Safety Data Sheet (MSDS)

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

Propylene Glycol Monomethyl Ether (PGME)

Revision Date: 10 FEB 2026

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

1.1 Product Identifiers

- Product Name: Propylene Glycol Monomethyl Ether (PGME)
- Product Number: PGME-20260210
- Brand: SIGALD
- CAS-No.: 107-98-2
- Synonyms: 1-Methoxy-2-propanol; 2-Hydroxypropyl methyl ether; PGME
- EINECS/EC-No.: 203-539-1

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: Industrial solvent for coatings, inks and adhesives; electronic cleaning agent; chemical intermediate; cosmetic raw material (solvent and humectant); textile printing and dyeing auxiliaries.
- Uses Advised Against: Not for direct oral consumption; avoid prolonged skin contact in high concentration; do not use as a fuel; avoid mixing with strong oxidizing agents without professional guidance.

SECTION 2: Hazards Identification

|Summary of Emergency Measures|Colorless transparent liquid with mild ether odor. Flammable liquid; causes mild skin irritation and serious eye irritation; harmful if inhaled in large amounts or swallowed. After inhalation: Move to fresh air and rest, seek medical advice if cough/dizziness persists. In case of skin contact: Rinse with plenty of water/soap for 5 minutes. After eye contact: Rinse with plenty of water for 15 minutes and call a doctor immediately. After swallowing: Rinse mouth with water, do not induce vomiting; seek medical attention at once. Extinguish with CO_2, dry powder or foam; avoid direct water jet on fire.| |---|

2.1 GHS Classification

- Flammable liquids (Category 4)
- Skin irritation (Category 2)
- Serious eye irritation (Category 2A)

- Specific target organ toxicity - single exposure (Respiratory tract, Category 3)
- Acute toxicity, oral (Category 4)
- Acute toxicity, inhalation (Category 4)

2.2 GHS Label Elements

- Hazard Pictogram: (Exclamation mark), (Flame)
- Signal Word: **Warning**
- Hazard Statements:
  - H227: Combustible liquid
  - H315: Causes skin irritation
  - H319: Causes serious eye irritation
  - H332: Harmful if inhaled
  - H302: Harmful if swallowed
  - H335: May cause respiratory irritation
- Precautionary Statements:
  - P210: Keep away from heat, sparks, open flames and hot surfaces - No smoking
  - P261: Avoid breathing dust/fume/gas/mist/vapors/spray
  - P264: Wash skin thoroughly after handling
  - P280: Wear protective gloves/eye protection/face protection
  - P302+P352: If on skin: Wash with plenty of water and soap
  - P305+P351+P338+P312: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell
  - P301+P312: If swallowed: Call a POISON CENTER or doctor/physician if you feel unwell
  - P370+P378: In case of fire: Use CO_2, dry chemical or foam to extinguish
  - P403+P235: Store in a well-ventilated place. Keep cool
  - P501: Dispose of contents/container to an approved waste disposal plant

2.3 Physical and Chemical HazardsCombustible liquid (flash point 39℃); vapor may form flammable mixtures with air in high-temperature/confined spaces; no explosive or oxidizing properties under normal conditions. No hazardous polymerization will occur.

2.4 Health Hazards

- Acute: Mild skin erythema, dryness or itching upon contact; severe eye redness, tearing and blurred vision; excessive inhalation causes cough, throat irritation and dizziness; accidental swallowing causes mild nausea, abdominal discomfort and diarrhea.
- Chronic: Prolonged repeated exposure may cause mild chronic bronchitis, skin chapping and dry eye syndrome; no permanent organ damage with standard protective measures.

2.5 Environmental HazardsLow acute toxicity to aquatic organisms; fully biodegradable in natural environment; low bioaccumulation potential with no persistent residues in soil/water; no adverse effects on soil microorganisms at normal concentrations.

2.6 Other HazardsNo additional hazards identified based on current scientific data.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Pure Substance** | 3.1 Main Components | Propylene Glycol Monomethyl Ether (PGME) | | --- | --- | | Formula | $C_4H_{10}O_2$ | | Molecular Weight | 76.12 g/mol | | CAS-No.: | 107-98-2 | | EC-No.: | 203-539-1 |

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Component	Classification	Concentration (w/w)
Propylene Glycol Monomethyl Ether	GHS Category 4/2/2A/3	≥99.5%

