CERAMENT®
BONE VOID FILLER

PRODUCT BROCHURE

Rapid Bone Remodeling

BONESUPPORT™

CERAMENT BONE VOID FILLER

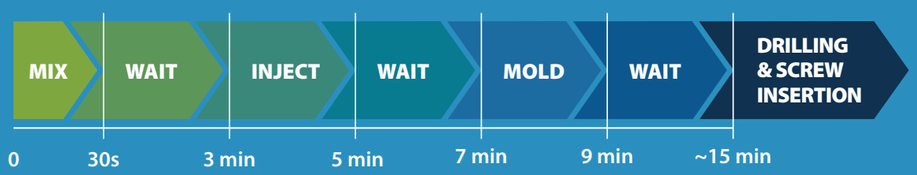
CERAMENT is an injectable, moldable, drillable and radiopaque bone substitute which provides rapid bone remodeling within 6-12 months[1].

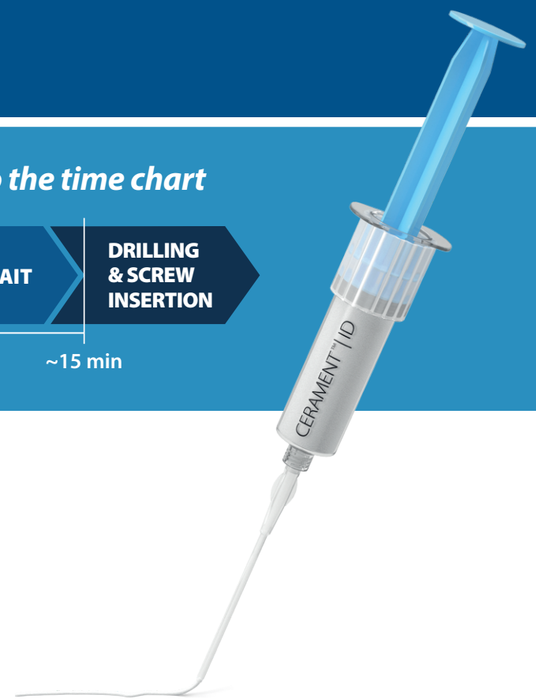
The CERAMENT portfolio is supported by 350+ research publications and abstracts of preclinical and clinical studies, including a Level I randomized control trial against the gold standard autograft.

UNIQUE FEATURES

- ***Injectable, moldable, drillable***
- ***Rapid bone remodeling[1]***
- ***Highly visible under fluoroscopy***
- ***30 second, enclosed sterile mix***
- ***Not temperature sensitive***
- ***Non-exothermic***
- ***Robust clinical data***

Consistent mixing and handling that is true to the time chart

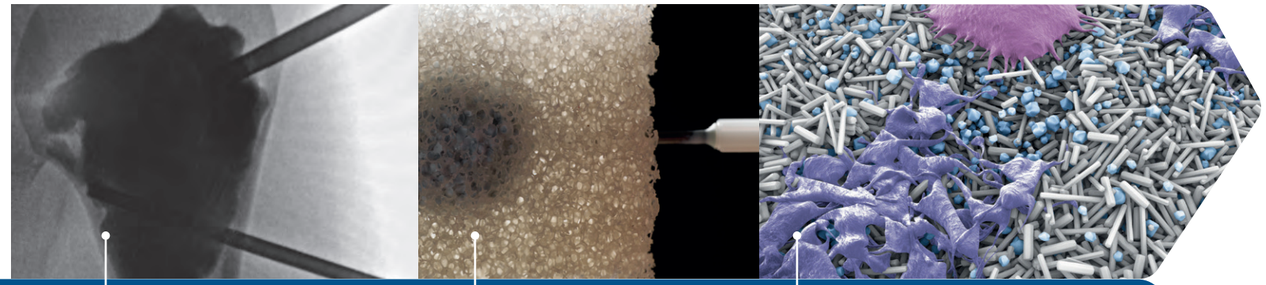




REFERENCES

1. Hofmann et al. Autologous Iliac Bone Graft Compared with Biphasic Hydroxyapatite and Calcium Sulfate Cement for the Treatment of Bone Defects in Tibial Plateau Fractures. J Bone Joint Surg Am. 2020 Feb 5;102(3):179-193.
2. Nilsson M, Zheng M H, Tägil M: Expert Rev. Med. Devices 10(5), 675-684, 2013.
3. Nilsson M, Wang JS, et al. J. Bone Joint Surg. Brit. 86B(1), 120-125.
4. Voor MJ, Borden J, Burden RL Jr, Waddell SW. Cancellous bone defect healing with a novel calcium sulfate - hydroxyapatite composite injectable bone substitute.Presented at: 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, 2010..

