Safety Data Sheet (MSDS)

- Glacial Acetic Acid (Food Grade)

(Compliant with GB/T 16483, GB/T 17519; Adapts to GHS Rev.9, IMDG, IATA Standards)**Revision Date: 28 FEB 2026**

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

1.1 Product Identifiers

- Product Name: Glacial Acetic Acid (Food Grade)
- Product Number: GAA-20260228
- Brand: SIGALD
- CAS-No.: 64-19-7
- EINECS/EC-No.: 200-580-7
- MDL Number: MFCD00004320
- Synonyms: Acetic acid (glacial); Ethanoic acid; Food Grade Acidulant1.2 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: +86-021-503500291.3 Emergency telephone
- Emergency Phone #: +86-021-50350029 (CHEMTREC); +86-120 (Medical Emergency)1.4 Relevant Identified Uses and Uses Advised Against
- Identified Uses: Food additive (acidulant, preservative, flavor enhancer, pH adjuster) for condiments, beverage, canned food, pickles, bakery, dairy and processed food industries; raw material for food flavor synthesis.
- Uses Advised Against: Not for undiluted oral consumption; avoid contact with skin/eyes in undiluted form; no use with strong oxidizing agents/reactive metals in unregulated systems.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Skin corrosion/irritation (Category 1B)
- Serious eye damage/eye irritation (Category 1)
- Specific target organ toxicity - single exposure (Category 3, Respiratory tract)2.2 GHS Label Elements
- Hazard Pictograms: (Corrosive)
- Signal Word: **DANGER**
- Hazard Statements:
  - H314: Causes severe skin burns and eye damage
  - H335: May cause respiratory irritation
- Precautionary Statements:
  - P260: Do not breathe mist/vapors/spray

- P264: Wash skin thoroughly after handling
- P280: Wear protective gloves/eye protection/face protection
- P301+P330+P331: If swallowed: Rinse mouth. Do NOT induce vomiting
- P303+P361+P353: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
- P304+P340: If inhaled: Move person to fresh air and keep comfortable for breathing
- P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310: Immediately call a POISON CENTER or doctor/physician2.3 Physical and Chemical HazardsFlammable liquid (flash point 39℃); reacts exothermically with strong bases, reactive metals (Al, Zn, Mg) to produce flammable hydrogen gas; incompatible with strong oxidizing agents (may cause fire/explosion); corrosive to metal containers at high concentration.2.4 Health Hazards

- Undiluted form: Severe corrosive to skin/eyes (causes burns, blistering); inhalation of high-concentration vapor causes respiratory tract irritation (cough, shortness of breath); undiluted oral ingestion causes severe gastrointestinal burns.
- Diluted food-grade use (≤5%): No corrosive effect, non-toxic when used in compliance with food additive standards.
- Chronic exposure: No known chronic toxicity; no carcinogenic/genotoxic effects (IARC Group 3).2.5 Environmental Hazards
- Acute aquatic toxicity: Zebrafish (LC_{50}, 96h) = 1200 mg/L (moderate toxicity); Daphnia (EC_{50}, 48h) = 850 mg/L.
- Biodegradability: Fully biodegradable (BOD_5/COD >0.9) in natural environment, degraded by microorganisms within 3-7 days.
- No bioaccumulation potential; neutralized by natural alkalinity in water/soil, no long-term pollution risk.2.6 Other HazardsNone for food-grade diluted application; undiluted form has corrosion risk to metal and concrete surfaces.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: Pure substance (food grade)
- Chemical Name: Ethanoic acid
- Formula: $C_2H_4O_2$
- Molecular Weight: 60.05 Da
- CAS-No.: 64-19-7
- EINECS/EC-No.: 200-580-7

Component	Classification	Concentration (w/w)	CAS No.	Hazard Statements
Glacial Acetic Acid (Food Grade)	Corrosive, Flammable	≥99.5%	64-19-7	H314, H335
Water	Non-hazardous	≤0.5%	7732-18-	None

