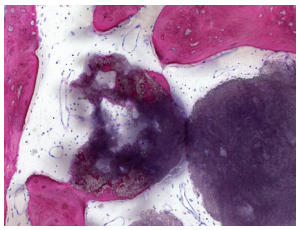
GUIDOR Alloplastic Bone Graft Substitutes
Resorption and Porosity Profiles

GUIDOR bone graft substitutes *easy-graft* and *calc-i-oss* are 100 % alloplastic, with no elements of animal or human origin. They are biocompatible and osteoconductive. The total porosity of 70% consists of macropores providing space for vascularization and bone regeneration and micropores allowing optimal fluid circulation. Each product also features two distinctly different calcium phosphate forms, offering a choice of resorption profile matched to need: CLASSIC and CRYSTAL.

CLASSIC - 100 % resorbable, more space for new bone

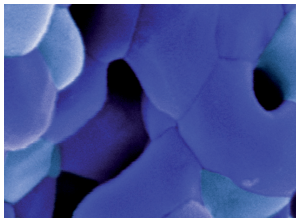


CLASSIC consists of a phase-pure ß-TCP. Material resorption and bone regeneration proceed in parallel. CLASSIC profile is fully resorbed within 5 to 15 months. In clinical practice, resorption of phase-pure ß-TCP is observed after shorter healing periods. No foreign material remains in the body.

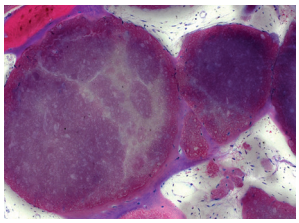


The resorption process can be clearly seen by the irregular shape of the previously spherical *easy-graft* CLASSIC granule.
Human histology, 4 months after *easy-graft* CLASSIC application.
Courtesy Dr. Minas Leventis, Athens, Greece and Dr. Heiner Nagursky, University of Freiburg in Breisgau, Germany.

CRYSTAL - Partially resorbable, integration into bone

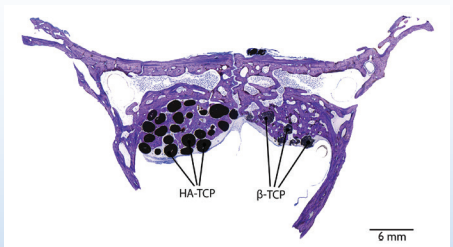


CRYSTAL consists of a biphasic calcium phosphate (BCP) compound formed in the ratio of 60% Hydroxyapatite and 40 % ß-TCP. The BCP serves as a stable scaffold for long-term volume preservation and HA gets embedded into new bone.



easy-graft CRYSTAL granules remain incorporated into newly formed bone.
Human histology, 8 months after *easy-graft* CRYSTAL application.
Courtesy Dr. Antonio Flichy, Valencia, Spain and Dr. Heiner Nagursky, University of Freiburg in Breisgau, Germany.

Comparison between CLASSIC and CRYSTAL



Animal histology, 3 months after *easy-graft* CLASSIC (ß-TCP, right) and *easy-graft* CRYSTAL (BCP, left) application.

An animal study from Valdivia and al[1] shows that both, *easy-graft* CLASSIC and *easy-graft* CRYSTAL are able to maintain volume and support the formation of new bone under physiological pressure. Percentage of new bone was higher using *easy-graft* CLASSIC providing more space for bone ingrowth while resorbing. On the other hand, the augmented volume was better preserved and the amount of lamellar bone was increased using *easy-graft* CRYSTAL.

Indications and Guidance

easy-graft CLASSIC and *calc-i-oss* CLASSIC	*easy-graft* CRYSTAL and *calc-i-oss* CRYSTAL
***easy-graft* CLASSIC and other ß-TCP materials are documented in:**	**easy-graft CRYSTAL and other BCP (60% hydroxyapatite / 40% ß-TCP) materials are documented in:**
• Sinus floor elevation [1]	• Sinus floor elevation [6]
• Periodontal defects [2]	• Periodontal defects [7]
• Defects after removal of bone cysts [3]	• Defects after removal of bone cysts [8]
• Augmentation of alveolar crest [4]	• Augmentation of alveolar crest [9]
• Extraction defects [5]	• Extraction defects [10]

Your choice of handling

In all these indications, you can either take advantage of the handling benefit of GUIDOR *easy-graft*, our mouldable in situ hardening bone graft system that can be directly applied from the syringe or also use our traditional particles GUIDOR *calc-i-oss* in combination with our GUIDOR *matrix barrier.*

