

# SAFETY DATA SHEETS

According to the UN GHS revision 10

## 1: Identification

### 1.1 GHS Product identifier

**Product name** Phosphine, cyclohexyl[3,6-dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]tricyclo[3.3.1.1.13,7]dec-1-yl-

### 1.2 Other means of identification

**Product number** 2197989-24-3

**Other names** Phosphine, cyclohexyl[3,6-dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]tricyclo[3.3.1.1.13,7]dec-1-yl-

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research use.

**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Zhongshan Greenrock Technology Co., Ltd.

**Address** No. 138, Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China

**Telephone** +86-2087066781

### 1.5 Emergency phone number

**Emergency phone number** +86-2087066781

**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## 2: Hazard identification

### 2.1 Emergency Overview

Low-risk substances usually cause only mild irritation or discomfort. Under normal handling conditions, they are unlikely to pose a significant risk to human health or the environment. However, basic safety precautions must be followed.

### 2.2 GHS Classification

Hazardous to the aquatic environment, long-term hazard : Category 4

### 2.3 GHS label elements, including precautionary statements

**Pictogram(s)**

**Signal word**

|                                   |   |
|-----------------------------------|---|
| <b>Hazard statement(s)</b>        | H413 May cause long lasting harmful effects to aquatic life |
| <b>Precautionary statement(s)</b> |   |
| <b>Prevention</b>                 | P273 Avoid release to the environment.                      |
| <b>Response</b>                   | no data available   |
| <b>Storage</b>                    | no data available   |
| <b>Disposal</b>                   | P501 Dispose of contents/container to ...                   |

## 2.4 Physical and chemical

The physical and chemical hazards are low, and they are non-flammable, non-explosive, and non-corrosive. Some substances may be slightly flammable or irritating, but the risk is low.

## 2.5 Health hazards

May cause mild skin or eye irritation, such as redness and itching. Inhalation or ingestion of small amounts may cause temporary discomfort, but no serious or long-term health effects. No special medical treatment is generally required.

## 2.6 Environmental hazards

It has a low impact on the environment and is only slightly toxic to aquatic organisms and terrestrial ecosystems. Under normal disposal conditions, it will not cause significant environmental pollution and is highly biodegradable.

## 2.7 Other hazards which do not result in classification

no data available

# 3: Composition/information on ingredients

## 3.1 Substances

| Chemical name   | Common names and synonyms   | CAS number   | EC number | Concentration |
|---|---|--------------|-----------|---------------|
| Phosphine, cyclohexyl[3,6-dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]tricyclo[3.3.1.1 <sup>3,7</sup> ]dec-1-yl- | Phosphine, cyclohexyl[3,6-dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]tricyclo[3.3.1.1 <sup>3,7</sup> ]dec-1-yl- | 2197989-24-3 | -         | 99%           |

# 4: First-aid measures

## 4.1 General advice

Stop contact immediately and rinse the contact area with clean water; if symptoms are mild (such as skin redness, eye stinging), rest and observe; if symptoms persist or worsen, seek medical attention and carry the material SDS

## 4.2 If inhaled

Move to a ventilated place and breathe fresh air deeply; if a mild cough occurs, drink plenty of warm water to relieve it, no special treatment is required

#### **4.3 In case of skin contact**

Rinse with running water for 5-10 minutes. If itching occurs, apply anti-allergic ointment; avoid scratching

#### **4.4 In case of eye contact**

Rinse with clean water for 5 minutes and apply artificial tears; if discomfort persists, go to an ophthalmologist for treatment.

#### **4.5 If swallowed**

If a small amount is accidentally ingested (such as a mild irritant), drink plenty of water to promote excretion; seek medical attention if nausea occurs, and do not induce vomiting on your own.

#### **4.6 Most important symptoms and effects, both acute and delayed**

Mild redness and itching of the skin, brief stinging of the eyes, and a mild cough; no long-term health effects.

#### **4.7 Protection of first-aiders**

Rescuers need to wear ordinary gloves and goggles; no special heavy equipment is required, and they can just wash their hands after contact.

#### **4.8 Notes to physician**

Inform your doctor of the substance type (e.g., mild irritant, aquatic hazard); treat symptomatically (e.g., anti-allergic, anti-inflammatory); no special treatment is required.

## **5: Fire-fighting measures**

### **5.1 Unsuitable extinguishing media**

Mild irritants: No special contraindications, avoid using fire extinguishing agents that are incompatible with the substance (such as using alkali when encountering acid); Aquatic hazardous substances: Avoid using fire extinguishing agents that pollute water bodies (such as phosphorus-containing foam)

### **5.2 Specific hazards during fire fighting**

The risk of combustion is low, mostly small local fires that are not easy to spread; some substances release slightly irritating gases (such as acetic acid) when burned, which have little impact on health; if the wastewater from fire extinguishing of aquatic hazardous substances enters the water body, it may harm aquatic life.