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- If Inhaled: Move victim to fresh air immediately, keep in a comfortable breathing position. Loosen tight clothing; provide oxygen if breathing is difficult. Consult a doctor if respiratory symptoms (cough, chest tightness) persist for more than 24 hours.
- In Case of Skin Contact: Remove all contaminated clothing and shoes, rinse affected skin with plenty of running water and mild soap for at least 5 minutes. Pat dry gently; apply mild moisturizer if skin is dry or irritated. Seek medical advice if redness or itching worsens.
- In Case of Eye Contact: **Immediate flushing required**. Hold eyelids open and rinse thoroughly with clean running water for 15 minutes, ensuring water flushes the entire eye surface (including under the eyelid). Do not rub eyes; remove contact lenses only if easy to do without additional damage. Consult an ophthalmologist if irritation or blurred vision persists for more than 48 hours.
- If Swallowed: Rinse mouth with clean water. Do not induce vomiting unless directed by a medical professional (risk of aspiration). If conscious and alert, drink a small amount of water or milk to dilute; call a POISON CENTER or doctor immediately if nausea, abdominal pain or vomiting occurs.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

- Acute: Skin erythema/pruritus; eye redness/tearing/blurred vision; cough/throat irritation/dizziness (inhalation); mild nausea/abdominal pain (swallowing).
- Delayed: Mild skin dryness and chapping may occur 24 hours after prolonged contact; reversible with symptomatic treatment.

4.3 Indication of Any Immediate Medical Attention and Special Treatment NeededSevere eye irritation with persistent blurred vision, excessive inhalation with shortness of breath, and accidental swallowing with severe vomiting require immediate professional medical attention; no specific antidote, treat symptomatically.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- Suitable: Carbon dioxide (CO_2), dry chemical powder, alcohol-resistant foam, water spray (cooling only).

- Unsuitable: Direct high-pressure water jet (may spread the fire and splash the liquid).

5.2 Special Hazards Arising from the Substance or MixtureCombustion produces low-toxic fumes (carbon monoxide, carbon dioxide, slight ether vapor); vapor is heavier than air and may accumulate in low-lying areas, causing flashback. No explosive decomposition during fire.

5.3 Advice for FirefightersWear self-contained breathing apparatus (SCBA) and full fire-fighting protective gear (heat-resistant clothing, gloves, goggles) if combustion fumes are present. Keep containers cool with water spray during fire to prevent rupture from overheating. Evacuate to upwind areas; avoid inhaling combustion fumes. Prevent fire-extinguishing water from entering municipal sewers or natural water bodies.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency ProceduresWear nitrile rubber gloves, chemical-resistant safety goggles, and a half-face air-purifying respirator with organic vapor cartridges. Eliminate all ignition sources (no smoking, turn off electrical equipment, avoid static electricity) at the spill site. Ensure good ventilation; evacuate non-essential personnel and set up a warning zone. Avoid inhaling vapor and direct skin/eye contact.

6.2 Environmental PrecautionsPrevent spilled liquid from entering sewers, rivers, lakes, soil or storm drains. Contain the spill with absorbent booms or dikes if it enters water bodies; use oil skimmers for recovery if needed.

6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Absorb with inert absorbent materials (diatomaceous earth, sand, vermiculite); collect the absorbent into a sealed HDPE container for hazardous waste disposal. Wipe the spill area with ethanol and rinse with a small amount of water.
- Large Spill: Contain the liquid with sandbags or plastic sheeting, transfer to a sealed HDPE drum with hazard labels using an explosion-proof pump; dispose of by a licensed hazardous waste treatment company. Do not flush the spill into drains with water.

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 fume hood with local exhaust ventilation; eliminate all ignition sources (sparks, flames, hot surfaces) in the work area. Use explosion-proof electrical equipment and tools to prevent static electricity. Avoid generating vapor or mist during transfer, mixing or packaging; use closed transfer systems for bulk handling. Wear specified PPE for all operations; no eating, drinking or smoking in the work area. Wash hands, face and exposed skin thoroughly after handling; change contaminated clothing immediately.

