

## Safety Data Sheet (MSDS)

### - Diphenyl Ether 二苯醚

(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: Diphenyl Ether (二苯醚)
- Synonyms: Phenyl ether; Benzene oxide; Diphenyl oxide
- Product Number: DE-20260220
- Brand: SIGALD
- CAS-No.: 101-84-8
- MDL No.: MFCD00003071
- Form: Colorless to pale yellow clear liquid (25°C)
- Grade: Industrial Grade / Flavor & Fragrance Grade / Synthetic Intermediate 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:** Organic synthesis intermediate; flavor & fragrance fixative; plastic plasticizer; chemical solvent; heat transfer medium.
- **Uses Advised Against:** Not for food direct addition (except flavor grade formulated addition); not for pharmaceutical injection; not for use as a household cleaning agent; avoid use in high-temperature open systems (>200°C).

### SECTION 2: Hazards Identification

#### 2.1 GHS Classification

- Flammable liquids, Category 4 (H227)
- Skin irritation, Category 2 (H315)
- Serious eye irritation, Category 2 (H319)
- Specific target organ toxicity - repeated exposure, Category 2 (oral, H373)

#### 2.2 GHS Label Elements

- **Hazard Pictogram:** (Flammable) | (Irritant)
- **Signal Word:** **WARNING**
- **Hazard Statements:**
  - H227: Combustible liquid
  - H315: Causes skin irritation
  - H319: Causes serious eye irritation
  - H373: May cause damage to organs through prolonged or repeated exposure (oral)

#### • **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/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.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P337+P313: If eye irritation persists: Get medical advice/attention.
- P391: Collect spillage.
- P403+P235: Store in a well-ventilated place. Keep cool.

#### 2.3 Physical and Chemical Hazards

Combustible liquid (flash point 115°C); no explosion risk under normal use; decomposes at high temperature (>300°C) to produce toxic carbon monoxide and aromatic hydrocarbons; no



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corrosivity; no oxidizing properties; low vapor pressure at room temperature, no acute pressure hazard.

## 2.4 Health Hazards

Acute exposure: Vapor/liquid can cause skin redness, itching and irritation; direct eye contact causes severe irritation, conjunctival redness and tearing; inhalation of high-concentration vapor causes mild respiratory tract discomfort (cough, sore throat). Chronic exposure: Prolonged or repeated oral intake may cause liver and kidney mild damage; no carcinogenic, mutagenic effects reported in human studies; no skin sensitization effect.

## 2.5 Environmental Hazards

Low acute toxicity to aquatic organisms (fish LC50 >10 mg/L, 96h); has a certain bioaccumulation potential (logKow=4.2); fully biodegradable in natural environment (biodegradation rate >70% in 28d); no eutrophication risk; improper discharge may cause slight pollution to water and soil.

## 2.6 Other Hazards

No additional hazards identified; no aspiration hazard for liquid form under normal operation; combustion residue has no secondary pollution.

## SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture:** Pure organic compound (trace impurities meet industrial grade standards)
- **Main Component:** | Component | Content (w/w) | CAS-No. | Function | Hazard Classification | | --- | --- | --- | --- | | Diphenyl Ether | ≥99.0% | 101-84-8 | Organic intermediate/fixative/plasticizer | Flamm. Liq. 4; Skin Irrit. 2; Eye Irrit. 2; STOT-RE 2 | | Trace aromatic hydrocarbon impurities | ≤1.0% | N/A | By-product | Non-hazardous |
- **Hazardous Components:** Only Diphenyl Ether has GHS classification; all impurities meet industrial chemical 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. Give oxygen if breathing is difficult or shallow. Call a doctor or emergency service immediately if coughing, chest tightness or dyspnea occurs.
- **In Case of Skin Contact:** Immediately remove all contaminated clothing and shoes (including socks). Rinse the affected skin with plenty of running water and mild soap for 15~20 minutes. Do not use organic solvents to wipe. If irritation, redness or blistering occurs, seek medical attention immediately. Wash contaminated clothing before reuse.
- **In Case of Eye Contact:** Immediately hold the eyelids open and rinse the eye thoroughly with plenty of clean running water for 15~20 minutes (water flow from inner to outer canthus). Remove contact lenses if present and easy to do (do not touch the cornea). Do not rub the eyes. Seek medical attention from an ophthalmologist immediately, even if no discomfort is felt.
- **If Swallowed:** Do not induce vomiting (risk of aspiration of liquid into the respiratory tract). Rinse the mouth with water and spit it out. Drink a small amount of milk or egg white to protect the gastric mucosa (do not drink water in large quantities). Call a doctor or poison control center immediately; take the product label/SDS with you for medical treatment.

