

Safety Data Sheet (MSDS)

- Propylene Glycol Monomethyl Ether Acetate (PGMEA)

According to: GB/T 16483, GB/T 17519, GHS Rev.9, IMDG, IATA, EU REACH **Product Name:** Propylene Glycol Monomethyl Ether Acetate (PGMEA) **CAS Number:** 108-65-6 **Product Number:** PGMEA-20260220 **Brand:** SIGALD **Revision Date:** 20 FEB 2026 **Supplier:** NEWAY SINOPHC TECH. LIMITED **Address:** RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE **Telephone/Fax:** +86-021-50350029 **Emergency Telephone:** +86-021-50350029 (24h Chemical Emergency Response) / CHEMTREC: +1-800-424-9300

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

1.1 Product Identifiers

- Product Name: Propylene Glycol Monomethyl Ether Acetate (PGMEA)
- CAS-No.: 108-65-6
- MDL No.: MFCD00008724
- Synonyms: 1-Methoxy-2-propanol acetate; 2-Methoxypropyl acetate; PGMEA
- Product Number: PGMEA-20260220
- Form: Colorless transparent liquid (Electronic/Industrial Grade)
- Grade: Electronic Grade (≥99.5%) / Industrial Grade (≥99.0%)

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses:** Electronic photoresist solvent; coating/ink solvent; precision cleaning agent; organic synthesis reaction medium; polymer polymerization solvent.
- **Uses Advised Against:** Not for food, feed and cosmetic use (industrial grade only); not for medical and pharmaceutical use; do not use as fuel; do not mix with strong oxidants/strong acids/strong bases.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Flammable liquids, Category 3 - H226
- Skin irritation, Category 2 - H315
- Eye irritation, Category 2A - H319
- Specific target organ toxicity - single exposure, Category 3 (Respiratory tract) - H335

2.2 GHS Label Elements

- Hazard Pictogram: (Flammable) (Irritant)
- Signal Word: **Warning**
- **Hazard Statements:**
 - H226: Flammable liquid and vapor
 - H315: Causes skin irritation
 - H319: Causes serious eye irritation
 - H335: May cause respiratory tract irritation
- **Precautionary Statements:**
 - P210: Keep away from heat, sparks, open flames and hot surfaces. No smoking.
 - P233: Keep container tightly closed.
 - P240: Ground and bond container and receiving equipment.
 - P241: Use explosion-proof electrical/ventilating/lighting equipment.
 - P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
 - P264: Wash hands thoroughly after handling.
 - P280: Wear protective gloves/eye protection/face protection.
 - P302+P352: If on skin: Wash with plenty of water/soap.
 - 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.
 - P370+P378: In case of fire: Use dry powder or carbon dioxide to extinguish.
 - P403+P235: Store in a well-ventilated place. Keep cool.



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- P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3-2.6 Hazards Summary

- **Physical/Chemical Hazards:** Flammable liquid and vapor; vapor may form explosive mixtures with air; reacts with strong oxidants to cause combustion and explosion; no polymerization under normal conditions.
- **Health Hazards:** Mild skin irritation (redness, itching); serious eye irritation (tearing, redness); inhalation of high-concentration vapor causes respiratory tract irritation (cough, chest tightness); no acute toxicity from short-term low-dose exposure.
- **Environmental Hazards:** Slightly toxic to aquatic life; readily biodegradable in the environment, no long-term accumulation; no soil and groundwater pollution risk at normal use concentration.
- **Other Hazards:** No carcinogenic, mutagenic or reproductive toxic effects; no aspiration hazard for normal operation.

SECTION 3: Composition/Information on Ingredients

- **Substance/Mixture:** Pure organic compound (no hazardous additives)
- **Active Ingredient:** Propylene Glycol Monomethyl Ether Acetate (100% w/w; CAS:108-65-6; Molecular Formula: $C_6H_{12}O_3$; Molecular Weight:132.16 g/mol)
- **Impurities:** Trace water, acetic acid and heavy metals (all meet electronic/industrial grade limits, non-hazardous alone)
- **Hazardous Components:** Propylene Glycol Monomethyl Ether Acetate (100%) - GHS Classification: H226, H315, H319, H335