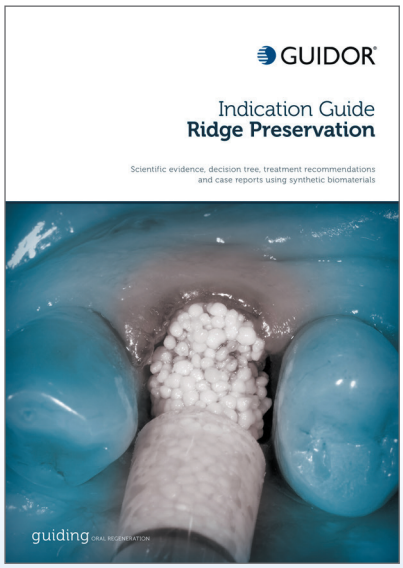
Our recommendation between CLASSIC and CRYSTAL

If timing of implant placement after augmentation is > 6 months, it is recommended to use *easy-graft* CRYSTAL or *calc-i-oss* CRYSTAL to provide better volume preservation in the meantime.

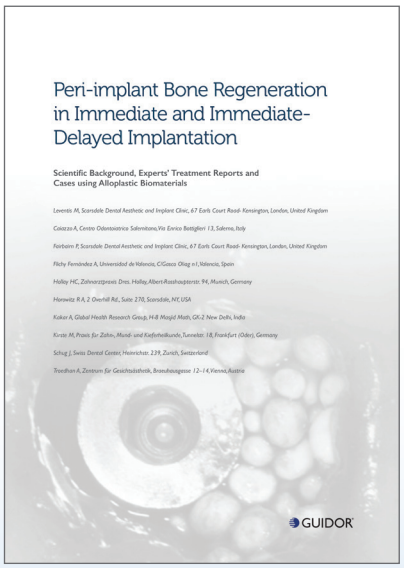
Our Indication Guides

For more detailed recommendations on how to apply our products in a specific indication, please ask for our indication guides.

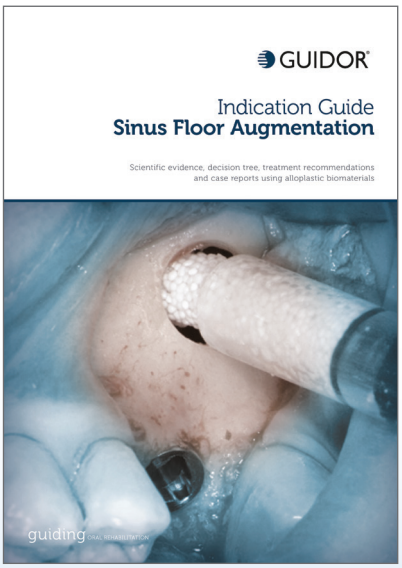
Ridge Preservation



Peri-implant Augmentation



Sinus Floor Augmentation



Before use, carefully read the instructions for use.
For more information, please contact our local affiliate to receive these indication guides and also check **www.guidor.com**

Product References

Product	**GUIDOR *easy-graft* CLASSIC**		
Reference no.	C11-012	C11-072	C11-002
Units	3 x 0.15 ml	3 x 0.25 ml	3 x 0.4 ml
Granule size	500 – 630 µm	500 – 1000 µm	500 – 1000 µm
Material	Phase-pure ß-tricalcium phosphate (> 99 %)		

Product	**GUIDOR *easy-graft* CRYSTAL**		
Reference no.	C15-012	C15-072	C15-002
Units	3 x 0.15 ml	3 x 0.25 ml	3 x 0.4 ml
Granule size	450 – 630 µm	450 – 1000 µm	450 – 1000 µm
Material	Biphasic calcium phosphate (60 % hydroxyapatite / 40 % ß-TCP)		

Product	**GUIDOR *calc-i-oss* CLASSIC**		
Reference no.	A02-103B	A02-103C	A02-103D
Units	3 x 0.5 ml	3 x 1.0 ml	3 x 2.0 ml
Granule size	315 – 500 µm	500 – 1000 µm	1000 – 1600 µm
Material	Phase-pure ß-tricalcium phosphate (> 99 %)		

Product	**GUIDOR *calc-i-oss* CRYSTAL**	
Reference no.	A09-211	A09-231
Units	3 x 1.0 ml	3 x 2.5 ml
Granule size	450 – 1000 µm	450 – 1000 µm
Material	Biphasic calcium phosphate (60 % hydroxyapatite / 40 % ß-TCP)	

Clinical cases

Dr. Minas Leventis

Indication	Ridge preservation
Patient	Female, 23 years old
Position	Maxillary right second premolar (15)
Material used	GUIDOR *easy-graft* CLASSIC

Fig. 1 Maxillary right second premolar (tooth 15) with caries.

