

## CERTIFICATE OF ANALYSIS

Product Name	L(+) Choline Bitartrate	Batch Number	HS181215
CAS Number	87-67-2	Manufacture Date	Dec 15, 2019
Standard	USP 39	Expire Date	Dec 14, 2021

Items	Specifications	Results
Identification A,B& C	Positive reaction	Conforms
Appearance	White,hygroscopic,crystalline powder	Conforms
Assay(calculated on the anhydrous basis)	NLT 98.0%	99.6%
pH(1 in 10)	3.0-4.0	3.60
Water	NMT0.5%	0.12%
Residue on ignition	NMT0.1%	0.03%
Specific Rotation	+17.5°C+18.5°C	+17.9°C
Heavy metals	NMT10mg/kg	<10mg/kg
Lead(Pb)	NMT 2mg/kg	<2mg/kg
1,4-Dioxane	NMT 10ppm	Conforms
Total plate count	≤1000CFU/g	<1000CFU/g
Yeast and mold	≤100CFU/g	<100CFU/g
E.Coli	Negative	Negative
Salmonella	Negative	Negative
Staphylococcus aureus	Negative	Negative
Through 20Mesh	100%	100%