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled:** Remove the victim to fresh air immediately, keep warm and at rest. Ensure unobstructed breathing; if breathing is difficult, give oxygen. No special treatment for mild irritation; consult a physician if cough/chest tightness persists.
- **In Case of Skin Contact:** Take off all contaminated clothing and gloves immediately. Rinse the affected area with **plenty of running water and soap** for 5~10 minutes. No neutralizer needed; consult a physician if skin redness/irritation persists.
- **In Case of Eye Contact:** Do not rub eyes; pry open upper and lower eyelids and rinse with plenty of running water for 10~15 minutes (rinse from inner to outer corner). Remove contact lenses if present and easy to do. Consult an ophthalmologist if eye irritation/tearing persists.
- **If Swallowed:** Rinse mouth with water immediately, **do not induce vomiting** (may cause respiratory tract aspiration). Drink a small amount of water to dilute the solvent; call a poison center/physician immediately if abdominal pain/nausea occurs.

4.2 Most Important Symptoms and Effects

- **Acute Effects:** Mild skin redness/itching; eye redness/tearing/photophobia; cough/chest tightness from high-concentration vapor inhalation; nausea/abdominal pain from accidental ingestion.
- **Delayed Effects:** No known delayed toxic effects based on current data; prolonged skin contact may cause mild dryness/cracking.
- **Antidote:** No specific antidote; treat symptomatically according to the actual condition (e.g., anti-irritation, symptomatic support).

4.3 Immediate Medical Attention

Get medical attention if irritation (skin/eye/respiratory) persists or accidental ingestion occurs. Inform the physician of the product name (PGMEA) and hazards (flammable, irritant) for targeted treatment.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable:** Dry powder, carbon dioxide (CO_2), foam (alcohol-resistant); water spray (cool the container, not for direct fire extinguishing).
- **Unsuitable:** High-pressure water jet (may splash flammable liquid and spread fire).

5.2 Special Hazards Arising from the Substance or Mixture

- Flammable liquid and vapor; vapor forms **explosive mixtures with air** (explosion limit: 1.3~10.6% v/v); burning produces carbon monoxide (CO) and small amounts of carbon dioxide (CO₂).
- High temperature causes solvent volatilization, increasing fire/explosion risk; the container may rupture due to thermal expansion in fire.
- No hazardous combustion by-products other than carbon monoxide.

5.3 Advice for Firefighters

- Wear **full set of fire-fighting gear** (positive pressure self-contained breathing apparatus, fire-proof protective clothing, anti-slip fire boots); fight the fire from the upwind direction and above the fire.
- Cool the burning and surrounding containers with water spray to prevent thermal expansion and rupture; cut off the fuel source before fire extinguishing if possible.
- Evacuate the fire scene in time if the container is deformed or the safety valve is sounding; after the fire, ventilate the scene thoroughly to remove residual vapor.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

- Wear **Level B personal protective equipment** (organic vapor respiratory mask, chemical safety goggles, nitrile rubber gloves, anti-static protective clothing); no unprotected personnel enter the spill area.
- Eliminate all ignition sources (open fire, smoking, electrical sparks) in the spill area; use anti-static equipment for operation to prevent static electricity.
- Ensure good ventilation (local exhaust ventilation for indoor spills); set up a warning zone with "Flammable Liquid, No Open Fire" signs.

6.2 Environmental Precautions

- Prevent spilled liquid from flowing into sewers, rivers, lakes and other water bodies; use sand/bags to block the overflow immediately if necessary.
- Do not flush the spill with a large amount of water directly (may cause water body pollution); absorb the spilled liquid with inert materials first.

6.3 Containment and Cleaning Up

- **Small Spill:** Absorb the liquid with inert absorbent materials (diatomite, sand, vermiculite) and put it into a sealed explosion-proof HDPE container; wipe the spill area with ethanol and ventilate to dry.
- **Large Spill:** Contain the liquid with anti-static sand bags/dikes; transfer the spilled liquid to a sealed explosion-proof drum with an anti-static pump; label the drum with "PGMEA - Flammable Liquid, Irritant".
- Collect all contaminated absorbent materials and waste liquid into sealed explosion-proof containers for hazardous waste disposal; do not mix with household waste.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a **well-ventilated, fire-proof and anti-static operation area**; install local exhaust ventilation at the operation point to collect vapor.
- Use anti-static tools and equipment (no iron/steel tools that produce sparks); avoid generating splashes and vapor during handling (slow pouring, sealed transfer).
- Do not mix with strong oxidants (H₂O₂, KMnO₄), strong acids (HCl, H₂SO₄) and strong bases (NaOH, KOH) to prevent violent chemical reactions and fire risk.
- **Hygiene Measures:** Wash hands and face with soap and water after handling; do not eat, drink or smoke in the operation area; provide dedicated hand washing facilities.
- Ground and bond the container and receiving equipment during liquid transfer to eliminate static electricity accumulation.

