



NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

Safety Data Sheet (MSDS)

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

Photoresist (Positive/Negative Type)

Revision Date: 28 FEB 2026

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

1.1 Product Identifiers

- Product Name: Photoresist
- Product Number: PR-20260228
- Brand: SIGALD
- CAS-No.: N/A
- Synonyms: Positive/Negative Photoresist; Lithography Resist; Semiconductor Photoresist
- EINECS/EC-No.: N/A

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: Semiconductor wafer lithography; PCB/FPC board manufacturing; micro-nano processing (MEMS); flat panel display (LCD/LED) production.
- Uses Advised Against: Not for pharmaceutical/medical/food use; no direct skin contact for prolonged periods; do not use as a solvent or fuel; avoid use in unventilated confined spaces.

SECTION 2: Hazards Identification

| Summary of Emergency Measures | Colorless transparent liquid with slight organic solvent odor. Flammable liquid; causes mild skin irritation and serious eye irritation; harmful if inhaled in large amounts. After inhalation: Move to fresh air, rest and 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 CO₂, 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)

2.2 GHS Label Elements



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- Hazard Pictogram: (Exclamation mark), (Flame)
- Signal Word: **Warning**
- Hazard Statements:
 - H227: Combustible liquid
 - H315: Causes skin irritation
 - H319: Causes serious eye irritation
 - 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
 - P370+P378: In case of fire: Use CO₂, 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 Hazards Combustible liquid (flash point $\geq 60^{\circ}\text{C}$); vapor may form flammable mixtures with air in high-temperature/confined spaces; no explosive/oxidizing properties under normal conditions. No hazardous polymerization occurs.

2.4 Health Hazards

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

2.5 Environmental Hazards Low acute toxicity to aquatic organisms; partially biodegradable in natural environment; low bioaccumulation potential; no persistent environmental residues; avoid direct discharge into water bodies.

2.6 Other Hazards No additional hazards identified based on current scientific data.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Mixture (Lithography Functional Composite)** | 3.1 Main Components | Blend of Photoresist Resin, Photoinitiator, Propylene Glycol Methyl Ether Acetate (PGMEA), Additives | | --- | --- | | Formula | Polymer resin + photoactive compound + organic solvent + functional additives | | Molecular Weight | Variable (5000-50000 Da) | | CAS-No.: | N/A (Individual components have CAS, composite has no unified CAS) | | EC-No.: | N/A |



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Hazardous Ingredients (Key Components)

表格

Component	CAS-No.	Classification	Concentration (w/w)
Photoresist Resin	N/A	Non-hazardous	20.0-25.0%
Photoinitiator	947-19-3	Skin Irrit. 2; Eye Irrit. 2A	2.0-5.0%
PGMEA	108-65-6	Flamm. Liq. 4; Eye Irrit. 2A	70.0-75.0%
Functional Additives	N/A	Non-hazardous	0.5-2.0%

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 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/irritated. Seek medical advice if redness/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. Do not rub eyes; remove contact lenses only if easy to do without additional damage. Consult an ophthalmologist if irritation/ blurred vision persists.
- If Swallowed: Rinse mouth with clean water. Do not induce vomiting unless directed by a medical professional. If conscious and alert, drink a small amount of water; call a POISON CENTER or doctor immediately if nausea/abdominal pain/vomiting occurs.

4.2 Most Important Symptoms and Effects

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

4.3 Indication of Immediate Medical Attention Severe eye irritation with persistent blurred vision, excessive inhalation with shortness of breath, and accidental swallowing with severe vomiting require immediate professional medical attention.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- Suitable: Carbon dioxide (CO₂), dry chemical powder, foam (alcohol-resistant).
- Unsuitable: Direct water jet (may spread the fire and splash the liquid).

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

5.3 Advice for Firefighters Wear 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 Wear nitrile rubber gloves, chemical-resistant safety goggles, and a half-face air-purifying respirator with organic vapor cartridges. Ensure good ventilation at the spill site; eliminate all ignition sources (no smoking, turn off electrical equipment). Evacuate non-essential personnel; set up a warning zone. Avoid inhaling vapor and direct skin/eye contact.

6.2 Environmental Precautions Prevent spilled liquid from entering sewers, rivers, lakes, soil or storm drains. Contain the spill with absorbent booms/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 water.
- Large Spill: Contain the liquid with sandbags/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 Sections For waste disposal, see Section 13; for personal protection, see Section 8.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling Operate 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. Avoid generating vapor/mist during transfer/mixing/packaging; use closed transfer systems for bulk handling. Wear specified PPE for all operations; no eating/drinking/smoking in the work area. Wash hands/face/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 $\leq 25^{\circ}\text{C}$, relative humidity $\leq 60\%$. Keep the container tightly sealed to prevent vapor loss, contamination and resin crystallization. Store away from direct sunlight and heat sources (heaters, boilers).
- Incompatibilities: Strong acids (HCl , H_2SO_4), strong bases (NaOH , KOH), strong oxidizing agents (H_2O_2 , KMnO_4), halogens, high-temperature metal surfaces.
- Storage Class (TRGS 510): 3 (Flammable Liquids, Category 4)



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- Shelf Life: 12 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 PGMEA: TWA 200 ppm (950 mg/m³) (8-hour, ACGIH); STEL 250 ppm (1180 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 ($\leq 25^{\circ}\text{C}$).
- Personal Protective Equipment (PPE):
 - Eye/Face Protection: Chemical-resistant safety goggles (mandatory); full face shield for large-scale handling/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/spill emergency.
 - Hand Protection: Replace gloves immediately if damaged/punctured/contaminated; change gloves every 4 hours for continuous operation.

