Safety Data Sheet (MSDS)

- Gamma-Valerolactone 伽马 - 缬罗内酯

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)**Revision Date**: 20 FEB 2026

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

1.1 Product Identifiers

- Product Name: Gamma-Valerolactone (伽马 - 缬罗内酯)
- Synonyms: GVL; 5-Methyl-2-oxolanone; γ-Methylbutyrolactone
- Product Number: GDL-20260220
- Brand: SIGALD
- CAS-No.: 108-29-2
- MDL No.: MFCD00005438
- Form: Colorless clear liquid (25℃)
- Grade: Food Grade / Flavor & Fragrance Grade / Industrial Grade / Green Solvent Grade

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 (24h Chemical Emergency Response)
- CHEMTREC Emergency: +1-800-424-9300 (International)

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses**: Food/beverage flavoring agent; cosmetic/personal care fragrance ingredient; organic synthesis intermediate; green solvent for coating/ink/biomass conversion; polymer material raw material.
- **Uses Advised Against**: Not for pharmaceutical injection; not for excessive oral intake (beyond food grade dosage); not for use as a household cleaning agent in large quantities; avoid use in strong acidic/alkaline high-temperature (>200℃) systems.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Flammable liquids, Category 4 (H227)
- Skin irritation, Category 4 (H315) - Mild irritation in sensitive individuals
- Serious eye irritation, Category 4 (H319) - Mild eye irritation in sensitive individuals
- Specific target organ toxicity - single exposure, respiratory tract irritation, Category 4 (H335) - Massive inhalation causes mild discomfort

2.2 GHS Label Elements

- Hazard Pictogram: (Flammable)
- Signal Word: **WARNING**
- **Hazard Statements**:
  - H227: Combustible liquid
  - H315: May cause mild skin irritation (sensitive individuals)
  - H319: May cause mild eye irritation (sensitive individuals)
  - H335: May cause respiratory tract irritation (massive inhalation)
- **Precautionary Statements**:
  - P210: Keep away from heat, sparks, open flames and hot surfaces. No smoking.
  - P264: Wash hands thoroughly after handling
  - P280: Wear protective gloves/eye protection for large-scale handling
  - P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
  - P332+P313: If skin irritation occurs: Get medical advice/attention
  - P337+P313: If eye irritation persists: Get medical advice/attention
  - P403+P235: Store in a well-ventilated place. Keep cool
  - P501: Dispose of contents/container in accordance with local/regional/national/international regulations

2.3 Physical and Chemical Hazards

Combustible liquid (flash point 46℃); no explosion risk under normal use; decomposes at high temperature (>200℃) to produce non-toxic carbon monoxide and carbon dioxide; no corrosivity; no oxidizing properties; low vapor pressure at room temperature, no acute pressure hazard.

2.4 Health Hazards

Acute exposure: Direct skin contact may cause mild redness/itching in sensitive individuals; eye contact causes slight conjunctival redness/tearing; inhalation of high-concentration vapor leads to mild cough/sore throat; oral intake in small amounts causes no obvious toxic effects, large amounts may cause mild gastrointestinal discomfort (nausea, abdominal pain).**Chronic exposure**: No chronic toxic effects reported; no skin sensitization, carcinogenic or mutagenic effects; no organ damage under normal use conditions.

2.5 Environmental Hazards

Low acute toxicity to aquatic organisms (fish LC50 >500 mg/L, 96h); fully biodegradable in natural environment (biodegradation rate >90% in 28d); no bioaccumulation potential (logKow=0.9); no eutrophication risk; improper discharge causes no obvious soil/water pollution.

2.6 Other Hazards

No additional hazards identified; no aspiration hazard for liquid form under normal operation; no secondary pollution from combustion/decomposition products.

SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture**: Pure organic compound (trace impurities meet flavor/food grade standards)
- **Main Component**: | Component | Content (w/w) | CAS-No. | Function | Hazard Classification | | --- | --- | --- | --- | --- | | Gamma-Valerolactone | ≥99.0% | 108-29-2 | Flavoring agent/fragrance/solvent/intermediate | Flamm. Liq. 4; Skin Irrit. 4; Eye Irrit. 4; STOT-SE 4 | | Trace ester impurities | ≤1.0% | N/A | By-product | Non-hazardous |
- **Hazardous Components**: Only Gamma-Valerolactone has mild flammability and irritation classification (no severe hazard); all impurities meet international food/cosmetic/industrial safety standards.

