

## Certificate of Analysis

Date of Testing:	2023-05-24 16:59:20
Date of Next Testing:	2027-05-23 16:59:20
Product Name:	<b>L-Arginine</b>
CAS Number:	74-79-3
Specifications & Purity:	from non-animal source, meets EP, USP specifications, suitable for cell culture, 98.5-101.0%
Lot #:	E2320111
SKU #	<b>A118651</b>
Analysis:	<b>203448</b>
Storage Temperature:	Argon charged

Parameter	Limit Values	Result
Nitrogen by Elemental Analysis	31.5-32.5 (%)	31.86 %
Loss on drying	0-0.5 (%)	0.27 %
PH	10.5-12	11.58
Purity(as dry basis)	98.5-101 (%)	99.10 %
Carbon by Elemental Analysis	40.5-41.5 (%)	40.96 %
Ammonia (NH4)	0-0.02 (%)	0.01 %
Specific Rotation[a]25/D(c=8 in 6M HCL/USP)	26.3-27.7 (°)	26.70 °
Chloride (Cl-)	0-0.05 (%)	0.04 %
Iron(Fe)	0-30 (ppm)	29.00 ppm
Sulfate(SO42-)	0-0.03 (%)	0.03 %
Ignition Residue	0-0.3 (%)	0.12 %
Heavy metals	0-10 (ppm)	9.00 ppm
Endotoxin Assay	0-1 (EU/mg)	0.80 EU/mg
specific Rotation[a]20/D(c=8 in 6M HCL)/EP	26.9-27.9 (°)	27.00 °
Appearance (A118651)	White crystalline powder or powder to crystal	White crystalline powder or powder to crystal
Cell Culture Test	pass	Pass
Identity by IR	Conforms to Structure	Conforms to Structure
Ninhydrin-positive substances (other amino acids)	Conforms	Conforms
Origin	non-animal source	non-animal source
Residual solvents	complies	complies
Proton NMR spectrum	Conforms to Structure	Conforms to Structure

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ALADDIN SCIENTIFIC CORPORATION

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Parameter	Limit Values	Result
Solubility, 1g/5ml water	Clear colorless	Clear Colorless

A handwritten signature in black ink that reads "John Su".

John Su  
QA & QC Manager