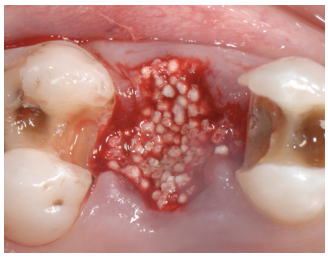


Fig. 2 Ridge preservation with *easy-graft* CLASSIC, after atraumatic extraction.

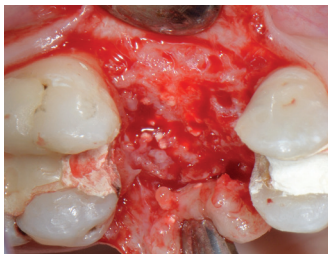


Fig. 3 Situation at re-entry 4 months post-op. *easy-graft* CLASSIC granules are well integrated in new bone.

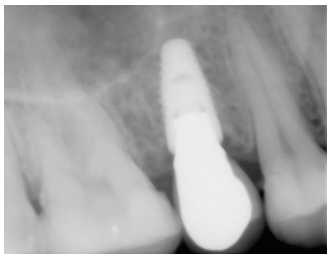


Fig. 4 Final radiograph 16 months post-op.

Dr. Minas Leventis

Indication	Peri-implant bone regeneration, immediate implantation
Patient	Female, 45 years old
Position	Maxillary right central incisor (11)
Material used	GUIDOR *easy-graft* CRYSTAL

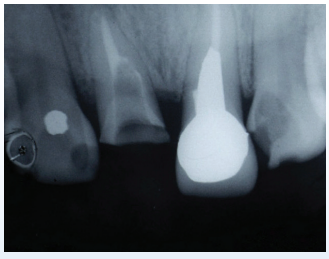


Fig. 1 X-ray of initial situation.

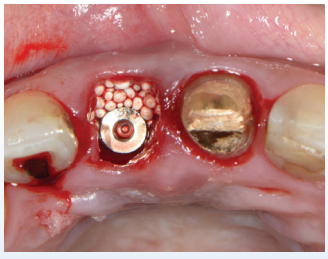


Fig. 2 Immediate implant placement and grafting.

Fig. 3 Immediate provisional restoration.

Fig. 4 5 months post-op, excellent preservation of the architecture of the ridge.

Dr. Antonio Flichy-Fernández

Indication	Lateral sinus floor augmentation
Patient	Case series of 20 sinus floor augmentations [1]
Position	Maxillary molar teeth
Material used	GUIDOR *easy-graft* CRYSTAL, GUIDOR *calc-i-oss* CRYSTAL

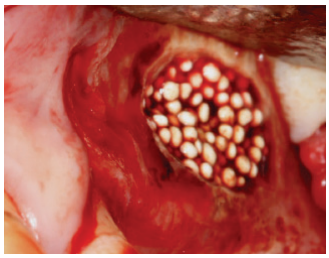


Fig. 1 Lateral sinus floor augmentation with *easy-graft* CRYSTAL.

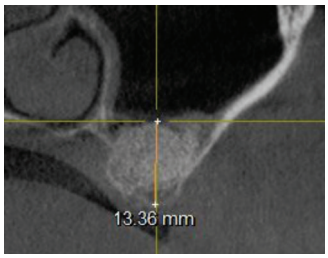


Fig. 2 Control CBCT at 6 months.

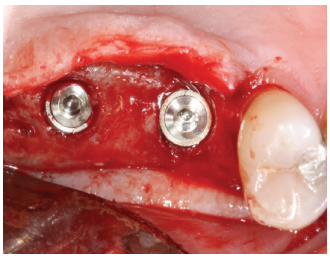


Fig. 3 Implantation at 6 months. (position 16, 17).

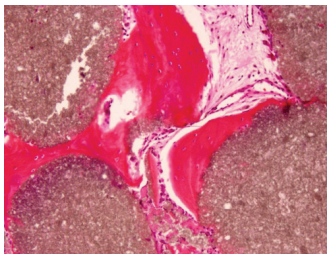


Fig. 4 Histology showing *easy-graft* CRYSTAL embedded in newly formed bone.

Frequently Asked Questions

MATERIAL PROPERTIES

What is the difference between GUIDOR *easy-graft* CLASSIC *and* GUIDOR *easy-graft* CRYSTAL?

GUIDOR *easy-graft* CLASSIC contains phase-pure ß-tricalcium phosphate (ß-TCP) and is resorbed over a period of 5-15 months. GUIDOR *easy-graft* CRYSTAL contains biphasic calcium phosphate (60% hydroxyapatite, 40% ß-TCP). It is partially resorbable. The BCP serves as a stable scaffold for long-term volume preservation and gets embedded into new bone.