7.2 Safe Storage Conditions

- **Temperature & Ventilation:** Store in a **cool, dry, well-ventilated and fire-proof warehouse** at 5~30°C; install explosion-proof ventilation and lighting equipment; the warehouse temperature should not exceed 35°C.

- **Packaging:** Keep in the original sealed anti-static HDPE/steel container; ensure no vapor leakage and moisture absorption; use explosion-proof caps for sealing.
- **Incompatibilities:** Strong oxidants, strong acids, strong bases, combustibles, explosives, halogenated hydrocarbons.
- **Storage Class:** Flammable liquid (Class 3); store in a dedicated flammable liquid warehouse in accordance with GB 15603; separate from incompatible materials with isolation distance $\geq 3\text{m}$; place on anti-static shelves (no metal shelves directly).
- **Shelf Life:** 18 months (unopened, under specified storage conditions); use within 3 months after opening, reseal tightly and store in a cool place.
- **Other:** The storage area is equipped with dry powder/ CO_2 fire extinguishers and fire sand; set up obvious "Flammable", "No Smoking" and "Anti-static" warning signs; no open fire and high temperature sources in the warehouse.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limit (OEL):**
 - China (MAC): 200 mg/m³ (8h TWA)
 - US OSHA (PEL): 250 ppm (1320 mg/m³, 8h TWA)
 - EU (ELV): 200 ppm (1050 mg/m³, 8h TWA); 250 ppm (1320 mg/m³, STEL)
- **Biological Exposure Limit:** No relevant biological exposure limit at present.

8.2 Exposure Controls

- **Engineering Controls:** Install **anti-static local exhaust ventilation (LEV)** at the operation point (airflow rate ≥ 1.0 m/s); use sealed transfer pumps and pipelines for bulk handling; the operation area has overall mechanical ventilation.
- **Personal Protective Equipment (PPE):**
 - Eye/Face: Chemical safety goggles (mandatory for all operations); face shield for large-scale handling to avoid splashes.
 - Skin: Nitrile rubber gloves (thickness $\geq 0.18\text{mm}$), anti-static protective clothing, anti-slip anti-static shoes; protective apron for liquid transfer.
 - Respiratory: Organic vapor cartridge respirator (for normal operation); positive pressure SCBA for spill, fire or poor ventilation.
 - Other: Anti-static cap, anti-static wristband (for electronic grade application).
- **Biological Monitoring:** Conduct occupational health check (respiratory tract, skin, eyes) for long-term operators every year; no special biological monitoring required.

SECTION 9: Physical and Chemical Properties

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Property	Value (25°C, 760 mmHg)
Physical State	Colorless transparent liquid
Odor	Mild faint ether acetate odor
Molecular Formula	$\text{C}_6 \text{H}_{12}\text{O}_3$
Molecular Weight	132.16 g/mol
Density	0.966 ~ 0.970 g/cm ³
Boiling Point	146 ~ 148°C
Freezing Point	-87°C
Flash Point (Closed cup)	47°C
Autoignition Temperature	340°C
Explosion Limits	1.3 ~ 10.6% (v/v in air)
Refractive Index (n _{25°})	1.401 ~ 1.403
Viscosity	1.2 mPa·s
Vapor Pressure	1.3 kPa
Relative Vapor Density (air=1)	4.55
Solubility	Miscible with water, methanol, ethanol, ether, acetone,

Property	Value (25°C, 760 mmHg)
	toluene, xylene
Relative Evaporation Rate (n-BuAc=1)	0.15
Surface Tension	28.9 mN/m
pH Value (25°C, pure liquid)	6.0 ~ 7.0 (neutral)
Flammability	Flammable liquid (Class 3)
Oxidizing Properties	None
Polymerization	No polymerization under normal conditions

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

Stable under **recommended storage and use conditions (5~30°C, sealed, anti-static)**; no decomposition, polymerization or chemical reaction; stable to light and heat at normal temperature.

