

Certificate of Analysis

Product Name:	L-Serine
CAS#	56-45-1
Starting Raw Material:	Glycine
Extraction Solvent(s):	None
Country of Origin:	China
Batch Number:	Varies
Manufacture Date:	Varies
Retest Date:	Varies

Test Results Obtained by PureBulk

ITEMS	SPECIFICATIONS	RESULTS
L-Serine (HPLC)	≥97.0%	100.57%
Loss on Drying (USP<731>)	≤2.0%	0.0504%
Aerobic Plate Count	≤1000 cfu/g	<20 cfu/g
Coliforms	≤100 cfu/g	<20 cfu/g
<i>E. Coli</i>	Negative	Absent
<i>Staph aureus</i>	Negative	Absent
Yeast & Mold	≤100 cfu/g	<20 cfu/g
<i>Salmonella</i>	Negative	Absent
<i>Pseudo. aeruginosa</i>	Negative	Absent
Conclusion (PureBulk):	This product conforms to standards	

The following information is an indirect translation of information provided from the Manufacturer's Certificate of Analysis, and should not be used solely as an instrument for strict quality control.

ITEMS	SPECIFICATIONS	RESULTS
Appearance	White crystals or crystalline powder	Conforms
Identification	Infrared Absorption	Conforms
Specific Rotation $[\alpha]_D^{25}$	+14.0° - +15.6°	+14.6°
Loss on Drying	≤0.2%	0.07%
Residue on Ignition	≤0.1%	0.06%
Chloride (Cl)	≤0.05%	<0.05%
Sulfate (SO ₄)	≤0.03%	<0.03%
Iron (Fe)	≤10 ppm	<10 ppm
Heavy Metals (Pb)	≤10 ppm	<10 ppm
Chromatographic Purity	≤0.5% of any individual impurity is found. ≤2.0% of total impurities is found.	Conforms
Other Amino Acids	Chromatographically not detectable	Conforms
Residual Solvents	Meet the requirement	Conforms
pH	5.2-6.2	5.4
Lead (Pb)	≤1 ppm	<1 ppm
Arsenic (As)	≤2 ppm	<2 ppm
Cadmium (Cd)	≤0.5 ppm	<0.5 ppm
Mercury (Hg)	≤0.1 ppm	<0.1 ppm
Density	Bulk Density: Report Only Tapped Density: Report Only	0.7 g/ml 0.9 g/ml
Particle Size	Report Only	99% pass 20 mesh 40% pass 40 mesh
Conclusion (Manufacturer):	This product conforms to USP40 standards	

Additional Information: Allergen-Free || BSE/TSE Free || Vegan/Vegetarian

Composition: L-Serine 98.5-101.5%

GMO Statement Non-GMO

Storage Conditions: **Keep in sealed container under 25°C.**
Keep away from strong light, heat and moisture.

Purebulk.Inc verifies that the information contained herein is true and correct to the best of our knowledge.

Verified By: Candace Gibson

(This document was produced electronically and is valid without signature.)