### **5.3 Hazardous combustion products**

Carbon dioxide, water vapor, slightly irritating gases (such as sulfur dioxide, acetic acid vapor).

### **5.4 Specific extinguishing methods**

For small areas: use dry powder/water to extinguish the fire (if compatible), and use wet cleaning for dust (to prevent dust); for large areas: use foam/water to extinguish the fire, and collect the fire extinguishing

wastewater at the same time (to prevent water pollution); after extinguishing the fire, ventilate to dilute the residual gas.

## **5.5 Special protective equipment for fire-fighters**

Wear anti-static work clothes, nitrile gloves, and goggles; wear a dust mask when working with dust; no special heavy equipment is required, and maintain good ventilation during operation.

# **6: Accidental release measures**

## **6.1 Protective measures for workers**

Wear chemical protective clothing (resistant to corresponding chemicals), chemical protective gloves, and goggles; wear a gas mask (organic vapor filter cartridge) for volatile substances; avoid skin contact.

## **6.2 Environmental protection measure**

Set up waterproof cofferdams to prevent leaks from entering rivers/farmland; use oil-absorbing cotton/adsorbents to intercept leaks that have already entered the water body; take samples from contaminated water bodies for testing and assess the ecological impact.

## **6.3 Containment methods for leaked chemicals**

Collect liquids in water-resistant containers (to prevent rain); collect solids in chemical-resistant bags (to prevent rain erosion); and store them in rain-proof and seepage-proof areas after collection.

## **6.4 Cleanup methods for chemical spills**

Small leakage: absorb with aquatic protective adsorption materials; large leakage: transfer to storage tank with corrosion-resistant pump; cleaning water is collected and treated, and direct discharge is prohibited.

## **6.5 Measures to prevent the spread of leaks**

Designate a 10-meter isolation zone and monitor the drainage outlet; add a rain shelter on rainy days; and set up monitoring points in downstream water bodies.

## **6.6 Container leakage treatment**

Minor leaks: seal with waterproof sealant; serious leaks: move to a rainproof area, have professionals handle it, and reuse the container after passing inspection.

## **6.7 Special considerations**

Do not discharge leaked materials/cleaning water directly into water bodies; use phosphorus-free detergents; report the leak to the environmental protection department after treatment.

# **7: Handling and storage**

## **7.1 Safe storage conditions**

Store in a normally ventilated warehouse (natural ventilation or mechanical ventilation, air changes ? 2 times/hour); the container should be ordinary plastic or glass (such as polyethylene bottles, glass bottles) with a sealed lid; the warehouse floor should be ordinary cement with no special anti-corrosion requirements; equipped with basic fire-fighting equipment (such as fire extinguishers, fire sand).

## **7.2 Storage precautions**

Store materials by category (e.g. liquids and solids separated) to avoid confusion; clearly mark the substance name and H code on container labels; check containers for damage monthly and clean up minor leaks immediately; eating and drinking are prohibited in the warehouse, and hands must be washed after work.

## **7.3 VCI Storage Grade**

Level 4 (lowest): Metal containers do not require additional VCI protection and can be stored normally. The humidity in the warehouse is ?70%, which prevents slight rust on ordinary metals without affecting their use. For long-term storage (over 6 months), the dust on the surface of the container needs to be wiped off.

## **7.4 Recommended storage temperature**

10-35?, store at room temperature; avoid extreme temperatures (below -5? or above 40?); deliquescent substances (such as certain salts) should be stored in a dry place with a desiccant (such as silica gel) and replaced regularly (if the label has a recommended storage temperature, follow the label).

## **7.5 Handling**

For precautions see Safety Data Sheet section 2

Advice on safe handling : Work under hood. Do not inhale substance/mixture.

# **8: Exposure controls/personal protection**

## **8.1 Respiratory protection**

When exposed to slightly irritating dust (such as talcum powder) or vapor (such as acetic acid), wear an ordinary dust mask; a respirator is not necessary when ventilation is good.

## **8.2 Recommended Filter type**

For dust, choose Type P1 filter cotton; for slight organic vapor, choose Type A1 filter cartridge; no composite filtration is required, basic protection is sufficient.

## **8.3 Eye/face protection**

Wear ordinary impact-resistant goggles with resin lenses. Wear protective glasses when handling liquids to avoid splashing.

## **8.4 Skin and body protection**

Wear ordinary work clothes (cotton or chemical fiber) and wear a waterproof apron when handling liquids to prevent clothes from getting wet.

## **8.5 Hand protection**

Wear nitrile or latex gloves with a thickness of 0.2mm and replace them promptly after use to avoid damage.

## 8.6 Hygiene measures

Wash your hands with soap and running water after work. If your skin becomes red or itchy, apply moisturizer. Do not rub your eyes with your hands. Wash your clothes normally; no special disinfection requirements are required.

