Powerbone CRUNCH

SILICATE SUBSTITUTED OSTEOINDUCTIVE SYNTHETIC BONE

FULLY SYNTHETIC

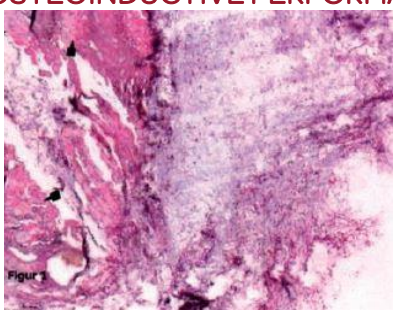
Powerbone CRUNCH is a particulate containing pure Silicate Substituted Calcium Phosphate.

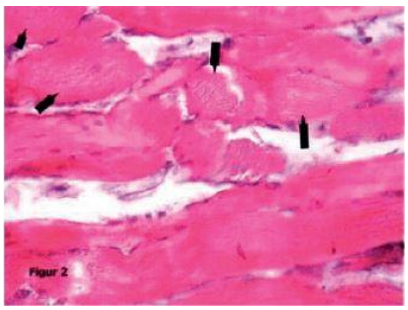
Powerbone CRUNCH eliminates consent associated with religious or lifestyle beliefs.

DOUBLE PERFORMANCE - OSTEOINDUCTIVE and OSTOCONDUCTIVE

Resorption of silicate stimulates fast apatite formation[1,2] with silicate/β-TCP composites (SiCAP) enhancing bone regeneration compared with β-TCP alone.[3,4] Additional studies show induced angiogenesis and stimulation of growth factors, progenitor cell migration, tubule formation, and vessel sprouting[5] comparable to rhBMP-2 [6].

OSTEOINDUCTIVE PERFORMANCE





Osteoid formation (osteoinductivitiy) 2 months after implantation of Powerbone in skeletal muscle

VERSATILE FORMAT

The porosity and hydrophilic nature mean Powerbone CRUNCH can be used alone or with:

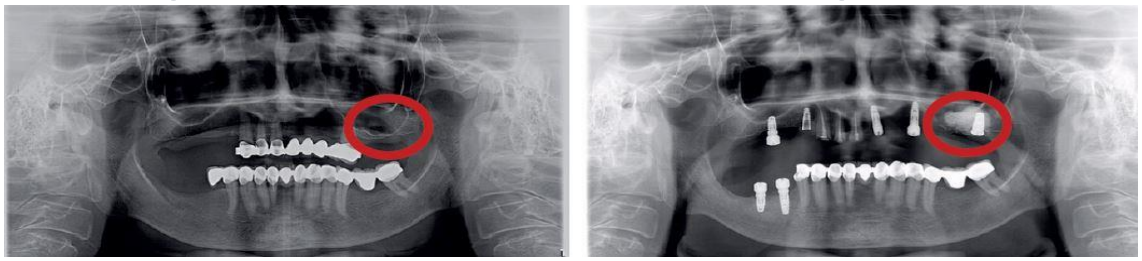
- *Pharmaceuticals or Hyaluronic Acid.*
- *Autogenous bone/blood products such as PRP/PRF or Slow resorbing hydroxyapatite grafts.*

RESORPTION

Powerbone CRUNCH resorbs in tandem with new bone formation over 5-8months.

RADIOPAQUE PROFILING

Powerbone grafts are radiopaque – crucial when controlled regeneration is required.



Radiological view before and 5 months after placement showing new bone completely regenerated

PRESENTATION

0.5 cc, 1.0 cc and 2.0 cc glass bottles, double sterile packaged.

1. Tlimori Y, Kameshima Y, Yasumori A, Okada K. Effect of solid/solution ratio on apatite formation from CaSiO3 ceramics in simulated body fluid. J Mater Sci Mater Med 2004; 15:1247–1253.
2. Xu S, Lin K, Wang Z, Chang J, Wang L, Lu J, Ning C. Reconstruction of calvarial defect of rabbits using porous calcium silicate bioactive ceramics. Biomaterials 2008; 29:2588–2596
3. Hing KA, Wilson LF, Buckland T. Comparative performance of three ceramic bone graft substitutes. Spine J. 2007; 7(4):475-490
4. Nagineni, Vamsi V., et al. "Silicate-substituted calcium phosphate ceramic bone graft replacement for spinal fusion procedures." Spine 37.20 (2012): E1264-E1272.5.. Dashnyam, K.; El-Fiqi, A.; Buitrago, J.O.; Perez, R.A.; Knowles, J.C.; Kim, H.-W. A mini review focused on the proangiogenic role of silicate ions released from silicon-containing biomaterials. J. Tissue Eng. 2017, 8, 1–13.6. Comparison of Silicate-Substituted Calcium Phosphate with Recombinant Human Bone Morphogenic Protein-2 in Posterolateral Instrumental Lumbar Fusion. Spine, 2015; 5: 471-478

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