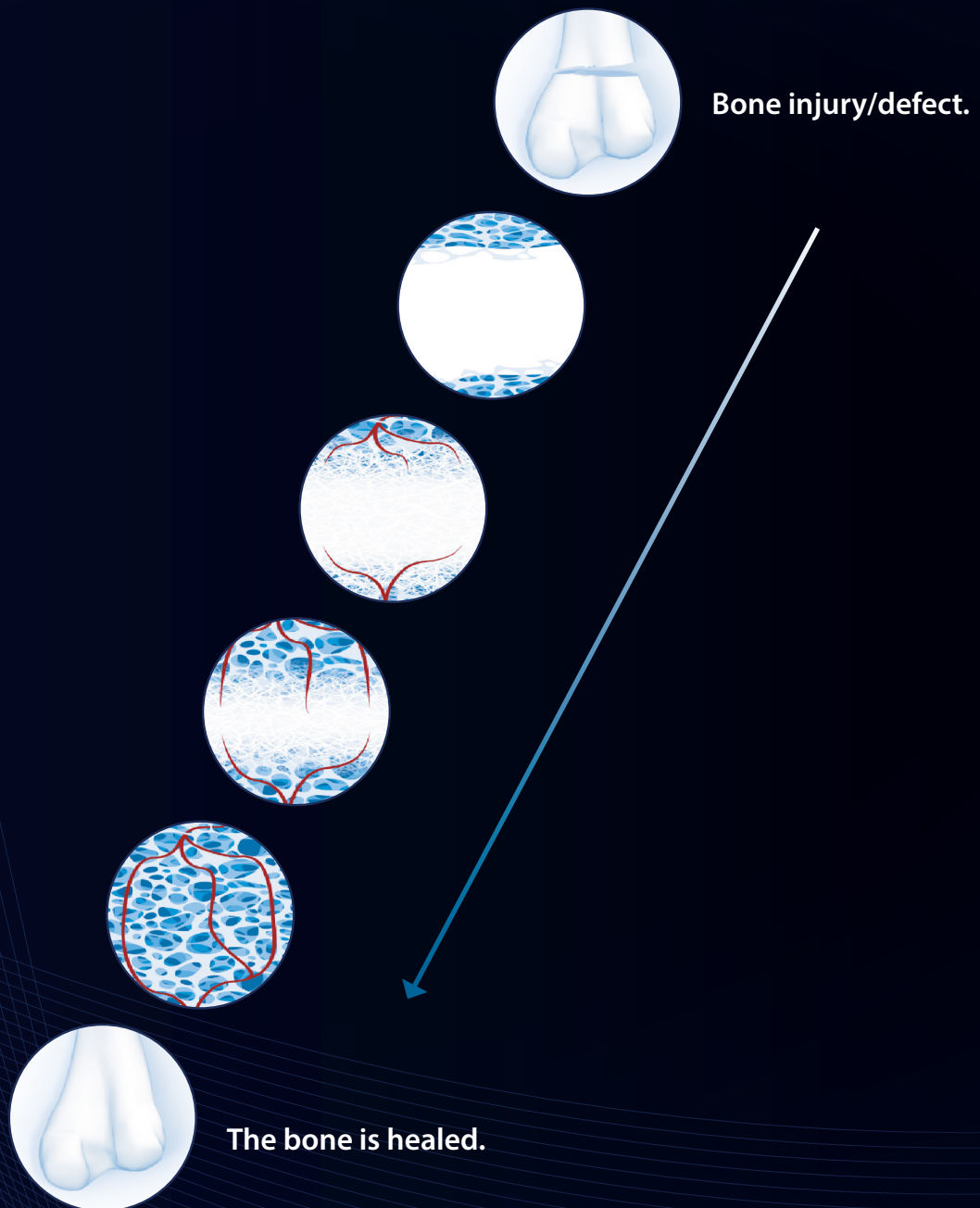


The Science of CERAMENT® & Bone Remodeling

EVIDENCE MATTERS



CERAMENT BUILDS CONFIDENCE

PROPRIETARY FORMULA

40% Hydroxyapatite (HA)

60% Calcium Sulfate (CaS)

CERAMENT® V and CERAMENT® BVF
radiocontrast agent for enhanced
visibility under fluoroscopy.