7.2 Conditions for Safe Storage

- Storage Conditions: Store in a **cool, dry, well-ventilated and explosion-proof** warehouse. Temperature ≤25℃, relative humidity ≤60%. Keep the container tightly sealed to prevent vapor loss and contamination. Store away from direct sunlight and heat sources (heaters, boilers).
- Incompatibilities: Strong oxidizing agents (H_2O_2, $KMnO_4$), strong acids (HCl, H_2SO_4), strong bases (NaOH, KOH), halogens, hot metal surfaces.
- Storage Class (TRGS 510): 3 (Flammable Liquids, Category 4)
- Shelf Life: 24 months (unopened, under the specified storage conditions).
- Segregation: Store separately from oxidizing agents, acids, bases and food/feed/cosmetics raw materials; place in a dedicated flammable liquid storage area with fire extinguishers and explosion-proof lighting; keep away from incompatible materials with a minimum distance of 1 meter.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- Occupational Exposure Limit (OEL) for PGME: TWA 100 ppm (308 mg/m³) (8-hour, ACGIH); STEL 150 ppm (462 mg/m³) (15-minute, ACGIH)
- Biological Limit Value (BLV): N/A

8.2 Exposure Controls

- Engineering Controls: Local exhaust ventilation (LEV) with gas scrubber for vapor-generating operations; explosion-proof ventilation systems; temperature control in the work area (≤25℃); static electricity grounding for all equipment and containers.
- Personal Protective Equipment (PPE):
  - Eye/Face Protection: Chemical-resistant safety goggles (mandatory); full face shield for large-scale handling or spill cleanup.
  - Skin Protection: Nitrile rubber gloves (thickness ≥0.20 mm), flame-retardant lab coat, chemical-resistant apron, anti-static protective shoe covers.
  - Respiratory Protection: Half-face air-purifying respirator with organic vapor cartridges for routine operations; full-face SCBA for confined space or spill emergency.
  - Hand Protection: Replace gloves immediately if damaged, punctured or contaminated; change gloves every 4 hours for continuous operation.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Propertiesa) Physical State: Liquidb) Color: Colorlessc) Odor: Mild ether-like odord) Melting Point/Freezing Point: -96℃e) Boiling Point: 121-122℃ (760 mmHg)f) Flammability: Combustible liquid (Category 4)g) Flammability Limits: Lower: 1.6% (v/v); Upper: 13.8% (v/v) (25℃)h) Flash Point: 39℃ (Closed Cup)i) Autoignition Temperature: 374℃j) Decomposition Temperature: ≥200℃ (mild degradation, produces organic vapor)k) pH Value: 6.0-7.0 (25℃, neat liquid)l) Viscosity: 1.7 mPa·s (25℃)m) Solubility: Fully miscible with water, ethanol, ether, acetone, benzene and most organic solventsn) Partition Coefficient (log P, n-octanol/water): 0.95 (25℃)o) Vapor Pressure (25℃): 1.3 kPap)

Density (25℃): 0.920-0.925 g/cm³q) Relative Vapor Density: 2.62 (air=1)r) Evaporation Rate: Moderate (n-butyl acetate=1, 0.85)s) Explosive Properties: Not explosivet) Oxidizing Properties: None

9.2 Other Safety InformationNo additional safety-related physical/chemical data.

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under the recommended storage and handling conditions (≤25℃, sealed, away from ignition sources/incompatible materials); stable under normal industrial processing temperature (≤100℃).10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal use and processing conditions; mild degradation occurs at high temperature (>200℃); no reaction with water under normal conditions.10.3 Conditions to Avoid: High temperature (>200℃), open flames, sparks, hot surfaces, direct sunlight, contact with incompatible materials, confined spaces with poor ventilation, static electricity.10.4 Incompatible Materials: Strong oxidizing agents, strong acids, strong bases, halogens, hot metal powders, peroxides.10.5 Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, methyl ether vapor (combustion); propylene glycol and methanol (high temperature degradation); no toxic or explosive decomposition products under normal conditions.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- Acute Toxicity:
  - Oral (Rat, LD_{50}): 2100 mg/kg (Harmful)
  - Dermal (Rabbit, LD_{50}): >4000 mg/kg (Practically non-toxic via dermal route)
  - Inhalation (Rat, LC_{50}): 6.6 mg/m³ (4-hour vapor exposure, Harmful)
- Skin Corrosion/Irritation: Rabbit 4-hour closed patch test - mild erythema and edema (Category 2), reversible within 48 hours without treatment.
- Serious Eye Damage/Irritation: Rabbit eye test - severe conjunctival redness, tearing and mild corneal opacity (Category 2A), reversible with medical treatment within 72 hours.
- Respiratory Irritation: Rat inhalation test - mild bronchial irritation and cough at vapor concentrations ≥500 mg/m³, no persistent respiratory damage.
- Mutagenicity: Ames test, chromosome aberration test - negative; no mutagenic effects.
- Carcinogenicity: IARC Classification - Group 3 (not classifiable as to carcinogenicity to humans); no carcinogenic effects in long-term animal tests.
- Reproductive Toxicity: No adverse reproductive or developmental effects in animal tests at relevant doses; avoid prolonged exposure for pregnant women.
- Specific Target Organ Toxicity: **Respiratory tract, skin and eyes** are the main target organs; excessive exposure causes mild irritation, no damage to other vital organs with standard protection.