10.2-10.5 Reactivity Summary

- No hazardous reactions under normal fire-proof, anti-static and sealed handling/storage conditions.
- **Conditions to Avoid:** Open fire, high temperature (>50°C), static electricity, strong oxidants, strong acids, strong bases, direct sunlight.
- **Incompatible Materials:** Hydrogen peroxide, potassium permanganate, concentrated sulfuric acid, concentrated hydrochloric acid, sodium hydroxide, potassium hydroxide, strong oxidizing salts.
- **Hazardous Decomposition Products:** Carbon monoxide (CO) and carbon dioxide (CO₂) (only at high temperature/burning); no other hazardous decomposition products.
- **Hazardous Reactions:** Reacts violently with strong oxidants to release heat and cause combustion/explosion; no reaction with water, alcohols and most organic solvents under normal conditions.

SECTION 11: Toxicological Information

11.1 Key Toxicological Data

- **Acute Toxicity:**
 - Oral (Rat, LD₅₀): 3200 mg/kg bw (mild toxicity)
 - Dermal (Rabbit, LD₅₀): >2000 mg/kg bw (low dermal toxicity)
 - Inhalation (Rat, LC₅₀): 16000 mg/m³ (4h exposure) (low inhalation toxicity)
- **Skin Corrosion/Irritation:** Category 2 (Rabbit test), mild redness and itching, reversible within 72h.
- **Serious Eye Damage/Irritation:** Category 2A (Rabbit test), moderate redness and tearing, reversible within 48h.
- **Respiratory Irritation:** Mild irritation to respiratory tract at high concentration; no damage to lungs at low dose.
- **Sensitization:** No skin/respiratory sensitization (Guinea pig test).
- **Carcinogenicity/Mutagenicity:** IARC Class 3 (not classifiable as carcinogenic to humans); Ames test negative (no mutagenicity).
- **Reproductive/Developmental Toxicity:** No reproductive/developmental toxicity in animal studies (rat/mouse); no teratogenic effect at normal exposure level.
- **Target Organ Toxicity:** No specific target organ toxicity for single/repeated exposure at OEL level.
- **Aspiration Hazard:** Low (liquid with low viscosity; no aspiration hazard for normal operation).

11.2 Additional Information

Toxicity is mainly caused by **mild irritant effect**; no acute toxic effect at occupational exposure limit level; long-term low-dose exposure has no adverse effects on human body. The product is a low-toxic solvent, significantly safer than ethylene glycol ether series solvents.

SECTION 12: Ecological Information

12.1 Ecotoxicity

- **Aquatic Organisms (Slightly Toxic):**

- Zebrafish (LC₅₀, 96h): 2300 mg/L
- Daphnia (EC₅₀, 48h): 1800 mg/L
- Green algae (EC₅₀, 72h): 2500 mg/L

- **Terrestrial Organisms:** Low toxicity to soil plants and microorganisms; no inhibitory effect on seed germination at concentration ≤100 mg/kg soil.

- **Other Organisms:** No toxic effect on birds and mammals at normal use concentration.

12.2-12.7 Ecological Properties

- **Persistence/Degradability:** Readily biodegradable (biodegradation rate >90% in 28d) in aquatic and soil environment; no persistent organic pollution.

- **Bioaccumulative Potential:** Low bioaccumulation (log Kow=1.08); no biomagnification in the food chain.

- **Mobility in Soil:** Moderate mobility; partially adsorbed by soil organic matter, no leaching into groundwater at normal use concentration.

- **PBT/vPvB Assessment:** Not classified as PBT/vPvB (no persistence, low bioaccumulation, low toxicity).

- **Endocrine Disrupting Properties:** No endocrine disrupting effect (in vitro/in vivo animal tests negative).

- **Other Adverse Effects:** No known adverse ecological impacts; the product degrades into non-toxic substances (water, CO₂) in the environment, no secondary pollution.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste/Spent Solvent:** Classified as **hazardous waste (flammable, irritant)**; send to licensed hazardous waste treatment facilities for **incineration treatment** (with flue gas purification system to remove CO); do not dump directly into the environment.

- **Spill Waste/Absorbent Materials:** Collect into sealed explosion-proof containers and dispose of as hazardous waste (same as product waste); no mixing with non-hazardous waste.

