

Certificate of Analysis

Product name	HAp(DP) Microsphere	Lot No.	Sample
Quantity	5 g	Grade	25 – 45 μ m
Date of Manufacture	Sample	Date of Issue	26.8.20

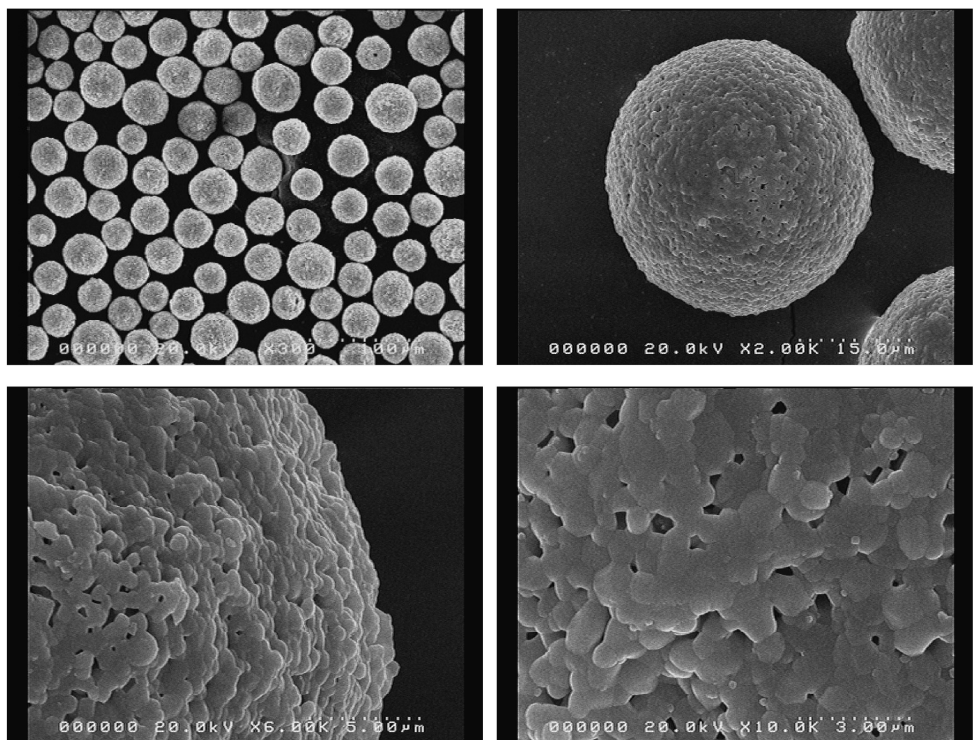
Test items	Test Method	Specification	Results
Appearance	Sensory test	White powder	White powder
Odor	Sensory test	Odorless	Odorless
Morphology	SEM observation	Spherical	Spherical
pH	Internal specifications	6.5 – 8.5	≤ 8
Impurities			
1) Arsenic (As)	ICP measurement	≤ 3 ppm	≤ 1 ppm
2) Cadmium (Cd)		≤ 5 ppm	≤ 0.5 ppm
3) Mercury (Hg)		≤ 5 ppm	≤ 0.05 ppm
4) Lead (Pb)		≤ 30 ppm	≤ 1 ppm
Total heavy metals		≤ 30 ppm	Conform
Particle size distribution (25-45 μ m fraction)	Laser diffraction (PSA)	≥ 70 vol % between 25 and 45 μ m	Conform
Particle porosity	Mercury Intrusion Porosimetry (MIP)	7-10 %	9 %
HAp content	XRD analysis	≥ 95 %	Conform
CaO content	XRD analysis	≤ 1 %	Not detected
Foreign phases content (α -TCP, β -TCP, TTCP, CaO)	XRD analysis	≤ 5 %	Not detected
Ca/P ratio	XRD analysis	1.66 – 1.71	1.67
Endotoxins	Gel-clot LAL test	< 0.5 Eu/ml	Conform

Shelf Life 5 years from the date of manufacture.

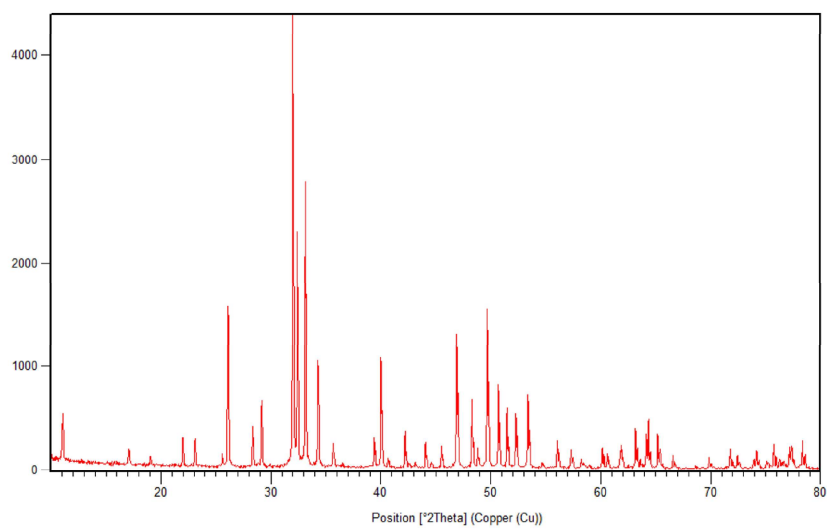
Storage Store in a cool, dry place. Avoid exposure to heat and moisture.

COA Issuer JSTechLab

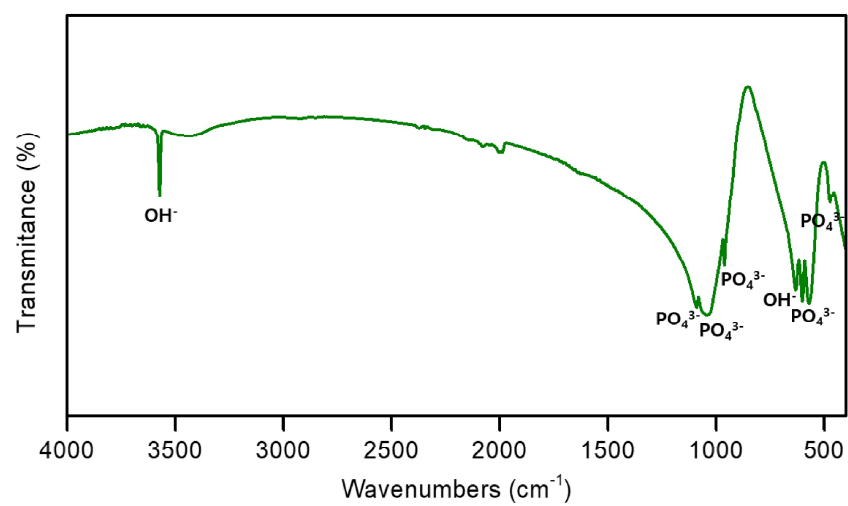
Notice The analytical results are provided for sample submission purposes only.



[SEM images]



[XRD pattern]



[FT-IR spectrum]