纳维盈医化科技
NEWAY SINOPHC TECH

NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com； Phone:+86-021-50350029 https://www.newayphc.com

Technical Data Sheet (TDS)

Issue Date: 26 FEB 2026Version: V1.0

1. Product Overview

- **Product Name**: L-Cysteine HCl (Anhydrous / Monohydrate)
- **Chemical Name**: L-2-Amino-3-mercaptopropionic acid hydrochloride
- **CAS Number**: 52-89-1 (Anhydrous); 7048-04-6 (Monohydrate)
- **Molecular Formula**: $C_3H_7NO_2S \cdot HCl$ (Anhydrous); $C_3H_7NO_2S \cdot HCl \cdot H_2O$ (Monohydrate)
- **Molecular Weight**: 157.62 g/mol (Anhydrous); 175.64 g/mol (Monohydrate)
- **Product Trait**: White to off-white crystalline powder with slight sulfurous odor; low skin/eye irritation; non-flammable, stable under normal storage conditions; freely soluble in water, soluble in low alcohols; natural L-type amino acid with biological activity, antioxidant and nutritional properties. **FOR FOOD, PHARMACEUTICAL, COSMETIC, FEED AND INDUSTRIAL USE**.
- **Core Properties**: High purity (≥98.5%, ≥99.0% for food/pharm grade); low heavy metal and microbial content; excellent water solubility and biological activity; strong antioxidant property; 24-month long shelf life (sealed, dry); complies with global food/pharm/cosmetic/feed standards (China GB, EU FDA, US FDA).
- **Main Application**: Food additive (nutritional fortifier, antioxidant, flavor enhancer); pharmaceutical intermediate (antibiotic, amino acid injection synthesis); cosmetic raw material (moisturizer, antioxidant, skin barrier repair); feed additive (animal nutrition fortifier, growth promoter); organic synthesis raw material (thiol compound, peptide synthesis); metal chelating agent (heavy metal removal in food/industrial systems).

2. Technical Specifications (Food/Pharm/Cosmetic/Feed/Industrial Grade)

Item	Specification (Industrial Grade)	Specification (Food/Pharm/Cosmetic/Feed Grade)
Appearance	White to off-white crystalline powder, no caking	White crystalline powder, no caking
Assay (L-Cysteine HCl)	≥98.5%	≥99.0%
Melting Point (decomp.)	215-225℃ (Anhyd); 170-180℃ (Mono)	218-222℃ (Anhyd); 173-178℃ (Mono)
pH Value (5% aq. solution, 25℃)	1.5-2.5	1.8-2.2
Loss on Drying	≤0.5% (Anhyd); 5.0-7.0% (Mono)	≤0.3% (Anhyd); 5.5-6.5% (Mono)
Residue on Ignition	≤0.1%	≤0.05%
Heavy Metals (Pb)	≤5 ppm	≤1 ppm
Heavy Metals (As)	≤1 ppm	≤0.5 ppm
Iron (Fe)	≤10 ppm	≤5 ppm
Total Bacterial Count	≤100 CFU/g	≤10 CFU/g (Pharm); ≤50 CFU/g (Food/Cos/Feed)
E. coli	Negative	Negative
Salmonella	N/A	Negative
Solubility	Freely soluble in water	Freely soluble in water
Hygroscopy	Slightly hygroscopic (Anhyd); Non-hygroscopic (Mono)	Slightly hygroscopic (Anhyd); Non-hygroscopic (Mono)

3. Product Advantages

1. **High Purity & Consistent Quality**: Assay ≥98.5% (≥99.0% for food/pharm grade) with ultra-low heavy metal, microbial and impurity content; batch-to-batch consistency (CV ≤0.2%) ensures stable performance in all applications; meets strict global food/pharm/cosmetic/feed quality standards.

2. **Natural Bioactivity & Safety**: L-type amino acid (consistent with human/animal body amino acid structure) with high biological utilization rate; FDA GRAS certified for food use; non-toxic via oral/dermal route, low irritation; no carcinogenic/mutagenic effects, safe for long-term use.
3. **Excellent Solubility & Compatibility**: Freely soluble in water, soluble in methanol/ethanol; stable in food/cosmetic/feed/pharm formulations with pH 2.0-7.0; compatible with most non-oxidizing raw materials (sugars, vitamins, humectants, excipients); no significant interaction with common additives.

4. Application Fields & Dosage Guide

4.1 Main Application Fields

- **Food Industry**: Nutritional fortifier for dairy products, bakery, beverages, infant food and health food; antioxidant for meat, seafood and canned food (prevents discoloration and spoilage); flavor enhancer for savory food (improves umami taste).

4.2 Recommended Dosage (w/w in formulation/solution)

Application Field	Dosage (Anhydrous/Monohydrate)	Remarks
Food - Nutritional Fortification	0.01-0.5%	Dairy/bakery/beverages, adjust by nutritional requirements
Food - Antioxidant	0.005-0.1%	Meat/seafood/canned food, mix with non-oxidizing additives
Pharmaceutical - Intermediate Synthesis	10.0-99.0%	Depending on reaction type, inert gas protection optional
Pharmaceutical - Injections/Infusions	5.0-20.0%	Aqueous formulation, sterile processing required
Cosmetic - Skin Care (Moisturizer/Anti-aging)	0.1-2.0%	Aqueous phase, pH adjust to 4.0-7.0
Cosmetic - Hair Care (Repair)	0.05-1.0%	Shampoos/conditioners, mix with surfactants
Feed - Poultry/Livestock/Aquatic	0.01-0.2%	Dilute with feed carrier, avoid strong oxidants
Industrial - Heavy Metal Chelation	5.0-15.0%	Wastewater treatment, adjust pH to 3.0-6.0

5. Usage & Formulation Guidelines

- **Food Formulation (Antioxidant for Meat)**: Dissolve the powder in water (1:10) to form a stock solution; spray the solution evenly on meat surface (0.005-0.1% dosage); no high-temperature processing (>100℃) after addition (prevents decomposition).
- **Cosmetic Formulation (Moisturizing Serum)**: Dissolve the powder in deionized water (25-40℃) under stirring (300 rpm) to the required concentration (0.1-2.0%); adjust the formulation pH to 4.0-7.0 with citric acid/NaOH; add humectants (glycerol/hyaluronic acid) and stir evenly; **avoid**

6. Packaging & Storage

- **100g/500g/1kg Amber glass bottle**: Pharm/Food/Cosmetic lab/R&D/small-batch use, sealed with desiccant + sterile cap (for pharm/food)
- **5kg/10kg HDPE plastic drum**: Cosmetic/Feed medium-batch use, inner aluminum foil bag + desiccant + double anti-leakage cap
- **25kg HDPE plastic drum**: Industrial/Food/Feed bulk use, inner aluminum foil bag + desiccant + metal frame

7. Safety & Protection

- The product is **low irritation** (GHS Warning); all operations shall be conducted by trained personnel with basic PPE (chemical-resistant goggles, nitrile gloves, dust-proof mask for bulk handling).
- Operate in a well-ventilated area with dust collection system; keep emergency eye wash station within 10 meters of the operation area; use wet cleaning methods to prevent dust dispersion.