Component	Classification	Concentration (w/w)	CAS No.	Hazard Statements
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SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **Inhalation**: Move victim to fresh air, keep airway open. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim has ingested/inhaled the substance. Call a doctor/POISON CENTER immediately.
- **Skin Contact**: Remove all contaminated clothing/shoes immediately. Rinse affected area with **plenty of running water** for at least 15 minutes. Do not use neutralizers on skin without medical advice. Call a doctor/POISON CENTER immediately. Discard contaminated clothing (wash before reuse).
- **Eye Contact**: Hold eyelids open and rinse **continuously with plenty of running water** for at least 20 minutes. Remove contact lenses if present and easy to do (do not delay rinsing). Call a doctor/POISON CENTER immediately (severe eye damage risk).
- **Ingestion (Undiluted)**: Do NOT induce vomiting (risk of corrosive fluid aspiration). Rinse mouth with water (do not swallow). Give 1-2 glasses of water/milk only if victim is conscious and able to swallow. Call a doctor/POISON CENTER immediately.
- **Ingestion (Diluted Food Grade)**: Rinse mouth with water, drink plenty of water. No special treatment if no discomfort; consult a doctor if abdominal pain occurs.4.2 Most Important Symptoms and Effects
- Acute: Severe skin/eye burns, respiratory irritation, gastrointestinal burns (undiluted); mild irritation (high-concentration vapor).
- Delayed: No known delayed effects; skin/eye burns may cause scarring if not treated promptly.4.3 Indication of Immediate Medical AttentionAll cases of undiluted contact (skin/eye/inhalation/ingestion) require **immediate medical attention**; inform physician of the product name (Glacial Acetic Acid) and concentration.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable**: Dry chemical powder, CO_2, foam, water spray (cool containers only; do not direct water jet onto liquid).
- **Unsuitable**: Straight water jet (may spread flammable liquid).5.2 Special Hazards Arising from the Substance or Mixture
- Flammable vapor-air mixtures may form (flash point 39℃, boiling point 118℃); vapor is heavier than air, may accumulate in low-lying areas (fire/explosion risk).
- Decomposes at high temperature (>300℃) to produce toxic carbon monoxide.
- Reacts with strong bases/metals to produce flammable hydrogen gas (may ignite spontaneously).5.3 Advice for Firefighters

- Wear full fire-fighting gear (self-contained breathing apparatus, chemical protective suit, anti-corrosive gloves/boots).
- Fight fire from upwind, keep a safe distance from burning containers.
- Cool exposed containers with water spray until fire is out (prevent thermal expansion/rupture).
- Contain fire runoff (neutralize with sodium bicarbonate before discharge to environment).

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

- Wear full personal protective equipment (PPE): Chemical goggles, face shield, nitrile rubber gloves, chemical protective suit, self-contained breathing apparatus (for large spills).
- Ensure good ventilation, evacuate non-essential personnel from spill area; no open flames/sparks (flammable risk).6.2 Environmental Precautions
- Contain small spills with sand/vermiculite (non-combustible absorbent); prevent runoff into drains, sewers, water bodies.
- Neutralize spilled material with sodium bicarbonate/calcium carbonate (food-grade) before disposal.
- Do not discharge unneutralized waste into the environment.6.3 Methods and Materials for Containment and Cleaning Up
- **Small Spill (≤5L)**: Absorb with food-grade diatomaceous earth/sand, transfer to sealed HDPE container for neutralization/disposal; wipe area with water and neutralizer (baking soda solution).
- **Large Spill (>5L)**: Contain with dikes (non-combustible material), pump into sealed HDPE drums for neutralization; flush area with water (neutralize runoff).
- **Note**: Do not use metal tools (corrosion risk); avoid contact with absorbent material (may be corrosive after contact).6.4 Reference to Other SectionsSee Section 13 for waste disposal; Section 8 for PPE details.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a **well-ventilated fume hood/area** with local exhaust ventilation (vapor concentration <10 ppm).
- Use only food-grade non-corrosive equipment (HDPE, glass, stainless steel 316L); no metal containers (except stainless steel).
- Avoid splashing; always add glacial acetic acid **slowly to water** (never water to acid - exothermic risk).
- No open flames, sparks, smoking in handling area; use explosion-proof electrical equipment.
- Hygiene Measures: Wash hands/face thoroughly with soap and water after handling; do not eat/drink/smoke in processing area; keep PPE clean and in good condition.7.2 Conditions for Safe Storage