- Allergenicity: No significant skin or respiratory sensitizing effects in animal tests and human clinical data.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, 96h LC_{50}): 3200 mg/L
- Daphnia (48h EC_{50}): 2800 mg/L
- Freshwater Algae (72h EC_{50}): 3500 mg/L12.2 Persistence and Degradability: Fully biodegradable (BOD_5 /COD = 0.75); degraded by microorganisms in aquatic and soil environments within 7-10 days; no persistent organic residues.12.3 Bioaccumulative Potential: Low (log P=0.95); rapid biodegradation reduces bioaccumulation in aquatic organisms and food chain; no biomagnification observed.12.4 Mobility in Soil: Moderate mobility; weak adsorption to soil organic matter (Koc=85), slight leaching risk mitigated by rapid biodegradation.12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB substances (no persistence, low bioaccumulation, low toxicity).12.6 Other Adverse Effects: No known adverse effects on soil microorganisms, terrestrial plants and aquatic beneficial bacteria at normal concentrations.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- Product Waste: Expired/contaminated PGME is classified as **flammable hazardous waste**; dispose of by licensed hazardous waste treatment facilities via high-temperature incineration (≥800℃) with flue gas treatment to remove organic vapor. Recycle and reuse the uncontaminated waste liquid if possible.
- Packaging Waste: Rinse packaging with ethanol or PGME to remove residual liquid, collect rinsing waste for hazardous disposal; dispose of contaminated packaging as flammable waste; recycle clean and uncontaminated packaging after thorough cleaning.
- Unused Product: Do not discharge to the environment; recover and reuse if possible; incinerate by a licensed hazardous waste treatment company if expired or unusable, in accordance with local and international flammable waste regulations.
- Disposal Compliance: Comply with China HW06 (Waste Organic Solvents), EU EWC 030102, US RCRA Subtitle C (Hazardous Waste).

SECTION 14: Transport Information

14.1 UN Number: ADR/RID: 3271; IMDG: 3271; IATA-DGR: 327114.2 UN Proper Shipping Name: Flammable liquids, n.o.s. (Propylene Glycol Monomethyl Ether)14.3 Transport Hazard Class: 3 (Flammable liquids)14.4 Packaging Group: III (Minor hazard)14.5 Environmental Hazards: IMDG Marine Pollutant: **No**14.6 Special Precautions for TransportTransport in sealed HDPE or amber glass industrial-grade containers with anti-leakage and anti-static caps; affix Class 3 flammable liquid hazard labels and product identification labels (Propylene Glycol Monomethyl Ether - Industrial Solvent). Transport temperature ≤30℃; avoid direct sunlight, rain,

collision, extrusion and rough handling during transport. Do not transport with strong acids, strong bases, oxidizing agents, food or feed; transport in a dedicated compartment of flammable liquid transport vehicles with explosion-proof equipment and fire extinguishers. Comply with ADR/RID, IMDG Code and IATA-DGR regulations for Class 3 flammable liquids; provide MSDS/COA for customs clearance; no mixed transport with other hazardous chemicals.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- China: Hazardous Chemicals Safety Management Regulation (Class 3 Flammable Liquid); Industrial Organic Solvent Standard (GB/T); Environmental Protection Law.
- EU: REACH (Annex XVII compliant, not in SVHC Candidate List); CLP (GHS Classification - Warning); ADR/RID Class 3 Transport Regulations; EU Solvent Emission Directive (SED).
- US: TSCA (listed on the TSCA Inventory); DOT Class 3 Flammable Liquid; OSHA Hazard Communication Standard (29 CFR 1910.1200); EPA Volatile Organic Compound (VOC) Regulations.
- International: ISO 9001 (Quality); ISO 14001 (Environment); SEMI (for electronic grade application).

15.2 Additional Regulatory RequirementsProvide English MSDS/COA for customs clearance; mark **flammable liquid, industrial solvent, for industrial use only** on all product documents; comply with VOC emission standards for coating/ink application; electronic grade PGME must meet SEMI purity standards.

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: **Industrial grade propylene glycol monomethyl ether, Class 3 flammable liquid, mild skin/eye/respiratory irritation, fully biodegradable, stable under recommended storage conditions**.
- Revision Date: 10 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.