

Hydroxyapatite (HAp)

Technical Data Sheet / Ficha Técnica

1. Material Overview / Visão Geral do Material

EN: Hydroxyapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) is a calcium phosphate bioceramic widely used in advanced materials, pharmaceutical formulations, cosmetic products, dental materials and biomaterials research. Triplet develops engineered hydroxyapatite powders designed for industrial, scientific and technological applications.

PT-BR: A hidroxiapatita ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) é uma biocerâmica de fosfato de cálcio amplamente utilizada em materiais avançados, formulações farmacêuticas, cosméticos, materiais odontológicos e pesquisa em biomateriais. A Triplet desenvolve hidroxiapatita com engenharia de partículas voltada para aplicações industriais, científicas e tecnológicas.

2. Key Material Properties / Propriedades Fundamentais

Property	Typical Value
Chemical formula	$\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$
Molecular weight	1004.6 g/mol
Crystal structure	Hexagonal hydroxyapatite
Appearance	White powder
Density	~ 3.1 g/cm ³
Solubility	Practically insoluble in water

3. Engineering Parameters / Parâmetros de Engenharia

Parameter	Engineering Range
Particle size distribution	Nano – Micron range (customizable)
BET surface area	5 – 120 m ² /g depending on processing
Ca/P ratio	1.60 – 1.67
Crystallinity	Adjustable via thermal treatment
Thermal processing	Controlled sintering or calcination

4. Typical Technical Properties / Propriedades Técnicas Típicas

Parameter	Typical Range
Particle size	1 – 100 μm (depending on processing)
BET surface area	5 – 120 m^2/g
Phase composition	Hydroxyapatite
Crystallinity	Thermally controlled

5. Analytical Methods / Métodos Analíticos

Property	Method
Crystal phase	X-ray diffraction (XRD)
Particle size distribution	Laser diffraction
Surface area	BET (N_2 adsorption)
Chemical composition	ICP-OES / XRF

6. Engineering Grades / Graus de Engenharia

Grade	Particle Size	Typical Applications
HAp-Nano	20–200 nm	Drug delivery, advanced biomaterials
HAp-Submicron	200 nm – 1 μm	Biomaterials research, coatings
HAp-Micro	1 – 20 μm	Dental materials, composites, fillers

7. Applications / Aplicações

Pharmaceutical excipients and drug delivery systems
 Cosmetic and dermocosmetic mineral ingredient
 Dental formulations and remineralization technologies
 Biomaterials research and tissue engineering
 Advanced material systems

8. Customization / Customização

Triplet develops hydroxyapatite materials tailored to client specifications, including control of particle size distribution, Ca/P ratio, crystallinity, surface area and thermal processing.

9. Packaging / Embalagem

White HDPE bottle (milky white) or amber glass bottle.

Typical volumes: 100 g, 500 g, 1 kg.

10. Storage / Armazenamento

Store in dry conditions at room temperature. Avoid moisture and contamination.

11. Disclaimer / Aviso

Material supplied as industrial raw material for research, formulation and manufacturing applications.

Triplet Bioceramics | On Demand