How CERAMENT remodels bone



UNIQUE COMPOSITION
CERAMENT is composed of 40% hydroxyapatite (HA) and 60% calcium sulfate (CaS), and a radiopacity enhancing agent for visibility under fluoroscopy.

IMPLANTED
High flowability enables injection through narrow needles and ensures an excellent spread in the trabecular system.

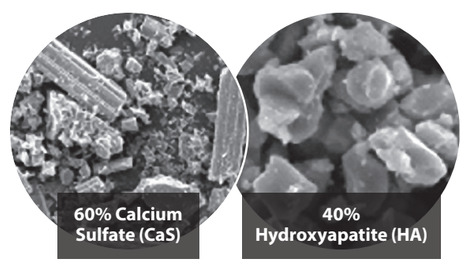
BIOACTIVE
A layer of native HA forms on the surface of CERAMENT and retards the CaS resorption.[3] Contact with bone is enhanced because the bone cells recognize the apatite layer as natural bone mineral.[2,3]

OSTEOCONDUCTIVE
HA particles are delivered by the CaS and create a scaffold. After the CaS has resorbed, new bone will completely surround and embed the HA particles.[2]

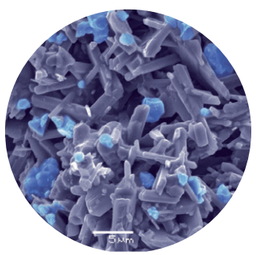
BONE FORMATION
Early vascularization and invasion of osteoblasts enable multiple site formation of bone throughout the cured CERAMENT.[4]

Proprietary Composition

CERAMENT consists of 40% hydroxyapatite (HA) and 60% calcium sulfate (CaS). The addition of a liquid radiopacity enhancing agent provides for an injectable paste which is radiographically visible.



The CaS works as a delivery tool for the osteoconductive HA.



Proven Results

Case 1: CERAMENT in Trauma

Open Reduction and Internal Fixation of Supracondylar Femur Fracture

A 64 year old female suffered a right periprosthetic supracondylar femur fracture above a total knee arthroplasty.

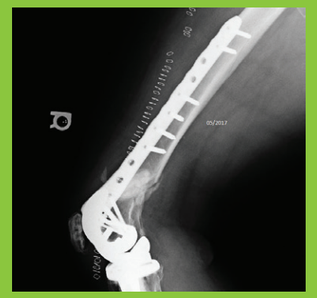
She underwent open reduction and internal fixation using a Non-Contact Bridging (NCB) plate.

CERAMENT BONE VOID FILLER was injected into the fracture gap.

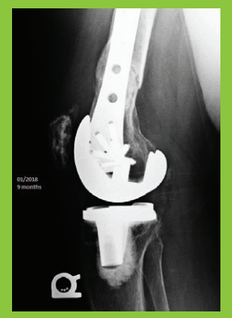
In the months post-op the patient had good range of motion, was neurovascularly grossly intact, had no calf tenderness and was negative for Homan's. She continued to increase activities and was encouraged to exercise.

At 9 months, follow up shows that the fracture is healed with strong callus formation where CERAMENT was injected.

