

L-Serine

Food-grade non-essential amino acid for nutritional systems and specialised formulation.

OVERVIEW

L-Serine is a non-essential amino acid essential for the biosynthesis of phosphatidylserine, a key component of neuronal cell membranes, as well as for the synthesis of purines, pyrimidines, and other amino acids including glycine and cysteine. It is naturally occurring in soybeans, dairy, eggs, fish, and other whole foods, and is widely used as a cell culture media component, dietary ingredient, and functional formulation raw material.

Benario L-Serine (BA-1014) is supplied as a premium food-grade raw material selected for purity, clean presentation, and dependable performance in professional formulation and manufacturing workflows. Manufactured and packed under quality-controlled conditions and supplied by AuSaMicS Pty Ltd under the Benario Premium Ingredients brand, with batch-specific Certificates of Analysis available on request.

KEY IDENTIFIERS

Catalogue Number	BA-1014
Chemical Name	L-Serine
CAS Number	56-45-1
EC Number	206-130-6
Synonyms	L-Ser-OH; 2-Amino-3-hydroxypropanoic acid; L-β-Hydroxyalanine
Molecular Formula	C ₃ H ₇ NO ₃
Molecular Weight	105.09 g/mol
Grade	Food Grade

TYPICAL SPECIFICATIONS

Parameter	Specification
Assay (dry basis)	≥ 99.0%
Appearance	White crystalline powder
Solubility	Freely soluble in water (~250 g/L at 20°C); insoluble in alcohol and ether
Specific Rotation [α] _{D20}	+14.4° to +16.0° (c = 10, 2N HCl)
Heavy Metals (as Pb)	≤ 15 ppm (typical food-grade limit)

Exact analytical values are provided in the batch-specific Certificate of Analysis (COA-BA-1014) issued on request or with delivery.

PHYSICAL & CHEMICAL PROPERTIES

Property	Value
Physical State	Solid, crystalline
Colour	White

Odour	Odourless
Taste	Slightly sweet
Melting Point	~222°C (decomposes)
Density	~1.6 g/cm ³
pKa	2.21 (carboxyl), 9.15 (amino)
Storage Temperature	15–25°C, dry, tightly closed

BIOLOGICAL ROLE

L-Serine is a non-essential amino acid synthesised endogenously from the glycolytic intermediate 3-phosphoglycerate, though dietary intake remains important for maintaining adequate levels, particularly in neural tissue. It serves as a precursor for phosphatidylserine (a key membrane phospholipid concentrated in neuronal membranes), glycine, cysteine, and the one-carbon pool used in nucleotide (purine and pyrimidine) biosynthesis. Its hydroxyl-bearing side chain also makes it a common site for post-translational modification (phosphorylation, glycosylation) in proteins.

APPLICATIONS

Application Area	Use
Nutritional Systems	Component of nutritional ingredient systems and dietary formulations
Food & Supplement Manufacturing	Amino acid ingredient in food and supplement production
Cell Culture & Biotechnology	Media component for cell culture and recombinant protein/antibody bio-manufacture
Product Development	Formulation development and specialised ingredient blends

Not intended for therapeutic, diagnostic, or injectable use unless separately qualified. Confirm fitness for final application before use.

STORAGE & PACKAGING

Storage Conditions	Store in a cool, dry place at 15–25°C. Keep container tightly closed.
Pack Sizes	100 g · 250 g · 500 g · 1 kg
Container	Sealed food-contact-suitable container with batch reference.

LITERATURE REFERENCES

- 1. Wikipedia contributors. Serine. Wikipedia, The Free Encyclopedia (physicochemical data cross-reference).
- 2. Food Chemicals Codex (FCC). US Pharmacopeia. Monograph: L-Serine.
- 3. National Center for Biotechnology Information. PubChem Compound Summary for CID 5951, L-Serine. PubChem, National Library of Medicine.

References are provided for general chemical and technical context. Verify current data against primary sources before use in regulatory or safety-critical documentation.

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