



Certificate of Analysis

Product Name	Citicoline Sodium	Manufacturing Date	Jun. 5, 2021
Batch Quantity	500KG	Expiring Date	Jun. 4, 2023
Batch No.	ZJ210601	Country of Origin	China

Items	Specification	Results	Method
Assay	≥98.00%	99.85%	HPLC
Appearance	White crystalline or crystalline powder, odorless	Conforms	Visual inspection
Solubility	Freely soluble in water, insoluble in ethanol, in acetone and in chloroform	Conforms	Company standard
Identification	Color reaction	Conforms	Visual inspection
	The retention time of major peak for the sample solution should be complied with that of the standard solution	Conforms	CP2020
	The infrared absorption spectrum is concordant with the standard spectrum.	Conforms	CP2020
	The aqueous solution yields the reaction characteristic of sodium salts	Conforms	CP2020
PH	6.0-7.5	6.7	CP2020
Clarity and color of solution	Should be clear and colorless	Conforms	CP2020
Chloride	≤0.05%	Conforms	CP2020
Ammonium Salt	≤0.05%	Conforms	CP2020
Iron	≤0.01%	Conforms	CP2020
Phosphate	≤0.1%	Conforms	Company standard
Loss on drying	≤6.0%	≤1.4%	CP2020
Heavy Metals	≤5ppm	Conforms	CP2020
Lead	≤1ppm	Conforms	CP2020
Mercury	≤1ppm	Conforms	CP2020
Cadmium	≤1ppm	Conforms	CP2020
Arsenic	≤1ppm	Conforms	CP2020



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Related substances	5'-CMP \leq 0.3%	0.002%	CP2020
	Other single impurity \leq 0.2%	0.002%	CP2020
	Other total impurities \leq 0.7%	0.005%	CP2020
Residual solvents	Methanol \leq 0.3%	Undetected	CP2020
	Ethanol \leq 0.5%	Undetected	
	Acetone \leq 0.5%	Undetected	
Bacterial endotoxins	<0.30 EU/mg	Conforms	CP2020
Microbial contamination	Total bacterial count \leq 1000cfu/g	12cfu/g	GB4789.2
	Yeast and molds \leq 100cfu/g	<15cfu/g	GB4789.15
	E. Coli: Negative	Undetected	GB4789.4
	Salmonella: Negative	Undetected	GB4789.4
	Staphylococcus: Negative	Undetected	GB4789.4
Conclusion	The product meets with the CP2020 standard.		