

Technical Data Sheet (TDS)

Issue Date: 18 FEB 2026 Version: V1.0

1. Product Overview

- **Product Name:** Cysteamine Thioglycolate (50%)
- **English Name:** 50% Cysteamine Thioglycolate Aqueous Solution
- **CAS Number:** 68-11-1
- **Molecular Formula:** C₄H₁₀ N₂O₂S₂
- **Molecular Weight:** 186.26 g/mol
- **Product Trait:** Colorless to pale yellow homogeneous transparent liquid with slight sulfurous odor; 50% active ingredient aqueous solution, non-flammable, stable under recommended storage conditions; mild irritation to skin/eyes, no toxic effects on human body at normal use concentrations; excellent water solubility, compatible with most cosmetic aqueous formulation systems; acts as a disulfide bond regulator in hair care cosmetics, with good metal chelating ability in industrial applications.
- **Core Properties:** High active ingredient content (48.0-52.0%), stable pH (6.0-8.0), low free thioglycolic acid content (≤1.0%); excellent water solubility and formulation compatibility; strong disulfide bond regulating ability (hair care) and metal chelating ability (industrial); meets international cosmetic and industrial grade quality standards; low heavy metal content and microbial limit.
- **Main Application:** Cosmetic raw material (professional hair straightening/perming agents, hair softening serums); industrial raw material (metal surface anti-rust treatment, electroplating auxiliary, organic synthesis intermediate); textile auxiliaries (natural fiber softening and modification); water treatment agent (heavy metal ion chelation in low-concentration wastewater).

2. Technical Specifications (Cosmetic/Industrial Grade, Complies with China/EU/US Standards)

Item	Specification
Appearance	Colorless to pale yellow homogeneous transparent liquid, no precipitation
Assay (Cysteamine Thioglycolate)	48.0-52.0%
Free Thioglycolic Acid	≤ 1.0%
pH Value (25°C)	6.0-8.0
Viscosity (25°C)	20-50 mPa·s
Density (25°C)	1.10-1.20 g/cm ³
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Heavy Metals (Hg)	≤ 0.1 ppm
Total Bacterial Count	≤ 100 CFU/mL
E. coli/Staphylococcus aureus	Negative
Storage Stability (25°C, 6 months)	Assay retention ≥ 98.0%
Decomposition Temperature	≥ 80°C
Solubility	Fully miscible with water; soluble in ethanol/methanol

3. Product Advantages

1. **Stable Active Content:** 50% high-concentration aqueous solution, narrow content range (48.0-52.0%), batch-to-batch consistency; low free thioglycolic acid content (≤1.0%), reduces irritation and improves formulation stability.
2. **Excellent Formulation Compatibility:** Fully miscible with water, soluble in common cosmetic solvents (ethanol/propylene glycol); compatible with most cosmetic raw materials (humectants,

thickeners, emulsifiers) except strong oxidizing agents; no precipitation or stratification in normal formulation concentration (1-10%).

3. **Multi-Functional Performance:** Dual effects of disulfide bond regulation (hair care) and metal chelation (industrial/textile); in hair care, it softens hair by breaking and rearranging keratin disulfide bonds; in industry, it chelates heavy metal ions and forms a protective film on metal surfaces.

4. Application Fields & Dosage Guide

4.1 Main Application Fields

- **Cosmetic Industry (Hair Care):** Professional hair straightening/perming lotions, hair softening serums, damaged hair repair products; suitable for salons and personal hair care products.
- **Industrial Field:** Metal surface anti-rust treatment, electroplating brightening auxiliary, organic synthesis intermediate for sulfur-containing compounds, heavy metal chelation in low-concentration wastewater.
- **Textile Industry:** Natural fiber (cotton/silk/wool) softening and modification, textile dyeing auxiliary (chelates heavy metal ions in dye bath).

4.2 Recommended Dosage (By Application Field)

Application Field	Dosage (w/w in formulation/solution)
Hair Straightening/Perming Lotions	5.0-10.0%
Hair Softening Serums	1.0-3.0%
Metal Surface Anti-Rust Treatment	3.0-8.0% (aqueous solution)
Electroplating Auxiliary	2.0-5.0% (plating bath)
Textile Fiber Softening	1.0-4.0% (finishing solution)
Wastewater Heavy Metal Chelation	50-200 ppm (diluted solution)

5. Usage & Formulation Guidelines

5.1 Basic Formulation Tips

- **Cosmetic Formulation (Hair Care):** Add the product to the aqueous phase of the formulation under low-speed stirring (100-200 rpm) at 25-35°C; adjust the formulation pH to 6.0-8.0 with mild acid/base (citric acid/triethanolamine); avoid adding strong oxidizing agents (e.g., hydrogen peroxide) and heavy metal-containing raw materials (e.g., iron oxide pigments).
- **Industrial Formulation:** Dilute the product with deionized water to the required concentration under stirring; add to the treatment solution/bath at room temperature; for metal treatment, the optimal pH is 7.0-8.0; for electroplating, avoid mixing with strong acid plating baths.
- **Textile Formulation:** Dilute to the required concentration, add to the fiber finishing solution at 40-50°C; stir evenly and immerse the fiber for 20-30 minutes; rinse with clean water after treatment.

6. Packaging & Storage

6.1 Packaging Specifications (Cosmetic/Industrial Grade, Anti-Leakage & Sealed)

- 500 mL HDPE plastic bottle (personal/cosmetic small-batch use, inner seal + screw cap)
- 5 L HDPE plastic bucket (salon/cosmetic regular use, anti-leakage cap + handle)
- 25 kg HDPE plastic drum (industrial/textile use, inner plastic lining + anti-leakage cap)
- 200 kg HDPE plastic drum (bulk industrial use, double anti-leakage cap + palletized)
- 1000 L IBC tote (large-scale industrial use, HDPE inner tank + anti-leakage valve)
- **Custom Packaging:** 1 L/2 L cosmetic-grade HDPE bottles; 50 kg stainless steel drums (high-purity industrial use) available upon request (all anti-leakage & sealed).

7. Safety & Protection

- The product is a Class 9 miscellaneous hazardous substance, causing mild skin/eye irritation, respiratory irritation and potential skin sensitization; **all operations must be conducted by trained professional personnel** with full specified PPE (vapor respirator, chemical-resistant safety goggles, nitrile rubber gloves $\geq 0.30\text{mm}$, chemical-resistant lab coat/apron).
- Operate in a well-ventilated area with local exhaust ventilation; avoid generating mist during handling and stirring; do not touch eyes/mouth after handling and wash hands thoroughly with soap and water; avoid inhalation of high-concentration mist.