Safety Data Sheet (MSDS)

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)

Cysteamine Free 30% (Cysteamine Base 30% Aqueous Solution)

Revision Date: 20 FEB 2026

SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifiers

- Product Name: Cysteamine Free 30% (Cysteamine Base 30% Aqueous Solution)
- Product Number: CF-20260220
- Brand: SIGALD
- CAS-No.: 60-23-1 (Cysteamine Base)
- Synonyms: 2-Mercaptoethylamine 30% Solution; Cysteamine Free Base Aqueous Solution; 2-Aminoethanethiol 30% Solution
- EINECS/EC-No.: 200-464-7

1.2 Details of the supplier of the safety data sheet

- Company: NEWAY SINOPHC TECH. LIMITED
- Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
- Telephone: +86-021-50350029
- Fax: +86-021-50350029

1.3 Emergency telephone

- Emergency Phone #: +86-021-50350029 (CHEMTREC)

1.4 Relevant Identified Uses and Uses Advised Against

- Identified Uses: Cosmetic raw material (skin whitening, anti-aging); feed additive (animal nutrition); pharmaceutical intermediate; organic synthesis raw material; metal chelating agent.
- Uses Advised Against: Not for direct oral human consumption; avoid contact with broken skin; no use as food additive; avoid mixing with strong oxidizing agents in unventilated areas.

SECTION 2: Hazards Identification

|Summary of Emergency Measures|Colorless clear liquid with slight mercaptan odor. Causes **serious eye damage** and skin irritation; may cause respiratory irritation if inhaled in high concentration; may cause gastrointestinal burns if swallowed. After inhalation: Move to fresh air, seek medical advice if coughing/shortness of breath occurs. In case of skin contact: Rinse with plenty of water for 15 minutes, remove contaminated clothing. After eye contact: Rinse with plenty of water for 20 minutes, call a doctor immediately. After swallowing: Do not induce vomiting, rinse mouth with water, seek medical attention at once. Non-flammable, no explosion risk under normal conditions.| |---|

2.1 GHS Classification

- Serious eye damage (Category 1)
- Skin irritation (Category 2)
- Specific target organ toxicity - single exposure (respiratory tract) (Category 3)

2.2 GHS Label Elements

- Hazard Pictogram: (Exclamation mark), (Eye damage)
- Signal Word: **Danger**
- Hazard Statements:
  - H318: Causes serious eye damage
  - H315: Causes skin irritation
  - H335: May cause respiratory irritation
- Precautionary Statements:
  - P261: Avoid breathing fumes/mist/vapors/spray
  - P264: Wash skin thoroughly after handling
  - P270: Do not eat, drink or smoke when using this product
  - P280: Wear protective gloves/eye protection/face protection
  - P302+P352: If on skin: Wash with plenty of water and soap
  - P305+P351+P338+P310: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician
  - P304+P340: If inhaled: Remove person to fresh air and keep comfortable for breathing
  - P312: Call a POISON CENTER or doctor/physician if you feel unwell
  - P362+P364: Take off contaminated clothing and wash it before reuse

- P501: Dispose of contents/container to an approved waste disposal plant

2.3 Physical and Chemical HazardsNon-flammable liquid; no explosive or oxidizing properties under normal conditions; decomposes at high temperature (>150℃) to produce toxic hydrogen sulfide and ammonia gas; reacts violently with strong oxidizing agents to produce toxic sulfur oxides; stable under recommended storage conditions (sealed, cool). Alkaline aqueous solution, corrosive to some metals (e.g., aluminum).

2.4 Health Hazards

- Acute: Direct eye contact causes severe corneal burns, redness, blurred vision and even temporary vision loss; skin contact causes redness, itching and mild chemical burns; high-concentration vapor inhalation causes cough, throat irritation and chest tightness; swallowing causes severe gastrointestinal irritation, nausea, vomiting and mucosal burns.
- Chronic: Prolonged repeated skin contact may cause chronic dermatitis; long-term inhalation of low-concentration vapor may cause mild persistent respiratory tract irritation; no known carcinogenic, mutagenic or reproductive toxic effects in occupational exposure limits.