### 4.2 Most Important Symptoms and Effects

- **Acute Effects:** Skin irritation (redness, itching); severe eye irritation (conjunctivitis, tearing); mild respiratory tract discomfort (inhalation of high-concentration vapor); no acute lethal effect under normal use.
- **Delayed Effects:** Liver and kidney mild damage may occur after prolonged/repeated oral intake; eye irritation may persist for 1~2 days if not treated in time.

### 4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Immediate medical attention is required for eye contact, high-concentration vapor inhalation and accidental ingestion; no specific antidote is available, and symptomatic treatment (e.g., eye irrigation, gastric mucosa protection, respiratory support) is the main treatment; inform the doctor of the product composition (Diphenyl Ether) when seeking medical attention.

## SECTION 5: Firefighting Measures

### 5.1 Extinguishing Media

- **Suitable:** Water spray (cool the container and extinguish the fire), dry chemical powder, foam (alcohol-resistant foam), carbon dioxide (CO<sub>2</sub>).



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- **Unsuitable:** Direct high-pressure water jet (will spread the combustible liquid and expand the fire); fire-extinguishing agents containing halogenated hydrocarbons.

## 5.2 Special Hazards Arising from the Substance or Mixture

Combustion produces toxic and irritating gases (carbon monoxide, aromatic hydrocarbon vapors); the liquid is denser than water and will float on the water surface, continuing to burn if not completely contained; the container may burst due to thermal expansion when heated in a fire.

## 5.3 Advice for Firefighters

- Wear a positive pressure self-contained breathing apparatus (SCBA) and full chemical fire-fighting protective clothing (including fire-resistant helmet, gloves and boots).
- Fight the fire from the upwind direction and a safe distance; do not approach the burning container directly.
- Cool the burning container and surrounding containers with water spray continuously until the fire is completely extinguished (prevent thermal expansion and explosion).
- If the container valve is leaking or the fire cannot be controlled, evacuate the scene immediately and set up a warning zone.
- Do not discharge fire-fighting wastewater into water sources or soil at will.

## SECTION 6: Accidental Release Measures

### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures

- Evacuate non-essential personnel from the spill area immediately; set up a warning zone and post "No Smoking, No Open Fire" signs.
- The operator must wear full PPE (chemical splash goggles, nitrile rubber gloves, chemical-resistant protective clothing, organic vapor respirator); operate in a well-ventilated area or with the help of a fume hood.
- Prevent the spilled liquid from flowing into sewers, drainage ditches, rivers or other water bodies (build dikes or use sandbags for containment if necessary).

### 6.2 Environmental Precautions

- Do not let the spilled product enter the environment directly; use inert absorbents to collect the spilled liquid to avoid soil and water pollution.
- If the liquid flows into the water body, notify the local environmental protection department immediately; do not use water to flush the spill area directly.

### 6.3 Methods and Materials for Containment and Cleaning Up

- **Small Spill (≤500 mL):** Absorb the spilled liquid with inert absorbents (e.g., diatomite, sand, vermiculite, activated carbon), collect the absorbent into a sealed HDPE plastic drum, and mark it as "hazardous waste for disposal"; wipe the spill area with a small amount of ethanol and collect the waste liquid together.
- **Large Spill (>500 mL):** Build dikes with sandbags to contain the spilled liquid; pump the liquid into a sealed galvanized iron drum with an explosion-proof pump (no spark), and mark the drum with "Diphenyl Ether - Spilled Product"; clean the dike and ground with inert absorbents, and collect all waste for unified disposal.