CERAMENT is an injectable, ceramic
bone graft substitute that fills voids and
gaps in the skeletal system. Our unique
formulation has a proven ability to
remodel into bone in 6-12 months^{1,2}

FEATURES & FUNCTIONALITY

Sterile, self-contained device helps
reduce the risk of contamination

Flexible delivery and handling:
CERAMENT® G, CERAMENT V
and CERAMENT BVF are all
injectable and drillable.

CERAMENT V and CERAMENT BVF
are moldable and CERAMENT G
for use with a bead mold.

Not temperature sensitive

Visible under fluoroscopy

EVIDENCE OF BONE REMODELING

Level Ib and IV clinical study^{1,3}

Histology, radiology and
multiple imaging techniques

350+ pre-clinical and clinical
publications and abstracts

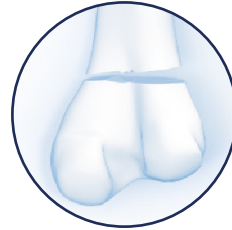
~180K+ patients treated worldwide



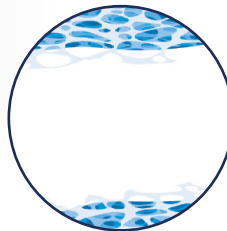
CERAMENT THE BONE HEALING JOURNEY

CERAMENT G AND CERAMENT V PROVIDES CLINICAL VALUE⁴⁻⁶

- Helps to reduce risk of infection and associated surgical costs⁵
- Helps to improve union rates^{4,6}
- Improves patient outcomes⁴⁻⁶

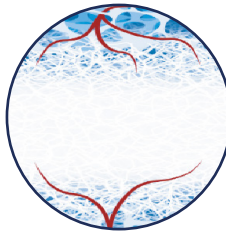


Bone injury/defect



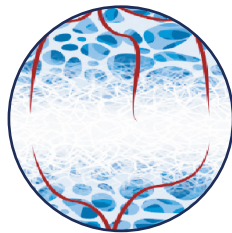
Injection:

CERAMENT is injectable to completely fill void and cracks.



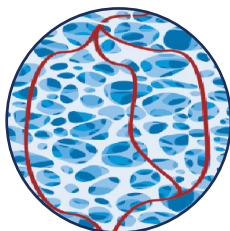
3 months:

When in contact with vascularized bone, CaS in CERAMENT is resorbed, leaving a porous HA scaffold. Blood vessels grow into CERAMENT, attracting osteoblasts that begin to form bone.



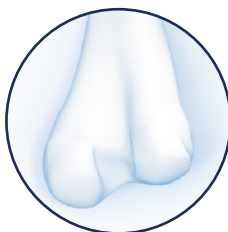
6 months:

Resorption of CERAMENT is at the same rate as bone formation which continues towards the center, becomes mineralized and remodels to trabecular bone.



12 months:

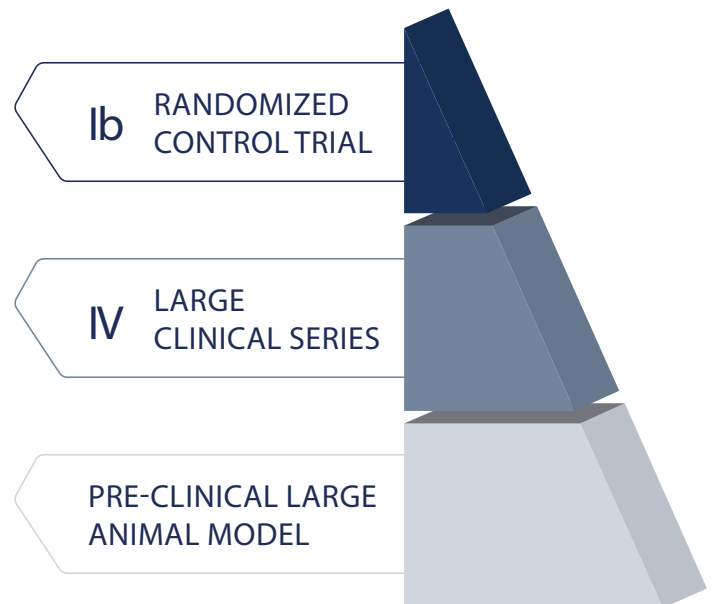
CaS in CERAMENT is fully resorbed, HA is embedded in mature bone, natural bone building continues increasing mechanical strength.



The bone is healed

PROVEN BONE REMODELING

CERAMENT is supported by an extensive body of evidence, with more than 350 pre-clinical and clinical publications and abstracts demonstrating its safety and efficacy.