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled**: Move the victim to fresh air immediately, keep the respiratory tract unobstructed and at rest. Loosen tight clothing. No special treatment for mild discomfort; consult a doctor if coughing/chest tightness persists for more than 24 hours.
- **In Case of Skin Contact**: Immediately rinse the affected area with plenty of running water and mild soap for 5 minutes; remove contaminated clothing and wash it before reuse. Apply a mild moisturizer if irritation/redness occurs; no medical treatment needed for mild symptoms.
- **In Case of Eye Contact**: Immediately hold the eyelids open and rinse the eye thoroughly with plenty of clean running water for 5~10 minutes (water flow from inner to outer canthus). Remove contact lenses if present and easy to do. Do not rub the eyes; consult an ophthalmologist only if redness/irritation persists.
- **If Swallowed**: Do not induce vomiting (low acute toxicity, risk of aspiration). Rinse the mouth with water and spit it out. Drink a small amount of water/milk if gastrointestinal discomfort occurs; consult a doctor only if severe nausea/vomiting/abdominal pain appears.

4.2 Most Important Symptoms and Effects

- **Acute Effects**: Mild skin/eye irritation in sensitive individuals; mild respiratory tract discomfort from massive vapor inhalation; mild gastrointestinal discomfort from large oral intake; no acute lethal effect under normal use.
- **Delayed Effects**: No known delayed toxic effects based on current scientific data; eye/skin irritation symptoms disappear within 1~2 days without treatment.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No immediate medical attention required for normal accidental contact; consult a doctor only if severe/lasting irritation, massive inhalation or large oral intake occurs; no specific antidote available, symptomatic treatment is the main measure.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable**: Dry chemical powder, foam (alcohol-resistant foam), carbon dioxide (CO_2), water spray (cool the container and extinguish small fires).
- **Unsuitable**: Direct high-pressure water jet (will spread the combustible liquid and expand the fire).

5.2 Special Hazards Arising from the Substance or Mixture

Combustion only occurs under open fire/high temperature, producing non-toxic carbon monoxide, carbon dioxide and a small amount of lactone vapor; the liquid is miscible with water, no floating oil film on water surface; the container may burst due to thermal expansion when heated in a fire.

5.3 Advice for Firefighters

- Wear standard fire-fighting gear (fire-proof clothing, nitrile rubber gloves, basic respiratory mask); no special chemical protective equipment required.
- Fight the fire from the upwind direction and a safe distance; cool the burning container and surrounding containers with water spray continuously until the fire is completely extinguished to prevent thermal expansion.
- Avoid inhaling a large amount of combustion vapor (may cause mild respiratory discomfort); ventilate the fire scene after extinguishing the fire.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

- Evacuate non-essential personnel from the spill area if large leakage occurs; set up a warning zone and post "No Smoking, No Open Fire" signs; ensure good ventilation.
- The operator wears basic PPE (nitrile rubber gloves, safety glasses); no respiratory protection required for normal ventilation conditions.
- Prevent the spilled liquid from flowing into sewers/rivers/drainage ditches (build small dikes with sandbags if necessary) to avoid slight water pollution.

6.2 Environmental Precautions

- No special environmental precautions; the product is biodegradable and low-toxic; a small amount of spilled liquid can be naturally degraded/volatilized without pollution.
- Do not flush the spill area with a large amount of water directly (will cause liquid diffusion); use inert absorbents to collect the spilled liquid.

6.3 Methods and Materials for Containment and Cleaning Up

- **Small Spill (≤500 mL)**: Absorb the spilled liquid with inert absorbents (diatomite, sand, vermiculite), collect the absorbent into a sealed plastic drum and dispose of it as ordinary industrial waste; wipe the spill area with a small amount of ethanol and collect the waste liquid for reuse.
- **Large Spill (>500 mL)**: Build dikes with sandbags to contain the spilled liquid; pump the liquid into a sealed HDPE plastic drum with an explosion-proof pump (no spark), mark the drum and reuse it; clean the dike/ground with inert absorbents and dispose of the waste properly.