2.5 Environmental HazardsAcute toxicity to aquatic organisms (Zebrafish 96h LC_{50} = 200 mg/L); fully biodegradable in natural environment (BOD_5 /COD = 0.65); low bioaccumulation potential; avoid direct discharge into water bodies; large-scale leakage may cause temporary water body alkalization and toxicity.

2.6 Other HazardsReacts with strong oxidizing agents (e.g., hydrogen peroxide, chlorine) to produce toxic and flammable hydrogen sulfide gas; contact with strong acids releases cysteamine with pungent mercaptan odor; alkaline solution may corrode aluminum, zinc and their alloys.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Mixture (Technical grade aqueous solution)** | 3.1 Main Component | Cysteamine Base (2-Mercaptoethylamine) | | --- | --- | | Formula | C_2H_7 NS | | Molecular Weight | 77.15 g/mol | | CAS-No.: | 60-23-1 | | EC-No.: | 200-464-7 |

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Component	Classification	Concentration (w/w)
Cysteamine Base	Eye Dam.1; Skin Irrit.2; STOT SE 3	30.0±1.0%
Deionized Water	Non-hazardous	69.0-71.0%

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- If Inhaled: Immediately move the victim to fresh, well-ventilated air. Loosen tight clothing to ensure unobstructed breathing. Provide oxygen if breathing is difficult. Do not give artificial respiration if large amounts of vapor are inhaled; call a doctor or emergency services immediately if cough, chest tightness or shortness of breath persists.
- In Case of Skin Contact: Immediately remove all contaminated clothing, gloves and footwear. Rinse the affected skin with plenty of running water and mild neutral soap for at least 15 minutes, ensuring all crevices are rinsed thoroughly. Pat dry gently; do not apply any ointment or cream without medical advice. Seek medical attention if redness, blistering or pain occurs.
- In Case of Eye Contact: **Immediate and thorough flushing is critical**. Hold the eyelids open and rinse the eyes continuously with clean, running water for at least 20 minutes, ensuring water flushes the entire eye surface (including under the eyelid and conjunctival sac). Do not rub the eyes or use eye drops. **Remove contact lenses only if it can be done easily without additional damage**. Call an ophthalmologist or emergency services immediately, even if no symptoms are present.
- If Swallowed: Do not induce vomiting (risk of corrosive damage to the esophagus and respiratory tract). Rinse the mouth with plenty of clean water (do not swallow). If the victim is conscious and alert, drink a small amount of water to dilute the substance. **Call a POISON CENTER or doctor immediately**; do not give anything by mouth to an unconscious person.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

- Acute: Severe eye burns, skin redness/irritation, respiratory tract cough/chest tightness, gastrointestinal nausea/vomiting/burns; high-concentration exposure may cause temporary vision loss and difficulty breathing.
- Delayed: Skin peeling (1-2 days after contact), persistent eye redness (up to 72 hours); no long-term permanent organ damage with prompt and proper treatment.

4.3 Indication of Any Immediate Medical Attention and Special Treatment NeededAll eye contact cases require **immediate professional medical attention**; severe skin blistering, large-dose swallowing and high-concentration inhalation require urgent hospital treatment; no specific antidote, treat symptomatically (e.g., eye irrigation, anti-irritation medication, gastrointestinal protective treatment).

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- Suitable: Water spray (cooling and vapor suppression), carbon dioxide (CO_2), dry chemical powder, foam.
- Unsuitable: No limitations of extinguishing agents; avoid direct high-pressure water jet to prevent splashing of the alkaline liquid.

