LiposoMore

LiposoMore® – Advanced Liposomal Ingredients
Delivering Premium Nutrition Through Science & Innovation

A Liposomal Brand Exclusively Owned by
Joyful Nutritional Supply Co.,ltd.

Technical Data Sheet: LiposoMore® Liposomal L-Valine Powder

Product Introduction and Supplier Profile

LiposoMore® Liposomal L-Valine Powder is an advanced, microencapsulated branched-chain amino acid (BCAA) engineered for superior biological performance, enhanced formulation stability, and complete taste-masking.[1] Traditional free-form amino acids frequently present significant manufacturing and metabolic limitations, including poor water solubility, severe bitterness, mucosal irritation, and low intestinal absorption rates.[2] By applying cutting-edge biopharmaceutical-grade liposomal technology, the active L-Valine molecules are enveloped within a highly stable phospholipid bilayer structure.[1] This biomimetic matrix shields the active payload throughout digestion, delivering the amino acid directly to target tissues with optimal efficiency.[2]

The LiposoMore® brand represents the peak of liposomal research and development, manufactured by Joyful Nutritional Supply Co., Ltd., located at No. 2045 Songbai Road, Baoan District, Shenzhen, China.[1] Joyful Nutritional Supply Co., Ltd. is globally recognized for integrating state-of-the-art biotechnology, scientific innovation, and rigorous analytical quality control to produce premium-grade ingredients for the global dietary supplement, nutraceutical, and functional food markets.[1] LiposoMore® advanced ingredients are designed to meet the strict demands of product formulators seeking high-bioavailability, clean-label raw materials that command premium consumer trust.[4]

Chemical and Physical Identification

L-Valine is an essential branched-chain amino acid that cannot be synthesized endogenously by the human body and must be acquired through diet or targeted supplementation.[11] It acts as a critical substrate for protein synthesis, muscle tissue repair, cellular energy production, and cognitive performance.[11]

Identification Parameter	Chemical Specification Detail
Common Name	L-Valine [15]
IUPAC Name	(2S)-2-amino-3-methylbutanoic acid [16]
Chemical Formula	$C_5H_{11}NO$ [15]
Molecular Weight	$117.15\ g/mc$ [16]
CAS Registry Number	**72-18-4** [15]
Active Core Ingredient	High-Purity L-Valine (Food/Supplement Grade) [1]
Encapsulation Matrix	Premium Phospholipids (Phosphatidylcholine) [1]

The physical structure of LiposoMore® Liposomal L-Valine consists of spherical, single- or multi-layered lipid vesicles (liposomes) constructed from natural phospholipids.[5] These vesicles possess an amphiphilic architecture where the water-loving phosphate "heads" align outward toward the aqueous environment and the fat-loving lipid "tails" align inward, creating a secure protective pocket that stabilizes the hydrophilic L-Valine molecule.[5]

Product Advantages and Scientific Mechanisms

Biomimetic Cellular Absorption and High Bioavailability

Traditional crystalline amino acids rely on specific, saturable active transport systems in the brush border membrane of the small intestine.[2] When high doses of standard BCAAs are ingested, these carrier proteins quickly become saturated, leaving a substantial portion of the amino acids unabsorbed.[2] This unabsorbed payload is either degraded by intestinal microflora or eliminated, resulting in low systemic bioavailability.[2]

LiposoMore® utilizes a biomimetic "Trojan Horse" delivery mechanism to circumvent these physiological barriers.[2] Because the outer lipid bilayer of the liposome is structurally identical to human enterocyte cell membranes, the encapsulated L-Valine bypasses standard protein channels entirely.[2] Upon reaching the intestinal tract, the liposomes merge directly with the cell membranes of the mucosal lining or are absorbed intact into the lymphatic system via endocytosis.[2] This mechanism bypasses first-pass hepatic metabolism, allowing the active L-Valine to enter systemic circulation directly and deliver superior concentrations to skeletal

muscle and peripheral tissues.[2]

Gastric Protection and Superior Mucosal Tolerability

Standard high-dose amino acid powders can irritate the gastric mucosa, frequently causing gastrointestinal discomfort, acid reflux, cramping, and osmotic diarrhea in athletes and sensitive consumers.[2] The microencapsulation matrix of LiposoMore® Liposomal L-Valine prevents direct contact between the active amino acid crystals and the delicate stomach lining.[1] The lipid shell remains highly stable in the acidic environment of the stomach, protecting the stomach from localized osmotic stress and ensuring a gentle, irritation-free digestive transit.[2]

