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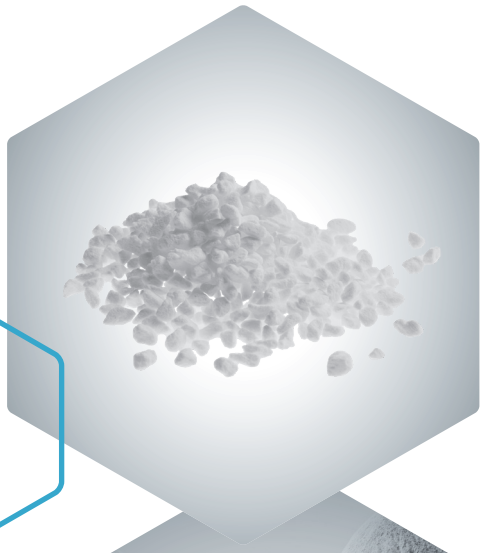
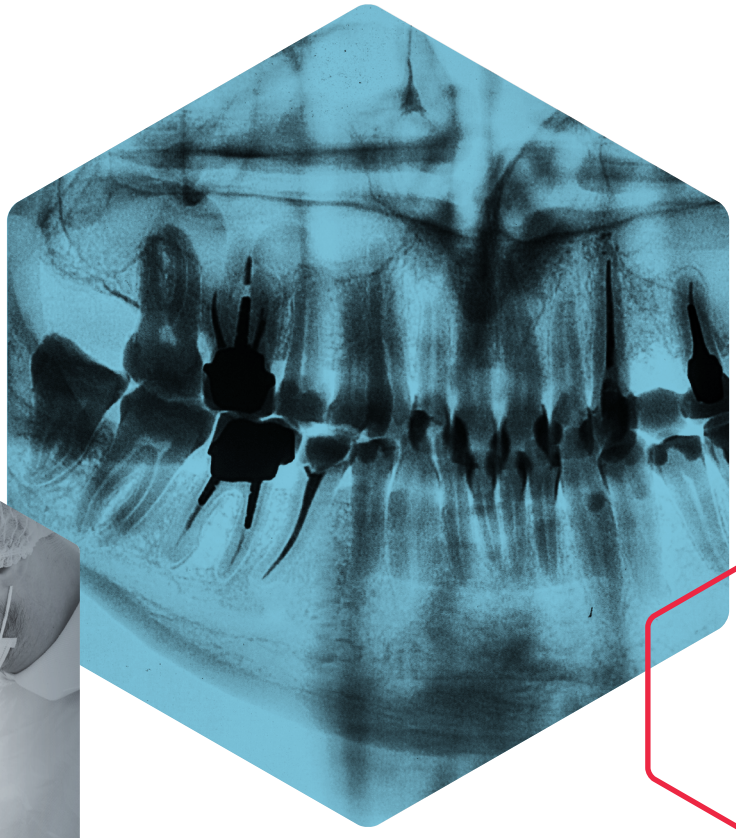
THE SAFE & FAST WAY TO NEW BONE

CERASORB® M

Resorbable, pure-phase β-tricalcium phosphate





CERASORB® M is the safe and fast way to new bone. As a comprehensive product system for bone and tissue regeneration, it is fully remodeled within the natural bone regeneration process. Thanks to its superior chemical and material properties, **CERASORB® M** ensures high safety and success rates in defect restoration.