### 6.4 Reference to Other Sections

For waste disposal, see Section 13; for personal protection, see Section 8; for fire prevention, see Section 5.

## SECTION 7: Handling and Storage

### 7.1 Precautions for Safe Handling

- Operate in a well-ventilated fume hood or open area with mechanical ventilation; no open fire, sparks, high-temperature equipment or static electricity sources in the operation area; ground all equipment to prevent static electricity accumulation.
- Avoid direct contact with skin and eyes; do not inhale vapor or mist; do not eat, drink or smoke during operation; wash hands, face and exposed skin thoroughly with soap and water after operation.
- Use explosion-proof equipment (pump, stirrer, measuring instrument) for large-scale transfer and mixing; use glass or HDPE plastic measuring tools, avoid metal tools that produce sparks.
- Do not mix with strong oxidants (hydrogen peroxide, potassium permanganate), strong acids (concentrated sulfuric acid, nitric acid), strong alkalis (sodium hydroxide, potassium hydroxide) and halogens (chlorine, bromine) to prevent chemical reactions.

### 7.2 Conditions for Safe Storage, Including Any Incompatibilities

- **Storage Conditions:** Store in a cool, dry, well-ventilated warehouse (temperature 5~30°C, relative humidity ≤70%); keep away from heat, sparks, open flames and hot surfaces (distance ≥5m); the warehouse is equipped with explosion-proof lighting and ventilation facilities, and the electrical equipment is explosion-proof grade.
- **Container Requirements:** Use airtight brown glass bottles or HDPE plastic/galvanized iron drums; the container is marked with product name, CAS number, hazard warning signs and operation precautions; the container is placed on a pallets to prevent ground moisture and corrosion.
- **Incompatibilities:** Strong oxidants, strong acids, strong alkalis, halogens, flammable liquids with low flash point, reducing agents.
- **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, and reseal the container tightly after each use.
- **Other:** Store separately from food, feed and daily chemicals; the storage area is equipped with dry powder, foam fire extinguishers and sand boxes; a dedicated person is responsible for the storage area, and the access is registered.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control Parameters

- **Occupational Exposure Limit (OEL) for Diphenyl Ether:**
  - US OSHA PEL: 10 ppm (70 mg/m<sup>3</sup>, 8h TWA)
  - EU OEL: 10 ppm (70 mg/m<sup>3</sup>, 8h TWA)
  - China MAC: 50 mg/m<sup>3</sup> (8h TWA)
- **Biological Exposure Limit:** No relevant national/international biological exposure limit at present.

### 8.2 Exposure Controls

- **Engineering Controls:** Install local exhaust ventilation (LEV) or fume hood at the operation point (airflow rate ≥1.5 m/s); the warehouse is equipped with mechanical ventilation to keep the vapor concentration below the OEL; use explosion-proof and static-free equipment for all processes.
- **Personal Protective Equipment (PPE):**
  - **Eye/Face Protection:** Chemical splash goggles (ANSI Z87.1) or a face shield; mandatory for all operations to prevent liquid splashing.
  - **Skin Protection:** Nitrile rubber gloves (thickness ≥0.3 mm, penetration time >4h), chemical-resistant protective clothing (PVC or PTFE material), anti-slip safety shoes; replace gloves immediately if damaged; wash protective clothing regularly.
  - **Respiratory Protection:** Half-face respirator with organic vapor filter cartridge (EN 143) for operation in poor ventilation or large-scale transfer; positive pressure SCBA for fire or large spillage.
  - **Other:** Disposable chemical-resistant apron, hair cover and shoe covers; avoid wearing loose clothing and jewelry to prevent liquid adhesion.
- **Control of Environmental Exposure:** Set up a closed collection system for production wastewater; the spilled liquid is fully collected and not discharged directly; the packaging waste is treated as hazardous waste, not randomly discarded.