- **Storage Type**: Store in a cool, dry, well-ventilated **flammable liquid storage room** (temperature ≤25℃, away from heat sources/ignition sources).
- **Containers**: Sealed food-grade HDPE/glass/stainless steel 316L containers; label clearly with GHS hazard symbols and product name.
- **Incompatibilities**: Keep away from strong bases (NaOH, KOH), reactive metals (Al, Zn, Mg), strong oxidizing agents (H_2O_2, $KMnO_4$), organic amines, and food-grade alkaline additives (sodium bicarbonate).
- **Separation**: Store separately from flammable materials, food raw materials, and edible additives (minimum 1m distance).
- **Shelf Life**: 36 months (unopened, in specified storage conditions; food grade, no degradation).7.3 Specific End UseOnly for food production as acidulant/preservative (**must be diluted before use**; no undiluted application in food).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limit (OEL)**: TWA 10 ppm (25 mg/m³), STEL 15 ppm (37.5 mg/m³) (national occupational health standards).
- **PEL (US OSHA)**: 10 ppm (25 mg/m³) TWA.
- **REL (US NIOSH)**: 10 ppm (25 mg/m³) TWA, 15 ppm STEL.8.2 Exposure Controls
- **Engineering Controls**: Local exhaust ventilation (air exchange rate ≥10 times/hour); fume hood for small-scale handling; explosion-proof electrical equipment.
- **Personal Protective Equipment (PPE)**:
  - **Respiratory Protection**: Half-face air-purifying respirator with organic vapor cartridge (for vapor concentration 10-50 ppm); self-contained breathing apparatus (SCBA) for large spills/leaks.
  - **Eye/Face Protection**: Chemical splash goggles + face shield (mandatory for all handling).
  - **Skin Protection**: Nitrile rubber gloves (thickness ≥0.3mm), chemical protective suit (PVC/PE), anti-corrosive boots (no leather).
  - **Other**: Chemical-resistant apron, safety goggles, fire extinguisher (nearby handling area).8.3 Environmental Exposure Controls
- Use closed transfer systems to prevent vapor release/spillage; neutralize wastewater with food-grade sodium bicarbonate before discharge (pH 6-8).

SECTION 9: Physical and Chemical Properties

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Property	Details (25℃, 1 atm)
Physical State	Clear colorless liquid
Color	Colorless
Odor	Characteristic pungent acetic acid odor
Boiling Point	117.9℃

Property	Details (25℃, 1 atm)
Melting Point	16.6℃ (forms ice-like crystals, "glacial")
Flash Point	39℃ (closed cup)
Autoignition Temperature	463℃
Flammability	Flammable liquid (NFPA Class IIIA)
Vapor Pressure	1.5 kPa (25℃)
Vapor Density	2.07 (air=1, heavier than air)
Relative Density (Water=1)	1.05 (25℃)
pH Value	2.4 (1% aqueous solution)
Solubility	Miscible with water, ethanol, methanol, ether (in all proportions)
Viscosity	1.22 mPa·s (25℃)
Refractive Index	1.3716 (20℃)
Corrosivity	Corrosive to mild steel, aluminum, zinc; non-corrosive to 316L stainless steel, HDPE, glass
Reactivity	Exothermic with water/strong bases; reacts with metals to produce H_2 gas

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: **Stable** under recommended storage/handling conditions (sealed, cool, dry); no polymerization under normal conditions.10.2 Possibility of Hazardous Reactions:

- Exothermic mixing with water/strong bases (risk of splashing if added in reverse).
- Reacts with reactive metals (Al, Zn, Mg) to produce flammable hydrogen gas (may ignite).
- Reacts with strong oxidizing agents ($KMnO_4$, H_2O_2) to produce toxic CO and fire/explosion risk.10.3 Conditions to Avoid: High temperature (>30℃), open flames, sparks, direct sunlight, mixing with water (reverse addition), contact with reactive metals/strong bases.10.4 Incompatible Materials: Strong bases (NaOH, KOH), reactive metals (Al, Zn, Mg), strong oxidizing agents, organic amines, alkali metals, halogens.10.5 Hazardous Decomposition Products: Carbon monoxide (CO) (at high temperature >300℃); no other hazardous decomposition products.10.6 Hazardous Polymerization: Will not occur under any conditions (food-grade glacial acetic acid).

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity**: Oral (Rat, LD_{50}) = 3310 mg/kg; Dermal (Rabbit, LD_{50}) = 1060 mg/kg; Inhalation (Rat, LC_{50}) = 16000 ppm/4h (moderate acute toxicity; undiluted form).
- **Skin Corrosion/Irritation**: Category 1B (severe burns to rabbit skin after 30s contact).
- **Serious Eye Damage/Irritation**: Category 1 (severe irreversible eye damage to rabbit eyes).

- **Respiratory Irritation**: Category 3 (inhalation of high-concentration vapor causes rat respiratory tract irritation).
- **Germ Cell Mutagenicity**: Negative (Ames test, chromosome aberration test; no genotoxicity).
- **Carcinogenicity**: IARC Group 3 (not classifiable as to carcinogenicity to humans; no evidence of carcinogenicity).
- **Reproductive Toxicity**: No reproductive/developmental toxicity (rat feeding test at 500 mg/kg/day; safe for maternal/fetal health at diluted food-grade levels).
- **Specific Target Organ Toxicity**: Single exposure (Category 3, respiratory tract); no chronic target organ toxicity.11.2 Additional InformationDiluted food-grade acetic acid (≤5%) is non-toxic, a natural component of food (vinegar); undiluted glacial acetic acid is corrosive and requires strict PPE for handling. No cumulative toxicity at food-grade application levels.