- **Washing Water/Waste Liquid:** Collect all contaminated water (equipment washing, spill cleaning) into a sealed tank; treat with biological wastewater treatment system (biodegradation) to meet discharge standards, then discharge; no direct discharge of untreated waste liquid.

- **Packaging Waste:** Rinse HDPE/steel packaging with a small amount of ethanol, then rinse with water; the clean packaging can be recycled (HDPE/steel) or disposed of as non-hazardous waste; do not reuse contaminated packaging.

13.2 Disposal Regulations

Comply with China's **Hazardous Waste Pollution Control Law**, **Fire Protection Law** and **Water Pollution Prevention and Control Law**; comply with EU REACH (EC 1907/2006) and US RCRA hazardous waste disposal regulations; follow local flammable liquid hazardous waste disposal standards. Strictly implement the "three wastes" treatment standards to avoid environmental pollution.

SECTION 14: Transport Information

14.1-14.6 Transport Details

- **UN Number:** 1294

- **UN Proper Shipping Name:** Glycol ethers, n.o.s. (Propylene Glycol Monomethyl Ether Acetate)

- **Transport Hazard Class:** 3 (Flammable liquids)

- **Packaging Group:** III (Low hazard)

- **Marine Pollutant:** No (IMDG/IATA)

- **Transport Label:** Flammable (Class 3), Warning

- **Special Transport Requirements:**

1. Transport by **closed anti-static chemical cargo vehicles** (no open transport); the vehicle is equipped with fire extinguisher and fire sand.

2. Use shockproof, sealed and anti-static packaging; avoid package collision, leakage, direct sunlight and high temperature during transport; transport temperature 5~35°C.
3. Do not transport with strong oxidants, strong acids, strong bases, explosives and food/feed; load and unload gently to prevent static electricity and spark generation.
4. The driver must hold a hazardous chemical transport qualification certificate; the transport vehicle is marked with "Flammable Liquid" warning signs.
5. **IATA/IMDG Classification:** Class 3, Packaging Group III, non-marine pollutant; comply with IATA DGR and IMDG Code for flammable liquid transport.
6. Loading and unloading in a well-ventilated, fire-proof area; no open fire and smoking during loading and unloading; use anti-static loading and unloading equipment.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- **China (MEE/SAMR):** Hazardous Chemical Safety Management Regulation (Class 3 flammable liquid); Occupational Exposure Limit for Chemical Hazards in the Workplace; Fire Protection Law; Environmental Protection Law.
- **International (UN / 欧盟 / US):** UN GHS Rev.9 (hazard classification); EU REACH (listed in TSCA Inventory, no SVHC); US OSHA (occupational exposure limit); US RCRA (non-hazardous waste for normal use); IMDG/IATA (flammable liquid transport regulations).
- **Other Standards:** ISO 9001 (quality management); ISO 14001 (environmental management); SEMI (electronic grade solvent standards); EU VOC Directive (low VOC compliance).

15.2 Other Requirements

- Production and handling must comply with the national **Hazardous Chemical Safety Production Regulations**; the operation personnel must hold a special operation certificate for hazardous chemicals (fire-proof/anti-static).
- The product label/packaging must be marked with GHS hazard classification, UN number, transport category and emergency contact information in accordance with international standards.
- All batch production records, test reports and COA must be retained for ≥5 years in accordance with hazardous chemical regulatory requirements.
- The production process must meet environmental protection requirements, and the VOC emission complies with national and local standards.

SECTION 16: Other Information

- **MSDS Validity:** This MSDS is valid for 3 years from the revision date (20 FEB 2026) unless the product quality or hazard information changes.
- **Disclaimer:** This MSDS is based on current scientific and chemical industry knowledge, complying with GB/T 16483, GHS Rev.9 and international hazardous chemical safety standards. The supplier is not liable for any damage caused by improper handling, non-compliance with storage/transport/disposal requirements, unauthorized use or failure to follow safety precautions.
- **Additional Technical Support:** For PGMEA application formulation optimization, solvent matching, electronic grade process adjustment and safety operation guidance, contact the technical department at +86-021-50350029 ext. 846 (for licensed manufacturers and research institutions only).
- **Key Reminder:** This product is a Class 3 flammable liquid with mild irritation to skin and eyes. Strictly follow fire-proof, anti-static and ventilation requirements during all operations; prepare fire extinguishing equipment and first aid supplies; do not mix with incompatible materials to avoid fire and explosion risk.