Pre-op



Immediate post-op: Good reduction, correct placement of the NCB plate and complete filling of the bone defect with CERAMENT BONE VOID FILLER



9 month follow-up: The void is now filled with new trabeculated bone

Credit: Dante A. Marra, Wheeling, WV, USA

Case 2 : CERAMENT in Recon & Revision

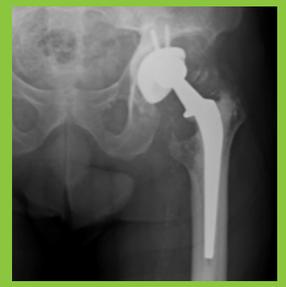
Complex Hip Revision and Use of CERAMENT to Reconstruct Medial Bone Stock

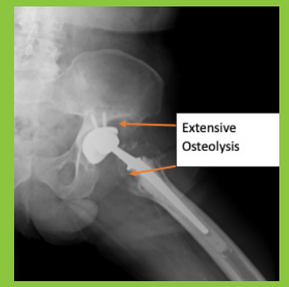
An 84-year-old male presented with a painful left total hip arthroplasty exhibiting eccentric poly wear with extensive osteolysis.

He underwent a complex revision with structural support and the use of CERAMENT BONE VOID FILLER to reconstruct the medial bone stock.

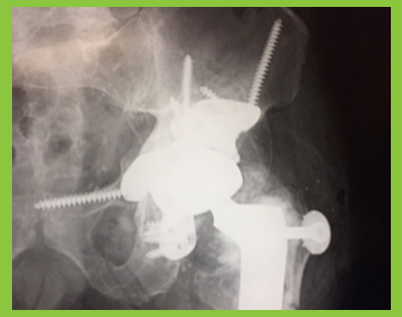
The proximal femoral fracture was repaired with a trochanteric bolt and filled with CERAMENT. The acetabular void was also filled with CERAMENT.

At 9 months post-op, the patient is doing well, with no reports of pain. The fracture has healed and there is good bone formation where CERAMENT was injected.

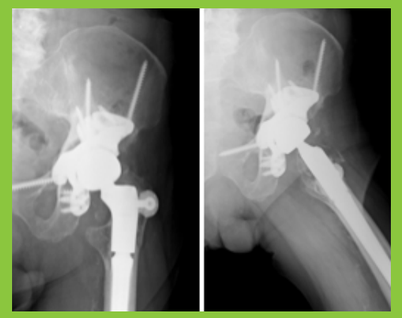




Pre-op: Eccentric poly wear with extensive osteolytis



Intra-op: Proximal femoral fracture and acetabular void filled with CERAMENT BONE VOID FILLER



9 Month Post-op: Fracture has healed and new bone formulation is seen where CERAMENT was injected

Credit: Andrew J. Wassef, MD, Lakewood, CA, USA

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Proven Results

Case 3 : CERAMENT in Foot and Ankle

Treatment of Calcaneus Stress Fracture

A 72-year-old female experiencing a calcaneus stress fracture six months after tarsometatarsal fusion. Conservative treatment was attempted but discomfort continued to worsen until patient could no longer walk due to the pain.

CERAMENT® BONE VOID FILLER was injected anterior to the Achilles tendon through the superior cortex of the body of the calcaneus.

Patient showed complete resolution of symptoms within a few days of surgery and experienced no severe postop pain. At 1 month post-op, patient began weight bearing as tolerated in a boot.

At 6-months pot-op, after fusion plate removal, there appears to be a restoration of the normal trabecular pattern of the calcaneus.

Figure 1.
6 months post TMT fusion, patient unable to ambulate due to heel pain (atypical location)

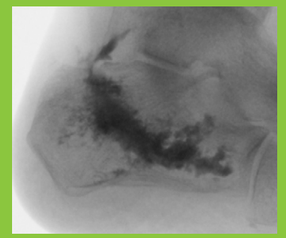


Figure 2. Intra-op fluoro injecting CERAMENT anterior to the Achilles tendon through the superior cortex of the bony of the calcaneuas.