SECTION 12: Ecological Information

12.1 Toxicity:

- Aquatic: Zebrafish (LC_{50}, 96h) = 1200 mg/L (moderate); Daphnia (EC_{50}, 48h) = 850 mg/L (moderate); Algae (EC_{50}, 72h) = 950 mg/L (moderate).
- Terrestrial: No toxic effect on soil microorganisms/plants at diluted levels; neutralized by soil alkalinity.12.2 Persistence and Degradability: Fully biodegradable (BOD_5/COD >0.9); degraded by aerobic/anaerobic microorganisms into CO_2 and H_2O within 3-7 days (no environmental persistence).12.3 Bioaccumulative Potential: Log Kow = -0.31 (no bioaccumulation potential; water-soluble, rapidly metabolized by organisms).12.4 Mobility in Soil: High mobility; but neutralized by soil minerals (clay, limestone) to form non-toxic acetate salts (no leaching risk to groundwater).12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB (biodegradable, no bioaccumulation, low persistence).12.6 Other Adverse Effects: No known long-term ecological effects; neutralized acetic acid is a nutrient source for soil microorganisms.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Uncontaminated Product Waste**: Dilute to ≤5% concentration, neutralize with food-grade sodium bicarbonate (pH 6-8), and dispose of as non-hazardous food processing wastewater (comply with local discharge standards).
- **Contaminated Waste/Spill Residue**: Collect in sealed HDPE containers, neutralize with calcium carbonate (food-grade), and dispose of through licensed hazardous waste treatment facilities (corrosive waste).
- **Packaging Waste**: Rinse containers thoroughly with water (neutralize rinse water), then recycle/dispose of as non-hazardous plastic/glass waste (no residual corrosive material).13.2 Disposal Compliance: Comply with China Hazardous Waste Pollution Control Law, Food Safety Law, and local environmental discharge regulations; neutralize all corrosive waste before disposal.

SECTION 14: Transport Information

14.1 UN Number: 2789 (Glacial Acetic Acid, food grade)14.2 UN Proper Shipping Name: Acetic acid, glacial (food grade)14.3 Transport Hazard Class(es): 8 (Corrosive substances) + 3 (Flammable liquids)14.4 Packaging Group: II14.5 Environmental Hazards: IMDG Marine Pollutant: **No**; ADR/RID: No14.6 Special Precautions for User

- Transport in **sealed food-grade HDPE/glass/stainless steel 316L containers** (approved for Class 8/3 hazardous goods).
- Use dedicated corrosive/flammable liquid transport vehicles; no mixing with strong bases, metals, oxidizing agents, food raw materials.
- Avoid direct sunlight, high temperature (transport temperature ≤25℃); keep away from heat sources/ignition sources.
- Secure containers to prevent tipping/collision; label with GHS hazard symbols, UN number, and product name.
- Transport by trained personnel; carry emergency neutralizer (baking soda) and fire extinguisher on vehicle.14.7 Further Information: Complies with ADR/RID, IMDG, IATA-DGR regulations for Class 8/3 hazardous goods; required transport documentation (hazardous goods declaration) is mandatory.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- **China**: Compliant with GB 2760 (National Food Safety Standard for Food Additives), GB 1886.10 -2015 (Food Additive Acetic Acid); classified as Class 8 corrosive hazardous chemical (Hazardous Chemical Safety Management Regulation); approved for use in all food categories (diluted only).
- **EU**: Compliant with EC 1333/2008 (Food Additive Regulation); E260 (food additive code); classified as CLP Class 8/3; REACH registered (no SVHC).
- **US**: TSCA listed (CAS 64-19-7); FDA GRAS (21 CFR Part 184.1005); OSHA Class 8 corrosive/Class IIIA flammable liquid; approved for food use as acidulant/preservative.
- **International**: Complies with Codex Alimentarius Commission (CAC) standards; FCC/USP certified (food grade); IMDG/ADR Class 8/3 hazardous goods for transport.15.2 Other Regulations: Comply with local food safety, occupational health, and environmental regulations; food production use must meet GMP/HACCP standards (dilution and neutralization procedures mandatory).

SECTION 16: Other Information

- **Further Information**: This MSDS is for **Food Grade Glacial Acetic Acid (≥99.5%)** (CAS 64-19-7), compliant with GB/T 16483, GB/T 17519 and GHS Rev.9. It applies to safe handling, storage, transport and disposal of the undiluted product; **must be diluted before food application**. The supplier is not liable for damage caused by improper use, non-compliance with safety precautions, or undiluted application in food.

- **Revision Date**: 28 FEB 2026
- **Version**: V1.0