## SECTION 9: Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

a) Physical State: Liquid (25°C); Solid (≤25°C) b) Color: Colorless to pale yellow c) Odor: Faint, pleasant aromatic odord) Melting Point/Freezing Point: 25 ~ 27°C (melting); ≤25°C (crystallization) e) Initial Boiling Point and Boiling Range: 257 ~ 259°C f) Flammability (Liquid/Gas): Combustible liquid (Category 4) g) Upper/Lower Flammability or Explosive Limits: 0.8% (Lower) ~ 9.6% (Upper) (v/v, 150°C) h) Flash Point: 115°C (Closed Cup); 121°C (Open Cup) i) Autoignition Temperature: 620°C j) Decomposition Temperature: >300°C (thermal decomposition) k) pH Value: Not applicable (neutral organic liquid, insoluble in water) l) Viscosity (25°C): 3.8 mPa·s m) Solubility: Insoluble in water (0.002 g/100 mL, 25°C); miscible with ethanol, ether, benzene, toluene, chloroform and most organic solvents; slightly soluble in glycerol and propylene glycol. n) Partition Coefficient (n-octanol/water): log Kow = 4.2 o) Vapor Pressure (25°C): 0.013 hPa (extremely low); 1.33 hPa (75°C) p) Relative Density (25/25°C): 1.076 g/cm<sup>3</sup> q) Relative Vapor Density: 5.86 (air=1) r) Refractive Index (n<sub>20</sub> D): 1.587 s) Explosive Properties: No explosion risk

under normal use (no explosive limits at room temperature)t) Oxidizing Properties: None (non-oxidizing organic compound)

## 9.2 Other Safety Information

The product crystallizes into a white solid at  $\leq 25^{\circ}\text{C}$ , which can be melted into a clear liquid at  $30\sim 40^{\circ}\text{C}$  (water bath heating, no open fire) with no change in performance and purity; the liquid has good thermal stability, no decomposition at  $\leq 200^{\circ}\text{C}$ ; the vapor is slightly heavier than air, and will accumulate in low-lying areas in a closed space.

## SECTION 10: Stability and Reactivity

### 10.1 Chemical Stability

Stable under **recommended storage and use conditions ( $5\sim 30^{\circ}\text{C}$ , sealed, away from fire and oxidants)**; no decomposition, no discoloration, no chemical reaction; 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, solid or vapor); reacts with strong oxidants/halogens under heating conditions to produce toxic aromatic halides and oxides (accompanied by heat release); no violent reaction with weak acids/bases.

### 10.3 Conditions to Avoid

High temperature ( $>300^{\circ}\text{C}$ ), open fire, sparks, static electricity, direct sunlight, contact with strong oxidants/strong acids/strong alkalis/halogens, long-term exposure to air (oxidation).

### 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.
- Strong alkalis: Solid sodium hydroxide, potassium hydroxide, concentrated ammonia water.
- Halogens: Chlorine gas, bromine water, iodine monochloride.
- Others: Low-flash point flammable liquids (ethanol, ether), reducing agents (sodium borohydride).

### 10.5 Hazardous Decomposition Products

Thermal decomposition at  $>300^{\circ}\text{C}$  produces toxic carbon monoxide (CO), carbon dioxide ( $\text{CO}_2$ ) and aromatic hydrocarbon vapors (benzene, phenol); 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,  $\text{LD}_{50}$ ): 2600 mg/kg bw (low toxicity)
  - Dermal (Rabbit,  $\text{LD}_{50}$ ):  $>5000$  mg/kg bw (practically non-toxic via skin)
  - Inhalation (Rat,  $\text{LC}_{50}$ ):  $>2000$  mg/ $\text{m}^3$  (4h exposure, vapor) (no acute inhalation toxicity)
  - Dermal irritation (Rabbit): Category 2, mild redness and edema after 24h exposure (reversible).
  - Eye irritation (Rabbit): Category 2, severe conjunctival redness and tearing after 24h exposure (reversible after treatment).
- **Chronic Toxicity:**
  - Repeated oral administration (Rat, 90d): 500 mg/kg bw/d causes mild liver and kidney histopathological changes (reversible after stopping administration); no obvious toxic effect at  $\leq 100$  mg/kg bw/d.
  - Repeated dermal exposure (Rabbit, 28d): No skin irritation or organ damage at 1000 mg/kg bw/d.
- **Sensitization:** No skin sensitization effect (Guinea pig maximization test, GPMT: negative).
- **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  $\leq 1000$  mg/kg bw/d; no effect on fertility and offspring development.
- **Specific Target Organ Toxicity (Single/Repeated Exposure):**
  - Single exposure: No target organ toxicity under normal use concentration.
  - Repeated exposure: Oral intake may cause mild liver and kidney damage (Category 2).

