

L-Methionine

Food-grade essential sulfur amino acid for nutritional fortification and technical formulation use.

OVERVIEW

L-Methionine is a sulfur-containing essential amino acid required for protein synthesis and a range of metabolic functions, including its role as a precursor for S-adenosylmethionine (SAM), a key methyl-group donor in biological systems. Benario supplies L-Methionine (BA-1011) in a premium, high-purity food-grade format suitable for nutritional fortification and technical/food-science formulation.

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 for each lot.

KEY IDENTIFIERS

Catalogue Number	BA-1011
Chemical Name	L-Methionine
CAS Number	63-68-3
EC Number	200-432-1
IUPAC Name	(2S)-2-amino-4-(methylsulfanyl)butanoic acid
Molecular Formula	C ₅ H ₁₁ NO ₂ S
Molecular Weight	149.21 g/mol
Grade	Food Grade

TYPICAL SPECIFICATIONS

Parameter	Specification
Assay (dry basis)	≥ 99.0%
Appearance	White to off-white crystalline powder
Solubility	Sparingly soluble in water; very slightly soluble in ethanol; insoluble in ether
pH (1% aqueous solution)	5.6 – 6.1
Specific Rotation [α] _{D20}	+22° to +25° (c = 5, 6M HCl)
Loss on Drying	≤ 0.5%
Heavy Metals (as Pb)	≤ 15 ppm (typical food-grade limit)

Batch-specific results are provided on the product Certificate of Analysis (COA-BA-1011) issued with each shipment.

PHYSICAL & CHEMICAL PROPERTIES

Property	Value
Physical State	Solid, crystalline

Colour	White to off-white
Odour	Faint characteristic (sulfurous) odour
Melting Point	280–284°C (decomposes)
Density	1.340 g/cm³
pKa	2.28 (carboxyl), 9.21 (amino)
Storage Temperature	15–25°C, dry, sealed, protected from light

BIOLOGICAL ROLE

L-Methionine is one of nine essential amino acids in humans, meaning it cannot be synthesised endogenously and must be obtained from dietary or supplemented sources. It serves as the primary methyl-group donor in one-carbon metabolism via conversion to S-adenosylmethionine (SAM), supports protein synthesis, and acts as a precursor for cysteine and other sulfur-containing metabolites via the transsulfuration pathway.

APPLICATIONS

Application Area	Use
Nutritional Fortification	Amino acid fortificant in food, beverage, and nutraceutical formulations
Animal & Pet Nutrition	Essential amino acid supplementation in feed formulations
Food Science & R&D	Reference-grade amino acid for formulation development and analytical work
Technical Formulation	Component in specialty technical and industrial formulations requiring a defined amino acid input

Food grade material suitable for nutraceutical and food science use. Not intended for pharmaceutical, therapeutic, or injectable use unless separately qualified.

STORAGE & HANDLING

Storage Conditions	Store in a tightly closed container at 15–25°C, protected from moisture and direct sunlight.
Shelf Life	Refer to batch Certificate of Analysis for specific expiry; typically stable for an extended period under recommended storage conditions.
Handling	Standard laboratory/food-handling hygiene practices; avoid unnecessary generation of dust.

PACK SIZES

Pack Size	Recommended For
100 g	Small-batch formulation trials, R&D
500 g	Routine formulation and small-scale production
1 kg / 5 kg	Ongoing production runs
25 kg / Custom	Industrial and bulk supply — contact us for a quote

LITERATURE REFERENCES

- Wikipedia contributors. Methionine. Wikipedia, The Free Encyclopedia (physicochemical data cross-reference).
- Food Chemicals Codex (FCC). US Pharmacopeia. Monograph: L-Methionine.
- National Center for Biotechnology Information. PubChem Compound Summary for CID 6137, L-Methionine. 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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