

## Certificate of Analysis

Date of Testing: 2023-02-14 17:17:19  
 Date of Next Testing: 2027-02-13 17:17:19  
 Product Name: **L-Alanine**  
 CAS Number: 56-41-7  
 Specifications & Purity: Non-animal origin , EP, JP, USP ; for cell culture , 98.5 to 101.0%  
 Lot #: B2310395  
 SKU #: **A118860**  
**Analysis:** **065159**  
 Storage Temperature: Desiccated

Parameter	Limit Values	Result
Sulfate(SO42-)	0-0.02 (%)	0.01 %
Iron(Fe)	0-10 (ppm)	0.00 ppm
Heavy metal (as Pb)	0-10 (ppm)	0.00 ppm
Chloride	0-0.02 (%)	0.00 %
Endotoxin Assay	0-1 (EU/mg)	0.00 EU/mg
PH(5% in water)	5.7-6.7	6.62
Ammonia (NH4)	0-0.02 (%)	0.02 %
(As)Arsenic	0-1 (ppm)	0.00 ppm
Loss on drying	0-0.2 (%)	0.01 %
Ignition Residue	0-0.1 (%)	0.00 %
Purity(Titration by HClO4)(Dry basis)	98.5 -101 (%)	98.51000 %
Specific Rotation[α] <sub>D</sub> <sup>20</sup> (c=10 in 6 M HCl at 20 °C in per EP	14.3-15.2 (°)	14.32°
Appearance (A118860)	White Powder or Crystals	White Powder or Crystals
Cell Culture Test	pass	Pass
Infrared spectrum	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
Solubility in 2 M HCl	Colorless,Clear,1.0 g to 10 ml	Colorless,Clear,1.0 g to 10 ml



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

John Su  
QA & QC Manager