



PLASMA BIOTAL LIMITED

TECHNICAL DATA SHEET

CAPTAL® β-TRICALCIUM PHOSPHATE (β-TCP)

Captal® β-TCP is a medical grade, synthetic, high-purity, highly crystalline bio-resorbable tricalcium phosphate raw material. β-TCP is resorbable through a cell-mediated response, allowing the body to progressively replace β-constructs with natural bone, using the Ca²⁺ and (PO₄)³⁻ ions released from cell mediated resorption as a resource for remodelling. This cell interaction promotes mesenchymal stem cell differentiation, enhancing osteoblastic proliferation.

The resorbable nature of β-TCP makes it ideal for use in tissue engineering, enhancing bio-composites, or for drug-delivery devices where resorption rate can be controlled through construct design.

We provide Captal® β-TCP in 2 standard sizes with D_v(50) = 2-6 μm and D_v(50) = 15 - 30 μm. (Custom sizes are available on request). Captal® β-TCP is sold as medical grade, with full compliance to ASTM F1088 - 23.

Chemical Specification (Typical values)

Phase Purity	Ca ₃ (PO ₄) ₂	> 95 %
Crystallinity		> 95 %
Ca:P Ratio		1.48-1.52
Heavy Metals	Arsenic (As)	< 3 ppm
	Cadmium (Cd)	< 5 ppm
	Mercury (Hg)	< 5 ppm
	Lead (Pb)	< 30 ppm
	Magnesium (MgO)	< 2750 ppm
Other Impurities (Average Values)	Silicon (SiO ₂)	< 250 ppm
	Aluminium (Al ₂ O ₃)	< 500 ppm
	Strontium (SrO)	< 500 ppm
	Sodium (Na ₂ O)	< 300 ppm
	Iron (Fe ₂ O ₃)	< 200 ppm
	Manganese (Mn ₃ O ₄)	< 100 ppm

Physical Properties (Typical Values)

Morphology	Angular	Angular/Spherical
Colour	White	White
Particle Size Distribution	D _v (10) = < 3 μm	D _v (10) = < 15 μm
	D _v (50) = 2-6 μm	D _v (50) = 15-30 μm
	D _v (90) = 5-15 μm	D _v (90) = > 25 μm
Surface Area (BET)	> 5 m ² /g	> 2 m ² /g
ICHQ3D	Parenteral release limit ~0.9g / day	

Custom Particle Size distributions available on request – please contact us.

Storage and Handling

Captal® β-TCP is stable if stored under the correct conditions. Ensure the container is correctly sealed and store in a cool, dry environment. Captal® β-TCP is sold as non-sterile material and is not packaged in a clean room environment. Please refer to the safety data sheet for more information on the storage and handling of Captal® β-TCP materials

Further Information

For more information on this or any other Plasma Biototal products, please either go to the website: www.plasma-biototal.com or sent an enquiry via the contact form at [Plasma Biototal - Contact Us \(plasma-biototal.com\)](mailto:Plasma Biototal - Contact Us (plasma-biototal.com)).