Widely studied product with
>200 yearly publications

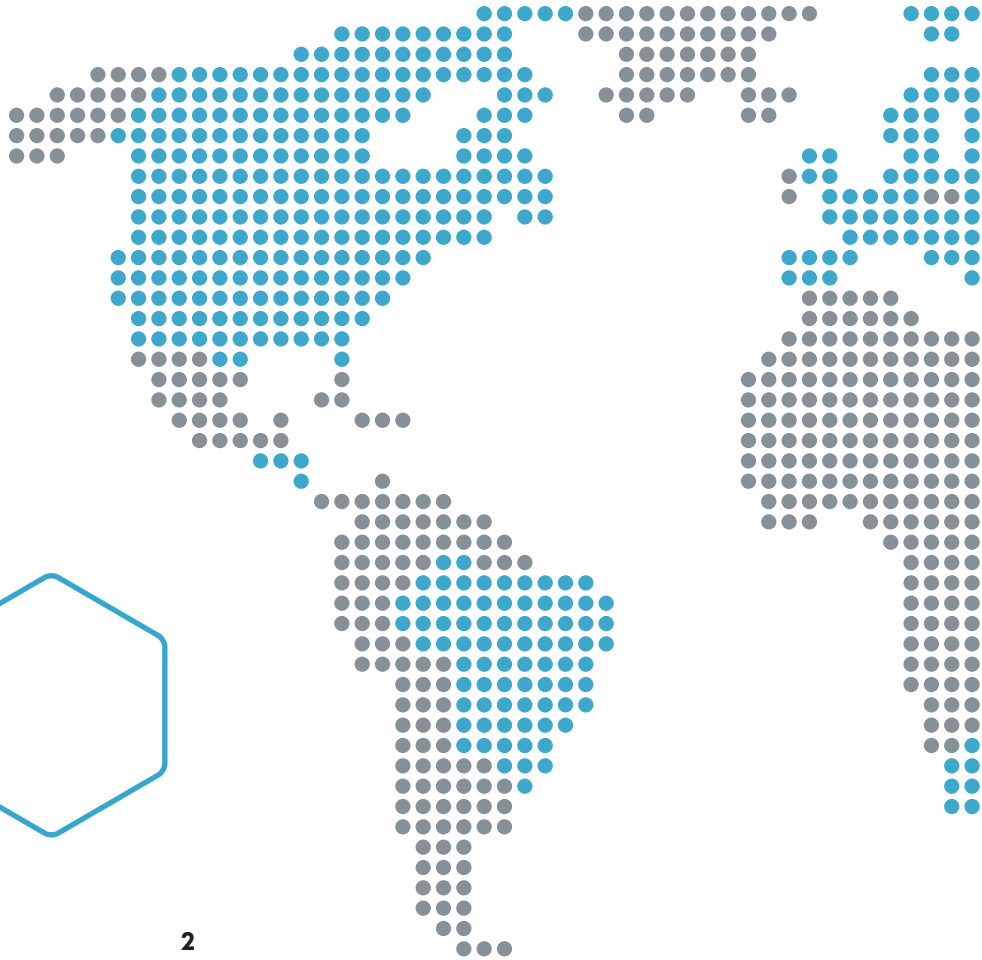
1997

A GLOBALLY TRUSTED PRODUCT WITH

Clinically proven to be equivalent
to autologous bone.

CERASORB® M approved in:

- Europe
- Switzerland
- United Kingdom
- USA
- Canada
- Brasil
- China
- Taiwan
- South-Korea
- Japan
- Saudi Arabia
- Israel
- South Africa



"Restitutio ad integrum"
Real bone regeneration – no substitution!

More than 2 MILLION Vials sold so far with ZERO reported medically related side-effects

OVER 25 YEARS

Ongoing

Transformation to bone is also confirmed in histologic examinations

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CERASORB® M

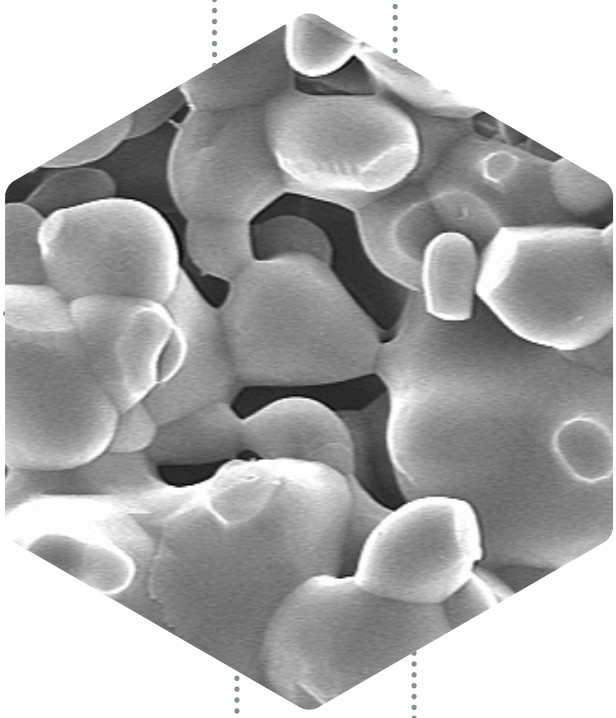
Resorbable, pure-phase β-tricalcium phosphate

