



# SAFETY DATA SHEETS

According to the UN GHS revision 9

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

## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** Methyl 5-(2,4-dichlorophenoxy)-2-nitrobenzoate

### 1.2 Other means of identification

**Product number** -  
**Other names** 2,4-dichlorophenyl 3'-methoxycarbonyl-4'-nitrophenyl ether;  
Bifenox; 5-(2,4-dichlorophenoxy)-2-nitrobenzoic acid methyl ester

### 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).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Warning  
**Hazard statement(s)** H410 Very toxic to aquatic life with long lasting effects  
**Precautionary statement(s)**  
**Prevention** P273 Avoid release to the environment.

|                 |   |
|-----------------|---|
| <b>Response</b> | P391 Collect spillage.  |
| <b>Storage</b>  | none  |
| <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 |
|--|--|------------|-----------|---------------|
| Methyl 5-(2,4-dichlorophenoxy)-2-nitrobenzoate | Methyl 5-(2,4-dichlorophenoxy)-2-nitrobenzoate | 42576-02-3 | 255-894-7 | 100%          |

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

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

no data available

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

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary. Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Cover skin burns with dry sterile dressings after decontamination. Poison A and B

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

### 5.2 Specific hazards arising from the chemical

no data available

### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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## SECTION 6: Accidental release measures

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

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### 6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

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

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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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

no data available

#### 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 tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

**Thermal hazards**

no data available

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

|   |                                       |
|---|---------------------------------------|
| <b>Physical state</b>   | no data available                     |
| <b>Colour</b>   | Solid                                 |
| <b>Odour</b>  | Slightly aromatic odor                |
| <b>Melting point/freezing point</b>                             | 83 - 85°C                             |
| <b>Boiling point or initial boiling point and boiling range</b> | 421°C at 760mmHg                      |
| <b>Flammability</b>   | no data available                     |
| <b>Lower and upper explosion limit/flammability limit</b>       | no data available                     |
| <b>Flash point</b>  | 208.4°C                               |
| <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>   | Solubility in xylene at 25 deg C: 30% |
| <b>Partition coefficient n-octanol/water</b>                    | log Kow = 4.48                        |
| <b>Vapour pressure</b>  | 2.4X10-6 mm Hg @ 25 deg C             |
| <b>Density and/or relative density</b>                          | 1.464g/cm3                            |
| <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**

Thermally stable up to 175 deg C; total decomp occurs above 290 deg C. Stable in slightly acidic or slightly alkaline media, but rapidly hydrolysed above pH 9.

### **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

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## **SECTION 11: Toxicological information**

**Acute toxicity**

- Oral: LD50 Rat oral >5000 mg tech./kg
- Inhalation: no data available
- Dermal: LD50 Rabbit percutaneous >2000 mg/kg

**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**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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**SECTION 12: Ecological information****12.1 Toxicity**

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

**12.2 Persistence and degradability**

AEROBIC: Decarboxylation and N-acylation has been identified as cleavage reaction pathways for bifenoX in soil(1). Biodegradation of bifenoX has been shown to be limited to simple transformations such as the reduction of the nitro group with the most prominent metabolites being the corresponding anthranilic acid and nitrofen(2). Also observed when using C14-labelled compound, >60% of applied bifenoX was found bound to the soil after 300 days(2). BifenoX exhibited a half-life of 3 to 7 days following preemergence application to a greenhouse soil; metabolites identified included 5-(2,4-dichlorophenoxy)-2-nitrobenzoic acid, nitrofen, and 5-(2,4-dichlorophenoxy) anthranilic acid over a 313-day period with an increase in the proportion of bound material(3). In non-flooded paddy soils, bifenoX was degraded rapidly with a half-life of 6 days; the free acid was the main degradation product(4).

**12.3 Bioaccumulative potential**

An estimated BCF of 560 was calculated for bifenoX(SRC), using a log Kow of 4.48(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is high(SRC). However, hydrolysis may attenuate this process(4). Radiolabeled bifenoX, introduced to a model 33-day rice paddy ecosystem sand at a 1.29 kg/ha dosage, exhibited a comparatively low ecological magnification value of 49 in mosquito fish (*Gambusia*) as compared with the

other rice paddy herbicides examined in this study, for example 1,546 for nitrofen and 867 formethoxy-nitrofen(4).

## 12.4 Mobility in soil

Kocs for bifenox have been reported ranging from 2,658 to 3,107(1). According to a classification scheme(2), these Koc values suggest that bifenox is expected to have slight to no mobility in soil. The sorption kinetics for bifenox were characterized by immediate rapid sorption with 30-70% of the added chemical adsorbed within the first 4 hrs, followed by a slow sorption over a longer time period(3). Slight desorption (10%) was noted after 24 hrs(3). In runoff experiments, it was shown that poorly soluble compounds like bifenox are only removed from fields as a result of heavy, erosive rainfalls on areas with a slope >10%; concn in soil before irrigation was 0.78 mg/kg in the 0-5 cm layer, after irrigation concns were in 0.77, 0.01, and 0.01 mg/kg at soil depths of 0-5, 5-10, and 10-15 cm, respectively(4).

## 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: UN3077 (For reference only, please check.)

IMDG: UN3077 (For reference only, please check.)

IATA: UN3077 (For reference only, please check.)

## 14.2 UN Proper Shipping Name

ADR/RID:  
ENVIRONMENTALLY  
HAZARDOUS SUBSTANCE,  
SOLID, N.O.S. (For  
reference only, please check.)

IMDG:  
ENVIRONMENTALLY  
HAZARDOUS  
SUBSTANCE, SOLID,  
N.O.S. (For reference only,  
please check.)

IATA:  
ENVIRONMENTALLY  
HAZARDOUS  
SUBSTANCE, SOLID,  
N.O.S. (For reference only,  
please check.)

## 14.3 Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)

IMDG: 9 (For reference only, please check.)

IATA: 9 (For reference only, please check.)

## 14.4 Packing group, if applicable

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

IMDG: III (For reference only, please check.)

IATA: III (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   |
|---|--|------------|-------------|
| Methyl 5-(2,4-dichlorophenoxy)-2-nitrobenzoate                                  | Methyl 5-(2,4-dichlorophenoxy)-2-nitrobenzoate | 42576-02-3 | 255-894-7   |
| <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>              |  |            | Not Listed. |
| <b>China Catalog of Hazardous chemicals 2015</b>                                |  |            | Not Listed. |
| <b>New Zealand Inventory of Chemicals (NZIoC)</b>                               |  |            | Not Listed. |
| <b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>       |  |            | Not Listed. |
| <b>Vietnam National Chemical Inventory</b>                                      |  |            | Listed.     |
| <b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b> |  |            | Not 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  
**Revision Date** July 15, 2019

### 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/>

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

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