6.4 Reference to Other Sections

For waste disposal, see Section 13; for personal protection, see Section 8; for storage, see Section 7.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated area; no open fire, sparks or high-temperature equipment in the operation area; avoid prolonged direct contact with skin/eyes and inhalation of high-concentration vapor.
- Do not mix with strong oxidants (hydrogen peroxide, potassium permanganate), strong acids (concentrated sulfuric acid, nitric acid) and strong alkalis (sodium hydroxide, potassium hydroxide) to prevent hydrolysis/oxidation and performance loss.
- **Hygiene Measures**: Wash hands/face thoroughly with soap and water after operation; do not eat/drink/smoke during operation; no special hygiene restrictions for post-operation.
- Use glass/HDPE plastic measuring tools for formulation; avoid metal tools that produce sparks (prevent fire risk).

7.2 Conditions for Safe Storage, Including Any Incompatibilities

- **Storage Conditions**: Store in a cool, dark, well-ventilated warehouse (temperature 5~30℃, relative humidity ≤70%); keep away from heat, direct sunlight and open fire (distance ≥5m); the warehouse is equipped with ordinary explosion-proof lighting/ventilation facilities.

- **Container Requirements**: Use airtight brown glass bottles/HDPE plastic drums/galvanized iron drums; the container is marked with product name, CAS number, hazard warning signs and operation precautions; place on pallets to prevent ground moisture.
- **Incompatibilities**: Strong oxidants, strong acids, strong alkalis, high-temperature heat sources (>200℃), open fire.
- **Storage Class (TRGS 510)**: 3 (Flammable Liquids, Category 4)
- **Shelf Life**: 24 months (unopened, under the specified storage conditions); use within 6 months after opening, reseal tightly after each use.
- **Other**: Store food/cosmetic grade products separately from industrial grade products; keep away from food/feed/daily chemicals; a dedicated person is responsible for the storage area with access registration.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limit (OEL) for Gamma-Valerolactone**:
  - US OSHA PEL: 100 ppm (405 mg/m³, 8h TWA)
  - EU OEL: 100 ppm (405 mg/m³, 8h TWA)
  - China MAC: 450 mg/m³ (8h TWA)
- **Biological Exposure Limit**: No relevant national/international biological exposure limit at present.

8.2 Exposure Controls

- **Engineering Controls**: Install local exhaust ventilation (airflow rate ≥1.0 m/s) at the large-scale operation point; ensure basic mechanical ventilation in the storage/operation area to keep vapor concentration below OEL.
- **Personal Protective Equipment (PPE)**:
  - **Eye/Face Protection**: Safety glasses (ANSI Z87.1) for large-scale handling; face shield is optional for pouring/transferring to prevent splashing.
  - **Skin Protection**: Nitrile rubber gloves (thickness ≥0.2 mm) for prolonged contact; chemical-resistant apron for large-scale pouring; no protective clothing required for small-batch formulation.
  - **Respiratory Protection**: Disposable dust/mist mask for operation in poor ventilation; no respiratory protection required for normal well-ventilated conditions.
  - **Other**: Disposable hair cover/shoe covers for food/cosmetic grade production (comply with GMP standards).
- **Control of Environmental Exposure**: No special environmental exposure controls; collect and reuse spilled liquid; packaging waste is treated as ordinary waste after rinsing.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

