

## Certificate of Analysis

Date of Testing: 2023-02-08 10:19:41  
 Date of Next Testing: 2027-02-07 10:19:41  
 Product Name: **L-Arginine hydrochloride**  
 CAS Number: 1119-34-2  
 Specifications & Purity: 99%  
 Lot #: B2303885  
 SKU #: **A103486**  
**Analysis:** **146134**  
 Storage Temperature: Desiccated

Parameter	Limit Values	Result
Copper(Cu)	0-0.0005 (%)	0.00 %
Sodium(Na)	0-0.005 (%)	0.00 %
(Pb)Lead	0-0.001 (%)	0.00 %
Zinc(Zn)	0-0.0005 (%)	0.00 %
Insoluble matter	0-0.1 (%)	0.03 %
Aluminum(Al)	0-0.0005 (ppm)	0.00 ppm
Sulfate(SO42-)	0-0.05 (ppm)	0.02 ppm
Ammonia (NH4)	0-0.05 (%)	0.04 %
PH(20 °C, 1 M in Water)	5-7	5.86
Iron(Fe)	0-0.0005 (%)	0.00 %
Potassium(K)	0-0.005 (%)	0.00 %
Calcium(Ca)	0-0.0005 (ppm)	0.00 ppm
Magnesium(Mg)	0-0.0005 (ppm)	0.00 ppm
Ignition Residue (as sulfate)	0-0.1 (%)	0.05 %
Phosphorus (P)	0-0.0005 (%)	0.00 %
Assay(Nonaqueous Titration)	98.5-101.5 (%)	99.69000 %
Specific Rotation [α] <sub>20</sub> /D(c=8 in 6M HCl)	21.4-23.6 (°)	21.41°
Appearance (A103486)	White Powder or Crystals	White Powder or Crystals
Solubility in H <sub>2</sub> O , colorless to pale yellow liquid,clear,1M,20 °C	pass	Pass
λ,1 M in H <sub>2</sub> O	Pass	Pass
Infrared spectrum	Conforms to Structure	Conforms to Structure



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A handwritten signature in black ink that reads "John Su". The signature is written in a cursive, flowing style.

John Su  
QA & QC Manager