GUIDOR *easy-graft* CLASSIC and GUIDOR *easy-graft* CRYSTAL - How do I decide which material is suitable in a specific case?

The topic of material selection is a matter of clinician and surgical planning preference. See timing/staging of dental implant.

GUIDOR *easy-graft* CRYSTAL: Are there two types of granules (HA and ß-TCP) in GUIDOR *easy-graft* CRYSTAL?

No. Every single granule consists of a compound of 60% hydroxyapatite and 40% ß-TCP.

APPLICATION

Mixing with BioLinker: How long should GUIDOR *easy-graft* granules be in contact with the BioLinker in the syringe?

The granules must be completely wetted with BioLinker. A complete wetting can be achieved by moving back and forth the plunger and the plug 1 - 3 times. Typically this takes around 20 - 40 seconds.

Should defects be overfilled?

No, overfilling is not recommended.

How should GUIDOR *easy-graft* material be condensed?

Experienced GUIDOR *easy-graft* users use various aids such as flattened stoppers or the plunger of the GUIDOR *easy-graft* applicator syringe. Over larger areas the material can be evenly condensed by pressing down a piece of gauze (moistened with physiological saline solution) with the finger for 10 - 30 seconds.

Can GUIDOR *easy-graft* products be used in combination with dental membranes?

Yes, it is at the discretion of the practitioner.

When would the use of a membrane be recommended?

GUIDOR *easy-graft* products are stable and do not require a membrane for containment in 3 or 4 walled defects. Flat (non-concave defects with limited walls) and defects of a critical size may require the additional support of a barrier membrane. Sites where a full thickness periosteal relieving flap is created may also benefit from a barrier membrane for exclusion of soft tissue ingress. The decision to use a membrane is part of therapy planning and is the responsibility of the practitioner.

Can GUIDOR *easy-graft* products be mixed with autogenous bone or bone graft substitutes or with preparations such as BMP-2 and Enamel matrix proteins in the application syringe?

No, mixing GUIDOR *easy-graft* products with autogenous bone chips or foreign materials will cause the material to harden prematurely in the syringe, or will prevent the material from hardening in the defect. This means that GUIDOR *easy-graft* products will lose their unique handling advantage. GUIDOR *calc-i-oss* products are ideal to mix with patient's blood or blood preparation (e.g platelet-rich plasma), sterile saline or autogenous bone.

Does GUIDOR *easy-graft* adhere to the bone surface?

No. GUIDOR *easy-graft* products do not adhere to tissue and do not contain adhesives. The granules adhere to one another and form a mouldable mass because of the coating of the granules with PLGA ("sticky granules").

Can GUIDOR *easy-graft* products be ground down after hardening?

Grinding down is not recommended. The effect of the rotary forces may cause the graft to loosen in the defect, which may endanger the bone regeneration. Excess material should be removed before hardening (e.g. with a curette).

INDICATIONS

Is it necessary to cover the material with soft tissue after socket grafting?

No, the material will also heal in place without a soft-tissue cover. The material surface should be well condensed during socket preservation. The application of retention may be useful depending on the shape of the extraction socket. A temporary restoration serves to protect the graft surface from the tongue and foodstuffs. For examples of applications see the Sunstar GUIDOR guidebook for ridge preservation.

When can an implant be placed after using GUIDOR *easy-graft* products to fill the extraction sockets?

GUIDOR *easy-graft* products are osteoconductive bone graft substitutes. The time of implant placement can be selected in accordance with experience with comparable materials (e.g. ß-TCP granules, bone replacement materials of bovine origin). A definite answer to this common question cannot be given, because the regeneration of bone depends on the anatomical and physiological conditions at the extraction site, and the time of implant placement depends on the treatment philosophy.

Can an implant be placed immediately with subsequent filling of the defect with GUIDOR *easy-graft*?

Yes, peri-implant gaps and bone deficiencies around implants with primary stability can be filled with GUIDOR *easy-graft* products (See page 10).

Can GUIDOR *easy-graft* products be used for fixing implants without primary stability?

No. Implants must be anchored in local bone with primary stability. GUIDOR *easy-graft* products are suitable for filling bone deficits around implants anchored in pristine bone.

Are GUIDOR *easy-graft* materials radio opaque?

Yes, GUIDOR *easy-graft* CLASSIC and GUIDOR *easy-graft* CRYSTAL are both opaque to x-rays.

How long do GUIDOR *easy-graft* products remain stable in the body?

The adherence of the granules is determined by the PLGA coating. It is resorbed over a period of 3 - 6 weeks. During this period, the strength of the material gradually decreases.

Does the volume of GUIDOR *easy-graft* change during the healing process?