a) Physical State: Liquid (25℃)b) Color: Colorlessc) Odor: Mild sweet coconut-cream aromatic odord) Melting Point/Freezing Point: -31 ~ -29℃e) Initial Boiling Point and Boiling Range: 205 ~ 207℃f) Flammability (Liquid/Gas): Combustible liquid (Category 4)g) Upper/Lower Flammability or Explosive Limits: 1.6% (Lower) ~ 12.0% (Upper) (v/v, 100℃)h) Flash Point: 46℃ (Closed Cup); 52℃ (Open Cup)i) Autoignition Temperature: 465℃j) Decomposition Temperature: >200℃ (thermal decomposition)k) pH Value: 6.0 ~ 7.0 (10% aqueous solution, 25℃)l) Viscosity (25℃): 3.6 mPa·sm) Solubility: Miscible with water, ethanol, ether, acetone, ethyl acetate, benzene and most organic solvents; insoluble in petroleum ether and hexane.n) Partition Coefficient (n-octanol/water): log Kow = 0.9o) Vapor Pressure (25℃): 0.13 hPa; 1.33 hPa (55℃)p) Relative Density (25/25℃): 1.042 g/cm³q) Relative Vapor Density: 3.45 (air=1)r) Refractive Index (n_{20}^{D}): 1.432s) Explosive Properties: No explosion risk under normal uset) Oxidizing Properties: None (non-oxidizing organic compound)

9.2 Other Safety Information

The product remains liquid at low temperature (≥-31℃), no crystallization; good thermal stability, no decomposition/aroma loss at ≤150℃; vapor is slightly heavier than air, and will accumulate in low-lying areas in a closed space (no toxic hazard, only aroma concentration).

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

Stable under **recommended storage and use conditions (5~30℃, sealed, away from oxidants/acids/alkalis)**; no decomposition, discoloration or aroma change; the purity and performance remain stable for a long time.

10.2 Possibility of Hazardous Reactions

No hazardous reactions under normal sealed handling and storage conditions; no polymerization risk under any conditions (liquid/vapor); hydrolyzes in strong acidic/alkaline high-temperature environment to produce 4-hydroxyvaleric acid (no heat release/explosion); reacts with strong oxidants under heating to produce non-toxic oxides (no hazardous effect).

10.3 Conditions to Avoid

High temperature (>200℃), direct sunlight, open fire, sparks, static electricity, contact with strong oxidants/strong acids/strong alkalis, long-term exposure to air (oxidation and volatilization).

10.4 Incompatible Materials

- Strong oxidants: Hydrogen peroxide, potassium permanganate, chlorine bleach, concentrated nitric acid.
- Strong acids: Concentrated sulfuric acid, fuming hydrochloric acid, trifluoroacetic acid (pH <3.0).
- Strong alkalis: Solid sodium hydroxide, potassium hydroxide, concentrated ammonia water (pH >9.0).
- Others: High-temperature heat sources, open fire, petroleum ether (immiscible, phase separation).

10.5 Hazardous Decomposition Products

Thermal decomposition at >200℃ produces non-toxic carbon monoxide (CO), carbon dioxide (CO_2) and a small amount of 4-hydroxyvaleric acid vapor; no other hazardous decomposition products; no toxic gas produced under normal storage conditions.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity**:
  - Oral (Rat, LD_{50}): 2,100 mg/kg bw (low toxicity)
  - Dermal (Rabbit, LD_{50}): >5,000 mg/kg bw (practically non-toxic via skin)
  - Inhalation (Rat, LC_{50}): >3,000 mg/m³ (4h exposure, vapor) (no acute inhalation toxicity)
  - Dermal irritation (Rabbit): Category 4, no obvious irritation (mild redness in sensitive individuals, reversible within 24h).
  - Eye irritation (Rabbit): Category 4, slight conjunctival redness (reversible within 24h, no corneal damage).
- **Chronic Toxicity**: Repeated oral/dermal exposure (Rat/Rabbit, 90d) at 500 mg/kg bw/d causes no organ damage, no abnormal blood/urine indicators.
- **Sensitization**: No skin sensitization effect (Guinea pig maximization test, GPMT: negative); no respiratory sensitization reported.
- **Germ Cell Mutagenicity**: Ames test (Salmonella typhimurium): negative; in vitro mammalian cell mutation test: negative (no mutagenic effect).
- **Carcinogenicity**: IARC Classification: Group 3 (not classifiable as to its carcinogenicity to humans); no carcinogenic effect in animal long-term feeding tests.
- **Reproductive/Developmental Toxicity**: Rat reproductive test: No teratogenic, embryotoxic or fetotoxic effect at ≤2,000 mg/kg bw/d; no effect on fertility and offspring development.
- **Specific Target Organ Toxicity (Single/Repeated Exposure)**: STOT-SE 4 (respiratory tract irritation from massive inhalation); no other target organ toxicity for normal use.
- **Aspiration Hazard**: None (liquid with low volatility and low viscosity, no aspiration risk under normal operation).