General description:

- Fully biosynthetic
- Biocompatible
- Phase purity >99%
- Fully resorbable
- Low radiodensity
- Remodels into bone within 4 – 6 months

Open multi-porous structure characterized by micro, meso and macro porous

Interconnected porosity



Polygonal shaped granules

Scaffold that mimics human bone

Interlocking granules

Irregular granule shape

Features & Benefits

- 99% biosynthetic pure-phase β-TCP
- 65% porosity to resorb uniformly and parallel
- 100% biomimetic
- 100% biodegradable – restores natural condition
- Free of pathogens and pyrogens
- No risk for allergies or infections
- Transformation to bone is confirmed histologically
- Reproducible human clinical results
- No product-related medical complaints
- Fully degradable over 4-6 months
- Radiopaque

Indications

- Sinus lift
- Alveolar ridge preservation
- Cystic defects
- Socket and ridge preservation
- Periodontal defects
- Intra bony defects
- Implant bed preparation
- Osteotomy

Why polygonal and irregularly shaped in CERASORB® M plays an important role?

- The polygonal granule shape enhances vascularization by providing more space between granules.
- The granule's polygonal and irregular shape enhances intercalation and interlocking in the defect cavity avoiding micro movements that can delay the healing process.

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CERASORB® M's phase purity and osteoregenerative properties

CERASORB® M sets the gold standard in biosynthetic bone grafting with >99% of its phase purity. Its highly stable and bioactive β-TCP composition closely resembles natural bone minerals, ensuring enhanced osteoconductivity, efficient bone remodeling, and predictable resorption of the material with new bone formation. As the purest β-TCP available worldwide, CERASORB® M provides a reliable and clinically proven foundation for bone regeneration.

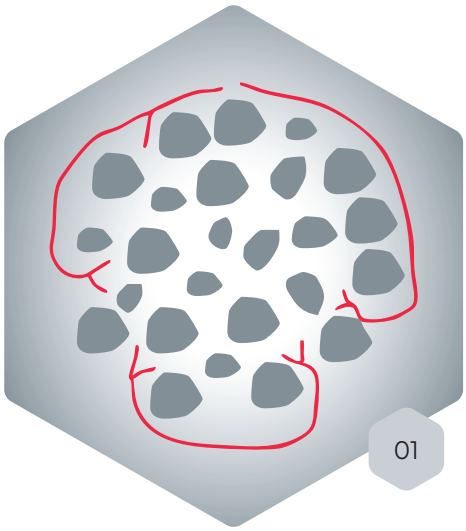
According to Bohner et al. (2020)[1], β-tricalcium phosphate (β-TCP) exhibits potential osteoinductive properties. **CERASORB® M** is designed with an interconnected, open multi-porous structure, where its micro-porosity (≤50 µm) and bioactivity play a key role in being osteoregenerative.

According to studies (Yuan et al., 1998[2]; Yuan et al., 2001[3]; Wilson et al., 2006[4]; Cheng et al., 2013[5]; Kondo et al., 2006[6]), β-TCP micropores (0.1–100 µm in diameter) significantly enhance biological response, facilitating both resorption and osteoinductive potential. Furthermore, a comprehensive review by Yuan et al. (2010)[7] reinforces the role of biomaterials with osteo-inductive potential as a viable biosynthetic alternative to autologous bone grafting, establishing β-TCP as a fundamental component in advanced regenerative dentistry and orthopedic applications.

