



PLASMA BIOTAL LIMITED

TECHNICAL DATA SHEET

CAPTAL® SPRAY-GRADE HYDROXYAPATITE

CAPTAL® spray-grade hydroxyapatite (HA) is a synthetic bone substitute with high purity and crystallinity, mimicking the composition of natural bone mineral. With optimized flow characteristics for plasma and thermal spray equipment our material maintains a high crystallinity during application.

Coating implantable devices with CAPTAL® "spray-grade" HA enhances both short-term and long-term clinical outcomes. The higher crystallinity when our "spray grade" HA is combined with our coating service improves coating performance, reducing inflammation post-implantation and minimising failure through aseptic loosening, without the need for bone cement.

The material is available in five standard sizes with a median particle size, $D_v(50)$, in the range 20 - 90 μm (custom sizes are available on request). All CAPTAL® spray-grade HA is medical grade and meets the requirements of the ISO 13779-6 international standard.

Chemical Specification (Typical values)

Phase Purity (%)	$\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$	> 95
Crystallinity (%)		> 95
Ca:P Ratio		1.66-1.72
Heavy Metals	Arsenic (As)	< 1 ppm
	Cadmium (Cd)	< 1 ppm
	Mercury (Hg)	< 1 ppm
	Lead (Pb)	< 3 ppm
Other Impurities (Average Values)	Magnesium (MgO)	< 3500 ppm
	Silicon (SiO ₂)	< 850 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 or Spherical
Colour	Pale Blue
Surface Area (BET) (cm ² /g)	Size Dependent
Bulk Density (g/cm ³)	0.5 - 0.90
Tapped Density (g/cm ³)	0.9 - 1.20

Particle Size Specification (μm)

Product	$D_v(10)$	$D_v(50)$	$D_v(90)$
Captal 20	12 ± 2	20 ± 5	25 ± 5
Captal 30	15 ± 5	30 ± 5	50 ± 5
Captal 60-1	20 ± 5	45 ± 5	80 ± 10
Captal 60	35 ± 10	60 ± 10	100 ± 15
Captal 90	50 ± 15	90 ± 15	120 ± 20

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

Storage and Handling

CAPTAL® 'Spray-Grade' Hydroxyapatite is stable if stored under the correct conditions. Ensure the container is correctly sealed and store in a cool, dry environment. CAPTAL® spray-grade HA is sold as non-sterile material. Please refer to the Safety Data Sheet for more information on the storage and handling of CAPTAL® HA materials.

Further Information

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

