

L-Threonine USP30 Product Specification (SPEC)

File Number: [QJS26070201]

Effective Date: [July 2, 2026]

Manufacturer: Jiangsu Quanjiashun Health Technology Co., Ltd.

I. Basic Product Information

project	Parameter Information
product name	L-threonine
English name	L-Threonine
operative norm	USP30 (United States Pharmacopeia, 30th Edition)
CAS number	72-19-5
molecular formula	$C_4 H_9 NO_3$
formula weight	119.12
Physical Characteristics	White crystals or crystalline powder, odorless, slightly sweet in taste; readily soluble in water, insoluble in organic solvents such as ethanol, ether, and trichloromethane.

II. Core Quality Indicators (USP30 Requirements)

surveillance project	Standard Limit Value	Detection method (based on USP 30)
Content (on a dry basis)	98.5% ~ 101.5%	potentiometric titration
Specific optical rotation [α] $_{20}^{25}$ (dry basis, 10% aqueous solution)	-26.0° ~ -29.0°	Optical rotation spectrophotometry
Drying loss	≤0.5%	105°C, 3 hours by constant weight method
Ignited residue	≤0.10%	Burn-to-constant-weight method at 600–700°C
Chloride (Cl)	≤0.02%	silver nitrate turbidimetry method
Sulfate (SO ₄ ²⁻)	≤0.02%	Barium chloride turbidimetric method
Heavy metals (expressed as Pb)	≤10ppm	Sodium sulfide colorimetric method
Arsenic salt (As)	≤3ppm	Silver diethyl disulfthiocarbamate method
Iron salts (Fe)	≤10ppm	Thiocyanate colorimetric method
Other amino acids	Not detectable	Thin-layer chromatography (TLC)
pH value (10% aqueous solution)	5.0 ~ 6.5	Potentiometric determination

III. Physical and Chemical Property Parameters

Solubility: Easily soluble in pure water at room temperature, almost insoluble in organic solvents such as ethanol, ether, and trichloromethane; the aqueous solution exhibits stable properties.

Melting point: approximately 256°C (accompanied by thermal decomposition)

Stability: The product remains stable under dry, light-resistant, and sealed storage conditions; however, its color may gradually deepen in high-temperature or high-humidity environments.

Conformational purity: Pure L-type chiral structure, free from D-threonine impurities, meeting pharmacopoeial requirements for chiral purity.

IV. Microbial Indicators

surveillance project	Standard Limit Value
total numbers of colony	≤ 1000 CFU/g
Molds, yeasts	≤ 100 CFU/g
colibacillus	Negative/25 g
salmonella	Negative/25 g

V. Packaging Specifications

Standard packaging: 25 kg per cardboard barrel, containing a double-layer food-grade PE sealed bag inside for moisture-proof and contamination-resistant storage.

Custom packaging: Available in small-sized aluminum foil bags (1 kg, 5 kg, 10 kg) and food-grade plastic containers for portioning.

Packaging Label: Clearly display complete information including product name, CAS number, applicable standard, batch number, production date, shelf life, net weight, and manufacturer.

VI. Storage and Transportation Conditions

Storage conditions: Store sealed in a cool, dry, and well-ventilated warehouse with ambient temperature $\leq 25^{\circ}\text{C}$ and relative humidity $< 65\%$. Strictly protect from light, moisture, and exposure to air. Do not store together with strong oxidizers, toxic/hazardous substances, or materials with strong odors.

Transportation Requirements: For the transportation of ordinary food ingredients, measures must be taken to protect them from rain, moisture, sunlight, and compression during transit. Mixing with corrosive, toxic, or odorous goods is strictly prohibited.

Shelf life: 24 months when unopened and stored under compliant conditions.

VII. Product Uses

This product is L-threonine of food and pharmaceutical grade, conforming to USP 30 standards. As an essential amino acid for humans, it is primarily used as a nutritional fortifier in foods, an additive in infant formula foods, a raw material for sports nutrition products, and an excipient in health supplements. It can also be employed as a nutritional additive in premium animal feed, an intravenous solution for pharmaceutical amino acids, and an intermediate for drug formulations, fully complying with the food and pharmaceutical safety specifications of US Pharmacopeia 30th Edition.

VIII. Compliance Statement

All quality parameters of this product strictly comply with the USP 30 (United States Pharmacopeia, 30th Edition) standards and meet food-grade safety requirements. We provide factory certification, COA quality inspection reports, third-party testing reports, and a complete set of production qualification documents.