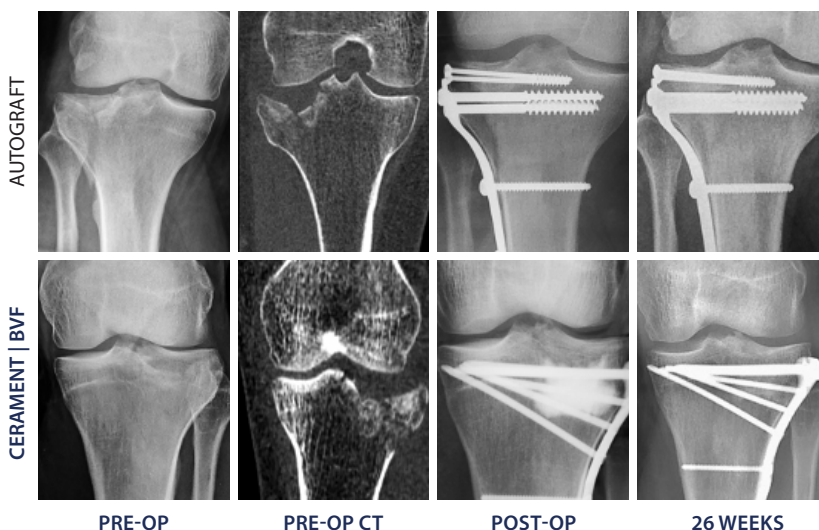
LEVEL Ib: RANDOMIZED CONTROLLED TRIAL³

CERAMENT BVF: Demonstrating efficacy and bone remodeling equivalent to autograft.

CERTiFy is a Level Ib, multi-center, prospective, randomized controlled trial of patient-reported outcome measures data in 135 patients.

Published in Journal of Bone and Joint Surgery American (2020).

The non-inferiority study compared CERAMENT® BONE VOID FILLER to autograft in acute traumatic fractures of the proximal tibia. The study also compared bone remodeling and patient-reported outcome measures between the two treatment groups.



Results:

- CERAMENT is as good as autograph for bone remodeling
- Proven bone remodeling
- Less post-op pain compared to autograft
- Less blood loss compared to autograft
- Trend towards shorter duration of surgery

PROVEN BONE REMODELING AS GOOD AS AUTOGRAFT³

PROVEN BONE REMODELING

LEVEL IV: LARGE CLINICAL SERIES¹

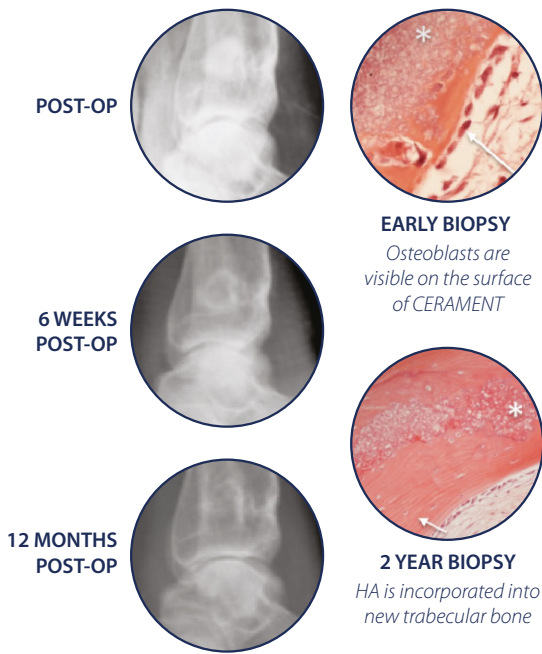
CERAMENT: Demonstrating bone remodeling with published radiographic and histologic imaging.

- Retrospective review of prospectively collected series of 163 patients with chronic osteomyelitis treated with CERAMENT G
- 138 radiographs assessed (min. 12 months f/u)
- 9 biopsies (between 19 days and 24 mos.)

