VELOX . . . ready for use, biocompatible, and osteoconductive

VELOX is a latin word meaning “rapid”.

VELOX is a bone substitute cement indicated to fill critical size bone defects and to augment temporary osteosynthesis fixation. It is provided as a paste in a syringe.

VELOX does not have to be prepared prior to injection and therefore is ready to apply directly out of the syringe.

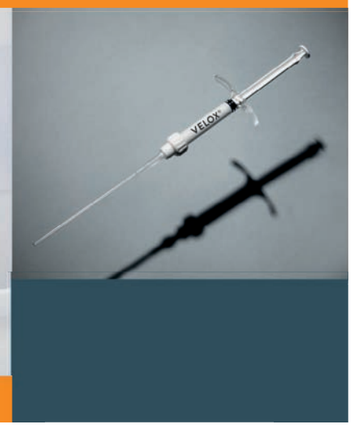
VELOX only sets in humid environment hence there is no time restriction during application.

VELOX after setting process a calcium-deficient hydroxyapatite bone substitute is formed, which is the major mineral constituent of bone.

VELOX is intended for filling or reconstruction of non-load-bearing bone defects or for filling of bone defects, which are stabilized by appropriate means.







Bone voids need to be treated after:

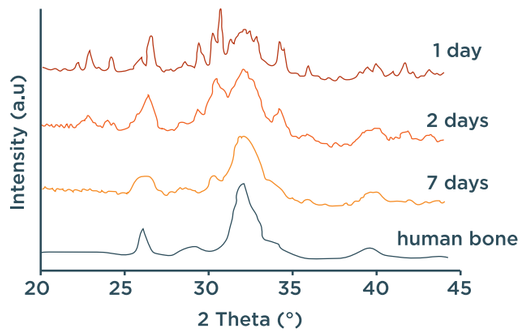
- Trauma (accidents, falls, etc; e.g. metaphyseal defect fractures, filling of bone defects after fixation, removal or revision of osteosynthetic implants).
- Reconstruction (restoring function and form of bone; e.g. after removal of cancerogenic tissue).
- Correction (congenital defects).

Time matters...

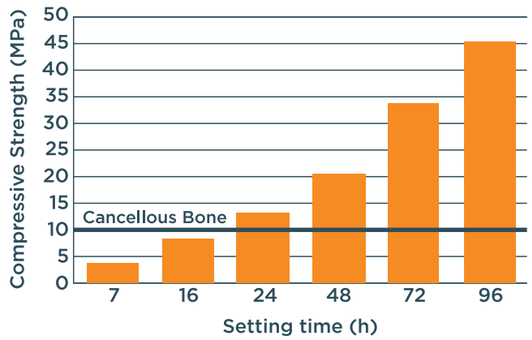
10 mins after application dimensional stability is achieved

24 hrs becomes as hard as cancellous bone

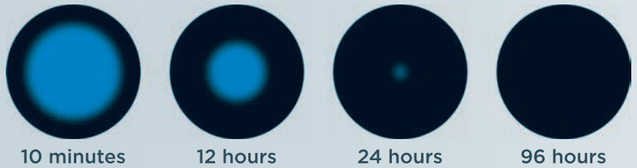
7 days becomes similar to bone structure



X-Ray diffraction pattern reveals the similarity in chemical composition and crystalline structure of VELOX and human bone after 7 days.

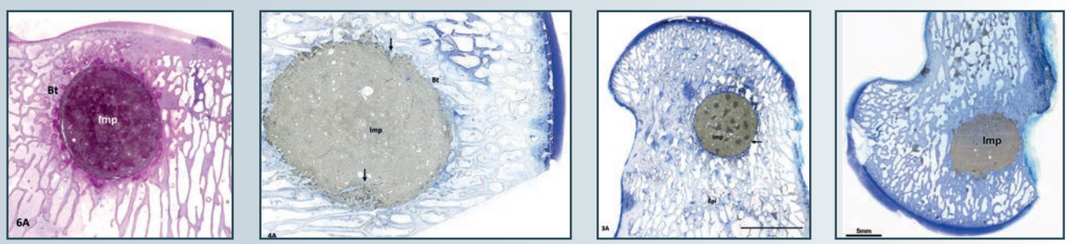


Compressive strength of VELOX increases steadily after the setting process is initiated. 16 to 24 hours after injection, the compression strength is comparable to cancellous bone (between 10-15MPa). The ultimate compressive strength of 45 MPa is reached after 4 days, depending on the volume of VELOX applied and the vascular supply. This value is 3 to 4 times higher than healthy cancellous bone.



10 minutes | 12 hours | 24 hours | 96 hours

The schematic shows the setting process which is directed from the outside to the inside of the injected cement



4 weeks | 3 months | 6 months | 18 months

A histological evaluation of a novel ready-to-use, self setting Calcium Phosphate bone substitute cement in a sheep implantation model. In the selected implantation model in adult sheep with drill hole defects in the distal femur and proximal tibia, VELOX was directly injected into the created critical size defects. The histological examinations at the selected time points of 4 weeks, 3, 6 and 18 months, initially showed an implantation-related remodeling reaction. The formation of granulation tissue and active resorption of bone fragments and implant material, 4 weeks post-operatively, was already associated with incipient osseointegration of the implant material. After 3 months, the resorption activities had diminished, and the surface of the implant was almost completely integrated into bone. The resorption activity continued to decline thereafter. Newly formed bone penetrated deep into the implant at defect sites. At the time points of 6 and 18 months, the implant had almost completely integrated into lamellar bone. No decline in osseointegration was discernible over the period of 18 months.

VELOX

Ready-to-use calcium phosphate cement

VELOX no preparation necessary
VELOX fills bone defects completely
VELOX no time constraint during application
VELOX is remodeled into bone
VELOX supports osteosynthesis
VELOX reduced risk of migration from application site
VELOX can be applied arthroscopically
VELOX 3cc prefilled syringe



Composition:
Calcium Carbonate
Calcium Hydrogenphosphate
α-Tricalcium Phosphate
Precipitated Hydroxyapatite
Non-Hydrous carrier liquid

INNOTERE biomaterial

Meissner Strasse 191
01445 Radebeul
GERMANY
Phone: +49 351 2599 9410
Fax: +49 351 2599 9429
Mail: contact@innotere.de

- A histological evaluation of a novel ready-to-use, self setting Calcium phosphate bone substitute cement in a sheep implantation model april 24, 2013 Dr. Berthold Nies, InnoTERE GmbH, in collaboration with the Laboratory for Experimental Traumasurgery of the University Hospital of Giessen and Marburg

VELOX

Ready-to-use calcium phosphate cement

Time matters...