



Technical Data Sheet

Filament-Oss HA

FILAMENT-Oss HA is a composite material made of bioactive particles supported by a biodegradable polymer matrix for bone regeneration applications. **FILAMENT-Oss HA** has in vitro validated biodegradation and bioactivity, good adhesion and cell growth making it suitable for cell studies.

FILAMENT-Oss HA is bioabsorbable, can be sterilized by ultraviolet light, has antibacterial effect and allows obtaining multidirectional and customized porosity.

Filament features

Particle	Hydroxyapatite
Polymeric matrix	PLA
Particle loading (wt.%/vol.%)	40 wt.%/ 20 vol.%
Diameter	1.75 ± 0.15 mm
Density	1.63 g/cm ³
Linear Density	0.039 g/cm
Format	Spool vacuum packed

Thermal Properties

Glass Transition Temp.	62 °C
Melting Temp.	156 °C
Degradation Temp.	320 °C

Printing Recommendations

Printing Temp.	155-165 °C
Hot Pad	40 °C
Printing Speed	15-30 mm/s
Layer Height	> 0.2 mm
Nozzle Diameter	> 0.4 mm
Head travel speed	< 150 mm/s
Stand-by Temp.	30 °C

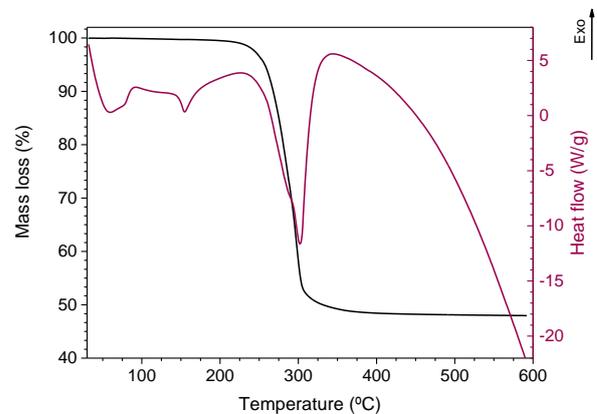
Storage Conditions

Keep in dry place
Protect from direct sunlight
Storage between 5°C- 30°C

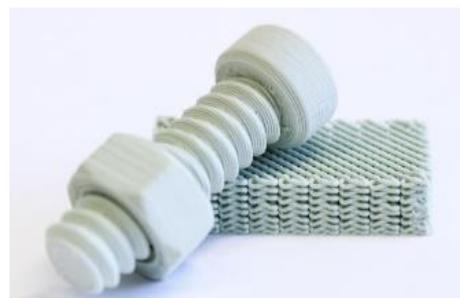
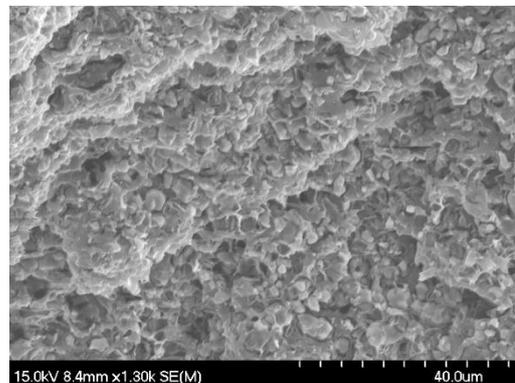
Specific properties

Osteoinductive and osteoconductive properties for bone regeneration.
Sterilized by UV.
Controlled PLA degradation rate.

Thermal behavior



Filament cross-section



Samples printed with Filament-Oss 20HA

Powder Specifications

Hydroxyapatite Powder

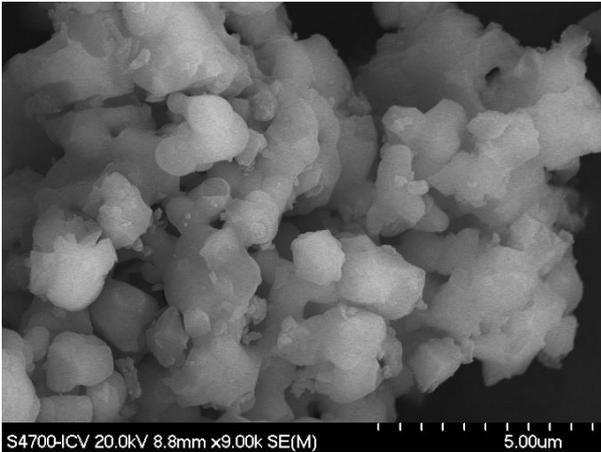
Identification Product

Commercial name	CAPTAL® Sintered Hydroxyapatite (1300 °C)
Chemical formula	Ca ₅ (PO ₄) ₃ OH
Supplier	Plasma Biotral Limited
Characteristics/ Description	Medical-grade, synthetic, high-purity, highly crystalline bioresorbable bone substitute material designed to closely mimic the properties and composition of natural bone.

Chemical composition

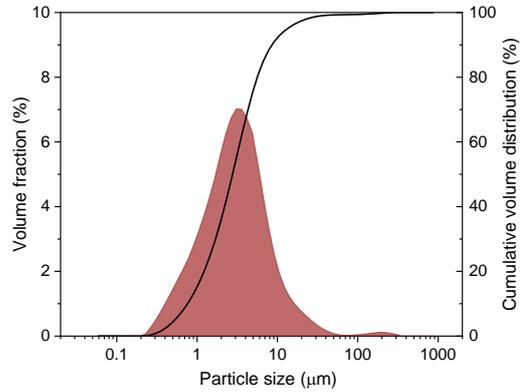
Ca/P ratio	1.74	X-Ray Fluorescence
Purity	(99.5-99.8) %	
Density	3.16 g/cm ³	Helium picnometry
Spec. Surf. area	1.4 m ² /g	N ₂ adsorption-desorption

Particle morphology



Scanning electron microscope image

Particle size distribution



D₁₀: 0.75 μm D₅₀: 2.76 μm D₉₀: 8.6 μm
Measured by Laser Diffraction at small angles

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