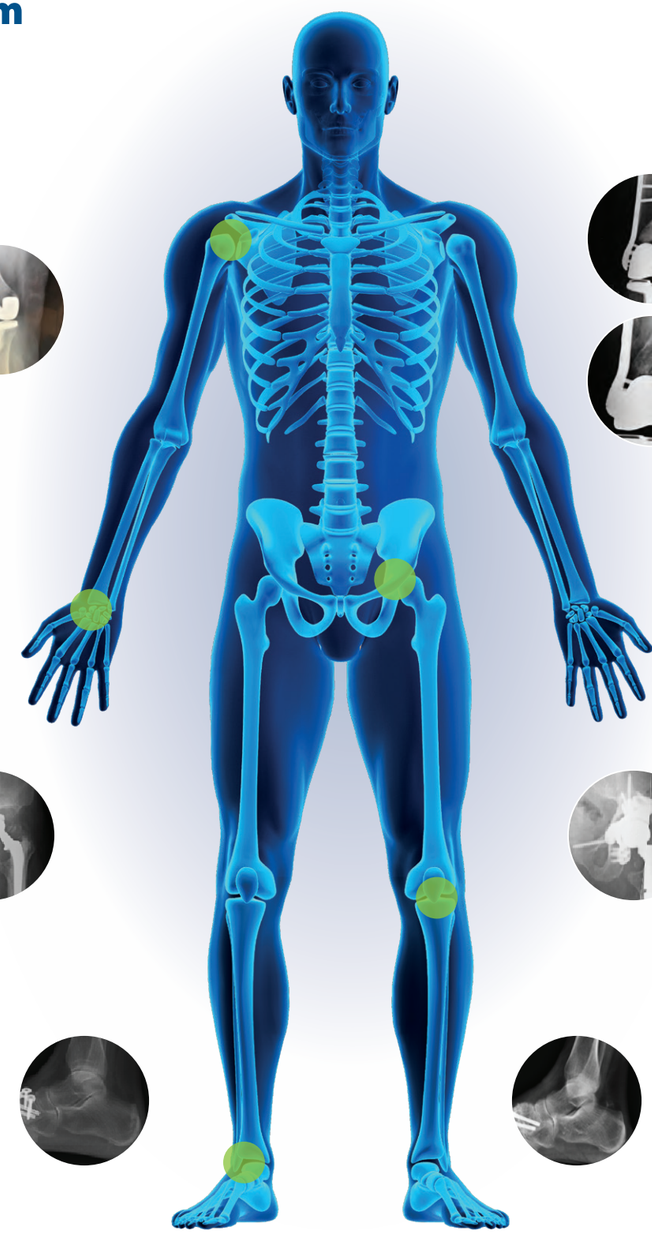
Figure 3. 1 month post-op patient allowed weight bearing as tolerated in a boot.

Figure 4.
6 months post-op (after plate removal) showing resoration of normal trabecular pattern

Credit: Melanie Sanders, MD, Moorseville, IN, USA

The Problem

The Solution



Trauma
Pre-operative femur fracture

Trauma
Immediate post-operative showing placement of CERAMENT BONE VOID FILLER

At 9 months, fracture has healed and bone formation is seen where CERAMENT BONE VOID FILLER was injected

Recon and Revision
Pre-operative hip fracture showing extensive osteolysis

Recon and Revision
At 9 months, fracture is healed and bone remodeling is visible where CERAMENT BONE VOID FILLER was injected

Foot and Ankle
Pre-operative calcaneus stress fracture

Foot and Ankle
At 6 months, normal trabeculated bone is visible where CERAMENT BONE VOID FILLER was injected

To order, call 1.877.719.6718 or email us.sales@bonesupport.com

PRODUCT DESCRIPTION	Code
CERAMENT® BONE VOID FILLER 5 mL	A0210-09
CERAMENT® BONE VOID FILLER 10 mL	A0210-08
CERAMENT® BONE VOID FILLER 18 mL	A0210-11
CERAMENT® Bead Tray	A0513
2-CAN 450mm Delivery Cannula	2-CAN450B

PRODUCT DESCRIPTION	Code
CERVOS Access/Delivery 8Ga x 250mm	CER-SUB-825
CERVOS Access/Delivery 11Ga x 110mm, Open Tip	CER-SUB-1111-OT
CERVOS Access/Delivery 15Ga x 60mm, Open Tip	CER-SUB-1560
CERVOS Access/Delivery 11Ga x 110mm, Closed Tip, Side Port	CER-SUB-1112-CT

Availability of CERAMENT is dependent on regulatory status in individual markets, contact your local representative. For complete product information, including indications, contraindications, warnings, precautions and potential adverse events, see package insert.

BONESUPPORT™

BONESUPPORT, INC.,
117 Fourth Ave, Suite 202
Needham, MA 02494

T: 1.877.719.6718
E: us.sales@bonesupport.com
W: **bonesupport.com**

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