- **Aspiration Hazard:** None (liquid with low volatility and moderate viscosity, no aspiration risk under normal operation).

## 11.2 Additional Information

Diphenyl Ether is rapidly metabolized in the animal body (hydroxylation and conjugation), and the metabolites are excreted from the body through urine and feces within 48h; no accumulation in the body under normal exposure; the main toxic effect is local irritation (skin, eyes) and mild chronic organ damage (oral repeated exposure).

## SECTION 12: Ecological Information

### 12.1 Toxicity

- **Aquatic Organisms:**

- Zebrafish (LC<sub>50</sub>, 96h): 12.5 mg/L (low acute toxicity)
- Daphnia magna (EC<sub>50</sub>, 48h): 8.7 mg/L (immobilization, low toxicity)
- Green algae (Scenedesmus obliquus, EC<sub>50</sub>, 72h): 15.3 mg/L (growth inhibition, low toxicity)

- **Terrestrial Organisms:**

- Earthworm (Eisenia fetida, LC<sub>50</sub>, 14d): >500 mg/kg soil (non-toxic)
- Wheat (Triticum aestivum, EC<sub>50</sub>, 7d): >100 mg/kg soil (no growth inhibition)

- **Microorganisms:** No inhibitory effect on activated sludge microorganisms (≤100 mg/L), no impact on sewage treatment system.

### 12.2 Persistence and Degradability

- **Biodegradability:** Fully biodegradable in aerobic aquatic environment (biodegradation rate >70% in 28d, OECD 301B test); biodegradation rate >80% in soil environment (60d).
- **Photodegradability:** Degrades under ultraviolet (UV) irradiation (half-life 30d in water, 15d in air), no persistent photodegradation products.

### 12.3 Bioaccumulative Potential

Has a certain bioaccumulation potential (logKow=4.2); bioconcentration factor (BCF) in fish: 100~500 (no high bioaccumulation); no biomagnification in the food chain (metabolized rapidly in organisms).

### 12.4 Mobility in Soil

Low mobility in soil (adsorption coefficient Koc=1000~2000); the product is easily adsorbed by soil organic matter, no leaching into groundwater; the adsorbed product is biodegraded by soil microorganisms within 60d.

### 12.5 Results of PBT and vPvB Assessment

Not classified as PBT/vPvB (no persistence, moderate 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; improper large-scale discharge may cause slight oil film on the water surface, affecting the gas exchange of aquatic organisms; the oil film can be removed by oil absorbent felt, and no long-term pollution.

## SECTION 13: Disposal Considerations

### 13.1 Waste Treatment Methods

- **Product Waste/Expired Material:** Classified as **hazardous waste (combustible organic liquid)**; do not discard directly. Send to a licensed hazardous waste treatment enterprise for unified disposal (incineration treatment with flue gas purification system, the incineration temperature ≥850°C to ensure complete combustion of toxic gases).
- **Spilled Waste (Absorbent + Residual Liquid):** Collect into a sealed hazardous waste drum, mark the waste type and composition, and send to a licensed enterprise for disposal; do not mix with other non-hazardous waste.
- **Packaging Waste:** Rinse the packaging (glass bottle/plastic drum/iron drum) with a small amount of organic solvent (ethanol), collect the rinse liquid as hazardous waste; the rinsed packaging is recycled by a qualified enterprise (treated as hazardous packaging) or incinerated as hazardous waste.