## 9: Physical and chemical properties and safety characteristics

|   |                          |
|---|--------------------------|
| <b>Physical state</b>   | no data available        |
| <b>Colour</b>   | no data available        |
| <b>Odour</b>  | no data available        |
| <b>Melting point/freezing point</b>                             | 221-224 °C               |
| <b>Boiling point or initial boiling point and boiling range</b> | 646.7±55.0 °C(Predicted) |
| <b>Flammability</b>   | no data available        |
| <b>Lower and upper explosion limit/flammability limit</b>       | no data available        |
| <b>Flash point</b>  | no data available        |
| <b>Auto-ignition temperature</b>                                | no data available        |
| <b>Decomposition temperature</b>                                | no data available        |
| <b>pH</b>   | no data available        |
| <b>Kinematic viscosity</b>                                      | no data available        |
| <b>Solubility</b>   | no data available        |
| <b>Partition coefficient n-octanol/water</b>                    | no data available        |
| <b>Vapour pressure</b>  | no data available        |
| <b>Density and/or relative density</b>                          | no data available        |
| <b>Relative vapour density</b>                                  | no data available        |
| <b>Particle characteristics</b>                                 | no data available        |

## **10: Stability and reactivity**

### **10.1 Reactivity**

no data available.

### **10.2 Chemical stability**

no data available.

### **10.3 Possibility of hazardous reactions**

no data available.

### **10.4 Conditions to avoid**

no data available.

### **10.5 Incompatible materials**

no data available.

### **10.6 Hazardous decomposition products**

no data available.

## **11: Toxicological information**

### **11.1 Acute toxicity**

no data available

### **11.2 Skin corrosion/irritation**

no data available

### **11.3 Serious eye damage/irritation**

no data available

### **11.4 Respiratory or skin sensitization**

no data available

### **11.5 Germ cell mutagenicity**

no data available

### **11.6 Carcinogenicity**

no data available

### **11.7 Reproductive toxicity**

no data available

## **11.8 STOT-single exposure**

no data available

## **11.9 STOT-repeated exposure**

no data available

## **11.10 Aspiration hazard**

no data available

# **12: Ecological information**

## **12.1 Toxicity**

no data available

## **12.2 Persistence and degradability**

no data available

## **12.3 Bioaccumulative potential**

no data available

## **12.4 Mobility in soil**

no data available

## **12.5 Other adverse effects**

no data available

# **13: Disposal considerations**

## **13.1 Disposal methods for waste chemicals**

It can be disposed of as ordinary industrial waste or recycled by a qualified unit. Liquid substances can be neutralized to a neutral pH before discharge (subject to compliance with local environmental protection standards). Solid substances can be safely landfilled or incinerated. After cleaning, the container can be recycled as ordinary waste.

## **13.2 Precautions**

Before disposal, the characteristics of the substance must be confirmed to avoid misjudging the risk level. Mildly irritating substances must be strictly separated from food-grade waste. The disposal process must comply with local environmental regulations. Small amounts of residue can be rinsed with water, and the rinse water must be treated. Records of the amount and destination of disposal must be kept for at least three years.

## 14: Transport information

### 14.1 UN Number

ADR/RID: Not dangerous goods    IMDG: Not dangerous goods    IATA: Not dangerous goods

### 14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods    IMDG: Not dangerous goods    IATA: Not dangerous goods

### 14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods    IMDG: Not dangerous goods    IATA: Not dangerous goods

### 14.4 Packing group, if applicable

ADR/RID: Not dangerous goods    IMDG: Not dangerous goods    IATA: Not dangerous goods

### 14.5 Environmental hazards

ADR/RID: no data available    IMDG: no data available    IATA: no data available

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

## 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

| Chemical name   | Common names and synonyms   | CAS number   | EC number   |
|---|---|--------------|-------------|
| Phosphine, cyclohexyl[3,6-dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]tricyclo[3.3.1.1.3,7]dec-1-yl- | Phosphine, cyclohexyl[3,6-dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]tricyclo[3.3.1.1.3,7]dec-1-yl- | 2197989-24-3 |             |
| <b>Australian Inventory of Industrial Chemicals (AIIC)</b>  |   |              | Not Listed. |
| <b>Catalogue of Strictly Restricted Toxic Chemicals in China</b>  |   |              | Not Listed. |
| <b>China Catalog of Hazardous chemicals 2015</b>  |   |              | Not Listed. |
| <b>European INventory of Existing Commercial chemical Substances</b>  |   |              | Not Listed. |
| <b>IARC Monographs on the Evaluation of Carcinogenic Risks to Humans</b>  |   |              | Not Listed. |
| <b>TSCA Inventory of Chemical Substances</b>  |   |              | Not Listed. |

## 16: Other information

### Information on revision

**SDS Creation Date** July 1, 2025

**SDS Revision Date** July 1, 2025

### Abbreviations and acronyms in SDS

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### SDS References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

**Any questions regarding this Safety Data Sheet, Please send your inquiry to [sales@MolBest.com](mailto:sales@MolBest.com)**

---

*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*