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BonOs® Inject 1 x 24 CE-Version	1 x 24 g	01-0310



BonOs® Inject

Bone Cement for Spinal Applications



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BonOs® Inject

PMMA is been used in orthopedics for almost 50 years.

Within that time the indication fields have been extended step by step until in the 80's PMMA cements were applied in spinal surgery, too. There, they serve to stabilize, to fill cavities of erected vertebral bodies and to eliminate pain. For these specific indications BonOs® Inject was developed.

BonOs® Inject fulfills all requirements for bone cements in spinal surgery:

- Suitable viscosity for vertebroplasty and kyphoplasty
- Approved for the augmentation of pedicle screws where bone quality is poor, e.g. in patients with osteoporosis or degenerative or neoplastic changes.
- Short mixing time, long application time
- Fast achievement of application viscosity
- High radiopacity with 45% ZrO₂
- Good fatigue strength

Long application time

Both components bind quickly to a homogenous paste with the suitable viscosity for percutaneous injection. After a short mixing time, the surgeon has sufficient time for the transfer of BonOs® Inject in the application instruments followed by a long application time.

Max. Time [Min.] at 21°C*

Mixing	Filling of the application instruments and waiting time	Application	Hardening
0.5 ▶	5.0 ▶	7.5 ▶	9.0 ▶
▶ 0			
▶ 22 ▶			

Temperature-Time-chart (Example for 21°C)

Test conditions: Application needle: ø 3 mm, length 210 mm, Syringe capacity: 1 ml

* For further information see the Instructions for Use

Bone cement volume

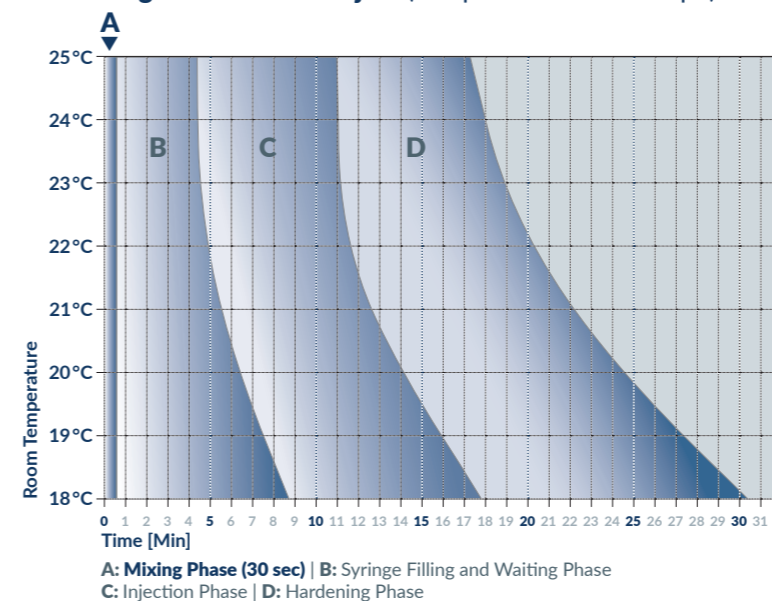
When both components of BonOs® Inject – powder and monomer – are mixed, the PMMA bone cement volume of 25 ml is generated. Depending on parameters such as temperature, mixing system, type of syringes and filling time the cement volume available for injection will differ.

Syringe type	Available cement volume** for augmentation, if BonOs® Inject is mixed with EASYMIX® shaker	Available cement volume** for augmentation, if BonOs® Inject is mixed with ManuMix®
1 ml	15 ml	20 ml
3 ml	20 ml	22 ml
6 ml	21 ml	23 ml

Overview of the mean value of available cement volume for augmentation of BonOs® Inject used with different mixing systems and syringe types

** OSARTIS internal reports; Tests were conducted under standardized conditions (23°C)

Handling Chart BonOs® Inject (Temperature-Time-Graph)



Fast achievement of application viscosity

The composition of the polymers ensures a high initial cohesion and therefore reduces the risk of cement leakage. After a short waiting time the cement attains an ideal viscosity for application. BonOs® Inject can be used for vertebroplasty, kyphoplasty as well as for the augmentation of pedicle screws.

High radiopacity

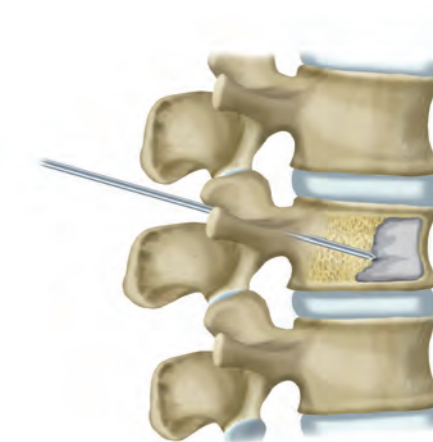
The addition of zirconium dioxide (ZrO₂) allows an optimal X-ray visualization of BonOs® Inject for a safe use.

Good mechanical properties

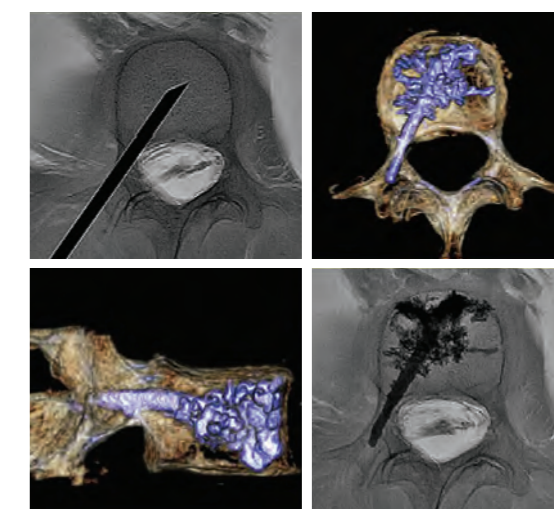
The composition of BonOs® Inject guarantees optimized mechanical properties which exceed the respective requirements of the ISO 5833 standard. Thanks to its medium viscosity, BonOs® Inject can be used with all currently approved PMMA cements application tools.

Chemical composition

Powder (24 g)		Liquid (10 ml)	
Poly(methyl methacrylate)	10.95 g	Methyl methacrylate	9.93 ml
Poly(methyl acrylate / methyl methacrylate)	1.75 g	Dimethyl-p-toluidine	0.07 ml
Zirconium dioxide	10.80 g	Hydroquinone	60 ppm
Benzoyl peroxide	0.50 g		



Example of a cemented vertebra



X-ray Images
Cadaver Tests © PD Dr. K. Wilhelm, Bonn