Results:

- ~74% mean bone void-filling at 12 months
- Histology showed active biomaterial remodeling
- Osteoconductive with osteoblast recruitment
- Woven and lamellar bone on substrates surface

HISTOLOGY MATCHES RADIOGRAPHIC CHANGES, CONNECTING CLINICAL OUTCOMES TO THE BONE REMODELING OF CERAMENT¹



PRE-CLINICAL LARGE ANIMAL MODEL^{2*}

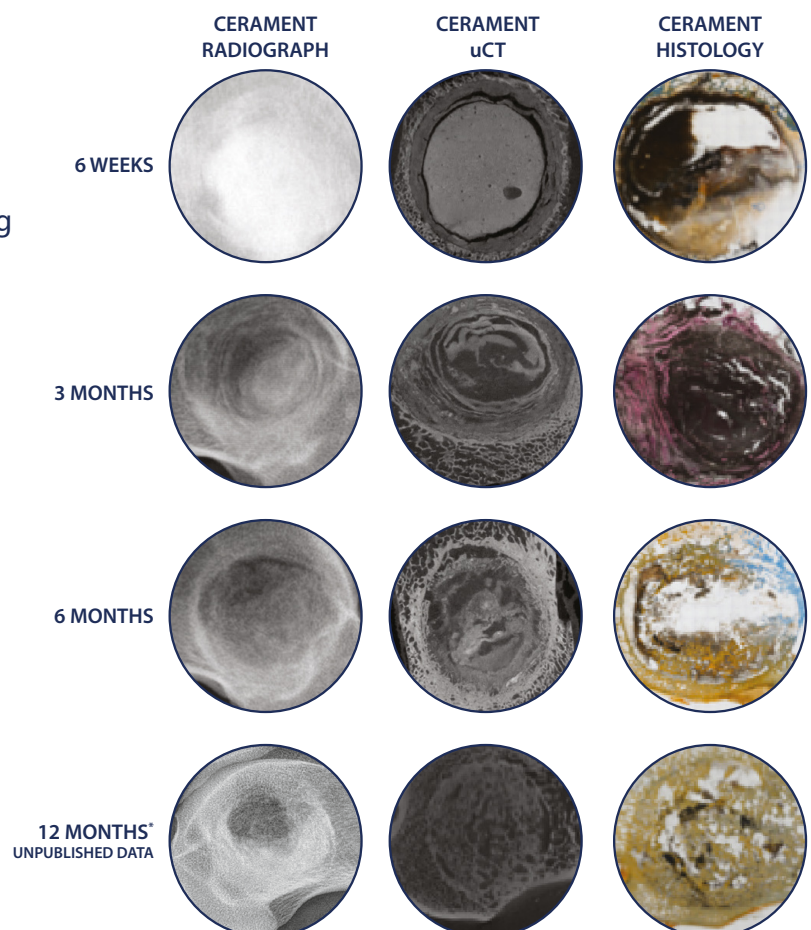
CERAMENT: Demonstrating bone remodeling with multiple imaging techniques.

- Evaluating bone remodeling in medial femoral condyles of sheep
- 10ml voids filled with cancellous allograft, CERAMENT G or left empty
- Using radiographs, MRI, μ CT, DEXA and histology to prove bone remodeling
- Published in APMIS (2019)

Results:

- CERAMENT G showed centripetal biodegradation and new trabecular bone formation in the periphery at 6 months

NEW TRABECULAR BONE FORMATION VISIBLE



* Pre-clinical data is not an indication of clinical performance

Visible signs of trabecular bone growth into periphery

References

1. Ferguson et al. Radiographic and Hstological Analysis of a Synthetic Bone Graft Substitute Eluting Gentamicin in the Treatment of Chronic Osteomyelitis. J Bone Jt Infect. 2019 Mar 16;4(2):76-84.
2. Hettwer et al. Establishment and Effects of Allograft and Synthetic Bone Graft Substitute Treatment of a Critical Size metaphyseal Bone Defect Mode in the Sheep Femur. APMIS. 2019; 127: 53-63.
3. 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.
4. Ferguson et al A comparison of clinical and radiological outcomes between two different biodegradable local antibiotic carriers used in the single-stage surgical management of long bone osteomyelitis. Bone Joint Res 2023;12(7):412–422.
5. McNally et al Mid- to long-term results of single-stage surgery for patients with chronic osteomyelitis using a bioabsorbable carrier Bone Joint J 2022;104-B(9):1095–1100.
6. Asano et al. Adjuvant local antibiotic prophylaxis in Gustilo–Anderson IIIb open fractures: up to 10 years follow-up on clinical outcomes and complications Journal of Orthopaedic Surgery and Research (2025) 20:610 <https://doi.org/10.1186/s13018-025-05765-5>.

Availability of CERAMENT® is dependent on its 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.



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