Complete Odor and Taste Masking

The naturally bitter, sharp, and lingering taste of branched-chain amino acids poses a major challenge for unflavored powders, chewables, and liquid formulations.[3] Conventional flavor-masking techniques require heavy additions of synthetic sweeteners, acids, and artificial flavorings.[3] LiposoMore® resolves this organoleptic challenge by fully sequestering the active L-Valine molecules inside the core of the phospholipid vesicles.[1] Because the active molecules are isolated from oral taste receptors during consumption, the ingredient is completely odorless and neutral in taste, allowing for clean-label, low-sugar product formulations.[1]

Extended, Sustained Release Profiles

Unlike standard L-Valine, which is rapidly absorbed and quickly cleared from the bloodstream, LiposoMore® exhibits a controlled-release "depot effect".[2] The multi-layered liposomal structure slowly releases L-Valine as the lipid membranes are gradually broken down by lipase enzymes in the digestive tract.[2] This sustained release kinetic profile maintains stable, elevated plasma amino acid levels over an extended duration, optimizing muscle protein synthesis, reducing post-exercise fatigue, and preventing the plasma "spike-and-crash" cycles associated with standard amino acid supplements.[2]

Product Specifications and Quality Standards

LiposoMore® Liposomal L-Valine Powder is manufactured under strict in-house quality standards that meet or exceed compendial requirements.[1] Each parameter is verified using validated testing methodologies.[1]

Specification Parameter	Specification Limit	Standard Test Method
Physical & Organoleptic		
Appearance	White to almost white	USP <631> Color and

	particles and powders	Achromicity [1]
Odor	Odorless	USP <601>Organoleptic [1]
Solubility	Dispersible in water	USP <631> Solubility [1]
Particle Size Distribution (PSD)	90% pass 80 mesh	USP <786> Particle Size Distribution [1]
Bulk Density	Report as is (Typical: 0.35g/ml)	USP <616> Bulk Density [1]
Chemical Analysis		
Purity (L-Valine Assay)	≥68%	USP <621> Chromatography (HPLC)
Loss on Drying	$\leq 2.0\%$	USP <731> Loss on Drying
Heavy Metals		
Total Heavy Metals	＜10ppm	USP <233> Elemental Impurities
Lead (Pb)	＜3ppm	USP <233> Elemental Impurities [1]
Mercury (Hg)	＜0.1ppm	USP <233> Elemental Impurities [1]
Cadmium (Cd)	＜1.0ppm	USP <233> Elemental Impurities [1]
Arsenic (As)	＜1.0ppm	USP <233>Elemental Impurities [1]
Microbiological Limits		
Total Plate Count	≤1000cfu/g	USP <61> Microbiological Examination [1]

Molds & Yeasts	≤100cfu/g	USP <61>Microbiological Examination [1]
Escherichia coli	Negative/gram	USP <62> Microbiological Examination [1]
Salmonella	Negative in $25\ \mathrm{gram}$	USP <62> Microbiological Examination [1]
Staphylococcus aureus	Negative in $25\ \mathrm{gram}$	USP <62> Microbiological Examination [1]

Regulatory Compliance and Statements

To support the international registration and distribution of finished product formulations, LiposoMore® Liposomal L-Valine Powder complies with stringent global food safety and dietary supplement standards.[1]

- **Non-GMO Status:** The product is manufactured under strict Identity Preservation (IP) systems.[26] The phospholipid carriers are derived from non-genetically modified botanical sources (such as non-GMO sunflower or identity-preserved soy).[10] It contains no genetically modified organisms and does not require GMO labeling under EC Regulation 1830/2003.[10]
- **Gluten-Free Status:** The manufacturing process and all raw material inputs are completely free from wheat, rye, barley, spelt, and oats.[26] The final product complies with the strict threshold of $< 20\ \mathrm{ppm}$ gluten, making it suitable for celiac and gluten-sensitive consumers.[10]
- **Allergen Statement:** The product is formulated without major food allergens, including milk, dairy products, eggs, peanuts, tree nuts, fish, shellfish, and sesame.[10]
- **BSE/TSE Status:** This ingredient is of 100% plant and synthetic origin.[10] No animal-derived raw materials, enzymes, or processing aids are utilized at any stage of production, rendering the product free from any risk of Bovine Spongiform Encephalopathy (BSE) or Transmissible Spongiform Encephalopathy (TSE).[26]
- **Vegan/Vegetarian Suitability:** The manufacturing path, raw material sourcing, and finished product comply with strict vegan and vegetarian requirements, containing no animal components or animal-derived by-products.[10]
- **Non-Irradiated Status:** The raw materials and finished product do not undergo any form of ionizing radiation or ethylene oxide treatment, fully preserving the natural integrity of the phospholipid membranes and complying with EC Directive 1999/2.[10]
- **WADA Compliance:** LiposoMore® Liposomal L-Valine Powder contains zero substances banned by the World Anti-Doping Agency (WADA).[11] It is processed in a facility that does

not handle any prohibited or performance-enhancing compounds, guaranteeing high purity and safety for professional athletes.[8]

