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## Certificate of Analysis

Physical DescriptionWhite crystals or crystalline powderWhite crystalline powderIdentificationIRConformsSolubility (10% in water)Clear, colourless solutionConformsTransmittance> 98.0%100.1%Specific Optical Rotation+14.3 - +15.2 °+14.5 °Chloride (Cl)< 0.02%< 0.02%Ammonium (NH4)< 0.02%< 0.02%Sulphate (SO4)< 0.02%< 0.02%Iron (Fe)< 10ppm< 10ppmHeavy Metals (as Pb)< 10ppm< 5ppmArsenic (As2O3)< 0.1%Not detectedTotal Impurities< 0.5%Not detectedResidue on Ignition< 0.2%0.00%Loss on Drying< 0.2%0.02%Fiddtoxins< 5.7 - 6.7< 3.0EU/g	Property	Specification	Batch 634AKK
Solubility (10% in water)Clear, colourless solutionConformsTransmittance> 98.0%100.1%Specific Optical Rotation+14.3 - +15.2 °+14.5 °Chloride (Cl)< 0.02%	Physical Description	White crystals or crystalline powder	White crystalline powder
Transmittance   ≥ 98.0%   100.1%     Specific Optical Rotation   +14.3 - +15.2 °   +14.5°     Chloride (Cl)   ≤ 0.02%   ≤ 0.02%     Ammonium (NH4)   ≤ 0.02%   ≤ 0.02%     Sulphate (SO4)   ≤ 0.02%   ≤ 0.02%     Iron (Fe)   ≤ 10pm   ≤ 10ppm     Heavy Metals (as Pb)   ≤ 10pm   ≤ 5ppm     Arsenic (As2O3)   ≤ 11pm   ≤ 11pm     Any Unspecified Impurity   ≤ 0.5%   Not detected     Total Impurities   ≤ 0.1%   Not detected     Residue on Ignition   ≤ 0.2%   0.00%     Loss on Drying   ≤ 0.2%   0.02%     pH (10% in water)   5.7 - 6.7   6.1	Identification	IR	Conforms
Specific Optical Rotation+14.3 - +15.2°+14.5°Chloride (Cl)≤ 0.02%≤ 0.02%Ammonium (NH4)≤ 0.02%≤ 0.02%Sulphate (SO4)≤ 0.02%≤ 0.02%Iron (Fe)≤ 10ppm≤ 10ppmHeavy Metals (as Pb)≤ 10ppm≤ 5ppmArsenic (As2O3)≤ 0.1%Not detectedAny Unspecified Impurity≤ 0.5%Not detectedTotal Impurities≤ 0.1%0.00%Loss on Drying≤ 0.2%0.02%PH (10% in water)5.7 - 6.76.1	Solubility (10% in water)	Clear, colourless solution	Conforms
Chloride (Cl) ≤ 0.02%   Ammonium (NH4) ≤ 0.02%   Sulphate (SO4) ≤ 0.02%   Iron (Fe) ≤ 10ppm   Heavy Metals (as Pb) ≤ 10ppm   Arsenic (As2O3) ≤ 0.1%   Any Unspecified Impurity ≤ 0.1%   Yota Impurities ≤ 0.5%   Residue on Ignition ≤ 0.1%   Loss on Drying ≤ 0.2%   PH (10% in water) 5.7 - 6.7	Transmittance	≥ 98.0%	100.1%
Ammonium (NH4) ≤ 0.02%   Sulphate (SO4) ≤ 0.02%   Iron (Fe) ≤ 10ppm   Heavy Metals (as Pb) ≤ 10ppm   Arsenic (As2O3) ≤ 10ppm   Any Unspecified Impurity ≤ 0.1%   Total Impurities ≤ 0.5%   Residue on Ignition ≤ 0.1%   Loss on Drying ≤ 0.2%   pH (10% in water) 5.7 - 6.7	Specific Optical Rotation	+14.3 - +15.2 °	+14.5°
Sulphate (SO4)≤ 0.02%Iron (Fe)≤ 10ppm≤ 10ppmHeavy Metals (as Pb)≤ 10ppm≤ 5ppmArsenic (As2O3)≤ 1ppm≤ 1ppmAny Unspecified Impurity≤ 0.1%Not detectedTotal Impurities≤ 0.5%Not detectedResidue on Ignition≤ 0.2%0.00%Loss on Drying≤ 0.2%0.02%pH (10% in water)5.7 - 6.76.1	Chloride (Cl)	≤ 0.02%	≤ 0.02%
Iron (Fe)≤ 10ppm≤ 10ppmHeavy Metals (as Pb)≤ 10ppm≤ 5ppmArsenic (As2O3)≤ 1ppm≤ 1ppmAny Unspecified Impurity≤ 0.1%Not detectedTotal Impurities≤ 0.5%Not detectedResidue on Ignition≤ 0.1%0.00%Loss on Drying≤ 0.2%0.02%PH (10% in water)5.7 - 6.76.1	Ammonium (NH4)	≤ 0.02%	≤ 0.02%
Heavy Metals (as Pb)< 10pm< 5pmArsenic (As2O3)< 1ppm	Sulphate (SO4)	≤ 0.02%	≤ 0.02%
Arsenic (As2O3)≤ 1ppm≤ 1ppmAny Unspecified Impurity≤ 0.1%Not detectedTotal Impurities≤ 0.5%Not detectedResidue on Ignition≤ 0.1%0.00%Loss on Drying≤ 0.2%0.02%PH (10% in water)5.7 - 6.76.1	Iron (Fe)	≤ 10ppm	≤ 10ppm
Any Unspecified Impurity< 0.1%Not detectedTotal Impurities< 0.5%	Heavy Metals (as Pb)	≤ 10ppm	≤ 5ppm
Total Impurities   ≤ 0.5%   Not detected     Residue on Ignition   ≤ 0.1%   0.00%     Loss on Drying   ≤ 0.2%   0.02%     pH (10% in water)   5.7 - 6.7   6.1	Arsenic (As2O3)	≤ 1ppm	≤ 1ppm
Residue on Ignition   ≤ 0.1%   0.00%     Loss on Drying   ≤ 0.2%   0.02%     pH (10% in water)   5.7 - 6.7   6.1	Any Unspecified Impurity	≤ 0.1%	Not detected
Loss on Drying   ≤ 0.2%   0.02%     pH (10% in water)   5.7 - 6.7   6.1	Total Impurities	≤ 0.5%	Not detected
pH (10% in water) 5.7 - 6.7 6.1	Residue on Ignition	≤ 0.1%	0.00%
	Loss on Drying	≤ 0.2%	0.02%
Endotoxins $\leq 6.0$ EU/g $\leq 3.0$ EU/g	pH (10% in water)	5.7 - 6.7	6.1
	Endotoxins	≤ 6.0EU/g	≤ 3.0EU/g
Assay 99.0 - 101.0 % (dried basis) 99.6%	Assay	99.0 - 101.0 % (dried basis)	99.6%
Origin Non-animal origin Conforms	Origin	Non-animal origin	Conforms

Specification Version	v1.0
Manufacture Date	2018-06-12
Re-Test Date	2025-04-27

Glentham Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check www.glentham.com or contact us using the details above for the current version of this document.

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