During the initial phase of degradation, *easy-graft* CLASSIC may swell by taking up body fluids, thus supporting a close contact to the surrounding bone tissue. When applied in larger defects, this might result in slight sensation of pressure by the patient.

Evidence Base

Publications supporting dental application of GUIDOR alloplastic biomaterials:

***in vivo* / preclinical studies**

Bizenjima T, Takeuchi T, Seshima F and Saito A: Effect of poly (lactide-co-glycolide) (PLGA)-coated beta-tricalcium phosphate on the healing of rat calvarial bone defects: a comparative study with pure-phase beta-tricalcium phosphate. Clinical Oral Implants Research (2016).

Favero V, Lang N P, Canullo L, Urbizo Velez J, Bengazi F and Botticelli D: Sinus floor elevation outcomes following perforation of the Schneiderian membrane. An experimental study in sheep. Clinical Oral Implants Research (2015).

Schmidlin P R, Nicholls F, Kruse A, Zwahlen R A and Weber F E: Evaluation of moldable, in situ hardening calcium phosphate bone graft substitutes. Clinical Oral Implants Research (2013).

Yip I, Ma L, Mattheos N, Dard M and Lang N P: Defect healing with various bone substitutes. Clinical Oral Implants Research (2014).

Zigdon H, Lewinson D, Bick T and Machtei E E: Vertical Bone Augmentation Using Different Osteoconductive Scaffolds Combined with Barrier Domes in the Rat Calvarium. Clinical Implant Dentistry and Related Research (2012).

Clinical studies

Dudek D, Sołtykiewicz K, Helewski K, Wyrobiec G, Harabin-Slowinska M, Kowalczyk-Ziomek G and Wojnicz R: Treatment of a mandibular cyst with synthetic bone graft substitute. Implants (2013) 2013(1): 34-36.

El Sayed E, Khalil A and Saleh M: Clinical and radiographical evaluation of immediate implant versus delayed implant after socket preservation of upper anterior teeth. Alexandria Dental Journal (2015) 40: 79-85.

Jurisic M, Manojlovic-Stojanoski M, Andric M, Kokovic V, Danilovic V, Jurisic T and Brkovic B B: Histological and morphometric aspects of Ridge preservation with a moldable, in situ hardening bone graft substitute. Arch. Biol. Sci. (2013) 65(2): 429-437.

Kakar A, Chaudhary V, Kakar R C, Lahori M and Kakar K: Indirect Sinus Elevation And Implant Placement Using A Modified Crestal Approach - A Case Report. The Journal of Academy of Oral Implantology (2011) 3(Jan-Apr): 37-40.

Leventis M D, Fairbairn P, Kakar A, Leventis A D, Margaritis V, Lückerath W, Horowitz R A and Nagursky H: Minimally invasive alveolar ridge preservation utilizing an in situ hardening ß-tricalcium phosphate bone substitute. A multicenter case series. International Journal of Dentistry (2016) 2016.

Neumeyer S and Neumeyer-Wühr S: The use of polylactide- coated beta-TCP Closure of oroantral communications. Implants (2010) (4): 32-36.

Thoma K, Pajarola G F, Gratz K W and Schmidlin P R: Bioabsorbable root analogue for closure of oroantral communications after tooth extraction: a prospective case-cohort study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod (2006) 101(5): 558-64.

Troedhan A, Kurrek A, Wainwright M, Schlichting I, Fischak-Treitl B and Ladentrog M: The transcrestal hydrodynamic ultrasonic cavitational sinuslift: Results of a 2-year prospective multicentre study on 404 patients, 446 sinuslift sites and 637 inserted implants. Open Journal of Stomatology (2013) 3: 471.

Troedhan A, Schlichting I, Kurrek A and Wainwright M: Primary implant stability in augmented sinuslift-sites after completed bone regeneration: a randomized controlled clinical study comparing four subantrally inserted biomaterials. Scientific reports (2014) 4.

Troedhan A, Wainwright M, Kurrek A and Schlichting I: Biomechanical Stability of Dental Implants in Augmented Maxillary Sites: Results of a Randomized Clinical Study with Four Different Biomaterials and PRF and a Biological View on Guided Bone Regeneration. BioMed Research International (2015) 2015.

Disclaimer

Although Degradable Solutions AG takes all possible care to ensure the correctness of this literature review, no warranty can be accepted regarding the correctness, accuracy, up to datedness, reliability and completeness of the content of this information. Liability claims against Degradable Solutions AG because of tangible or intangible damage arising from using (or not using) the published information are excluded.'

