



PLASMA BIOTAL LIMITED

TECHNICAL DATA SHEET

CAPTAL® 'R' UNSINTERED HYDROXYAPATITE

Captal® 'R' reactor grade powder is a medical grade synthetic high-purity, unsintered hydroxyapatite. Captal® reactor grade is comprised of micro-scale independent matured crystallites. As a result, when heat treated and sintered under the correct conditions Captal® 'R' forms a highly crystalline, bioactive, hydroxyapatite material can be formed at a range of near sub-micron to macro-scale particle sizes. As an unsintered material, Captal® 'R' is advantageous for use in more complex fabrication techniques, such as composite biomaterial manufacture, or additive techniques such as laser sintering.

Captal® 'R' is sold with an average particle size, $D_v(50)$, of 2-6 μm (custom sizes are available on request).

Chemical Specification (Typical values)

| | | |
|--|--|------------|
| Phase Purity | $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ | > 95 % |
| Crystallinity | (By XRD) | 70-90 % |
| 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 |
| Colour | White |
| Particle Size Distribution | $D_v(10) = 2 \pm 2 \mu\text{m}$ |
| | $D_v(50) = 4 \pm 2 \mu\text{m}$ |
| | $D_v(90) = 6 \pm 3 \mu\text{m}$ |
| Surface Area (BET) | > 5 m ² /g |
| Custom Particle Size distributions available on request – please contact us. | |

Storage and Handling

Captal® 'R' is stable if stored under the correct conditions. Ensure the container is correctly sealed and store in a cool, dry environment. Captal® 'R' 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 & handling of Captal® 'R' 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 contact us via email: info@plasma-group.co.uk