SECTION 9: Physical and Chemical Properties

9.1 Basic Physical and Chemical Properties
a) Physical State: Liquid
b) Color: Colorless to pale yellow
c) Odor: Slight mild organic solvent odor
d) Melting Point/Freezing Point: $\leq -10^{\circ}\text{C}$
e) Boiling Point: $180-200^{\circ}\text{C}$ (760 mmHg)
f) Flammability: Combustible liquid (Category 4)
g) Flammability Limits: Lower: 1.0% (v/v); Upper: 6.5% (v/v) (25°C)
h) Flash Point: 68°C (Closed Cup)
i) Autoignition Temperature: 320°C
j) Decomposition Temperature: $\geq 200^{\circ}\text{C}$ (resin degradation, produces organic vapor)
k) pH Value: 6.0-7.0 (25°C , neat liquid)
l) Viscosity: 20-50 mPa·s (25°C)
m) Solubility: Insoluble in water; freely soluble in ethanol, ether, acetone and organic lithography solvents
n) Partition Coefficient (log P, n-octanol/water): 3.85 (25°C)
o) Vapor Pressure (25°C): 0.05 hPa
p) Density (25°C): 1.02-1.08 g/cm³
q) Relative Vapor Density: 5.89 (air=1)
r) Evaporation Rate: Slow (n-butyl acetate=1, 0.10)
s) Explosive Properties: Not explosive
t) Oxidizing Properties: None

9.2 Other Safety Information
No additional safety-related physical/chemical data.

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under the recommended storage and handling conditions ($\leq 25^{\circ}\text{C}$, sealed, away from ignition sources/incompatible materials); stable under normal lithography processing temperature ($\leq 150^{\circ}\text{C}$).

10.2 Possibility of Hazardous Reactions: No

hazardous reactions under normal use/processing conditions; resin degradation occurs at high temperature (>200°C); hydrolysis of partial components in strong acid/alkali environments.10.3 Conditions to Avoid: High temperature (>200°C), open flames, sparks, hot surfaces, direct sunlight, contact with incompatible materials, confined spaces with poor ventilation.10.4 Incompatible Materials: Strong acids, strong bases, strong oxidizing agents, reducing agents, halogens, hot metal powders.10.5 Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, organic vapor (combustion); resin oligomers, organic acid (high temperature degradation); no toxic/explosive decomposition products under normal conditions.

SECTION 11: Toxicological Information

11.1 Toxicological Effects

- Acute Toxicity:
 - Oral (Rat, LD₅₀): 3500 mg/kg (Slightly toxic)
 - Dermal (Rabbit, LD₅₀): >5000 mg/kg (Practically non-toxic via dermal route)
 - Inhalation (Rat, LC₅₀): 8.5 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 ≥1000 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/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 organs with standard protection.
- Allergenicity: No significant skin sensitizing effects in animal tests and human clinical data.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, 96h LC₅₀): 180 mg/L
 - Daphnia (48h EC₅₀): 220 mg/L
 - Freshwater Algae (72h EC₅₀): 280 mg/L
- ### 12.2 Persistence and Degradability: Partially biodegradable (BOD₅/COD = 0.45); degraded by microorganisms in aquatic/soil environments within 20-25 days; no persistent organic residues.
- ### 12.3 Bioaccumulative Potential: Low (log P=3.85); rapid degradation reduces bioaccumulation in aquatic organisms/food chain; no biomagnification observed.
- ### 12.4 Mobility in Soil: Low mobility; strongly adsorbs to soil

organic matter (Koc=1500), no leaching risk to groundwater.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 at normal concentrations; avoid large-scale direct discharge into water bodies.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- Product Waste: Expired/contaminated photoresist is classified as **flammable hazardous waste**; dispose of by licensed hazardous waste treatment facilities via high-temperature incineration ($\geq 800^{\circ}\text{C}$) with flue gas treatment to remove organic vapor.
- Packaging Waste: Rinse packaging with PGMEA/ethanol to remove residual liquid, collect rinsing waste for hazardous disposal; dispose of contaminated packaging as flammable waste; recycle clean/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/unusable, in accordance with local/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: 3272; IMDG: 3272; IATA-DGR: 3272
14.2 UN Proper Shipping Name: Flammable liquids, n.o.s. (Photoresist)
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 Transport: Transport in sealed HDPE/amber glass lithography-grade containers with anti-leakage caps; affix Class 3 flammable liquid hazard labels and product identification labels (Photoresist - Lithography Raw Material). Transport temperature $\leq 30^{\circ}\text{C}$; avoid direct sunlight, rain, collision, extrusion and rough handling during transport. Do not transport with strong acids/bases/oxidizing agents/food/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); Semiconductor Industry Lithography Material Standard (SJ/T); Environmental Protection Law.
- EU: REACH (Annex XVII compliant, not in SVHC Candidate List); CLP (GHS Classification - Warning); EU Semiconductor Material Regulation.
- US: TSCA (listed on the TSCA Inventory); DOT Class 3 Flammable Liquid; SEMI (Semiconductor Equipment and Materials International) Standard.



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- International: ISO 9001 (Quality); ISO 14001 (Environment); SEMI S2 (Safety for Semiconductor Manufacturing).

15.2 Additional Regulatory Requirements Provide English MSDS/COA for customs clearance; mark **flammable liquid, lithography photoresist, for industrial use only** on all product documents; comply with SEMI standards for semiconductor manufacturing applications; use only in lithography workshops with explosion-proof/ventilation facilities.

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: **Semiconductor/lithography grade photoresist, Class 3 flammable liquid, mild skin/eye/respiratory irritation, low environmental toxicity, stable under recommended storage conditions.**
- Revision Date: 28 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, semiconductor and lithography regulations.

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