Cited Reference Listing

Page 3

1. Hammerle C H and Jung R E: Bone augmentation by means of barrier membranes. Periodontology 2000 (2003) 33: 36-53.

Page 5

1. Data on file: Degradable Solutions, Wagistrasse 23 8952 Schlieren, Switzerland.

2a) World Health Organization (2001). Concise International Chemical Assessment Document 35 N-Methyl-2-Pyrrolidone. Organization, W. H. Stuttgart, Wissenschaftliche Verlagsgesellschaft mbH: 32.

2b) Bader M., Keener S. A. and Wrbitzky R.: Dermal absorption and urinary elimination of N-methyl-2-pyrrolidone. Int Arch Occup Environ Health (2005)78(8): 673-6.

2c) Bader M., Wrbitzky R., Blaszkewicz M. and van Thriel C.: Human experimental exposure study on the uptake and urinary elimination of N-methyl-2-pyrrolidone (NMP) during simulated workplace conditions. Arch Toxicol (2007) 81(5):335-46.

2d) Bader M., Wrbitzky R., Blaszkewicz M., Schaper M. and van Thriel, C.: Human volunteer study on the inhalational and dermal absorption of N-methyl-2-pyrrolidone (NMP) from the vapor phase. Arch Toxicol (2008) 82(1): 13-20.

Page 9

1. Valdivia-Gandur I., Engelke W., Beltrán V., Borie E., Fuentes R., Manzanares-Céspedes M.C., Novel use of cranial epidural space in rabbits as an animal model to investigate bone volume augmentation potential of different bone graft substitutes, Head & Face Medicine, 2016.

Page 10

1a) Zerbo I. R., Zijderveld S. A., de Boer A., Bronckers A. L., de Lange G., ten Bruggenkate C. M. and Burger E. H.: Histomorphometry of human sinus floor augmentation using a porous beta-tricalcium phosphate: a prospective study. Clin Oral Implants Res (2004) 15(6): 724-32.

1b) Zerbo I. R, et al. Localisation of osteogenic and osteoclastic cells in porous beta-tricalcium phosphate particles used for human maxillary sinus floor elevation. Biomaterials (2005) 26(12): 1445-51.

1c) Suba Z., Takacs D., Matusovits D., Barabas J., Fazekas A. and Szabo G.: Maxillary sinus floor grafting with beta-tricalcium phosphate in humans: density and microarchitecture of the newly formed bone. Clin Oral Implants Res (2006) 17(1): 102-8.

1d) Knabe C., Koch C., Rack A. and Stiller M.: Effect of beta-tricalcium phosphate particles with varying porosity on osteogenesis after sinus floor augmentation in humans. Biomaterials (2008) 29(14): 2249-58.

1e) Troedhan A, Kurrek A, Wainwright M, Schlichting I, Fischak-Treitl B and Ladentrog M: The transcrestal hydrodynamic ultrasonic cavitational sinuslift: Results of a 2-year prospective multicentre study on 404 patients, 446 sinuslift sites and 637 inserted implants. Open Journal of Stomatology (2013) 3: 471.

1f) Troedhan A, Schlichting I, Kurrek A and Wainwright M: Primary implant stability in augmented sinuslift-sites after completed bone regeneration: a randomized controlled clinical study comparing four subantrally inserted biomaterials. Scientific reports (2014) 4.

2a) Stahl S. S. and Froum S.: Histological evaluation of human intraosseous healing responses to the placement of tricalcium phosphate ceramic implants. I. Three to eight months J Periodontol (1986) 57(4): 211-7.

2b) Yassibag-Berkman Z., Tuncer O., Subasioglu T. and Kantarci A.: Combined use of platelet-rich plasma and bone grafting with or without guided tissue regeneration in the treatment of anterior interproximal defects. J Periodontol (2007) 78(5): 801-9.

3a) Zerbo I. R., Bronckers A. L., de Lange G. L., van Beek G. J. and Burger E. H.: Histology of human alveolar bone regeneration with a porous tricalcium phosphate. A report of two cases. Clin Oral Implants Res (2001) 12(4): 379-84.

3b) Horch H H, Sader R, Pautke C, Neff A, Deppe H and Kolk A: Synthetic, pure-phase beta-tricalcium phosphate ceramic granules (Cerasorb) for bone regeneration in the reconstructive surgery of the jaws. Int J Oral Maxillofac Surg (2006) 35(8): 708-13.

4a) Füssinger R. and Füssinger K.: Résultats cliniques et histologiques à long terme, après régénération osseuse avec du phosphate tricalcique ß et mise en place d'implants. Le Chirurgien-Dentiste de France (2005) 1223:1-5.

4b) El Sayed E, Khalil A and Saleh M: Clinical and radiographical evaluation of immediate implant versus delayed implant after socket preservation of upper anterior teeth: Alexandria Dental Journal (2015) 40: 79-85.