5.2 Special Hazards Arising from the Substance or MixtureNon-combustible liquid; high temperature (>150℃) or fire causes thermal decomposition to produce toxic hydrogen sulfide (rotten egg odor) and ammonia gas; reacts with fire-extinguishing agents containing strong oxidants to produce toxic sulfur oxides; no explosion risk under normal fire conditions; toxic and alkaline fumes may accumulate in low-lying areas; alkaline liquid may corrode metal fire-fighting equipment (aluminum/zinc).

5.3 Advice for FirefightersWear self-contained breathing apparatus (SCBA) and full chemical fire-fighting protective gear (chemical-resistant suit, nitrile gloves, goggles/face shield) to avoid contact with toxic decomposition gases and alkaline liquid splashes. Use stainless steel or plastic fire-fighting equipment (avoid aluminum/zinc). Keep containers cool with water spray during fire to prevent thermal decomposition and rupture. Evacuate to upwind and high -lying areas; avoid inhaling toxic/alkaline fumes. Prevent fire-extinguishing water from entering municipal sewers or natural water bodies to avoid environmental pollution and water body alkalization.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency ProceduresWear full personal protective equipment (chemical-resistant goggles + full face shield, nitrile rubber gloves (thickness ≥0.40 mm), chemical-resistant apron, half-face air-purifying respirator with organic vapor and ammonia cartridges) for all spill cleanup. Ensure good ventilation at the spill site; evacuate non-essential personnel and set up a warning zone. Avoid inhaling vapor/mist and direct skin/eye contact; do not walk through the spilled liquid; do not use aluminum/zinc tools for cleanup.

6.2 Environmental PrecautionsPrevent the spilled alkaline liquid from entering sewers, rivers, lakes, soil or storm drains. Use sandbags or earth dikes to contain the liquid for small to medium spills; use oil booms for large spills in water bodies. Neutralize the spilled liquid with dilute food-grade acid (1-5% acetic acid/citric acid) before cleanup to reduce alkalinity; do not flush the spilled liquid into drains with water directly.

6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Neutralize with dilute acid (1% acetic acid), then absorb the liquid with inert absorbent materials (sand, diatomaceous earth); collect the contaminated absorbent into a sealed HDPE container with hazard labels; wipe the spill area with a damp cloth and dispose of the cloth in the same container.
- Large Spill: Contain the liquid with sandbags/earth dikes; neutralize with dilute acid (5% citric acid) under stirring; transfer the neutralized liquid to a sealed HDPE drum with a chemical-resistant pump; absorb the residual liquid with inert absorbents and collect as hazardous waste; rinse the spill area with clean water and check pH to ensure neutrality (6.0-8.0).6.4 Reference to Other SectionsFor waste disposal, see Section 13; for personal protection, see Section 8.

SECTION 7: Handling and Storage

7.1 Precautions for Safe HandlingOperate in a well-ventilated area with local exhaust ventilation (to remove vapor/mist); wear specified PPE for all operations. Avoid generating mist/spray (low-speed stirring, no violent shaking); use chemical-resistant equipment (HDPE, glass, stainless steel) for handling and mixing (**avoid aluminum, zinc and their alloys**). Do not mix with strong oxidizing agents, strong acids or metal salts (e.g., copper sulfate); avoid contact with air for prolonged period (may cause slight oxidation). Do not eat, drink or smoke in the work area; wash hands, face and exposed skin thoroughly with soap and water after handling; do not touch eyes or mouth before washing.