Handling, Storage, and Packaging Guidelines

Standard Packaging

LiposoMore® Liposomal L-Valine Powder is supplied in standard commercial packaging designed for maximum product integrity.[8] The product is packed in $25\ \mathrm{kg}$ net weight high-durability fiberboard drums lined with a food-grade, double-layered polyethylene (PE) inner bag.[31] This multi-layer barrier system is engineered to protect the dry liposomal structure from environmental moisture, oxygen, and ultraviolet light, preventing premature lipid oxidation and degradation of the active ingredient.[8]

Optimal Storage Conditions

To preserve the physical and chemical stability of the liposomal matrix, the product must be stored under controlled conditions [35]:

- **Temperature:** Store in a cool, dry place, with temperatures maintained consistently below $25^{\circ}\mathrm{C}$ (ideally between $15^{\circ}\mathrm{C}$ and $25^{\circ}\mathrm{C}$).[1]
- **Humidity:** Maintain storage in a well-ventilated area with relative humidity (RH) kept below 60%.[1]
- **Moisture Protection:** Keep the container tightly sealed immediately after opening to prevent moisture absorption and subsequent particle clumping.[31]
- **Refrigeration Warning:** Avoid standard cold-room refrigeration or freezing.[34] When a cold container is brought to room temperature, atmospheric moisture condenses on the surface of the powder.[34] This moisture introduces localized water activity that can compromise the lipid bilayer cohesion, causing active ingredient leakage, premature clumping, and loss of functional liposomal structure.[34]

Retest Period and Shelf Life

When stored unopened in its original commercial packaging under the recommended environmental conditions, LiposoMore® Liposomal L-Valine Powder has a guaranteed shelf life of $24\ \mathrm{months}$ (2 years) from the date of manufacture.[1] For inventory held beyond $24\ \mathrm{months}$, a full quality retest of assay, moisture, and microbiological limits is recommended before production use.[1]

Dosage and Formulation Compatibility

The microencapsulated, free-flowing powder format of LiposoMore® Liposomal L-Valine is

designed for high versatility across multiple dosage applications.[4] It exhibits excellent blending uniformity and is compatible with standard food-supplement manufacturing practices.[8]

Dosage Recommendations

- **General Nutritional Support:** $500\ \text{mg}$ to $1,500\ \text{mg}$ daily.[11]
- **Athletic Performance & Muscle Recovery:** $1,500\ \text{mg}$ to $3,000\ \text{mg}$ daily, ideally formulated alongside Liposomal L-Leucine and Liposomal L-Isoleucine to recreate the optimized $2:1:1$ BCAA ratio.[11]

Formulation Compatibility

- **Hard Gelatin/Vegetarian Capsules:** The low moisture content ($\leq 2.0\%$) and high bulk density of the powder make it suitable for direct-fill encapsulation without the need for aggressive binders or high-temperature processing.[1]
- **Direct Compression Tablets:** The granular structure provides excellent compressibility and binding properties under standard tableting pressures.[31]
- **Dry Powder Blends & Sachets:** Because the product is completely dispersible in water and neutral in taste, it can be seamlessly incorporated into unflavored or lightly sweetened powder drink mixes, pre-workouts, and post-workout recovery formulas.[1]
- **Functional Foods & RTD Beverages:** The liposomal particles disperse uniformly in liquids without phase separation or sedimentation, providing clean-label integration into nutritional bars, RTD beverages, and clinical nutrition formulas.[1]

Supplier Quality and Technical Support

Joyful Nutritional Supply Co., Ltd. provides comprehensive technical documentation, including Material Safety Data Sheets (MSDS), allergen statements, and batch-specific Certificates of Analysis (COA) to support regulatory submissions.[1] The company's dedicated technical team is available to assist customers with formulation optimization, stability testing, and process scale-up.[1] For further inquiry, samples, or bulk orders, please contact:

- **Manufacturer:** Joyful Nutritional Supply Co., Ltd. [1]
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