4c) Canullo L, Peñarrocha Oltra D, Tallarico M, Aloy Prosper A, Chocer H and Peñarrocha Diago M: Surgical treatment of circumferential and semicircumferential defects due to periimplantitis: a prospective case series cohort study. J Oral Science Rehabilitation (2016) 2(4).

5. Leventis M D, Fairbairn P, Kakar A, Leventis A D, Margaritis V, Luckerath W, Horowitz R A and Nagursky H: Minimally invasive alveolar ridge preservation utilizing an in situ hardening ß-tricalcium phosphate bone substitute. A multicenter case series. International Journal of Dentistry (2016) 2016.

6a) Cordaro L., Bosshardt D. D., Palattella P., Rao W., Serino G. and Chiapasco M.: Maxillary sinus grafting with Bio-Oss or Straumann Bone Ceramic: histomorphometric results from a randomized controlled multicenter clinical trial. Clin Oral Implants Res (2008) 19 (8):796-803.

6b) Froum S. J., Wallace S. S., Cho S. C., Elian N. and Tarnow D. P.: Histomorphometric comparison of a biphasic bone ceramic to anorganic bovine bone for sinus augmentation: 6- to 8-month postsurgical assessment of vital bone formation. A pilot study. Int J Periodontics Restorative Dent (2008) 28 (3): 273-81.

6c) Lee J. H., Jung U. W., Kim C. S., Choi S. H. and Cho K. S.: Histologic and clinical evaluation for maxillary sinus augmentation using macroporous biphasic calcium phosphate in human. Clin Oral Implants Res (2008) 19(8): 767-71.

6d) Troedhan A, Kurrek A, Wainwright M, Schlichting I, Fischak-Treitl B and Ladentrog M: The transcrestal hydrodynamic ultrasonic cavitational sinuslift: Results of a 2-year prospective multicentre study on 404 patients, 446 sinuslift sites and 637 inserted implants. Open Journal of Stomatology (2013) 3: 471.

6e) Troedhan A, Schlichting I, Kurrek A and Wainwright M: Primary implant stability in augmented sinuslift-sites after completed bone regeneration: a randomized controlled clinical study comparing four subantrally inserted biomaterials. Scientific reports (2014) 4.

7a). Sculean A., Windisch P., Szendroi-Kiss D., Horvath A., Rosta P., Becker J., Gera I. and Schwarz, F.: Clinical and histologic evaluation of an enamel matrix derivative combined with a biphasic calcium phosphate for the treatment of human intrabony periodontal defects. J Periodontol, (2008) 79 (10):1991-9.

7b) Gonzales J: Parodontalchirurgische Therapie intraossärer Knochendefekte. ZWP Zahnarzt Wirtschaft Praxis (2016) 3/2016: 66-73.

8. Dudek D, Sołtykiewicz K, Helewski K, Wyrobiec G, Harabin-Slowinska M, Kowalczyk-Ziomek G and Wojnicz R: Treatment of a mandibular cyst with synthetic bone graft substitute. Implants (2013) 2013(1): 34-36.

9a) Agustín-Panadero R and Solá-Ruíz M F: Vertical preparation for fixed prosthesis rehabilitation in the anterior sector. The Journal of prosthetic dentistry (2015).

9b) Agustín-Panadero R, Serra-Pastor B, Chust-López C, Fons-Font A and Ferreiroa-Navarro A: Immediate placement of single implant simultaneously with immediate loading in a fresh socket associated to periapical infection: A clinical case report. Journal of Clinical and Experimental Dentistry (2015) 7(1): 175-179.

10a) Weiss P., Layrolle P., Clergeau L. P., Enckel B., Pilet P., Amouriq Y., Daculsi G. and Giumelli B.: The safety and efficacy of an injectable bone substitute in dental sockets demonstrated in a human clinical trial. Biomaterials (2007) 28(22): 3295-305.

10b) Jurisic M, Manojlovic-Stojanoski M, Andric M, Kokovic V, Danilovic V, Jurisic T and Brkovic B B: Histological and morphometric aspects of Ridge preservation with a moldable, in situ hardening bone graft substitute. Arch. Biol. Sci. (2013) 65(2): 429-437.

Page 13

1. Flichy-Fernández A J, O'Valle-Ravassa F J, Alegre-Domingo T, J. B-M and Penarrocha-Diago M: Elevación de seno directa: resultados clínicos, radiológicos e histológicos tras el uso de injertos aloplásticos con recubrimiento de PLGA. Poster, SECIB 2014 (2014).