7.2 Conditions for Safe Storage

- Storage Conditions: Store in a **cool, dry, well-ventilated** warehouse. Temperature ≤25℃, relative humidity ≤60%. Keep the container tightly sealed with a screw cap to prevent vapor volatilization and oxidation by air; store in original HDPE or amber glass containers (amber glass for light protection). Store away from direct sunlight, heat sources and open flames.
- Incompatibilities: Strong oxidizing agents (H_2O_2, $KMnO_4$, chlorine), mineral acids (HCl, H_2SO_4), heavy metal salts ($CuSO_4$, $FeCl_3$), oxidizing cosmetic/feed raw materials, aluminum/zinc and their alloys.
- Storage Class (TRGS 510): 6.1 (Toxic Substances)
- Shelf Life: **18 months (unopened, under specified storage conditions)**
- Segregation: Store separately from all incompatible materials in a dedicated locked hazardous substance storage area with anti-leakage trays; keep a minimum distance of 1.5 meters from oxidizing and acidic substances; mark clear hazard labels (eye damage, skin irritation, alkaline) on the storage area and containers.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- Occupational Exposure Limit (OEL) for Cysteamine: TWA 2 ppm (6.2 mg/m³, 8-hour, ACGIH); STEL 6 ppm (18.6 mg/m³, 15-minute, ACGIH)
- Biological Limit Value (BLV): N/A

8.2 Exposure Controls

- Engineering Controls: Local exhaust ventilation (LEV) with vapor collection system for all handling operations; closed transfer systems for bulk loading/unloading; gas detection alarm for hydrogen sulfide/ammonia (set alarm limit at 10 ppm) in the work area; use corrosion-resistant (stainless steel/HDPE) ventilation ducts.
- Personal Protective Equipment (PPE) - **MANDATORY for all operations**:
  - Eye/Face Protection: Chemical-resistant safety goggles + full face shield (mandatory) for all handling; splash-proof face mask for bulk operations.
  - Skin Protection: Nitrile rubber gloves (thickness ≥0.40 mm), chemical-resistant neoprene apron, disposable arm sleeves; replace gloves immediately if damaged or contaminated; avoid latex gloves (poor chemical resistance).
  - Respiratory Protection: Half-face air-purifying respirator with organic vapor and ammonia/acid gas cartridges for routine operations; full-face SCBA for confined space or large spill emergency.
  - Other: Chemical-resistant (PVC/neoprene) work shoes, impermeable work clothes; no open-toed shoes or loose clothing in the work area; keep emergency eye wash station and safety shower within 10 meters of the work area; prepare neutralizing solution (5% citric acid) at the work site.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Propertiesa) Physical State: Liquidb) Color: Colorless to pale yellowc) Odor: Slight pungent mercaptan (rotten egg) odord) Melting Point/Freezing Point: -5℃ (aqueous solution)e) Boiling Point: Decomposes (>150℃, no boiling)f) Flammability: Non-flammableg) Flammability Limits: Not applicableh) Flash Point: Not applicable (non-flammable)i) Autoignition Temperature: Not applicablej) Decomposition Temperature: ≥150℃ (H_2S, NH_3, CO_2 released)k) pH Value (25℃): 10.0-12.0l) Viscosity (25℃): 8-15 mPa·sm) Solubility: Fully miscible with water; soluble in methanol/ethanol/propylene glycol; slightly soluble in acetone; insoluble in ether/benzene/hexanen) Partition Coefficient (log P, n-octanol/water): -0.85 (25℃)o) Vapor Pressure (25℃): 1.0-1.5 kPap) Density (25℃): 0.98-1.02 g/cm³q) Relative Vapor Density: 2.66 (air=1)r) Explosive Properties: No explosive propertiess) Oxidizing Properties: Nonet) Corrosivity: Corrosive to aluminum, zinc and their alloys; mild corrosive to carbon steel at long-term contact.

9.2 Other Safety InformationOxidizes slightly in air to form disulfide (cystamine), no significant effect on purity within shelf life; alkaline solution absorbs carbon dioxide from air over time, leading to slight pH decrease (no effect on activity); stable in cosmetic/feed formulations with pH 8.0-11.0 for 6 months.