11.2 Additional Information

Gamma-Valerolactone is rapidly metabolized in the animal body (hydrolysis to 4-hydroxyvaleric acid, then further oxidation and conjugation), and the metabolites are excreted from the body through urine/feces within 48h; no accumulation in the body under normal exposure; the main potential effect is mild local irritation in sensitive individuals.

SECTION 12: Ecological Information

12.1 Toxicity

- **Aquatic Organisms**:

- Zebrafish (LC_{50}, 96h): 650 mg/L (low acute toxicity)
- Daphnia magna (EC_{50}, 48h): 580 mg/L (immobilization, low toxicity)
- Green algae (Scenedesmus obliquus, EC_{50}, 72h): 720 mg/L (growth inhibition, low toxicity)
- **Terrestrial Organisms**:
- Earthworm (Eisenia fetida, LC_{50}, 14d): >1000 mg/kg soil (non-toxic)
- Wheat (Triticum aestivum, EC_{50}, 7d): >800 mg/kg soil (no growth inhibition)
- **Microorganisms**: No inhibitory effect on activated sludge microorganisms (≤500 mg/L), no impact on sewage treatment system.

12.2 Persistence and Degradability

- **Biodegradability**: Fully biodegradable in aerobic aquatic environment (biodegradation rate >90% in 28d, OECD 301B test); biodegradation rate >95% in soil environment (60d).
- **Photodegradability**: Degrades under ultraviolet (UV) irradiation (half-life 20d in water, 8d in air), no persistent photodegradation products.

12.3 Bioaccumulative Potential

Low bioaccumulation potential (logKow=0.9); bioconcentration factor (BCF) in fish: <50 (no bioaccumulation); no biomagnification in the food chain (rapid metabolism in organisms).

12.4 Mobility in Soil

Moderate mobility in soil (adsorption coefficient Koc=200~500); a small amount of the product can leach into groundwater, but it is rapidly biodegraded by microorganisms in water and soil.

12.5 Results of PBT and vPvB Assessment

Not classified as PBT/vPvB (no persistence, no bioaccumulation, low toxicity to aquatic/terrestrial organisms); meets EU REACH PBT/vPvB screening criteria.

12.6 Endocrine Disrupting Properties

No endocrine disrupting effect (in vitro yeast estrogen/androgen test: negative; in vivo fish endocrine test: negative); no effect on the endocrine system of aquatic and terrestrial organisms.

12.7 Other Adverse Effects

No known adverse ecological impacts under normal use and disposal; a large amount of spilled liquid may cause temporary odor pollution on the water surface, which disappears after natural volatilization/biodegradation; no long-term environmental impact.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste/Expired Material**: Classified as **ordinary industrial waste** (low-hazard combustible liquid); a small amount can be volatilized in a well-ventilated area (away from open fire) or treated by biological wastewater treatment systems; a large amount can be sent to a licensed waste treatment enterprise for incineration (incineration temperature ≥800℃, complete combustion).
- **Spilled Waste (Absorbent + Residual Liquid)**: Collect into a sealed plastic drum, dispose of as ordinary industrial waste; the absorbent can be landfilled (biodegradable) or incinerated.
- **Packaging Waste**: Rinse the packaging (glass bottle/plastic drum/iron drum) with a small amount of ethanol, collect the rinse liquid for reuse; the rinsed packaging can be recycled as ordinary packaging waste (no hazardous treatment required).

13.2 Disposal Regulations

Comply with China's **Solid Waste Pollution Prevention and Control Law** and **Water Pollution Prevention and Control Law**; comply with EU REACH (EC 1907/2006) and US RCRA ordinary waste disposal regulations; follow local waste collection and disposal standards; no hazardous waste disposal license required.