### 13.2 Disposal Regulations



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Comply with China's **Solid Waste Pollution Prevention and Control Law, Hazardous Waste Management Regulation** and **Water Pollution Prevention and Control Law**; comply with EU REACH (EC 1907/2006) and US RCRA hazardous waste disposal regulations; follow local hazardous waste collection and disposal standards; the disposal unit must hold a valid hazardous waste operation license.

### SECTION 14: Transport Information

#### 14.1 UN Number

ADR/RID: 3082; IMDG: 3082; IATA-DGR: 3082

#### 14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diphenyl Ether)IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diphenyl Ether)IATA-DGR: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diphenyl Ether)

#### 14.3 Transport Hazard Class(es)

ADR/RID: 9 (Miscellaneous hazardous substances and articles); IMDG: 9; IATA-DGR: 9**Subsidiary Risk**: 3 (Flammable liquids)

#### 14.4 Packaging Group

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

#### 14.5 Environmental Hazards

ADR/RID: Yes (E symbol); IMDG: Marine Pollutant (P symbol); IATA-DGR: Yes

#### 14.6 Special Precautions for User

- Transport by **licensed hazardous chemical special vehicles** (Class 9 + Class 3 subsidiary risk); the vehicle is equipped with explosion-proof lighting, fire-fighting equipment (dry powder/foam fire extinguisher) and leak-proof equipment (sandbags, oil absorbent felt).
- The vehicle is marked with UN number, hazard classification, environmental hazard symbol and "Flammable" warning signs; the driver and escort hold valid hazardous chemical operation certificates and transportation certificates.
- Avoid direct sunlight, rain, high temperature and open fire during transport; the transport temperature is controlled at 5~35°C; do not transport in summer high-temperature periods (12:00~14:00) if possible.
- The product is loaded and fixed firmly to prevent package collision, extrusion and leakage; the loading area is isolated from the driver's cab; no mixed loading with strong oxidants, strong acids, strong alkalis, food and feed.
- For sea transport (IMDG), the package is marked with marine pollutant (P) symbol; the cargo is stowed away from heat sources and open fire, and the stowage area is equipped with fire-fighting facilities.
- For air transport (IATA-DGR), comply with the limited quantity requirements, and the package is sealed and leak-proof.

#### 14.7 Incompatible Materials for Transport

Same as Section 7.2; avoid transport with strong oxidants, strong acids, strong alkalis, halogens and low-flash point flammable liquids.

### 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 hazardous chemical (combustible liquid, Class 9 environmental hazard)
  - National Occupational Health Standard (GBZ 2.1) - Occupational exposure limit (MAC 50 mg/m<sup>3</sup>)
  - Solid Waste Pollution Prevention and Control Law (2020) - Hazardous waste disposal regulations
  - Water Pollution Prevention and Control Law (2017) - Prohibition of direct discharge into water bodies
  - GB 30000 - GHS classification and labeling for hazardous chemicals (2013)
- **International Regulations:**
  - EU REACH (EC 1907/2006) - Listed in TSCA Inventory, no SVHC in Candidate List; GHS classification (Flamm. Liq. 4, Irrit. 2)
  - US TSCA (Toxic Substances Control Act) - Listed on the TSCA Inventory, no restricted use
  - GHS Rev.9 (UN) - Official classification (H227, H315, H319, H373)

- IMDG Code (2024) - Class 9, Marine Pollutant (P)
- ADR/RID (2024) - Class 9, Subsidiary Risk 3
- IATA DGR (2024) - Class 9, Environmentally Hazardous Substance

## 15.2 Other Regulations

- Comply with local occupational health and safety regulations (e.g., OSHA in the US, COSHH in the UK) for operation and exposure control.
- Comply with international maritime pollution prevention regulations (MARPOL 73/78) for sea transport and port disposal.
- The product label and packaging must comply with GHS requirements (hazard pictograms, signal words, hazard statements).
- The production and use enterprise must hold a valid hazardous chemical use license (China).

## 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 Diphenyl Ether (101-84-8). 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 (formulation optimization, process matching, dosage adjustment), safety operation guidance and hazardous waste disposal consultation, contact the organic synthesis chemical technical department at +86-021-50350029 ext. 909 (for licensed manufacturers and research institutions only).