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under the recommended storage and handling conditions (≤25℃, sealed, away from light); no chemical changes under normal industrial processing

conditions (≤80℃); stable in cosmetic/feed formulations with pH 8.0-11.0 for 6 months.10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal use and processing conditions; reacts violently with strong oxidizing agents/acids to produce toxic byproducts; decomposes at high temperature (>150℃) to release toxic gases; no hazardous polymerization occurs under any conditions.10.3 Conditions to Avoid: High temperature (>150℃), direct sunlight, prolonged contact with air, contact with incompatible materials, confined spaces with poor ventilation, contact with aluminum/zinc alloys.10.4 Incompatible Materials: Strong oxidizing agents, mineral acids, heavy metal salts, oxidizing cosmetic/feed raw materials, aluminum/zinc and their alloys, acidic buffers.10.5 Hazardous Decomposition Products: Hydrogen sulfide (H_2S), ammonia (NH_3), carbon dioxide (CO_2) (high-temperature decomposition); toxic sulfur oxides (when reacting with strong oxidants); no explosive decomposition products.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- Acute Toxicity:
  - Oral (Rat, LD_{50}): 270 mg/kg (Toxic)
  - Dermal (Rabbit, LD_{50}): 1200 mg/kg (Harmful)
  - Inhalation (Rat, LC_{50}): 450 mg/m³ (4-hour vapor exposure, Toxic)
- Skin Corrosion/Irritation: Rabbit 4-hour closed patch test - moderate erythema/edema (Category 2), reversible with proper treatment.
- Serious Eye Damage/Irritation: Rabbit eye test - severe corneal burns and conjunctival necrosis (Category 1), may cause temporary vision loss (reversible with prompt medical treatment).
- Respiratory Irritation: Rat inhalation test - severe bronchial irritation and cough at vapor concentrations ≥200 mg/m³, no permanent respiratory damage at occupational exposure limits.
- Mutagenicity/Carcinogenicity: Ames test, chromosome aberration test - negative; IARC Classification - Group 3 (not classifiable as to carcinogenicity to humans); no known mutagenic effects in occupational exposure.
- Reproductive Toxicity: No adverse reproductive or developmental effects in animal tests at relevant occupational exposure doses; no teratogenic or embryotoxic effects identified.
- Specific Target Organ Toxicity (Repeated Exposure): 90-day repeated dermal exposure test - mild chronic dermatitis at high doses; no target organ damage at recommended occupational limits.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, 96h LC_{50}): 200 mg/L (aqueous solution)
- Daphnia (48h EC_{50}): 150 mg/L (aqueous solution)
- Freshwater Algae (72h EC_{50}): 250 mg/L (aqueous solution)12.2 Persistence and Degradability: Fully biodegradable (BOD_5/COD = 0.65); degraded by microbial action and photolysis in natural environment within 7-10 days; no persistent environmental residues.12.3 Bioaccumulative Potential: Low (log P=-0.85); no significant bioaccumulation in aquatic organisms and food chain; no biomagnification observed in fish and aquatic invertebrates.12.4 Mobility in Soil: High mobility (fully water-soluble); easily adsorbed to soil organic matter, low leaching risk to groundwater if neutralized; alkaline solution may increase soil pH temporarily at large spill sites.12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB substances (no persistence, low bioaccumulation, moderate aquatic toxicity).12.6 Other Adverse Effects: No known adverse effects on soil microorganisms at normal environmental concentrations; large-scale direct discharge may cause temporary hypoxia in water bodies due to microbial decomposition and alkalization of water environment.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- Product Waste: Expired/contaminated Cysteamine Free 30% is classified as **toxic hazardous waste**; dispose of by licensed hazardous waste treatment facilities via high-temperature incineration (≥800℃) with flue gas treatment (to remove H_2S and NH_3) or neutralization with dilute acid (citric acid) before biological treatment. Do not discharge to the environment directly.

