

The major advance in bone tissue regeneration ...

See also: www.vitalos.com

MINERAL
INJECTABLE
HARDENING
RESORBABLE
OSTEOCONDUCTIVE



PD VitalOs Cement® is the result of the know-how, exchange and the cooperation between the Swiss Federal Institute of Technology (EPFL), **Produits Dentaires SA** and a large team of implantologists and periodontists.

PD VitalOs Cement® is a synthetic bone grafting cement designed for bone void filling and bone regeneration in dental surgery. It consists of two Calcium Phosphate pastes which set within minutes once injected. The hardened cement consists of Brushite, a Calcium Phosphate that resorbs within a few months.

PD VitalOs Cement® is ready to use in its handy dual syringe.

Major advantages for the dental surgeon:

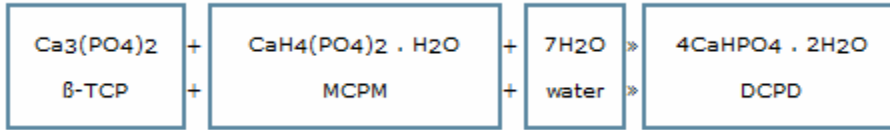
- ◆ Time saving (ready to use product – does not require premixing)
- ◆ Easy to use (ready to inject and shape thanks to its optimal consistency)
- ◆ Safe (its direct injection reduces contamination risks)
- ◆ Higher profit (no need for retention membranes on the major part of applications)



MINERAL

All-mineral concept

PD VitalOs Cement® is based on an “all-mineral” concept. It contains Calcium Phosphate and is thus very similar to the mineral phase of human bone without incorporating its organic phase. This totally eliminates the risk of transmitting infectious or prion diseases



β-TCP	β - $\text{Ca}_3(\text{PO}_4)_2$	β -Tricalcium Phosphate
MCPM	$\text{CaH}_4(\text{PO}_4)_2 \cdot \text{H}_2\text{O}$	Monocalcium Phosphate Monohydrate
DCPD	$\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$	Dicalcium Phosphate Dihydrate (Brushite)



INJECTABLE

Ready to inject without premixing

PD VitalOs Cement® is supplied as a ready-to-use sterile injectable product dispensed through a dual syringe plus mixing tip. The original, patented dual-paste formula is an innovation in the field of Calcium Phosphate-based cements. PD VitalOs Cement®, thanks to its ideal viscosity, is easy to place and then to shape.



HARDENING

Quick hardening in situ... stabilizing effect

PD VitalOs Cement® sets within a few minutes after injection and acquires a mechanical strength equivalent to spongy bone. Unlike granular products, PD VitalOs Cement® has a stabilizing effect on the treated site and in most of the cases does not require membrane application.



OSTEOCONDUCTIVE RESORBABLE

A truly resorbable Calcium Phosphate cement

After setting is completed, the main phase of PD VitalOs Cement® is Brushite, a Calcium Phosphate that is more readily resorbed than Tricalcium Phosphates (β -TCP). PD VitalOs Cement® will resorb and will be replaced within a few months by mature bone.

Major indications



Filling of defects around implants



Ridge augmentation



Sinus floor augmentation



Filling of complex bone cavities



Use as a membrane on top of granulate bone substitute



List of publications

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- Flautre B, Delecourt C, Blary MC, Van Landuyt P, Hardouin P, Lemaître J. *Volume effect on biological properties of a calcium phosphate hydraulic cement: experimental study in sheep.* Bone 1999;25:35S-39S .
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- Lu J, Descamps m, Dejou J, Koubi G, Hardouin P, Lemaître J, Proust JP. *The biodegradation mechanism of calcium phosphate biomaterials in bone.* J Biomed Mater Res. 2002;63(4):408-12 .
- Flautre B, Lemaître J, Maynou C, Van Landuyt P, Hardouin P. *Influence of polymeric additives on the biological properties of brushite cements: an experimental study in rabbit.* J Biomed Mater Res A. 2003 Aug 1;66(2):214-23 .
- Cuisinier FJG, Wieber A, Tenenbaum H, Van Landuyt P, Lemaître J. *Injectable calcium phosphate hydraulic cement (CPHC) used for periodontal tissue regeneration: A study on a dog model.* J Appl Biomater & Biomech 2003;1:186-193 .
- Cuisinier FJG, Schaaf JF, Van Landuyt P, Roth H, Lemaître J, Tenenbaum H. *Immediate implant placement using injectable calcium phosphate hydraulic cement in dogs.* J Appl Biomater & Biomech 2004;2:88-95 .
- Chai F, Blanchemain N, Lefèvre A, Hildebrand HF. *In vitro studies on the influence of precultural conditioning method on osteoblast reactions of a new type of injectable calcium cement material.* J Biomed Mater Res. B. 2006;77B(1):104-13 .

Clinical references: Prof. Cuisinier, Prof Tennenbaum, Prof Torres.



Sinus floor augmentation

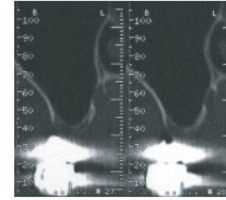
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PD **VitalOs** CEMENT®

SINUS LIFT WITH PD VITALOS CEMENT®

CASE REPORT

-53-year-old male in good general health. Right maxillary terminal edentition. Insufficient alveolar height for placing the implants being considered for this molar sector.
-A sinus lift was recommended, with placement of an autologous bone graft. This graft was stabilized by filling the cavity between the graft and the ridge with **PD VitalOs Cement®**.



Pre-operative scan. Note the extremely thin bone ridge and the sinus pneumatization (SA4).

INTERVENTION PROCEDURE

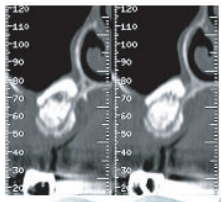
-Patient under general anesthesia. Cortico-spongy graft removed from the posterior section of the mandible (external oblique line).
-Lateral insertion of the graft through a trepanation opening of the maxillary sinus.
-The graft was stabilized simply through the hardening of **PD VitalOs Cement®**.
-The flap was then pulled directly over the whole and sutured onto the ridge.



Placement of the graft and stabilization by filling with **PD VitalOs Cement**.

IMPLANT PLACEMENT

-5 months after the sinus lift, two maxillary implants (5 x 13 mm) implanted after drilling through the ridge and newly formed bone, with support on the graft.



Post-operative scan and 3D reconstruction.
Note the match between the graft and **PD VitalOs Cement**.
The usable ridge height is now 15 mm.



Placement of two implants.

Performed and graciously made available by Prof. JH Torres, Montpellier (F)