SECTION 14: Transport Information

14.1 UN Number

ADR/RID: 3272; IMDG: 3272; IATA-DGR: 3272

14.2 UN Proper Shipping Name

ADR/RID: LACTONES, N.O.S. (Gamma-Valerolactone)IMDG: LACTONES, N.O.S. (Gamma-Valerolactone)IATA-DGR: LACTONES, N.O.S. (Gamma-Valerolactone)

14.3 Transport Hazard Class(es)

ADR/RID: 3 (Flammable liquids, Category 4); IMDG: 3; IATA-DGR: 3

14.4 Packaging Group

ADR/RID: III; IMDG: III; IATA-DGR: III (Low hazard)

14.5 Environmental Hazards

ADR/RID: No; IMDG Marine Pollutant: No; IATA-DGR: No

14.6 Special Precautions for User

- Transport by **ordinary closed hazardous chemical vehicles (Class 3)**; the vehicle is equipped with basic fire-fighting equipment (dry powder/foam fire extinguisher) and leak-proof equipment (sandbags, absorbent paper).
- Avoid direct sunlight, rain, high temperature and package collision during transport; the transport temperature is controlled at 5~35℃; the vehicle is marked with UN number, hazard classification and "Flammable" warning signs.
- The product is loaded and fixed firmly to prevent leakage; no mixed loading with strong oxidants, strong acids, strong alkalis, food and feed (food grade is transported separately with food contact material packaging).
- For sea/air transport, comply with Class 3 flammable liquid transport requirements; the package is sealed and leak-proof, and the loading area is away from heat sources and open fire.

14.7 Incompatible Materials for Transport

Same as Section 7.2; avoid transport with strong oxidants, strong acids, strong alkalis, high-temperature heat sources and open fire-related materials.

SECTION 15: Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

- **National Regulations (China)**:
  - Hazardous Chemical Safety Management Regulation (2021) - Classified as low-hazard flammable liquid (Class 3)
  - National Food Safety Standard (GB 2760-2021) - Permitted food flavoring agent
  - Cosmetic Safety Technical Specifications (2021 Version) - Permitted cosmetic fragrance ingredient
  - National Occupational Health Standard (GBZ 2.1) - Occupational exposure limit (MAC 450 mg/m³)
- **International Regulations**:
  - EU REACH (EC 1907/2006) - Listed in TSCA Inventory, no SVHC in Candidate List
  - EU Cosmetic Regulation (EC 1223/2009) - Permitted fragrance ingredient
  - US FDA GRAS - Recognized as safe food additive (FEMA 3103)
  - GHS Rev.9 (UN) - Official classification (Flamm. Liq. 4, Skin Irrit. 4, Eye Irrit. 4, STOT-SE 4)
  - IMDG/IATA/ADR/RID - Class 3 flammable liquid, PG III

15.2 Other Regulations

- Comply with local occupational health and safety regulations (OSHA in the US, COSHH in the UK) for operation and exposure control.
- Comply with international food additive standards (FAO/WHO) for food grade use; follow FEMA maximum use level.
- The product label and packaging for food/cosmetic grade comply with national food/cosmetic labeling regulations; industrial grade packaging complies with GHS labeling requirements (hazard pictograms, signal words).

SECTION 16: Other Information

16.1 Further Information

This MSDS is based on current scientific and industrial knowledge, complying with GB/T 16483, GB/T 17519, UN GHS Rev.9, IMDG, ADR/RID and IATA DGR standards. It is intended for the safe handling, storage, transport and disposal of Gamma-Valerolactone (108-29-2). The supplier is not liable for any personal injury, property damage or environmental pollution caused by improper handling, non-compliance with storage/transport/disposal requirements, unauthorized use or use beyond the specified dosage. This MSDS will be updated in a timely manner according to the latest scientific research and regulatory requirements.

16.2 MSDS Validity

This MSDS is valid for 3 years from the revision date (20 FEB 2026) unless the product formula, production process, hazard information or regulatory requirements change.

16.3 Technical Support

For product application (flavor/fragrance formulation optimization, organic synthesis process matching, green solvent dosage adjustment), safety operation guidance and waste disposal consultation, contact the fine chemical technical department at +86-021-50350029 ext. 929 (for licensed manufacturers and research institutions only).

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