[1] Bohner, M., Santoni, B. L. G., & Döbelin, N. (2020). β-tricalcium phosphate for bone substitution: Synthesis and properties. Acta biomaterialia, 113, 23–41. https://doi.org/10.1016/j.actbio.2020.06.022
[2] Yuan, H., Yang, Z., Li, Y., Zhang, X., De Bruijn, J. D., & De Groot, K. (1998). Osteoinduction by calcium phosphate biomaterials. Journal of materials science: materials in medicine, 9, 723-726
[3] Yuan, H., De Bruijn, J. D., Li, Y., Feng, J., Yang, Z., De Groot, K., & Zhang, X. (2001). Bone formation induced by calcium phosphate ceramics in soft tissue of dogs: a comparative study between porous α-TCP and β-TCP. Journal of materials science: materials in medicine, 12, 7-13
[4] Wilson, C. E., Kruyt, M. C., de Bruijn, J. D., van Blitterswijk, C. A., Oner, F. C., Verbout, A. J., & Dhert, W. J. (2006). A new in vivo screening model for posterior spinal bone formation: comparison of ten calcium phosphate ceramic material treatments. Biomaterials, 27(3), 302-314.
[5] Cheng, L., Shi, Y., Ye, F., & Bu, H. (2013). Osteoinduction of calcium phosphate biomaterials in small animals. Materials Science and Engineering: C, 33(3), 1254-1260.
[6] Kondo, N., Ogose, A., Tokunaga, K., Umezu, H., Arai, K., Kudo, N., ... & Endo, N. (2006). Osteoinduction with highly purified β-tricalcium phosphate in dog dorsal muscles and the proliferation of osteoclasts before heterotopic bone formation. Biomaterials, 27(25), 4419-4427.
[7] Yuan, H., Fernandes, H., Habibovic, P., De Boer, J., Barradas, A. M., De Ruiter, A., ... & De Bruijn, J. D. (2010). Osteoinductive ceramics as a synthetic alternative to autologous bone grafting. Proceedings of the National Academy of Sciences, 107(31), 13614-13619.

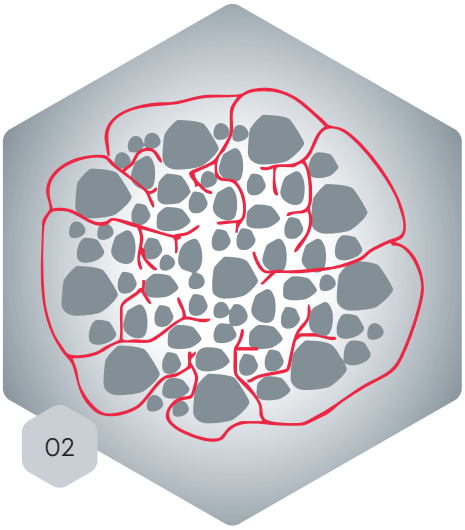
How does micro porosity stimulate osteoregenerativity?

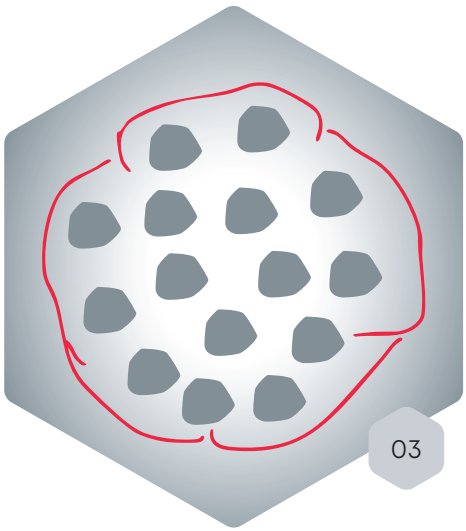
Difference in vascularization



01: Products with macro and meso porous show limited vascularization

02: CERASORB® M with macro, meso, and microporousity show enhanced vascularization and bioactivity which is essential for osteoregenerativity





03: Products offering macro porous granules only show no sign of vascularization

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Sinus floor elevation and its risk[8]

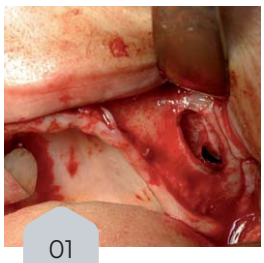
Authors: Dr. Matthias Kebernik, Prof. Dr. Dr. Frank Palm; Germany

Summary:

- **Product used:** CERASORB® M
- **Indications:** Sinus floor elevation

Clinical experience summary:

