

# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: July 15, 2019  
Revision Date: July 15, 2019

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## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** 4,4'-oxydi(benzenesulphonohydrazide)

### 1.2 Other means of identification

**Product number** -  
**Other names** 4-[4-(hydrazinesulfonyl)phenoxy]benzenesulphonohydrazide;  
4,4'-Oxybis(benzenesulfonyl hydrazide)

### 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** Shanghai Yien Chemical Technology Co., Ltd  
**Address** Building 6, 28 Yingong Road, Fengxian District, Shanghai  
Chemical Industry Zone, Shanghai, 201400, China  
**Telephone** +86-400-133-2688

### 1.5 Emergency phone number

**Emergency phone number** +86-400-133-2688  
**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral  
Skin irritation, Category 2  
Skin sensitization, Category 1  
Eye irritation, Category 2  
Germ cell mutagenicity, Category 2  
Specific target organ toxicity – repeated exposure, Category 2  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Warning

<b>Hazard statement(s)</b>	H302 Harmful if swallowed H315 Causes skin irritation H317 May cause an allergic skin reaction H319 Causes serious eye irritation H341 Suspected of causing genetic defects H373 May cause damage to organs through prolonged or repeated exposure H410 Very toxic to aquatic life with long lasting effects
<b>Precautionary statement(s)</b>	
<b>Prevention</b>	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P203 Obtain, read and follow all safety instructions before use. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P273 Avoid release to the environment.
<b>Response</b>	P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P333+P317 If skin irritation or rash occurs: Get medical help. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P318 IF exposed or concerned, get medical advice. P319 Get medical help if you feel unwell. P391 Collect spillage.
<b>Storage</b>	P405 Store locked up.
<b>Disposal</b>	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### 2.3 Other hazards which do not result in classification

no data available

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4,4'-oxydi(benzenesulphonohydrazide)	4,4'-oxydi(benzenesulphonohydrazide)	80-51-3	201-286-1	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest.

#### Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth. Give one or two glasses of water to drink.

## **4.2 Most important symptoms/effects, acute and delayed**

Excerpt from ERG Guide 149 [Substances (Self-Reactive)]: Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. May produce irritating, toxic and/or corrosive gases. Runoff from fire control may cause pollution. (ERG, 2016)

## **4.3 Indication of immediate medical attention and special treatment needed, if necessary**

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Organic acids and related compounds

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

### **5.1 Suitable extinguishing media**

In case of fire in the surroundings: use appropriate extinguishing media.

### **5.2 Specific hazards arising from the chemical**

Excerpt from ERG Guide 149 [Substances (Self-Reactive)]: Self-decomposition, self-polymerization, or self-ignition may be triggered by heat, chemical reaction, friction or impact. May be ignited by heat, sparks or flames. Some may decompose explosively when heated or involved in a fire. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. May burn violently. Decomposition or polymerization may be self-accelerating and produce large amounts of gases. Vapors or dust may form explosive mixtures with air. (ERG, 2016)

### **5.3 Special protective actions for fire-fighters**

In case of fire in the surroundings, use appropriate extinguishing media.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### **6.2 Environmental precautions**

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Personal protection: particulate filter respirator adapted to the airborne concentration of the substance.

### **6.3 Methods and materials for containment and cleaning up**

Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### **7.2 Conditions for safe storage, including any incompatibilities**

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

TLV: (inhalable fraction): 0.1 mg/m<sup>3</sup>, as TWA

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear safety spectacles.

#### Skin protection

Protective gloves.

