

## Certificate of Analysis

Date of Testing:	2022-09-09 19:20:45
Date of Next Testing:	2026-09-08 19:20:45
Product Name:	<b>L-Proline</b>
CAS Number:	147-85-3
Specifications & Purity:	Animal Free, Ph.Eur., USP, for cell culture, ≥99%
Lot #:	I2207142
SKU #	<b>P120032</b>
Version	<b>1</b>
Analysis #:	<b>120779</b>
Storage Temperature:	Protected from light

Parameter	Limit Values	Result
Ammonia (NH <sub>4</sub> )	0-0.02 (%)	0.00 %
PH(10% in water)	5.9-6.9	6.23
Ignition Residue(Ash)	0-0.1 (%)	0.05 %
Chloride (Cl <sup>-</sup> )	0-0.02 (%)	0.01 %
Heavy metal (as Pb)	0-10 (ppm)	5.30 ppm
Specific Rotation [α] <sub>20</sub> /D(c=4 in H <sub>2</sub> O)(calcd.on anh.substance)	-86--84 (°)	-85.67 °
Sulfate(SO <sub>4</sub> <sup>2-</sup> )	0-0.02 (%)	0.01 %
Iron(Fe)	0-10 (ppm)	4.90 ppm
Loss on drying	0-0.3 (%)	0.21 %
Purity(as dry basis)	98.5-101.5 (%)	99.71000 %
Endotoxin Assay	0-1 (EU/mg)	0.51 EU/mg
Specific Rotation [α] <sub>25</sub> /D (USP: 25 °C in c=4 in H <sub>2</sub> O)	-86.3--84.3 (°)	-86.29 °
Appearance (P120032)	white powder	White powder
Cell Culture Test	pass	Pass
Infrared spectrum	Conforms to Structure	Conforms to Structure
Ninhydrin-Positive Substances	Conforms	Conforms
Origin	non-animal source	non-animal source
Solubility in H <sub>2</sub> O , clear colorless , 1 g / 10 ml in water	pass	Pass



ALADDIN SCIENTIFIC CORPORATION

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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