Distributors

Austria
Medos Austria
Tel.: +43 1 71 514 74
E-Mail: info@medosaustria.at
www.medos.at

Bulgaria
MiPlant EOOD
Nat. tel.: +359 0700 1 55 44
E-Mail: miplant@miplant.bg
www.miplant.bg

Chile
San Juan SA
Tel.: +56 2 224 333 90
E-Mail: ventas@dentalstore.cl
www.dentalstore.cl

Croatia
Cirkon-Dental
Tel.: +385 915 464 696
E-Mail: cirkondental.mario@gmail.com

Czech Republic
BIOMED PRAHA, spol. s r.o.
Tel.: +420 731 464 759
E-Mail: info@biomed-praha.cz
www.biomed-praha.cz

France
Biotech Dental France
Tel.: +33 04 90 44 60 60
www.biotech-dental.com

Germany
BEGO Implant Systems
Tel.: 0421 2028-246
Email:info@bego-implantology.com
www.bego.com

Pluradent
Tel.: +49 69 82 98 3100
www.pluradent.de

MF Dental
Tel.: +49 9605 924 520
E-Mail: info@mf-dental.de
www.mf-dental.de

Implantis
Tel.: +49 341 27139 241
E-Mail: service@implantis.eu
www.implantis.eu

Great Britain
Panadent Ltd.
Tel.: +44 168 988 17 88
E-Mail: info@panadent.co.uk
www.panadent.co.uk

Greece
Dentopolis
Tel.: +30 2 114 079 041
E-Mail: info@dentopolis.gr
www.dentopolis.gr

Hungary
Realtrade Kft
Tel.: +36 1 261 6630
E-Mail: info@realtrade.hu
www.realtrade.hu

Israel
Raviv Dental
Tel.: + 972 50 665 19 91
E-Mail: info@ravivuniversal.com
www.ravivuniversal.com

Italy
Biotech Dental Italia
Tel.: +39 089 9712629
www.biotech-dental.com/it/

Jordan
Al Rawdah Medical Supplies LLC
Tel.: +962 7 904 848 12
E-Mail: alrawdah.medical@gmail.com
Facebook: Alrawdah Medical Supplies

Kuwait
Al-Muneer General Trading & Contracting
Tel.: +965 257 476 42
E-Mail: nmatta@medicomfort-me.com
www.medicomfort-me.com

Latvia
Malli Dental
Tel.: +371 672 941 20
E-Mail: info@malli.lv
www.malli.lv

Lebanon
FPM s.a.r.l. Surgical & Dental products
Tel.: +961 1 495 111
E-Mail: m.harb@fpm-me.com
www.fpm-me.com

Poland
Implacore Sp. z o.o
Tel.: +48 61 663 07 85
E-Mail: biuro@implacore.pl
www.implacore.pl

Portugal
B.I.P. Innovative Dental Systems LDA
Tel.: +351 91 525 30 50
www.biotech-dental.com/pt-pt/

Russia
Rocada Dent Ltd.
Tel.: +7 843 570 68 80
E-Mail: a.gabdrahimova@rocadamed.ru and /or
l.ibragimova@rocadamed.ru
www.rocadamed.ru

Saudi-Arabia
Asnan for Medical Devices
Tel.: +966 11 445 85 48
E-Mail: m.sayed@asnan.net.sa
www.asnan.net.sa

Serbia
Mikodental d.o.o.
Tel.: +381 15 300 261
E-Mail: mikodentaloffice@gmail.com
www.mikodental.rs

Slovakia
EuDent, s.r.o.
Tel.: +421 434 286 219
E-Mail: office@eudent.sk
www.eudent.sk

South Africa
Sourcemed
Tel.: +27 21 461 29 85
E-Mail: gk@sourcemed.co.za
www.sourcemed.co.za

Spain
Biotech Dental Spain
Tel.: +34 911 930 210
www.biotech-dental.com/es/

Switzerland
heico Dent GmbH
Tel.: +41 71 793 90 00
E-Mail: info@heicodent.ch
www.heicodent.ch

Syria
Ouzoun Trading Center
Tel.: +963 933 449 899
E-Mail: info@ouzoun.com
www.ouzoun.com

UAE
Sapling Drug Store
Tel.: +971 508 516 101
E-Mail: abdulhalim@saplingdxb.com
www.saplingdxb.com

Ukraine
Stamil LLC
Tel.: +380 44 22 707 55
+380 44 33 773 53
E-Mail: info@stamil.ua
www.stamil.ua

GUIDOR®

Manufacturer:

Degradable Solutions AG
Wagistrasse 23,
8952 Schlieren/Zurich
Switzerland

CE 0297 Medical Device Class III

MS896 - Rev. 0 2/2021