#### Respiratory protection

Use local exhaust.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	Diphenyloxide-4,4'-disulfonyl hydrazide is a colorless, crystalline solid with a geranium-like odor. Insoluble in water and denser than water. Contact may irritate skin, eyes and mucous membranes. Moderately toxic by ingestion, inhalation and skin absorption. Readily ignited by sparks or flames and burns intensely and persistently.
<b>Colour</b>	Fine white crystalline powder
<b>Odour</b>	Odorless
<b>Melting point/freezing point</b>	155 °C. Remarks:Data from handbook or collection of data.
<b>Boiling point or initial boiling point and boiling range</b>	140°C (Decomposes)
<b>Flammability</b>	Not combustible.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	159°C
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	140-160°C
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	Soluble in acetone; moderately soluble in ethanol and polyethylene glycols; insoluble in water and gasoline
<b>Partition coefficient n-octanol/water</b>	log Pow = 0.08. Remarks:Based on smiles code.
<b>Vapour pressure</b>	<= 0 hPa. Temperature:Ca. 80 °C. Remarks:Limit value calculated based on the detection limit of HPLC.

<b>Density and/or relative density</b>	>= 1.52 g/cm <sup>3</sup> . Temperature:20 °C.
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Not combustible. DIPHENYLOXIDE-4,4'-DISULFOHYDRAZIDE is an azide. Azo, diazo, azido compounds can detonate. This applies in particular to organic azides that have been sensitized by the addition of metal salts or strong acids. Toxic gases are formed by mixing materials of this class with acids, aldehydes, amides, carbamates, cyanides, inorganic fluorides, halogenated organics, isocyanates, ketones, metals, nitrides, peroxides, phenols, epoxides, acyl halides, and strong oxidizing or reducing agents. Flammable gases are formed by mixing materials in this group with alkali metals. Explosive combination can occur with strong oxidizing agents, metal salts, peroxides, and sulfides.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

### 10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /nitroxides/ and /sulfoxides/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 - rat (male/female) - >= 1 000 - <= 2 000 mg/kg bw.
- Inhalation: LC50 - rat (male/female) - > 5 mg/L air (analytical).
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

no data available

### Reproductive toxicity

no data available

### STOT-single exposure

See Notes.

### STOT-repeated exposure

no data available

### Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 - *Oryzias latipes* - 74 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 15 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 6.7 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge - > 20 mg/L - 30 min.

### 12.2 Persistence and degradability

AEROBIC: p,p'-Oxybis(benzenesulfonyl hydrazide), present at 100 ppm, reached 2% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 ppm in the Japanese MITI test(1,2), indicating that biodegradation is not expected to be an important environmental fate process(SRC).

### 12.3 Bioaccumulative potential

BCF values of <0.3 and <3.0 were calculated in carp (*Cyprinus carpio*) for p,p'-oxybis(benzenesulfonyl hydrazide), exposed over a 6 week test period to 1 mg/L and 0.1 mg/L, respectively(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### 12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of p,p'-oxybis(benzenesulfonyl hydrazide) can be estimated to be 880(SRC). According to a classification scheme(2), this estimated Koc value suggests that p,p'-oxybis(benzenesulfonyl hydrazide) is expected to have low mobility in soil.

### 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN3226 (For reference only, please check.)    IMDG: UN3226 (For reference only, please check.)    IATA: UN3226 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: SELF-REACTIVE    IMDG: SELF-REACTIVE    IATA: SELF-REACTIVE

SOLID TYPE D (For reference only, please check.)      SOLID TYPE D (For reference only, please check.)      SOLID TYPE D (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 4.1 (For reference only, please check.)      IMDG: 4.1 (For reference only, please check.)      IATA: 4.1 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: (For reference only, please check.)      IMDG: (For reference only, please check.)      IATA: (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: Yes      IMDG: Yes      IATA: Yes

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 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
4,4'-oxydi(benzenesulphonohydrazide)	4,4'-oxydi(benzenesulphonohydrazide)	80-51-3	201-286-1
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.

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## SECTION 16: Other information

#### Information on revision

**Creation Date**      July 15, 2019

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#### Abbreviations and acronyms

- 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%

#### 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/>

### Other Information

Health effects of exposure to the substance have not been investigated adequately.

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto:sds@xixisys.com)**

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*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.*