

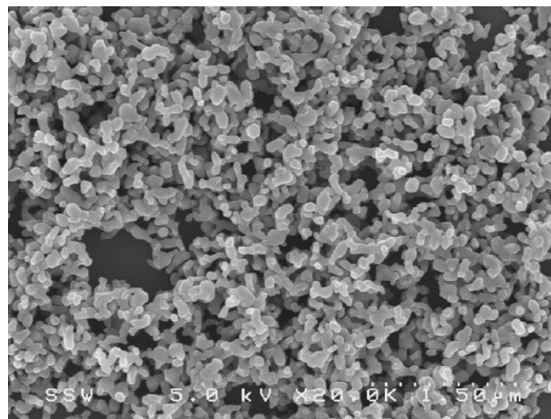
**Nano Crystalline Bioactive Calcium Hydroxyapatite**

**Description**

**Novotech** has developed a new proprietary method for the production of nano-sized hydroxyapatite (HA) utilizing low cost raw materials and an environmentally safe acid-free process. Novotech's **HA** is a white powder with 70 - 150 nm particle size that has a high degree of bio compatibility with living tissues.

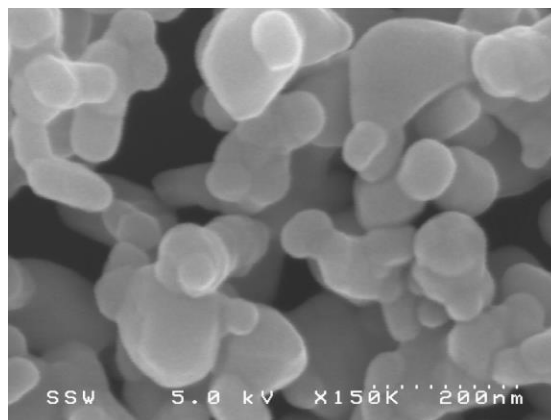
**Specification**

TYPICAL PROPERTIES	VALUE
CAS	12167-74-7
EC Number	235-330-6
Appearance CAS	White
Molecular Formula	$\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$
Hydroxyapatite (HA) Ca/P ionic ratio	1.67
Molecular Weight	1004
Average particle size	70-150 nm
Density	3.34 (g/cc)
Bulk density:	190 g/L
Crystal form	Cubic
BET Surface Area	25.97 (m <sup>2</sup> /g)
Melting Point	1650°C

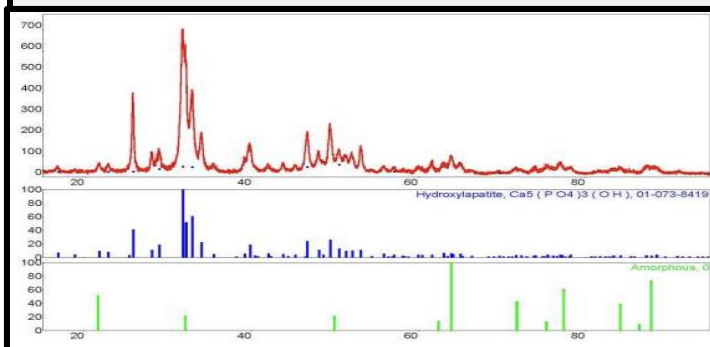


CHEMICAL COMPOSITION: $\text{Ca}_{10}(\text{PO}_4)_6\text{OH}_2$			
Element	Sample (%)	Element	Sample (%)
Al	0.09	Na	0.14
Ca	36.97	P	16.94
Fe	0.03	Si	0.11
K	0.02	Sr	0.01
Mg	0.20	Ti	<0.01

Other elements tested (<0.01%): Ag, As, Au, B, Ba, Be, Bi, Cd, Ce, Co, Cr, Cu, In, Li, Mn, Mo, Nb, Ni, Pb, Pd, Pt, Sb, Se, Sn, Ta, Te, Tl, V, W, Zn & Zr. Results in weight percent unless otherwise indicated. Method(s): CAP-017P (ICP-AES)



**XRD Diffraction of the Hydroxyapatite along with matching patterns from ICDD library of standards.**



PHASE COMPOSITION BY XRD	
Phase	Sample (%)
Hydroxyapatite	100
Calcium Oxide (CaO)	Not Detected
$\alpha$ -Tricalcium phosphate ( $\alpha$ -TCP)	Not Detected
$\beta$ -Tricalcium phosphate ( $\beta$ -TCP)	Not Detected
Tetracalcium phosphate (TTCP)	Not Detected
Results in relative weight percent	

**Applications**

**Cosmetics**

- For skin care products- eyeshadow & mascara, lipstick & lip glosses, blushers & bronzers.

**Cosmetology**

- Calcium hydroxyapatite based products intended to: rejuvenate the skin, increase the volume of tissue, face beauty masks, eliminate skin blemishes and for use with injections in plastic surgery.

**Stomatology**

- Calcium phosphate bone cements for sealing root canals. Components for the regeneration and remineralization of dental enamel (in the form of powder, gel or toothpaste that specifically formulated to prevent the formation of dental caries and reduce tooth sensitivity.

**Food Additives**

- Ingredients used in sports drinks, milk powder, fish and minced meat, alcoholic beverages, herbal teas, dry and semi-dry breakfast cereals, fast food, confectionery products and additives for animal feeds. Supplements with easily digestible calcium to treat calcium deficiencies.

**Biologically Active Additives (BAA)**

- Components of dietary supplements for the prevention and treatment of osteoporosis (capsules and tablets for regulating the calcium balance in humans of any age). For products that prevent bone tissue resorption, maintain posture, reduce the risk of bone fractures and dental caries. Also admitted as part of vitamins and drugs like calcium-containing supplements for humans and animals.

**Bioceramics**

- For medical implants (endo-implants, porous inserts and for coatings on titanium implants). Also useful as a premix for bone tissue regeneration (ceramic beads, porous implants, bone cements, gels, suspension and injectables for bone regeneration etc.).