- Survival rates in the region of a sinus lift range from 61.7 to 100% (91.8% on average) and do not differ significantly from the survival rates of implants placed in a non-augmented bone bed (95.7% after 9-14 years in situ).
- Overall, implants with rough surfaces have a higher success rate than machined implants.
- The use of autogenous bone has no advantage over a mixture of bone and bone substitute in terms of implant success.
- In conclusion, sinus floor augmentation by sinus floor elevation is a very safe and widely used method in implant surgery.
- It offers a high probability of success in the intersection of the dental implants in the area of the posterior maxilla and thus offers a significant expansion of prosthetic possibilities.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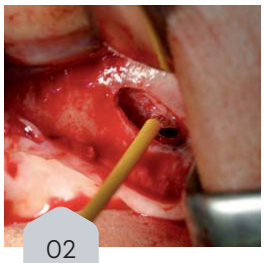
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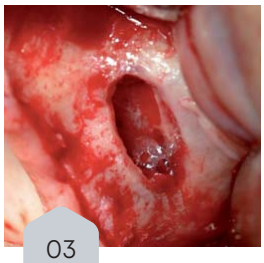
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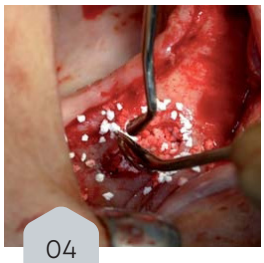
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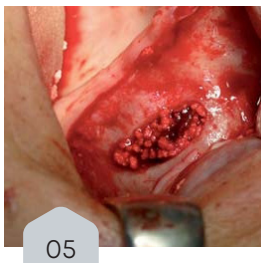
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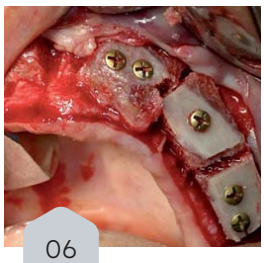
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- **01** Perforation of Schneiderian membrane
- **02** Application of fibrin glue
- **03** Closure of perforation
- **04** Augmentation with **CERASORB® M**
- **05** Filled sinus lift
- **06** Lateral overlay osteoplasty

[8]Die Sinusbodenelevation und ihre Risiken – ZWP online – das Nachrichtenportal für die Dentalbranche (zwp-online.info)

Key takeaway from clinical performance

- Easy to handle and safe to use
- Promotes faster bone formation while maintaining structural integrity
- Shows high resorption rates with simultaneous new bone deposition
- Reduces surgical complications and enhances patient outcomes
- New bone formation is seen between 4 – 6 months in the general population

Key takeaway of CERASORB® M advantage

- **Biosynthetic, safe & effective:**
  No biological risks, ensuring peace of mind for clinicians and patients.
- **Optimized bone regeneration:**
  Supports natural bone healing with predictable and reliable outcomes.
- **Backed by scientific research:**
  Proven clinical efficacy with extensive documentation and case studies.

Why choose CERASORB® M over Allografts & Xenografts?

CERASORB® M vs. Allografts

- **No risk of disease transmission:** Allografts are derived from human donors and carry a potential risk of disease transmission, while **CERASORB® M** is fully biosynthetic and pathogen-free.
- **Consistent quality:** Allografts vary in composition and quality based on donor source, whereas **CERASORB® M** offers a standardized, high-purity β-TCP formulation for reliable clinical outcomes.
- **Faster and more predictable resorption:** Unlike allografts, which may take longer to integrate or be partially resorbed, **CERASORB® M** follows a controlled and complete resorption process in sync with natural bone formation within 4 – 6 months.

CERASORB® M vs. Xenografts

- **Eliminates ethical & religious concerns:** Xenografts are derived from animal sources (bovine or porcine), which may raise ethical, religious, or immunological concerns. **CERASORB® M** is a fully biosynthetic alternative, suitable for all patients.
- **No risk of immune reaction:** Xenografts may trigger foreign body responses, while **CERASORB® M** is biocompatible and seamlessly integrates into the patient's bone metabolism.
- **Superior bone remodeling:** Unlike xenografts, which may remain as a scaffold for an extended period with incomplete resorption, **CERASORB® M** actively participates in bone remodeling and completely resorbs over time.

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CERASORB® M Granules

Resorbable, pure-phase β-tricalcium phosphate

Ref No.	Size	Content	Packsize
9000 100 505	150 – 500 µm	0.5 cc	5
9000 200 505	500 – 1000 µm	0.5 cc	5
9000 201 005	500 – 1000 µm	1.0 cc	5
9000 300 505	1000 – 2000 µm	0.5 cc	5
9000 301 005	1000 – 2000 µm	1.0 cc	5
9000 302 005	1000 – 2000 µm	2.0 cc	5

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