- Packaging Waste: Rinse packaging with a small amount of dilute acid (1% acetic acid) then water (collect rinsing waste as hazardous waste); dispose of contaminated packaging as toxic hazardous waste; recycle clean and uncontaminated HDPE/glass packaging after thorough cleaning and testing.
- Spill Waste: Contaminated absorbent materials, neutralizing residues and cleaning cloths are classified as hazardous waste; collect and dispose of by licensed hazardous waste treatment companies in accordance with local regulations.
- Disposal Compliance: Comply with China HW34 (Toxic Waste), EU EWC 030201, US RCRA Subtitle C (Hazardous Waste).

SECTION 14: Transport Information

14.1 UN Number: ADR/RID: 3265; IMDG: 3265; IATA-DGR: 326514.2 UN Proper Shipping Name: Corrosive liquid, basic, organic, n.o.s. (Cysteamine Base 30% Aqueous Solution)14.3 Transport Hazard Class: 8 (Corrosive substances)14.4 Packaging Group: III (Minor hazard)14.5 Environmental Hazards: IMDG Marine Pollutant: **Yes**14.6 Special Precautions for TransportTransport in sealed HDPE plastic drums or amber glass bottles with inner plastic lining and anti-leakage caps; affix Class 8 hazard labels (corrosive) and marine pollutant labels. Transport temperature ≤30℃, relative humidity ≤60%; avoid direct sunlight, rain, moisture, collision, extrusion and rough handling during transport. Do not transport with strong oxidizing agents, acids, food, cosmetic/feed raw materials (oxidizing type) or pharmaceutical products; do not use aluminum/zinc transport containers; transport in a dedicated compartment of Class 8 hazardous chemical vehicles with anti-leakage and temperature control measures. Comply with ADR/RID, IMDG Code and IATA-DGR regulations for Class 8 corrosive substances; provide MSDS/COA for customs clearance and transport documentation.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- China: Hazardous Chemicals Safety Management Regulation (Class 8 Corrosive Substance); Cosmetic Raw Material Safety Specification (2021 version); Feed Additive Standard (NY/T 394-2020); Industrial Chemical Product Standard.
- EU: REACH (Annex XVII compliant, not in SVHC Candidate List); CLP (GHS Classification - Danger); ADR/RID Class 8 Transport Regulations; Cosmetic Regulation (EC 1223/2009) (approved for cosmetic use with restrictions); Feed Additive Regulation (EC 1831/2003).
- US: TSCA (listed on the TSCA Inventory); DOT Class 8 Corrosive Substance; OSHA Hazard Communication Standard (29 CFR 1910.1200); FDA Cosmetic Ingredient Review (CIR) approved (for skin/hair care use only); FDA Feed Additive Compliance Program (FACP) approved.
- International: ISO 9001 (Quality); ISO 14001 (Environment); IMO MARPOL Annex V (Marine Pollutant regulations).

15.2 Additional Regulatory RequirementsProvide English MSDS/COA for customs clearance and transport; mark **Class 8 Corrosive Substance, FOR INDUSTRIAL/COSMETIC/FEED USE ONLY, NOT FOR HUMAN ORAL CONSUMPTION** on all product documents and packaging; comply with cosmetic raw material use limits (maximum 5% in skin care formulations) and feed additive dosage limits (GB 13078); label all products containing this ingredient with eye irritation/corrosion warnings.

SECTION 16: Other Information

- Further Information: This MSDS complies with GB/T 16483, GB/T 17519 and GHS Rev.9 standards, and is for professional use only by trained personnel (production, storage, transport and disposal). Key characteristic: **30% aqueous solution of Cysteamine Base, Class 8 corrosive substance, serious eye damage/skin irritation, for cosmetic (skin/hair care), feed and industrial use only**.
- Revision Date: 20 FEB 2026
- Disclaimer: The supplier is not liable for any damage, injury or environmental pollution caused by improper use, storage, transport or disposal of this product beyond the scope of the specified standards and national/international regulations. All operations must be conducted by trained professional personnel with strict compliance with relevant safety and industrial regulations. The user assumes full responsibility for any unauthorized use of this product.