

# 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** Dichlobenil

### 1.2 Other means of identification

**Product number** -

**Other names** 2,6-Dichlorobenzonitrile; Ethyl-2,6-dichlorbenzoat; 2,6-DICHLOROBENZNITRILE

### 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 Baishun Biotechnology Co., Ltd  
**Address** No. 26, Lane 918, Lianye Road, Zhelin Town, Fengxian District, Shanghai, 201400, China  
**Telephone** +86-21-37581181

### 1.5 Emergency phone number

**Emergency phone number** +86-21-37581181

**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, Dermal  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Warning

**Hazard statement(s)** H312 Harmful in contact with skin  
H411 Toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

<b>Prevention</b>	P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P273 Avoid release to the environment.
<b>Response</b>	P302+P352 IF ON SKIN: Wash with plenty of water/... P317 Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. 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
Dichlobenil	Dichlobenil	1194-65-6	214-787-5	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. Do NOT induce vomiting. Refer for medical attention .

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

SOLID: Harmful if swallowed. (USCG, 1999)

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

Inhalation: /get/ fresh air and rest. Skin /exposure/: Remove contaminated clothes. Rinse and then wash skin with water and soap. Eye /exposure/: first rinse with plenty of water for several minute (remove contact lenses if easily possible), then take to a doctor.  
Ingestion: Rinse mouth. DO NOT induce vomiting. Refer for medical attention.

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.)

### 5.2 Specific hazards arising from the chemical

Not flammable. (USCG, 1999)

### 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. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### 6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

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

Spills of pesticides at any stage of their storage or handling should be treated with great care. Liquid formulations may be reduced to solid phase by evaporation. Dry sweeping of solids is always hazardous: These should be removed by vacuum cleaning or by dissolving them in water or other solvent in the factory environment. Pesticides

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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

Provision to contain effluent from fire extinguishing. Separated from oxidants and food and feedstuffs. Store in an area without drain or sewer access. The shelf life in storage is at least 2 yr when stored in a cool, dry place. In view of its volatility, the product should be packed in tightly closed containers.

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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 safety goggles.

#### Skin protection

Protective gloves.

#### Respiratory protection

Use ventilation (not if powder), local exhaust or breathing protection.

#### **Thermal hazards**

no data available

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

<b>Physical state</b>	Dichlobenil is a white solid dissolved or suspended in a water-emulsifiable liquid carrier. The primary hazard is the threat to the environment. Immediate steps should be taken to limit spread to the environment. Can easily penetrate the soil and contaminate groundwater and nearby streams. Can cause illness by inhalation, skin absorption and/or ingestion. Used as a herbicide.
<b>Colour</b>	White crystalline solid
<b>Odour</b>	Aromatic odor
<b>Melting point/freezing point</b>	-68°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	234°C/1mmHg(lit.)
<b>Flammability</b>	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	147°C(lit.)
<b>Auto-ignition temperature</b>	Not Applicable. Not flammable. (USCG, 1999)
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	In water, 14.6 mg/L at 20 deg C
<b>Partition coefficient n-octanol/water</b>	log Kow = 2.74
<b>Vapour pressure</b>	0.00406mmHg at 25°C
<b>Density and/or relative density</b>	1.623 g/cm <sup>3</sup> (-101 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**

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen chloride. Reacts violently with oxidants.

### **10.2 Chemical stability**

Stable to sunlight

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

The formulated product is nonflammable. A halogenated nitrile. Nitriles may polymerize in the presence of metals and some metal compounds. They are incompatible with acids; mixing nitriles with strong oxidizing acids can lead to extremely violent reactions. Nitriles are generally incompatible with other oxidizing agents such as peroxides and epoxides. The combination of bases and nitriles can produce hydrogen cyanide. Nitriles are hydrolyzed in both aqueous acid and base to give carboxylic acids (or salts of carboxylic acids). These reactions generate heat. Peroxides convert nitriles to amides. Nitriles can react vigorously with reducing agents. Acetonitrile and propionitrile are soluble in water, but nitriles higher than propionitrile have low aqueous solubility. They are also insoluble in aqueous acids.

## 10.4 Conditions to avoid

no data available

## 10.5 Incompatible materials

Dichlobenil as a suspension in water does not deteriorate. It is compatible with most wettable powder herbicides. Mixing with water soluble fertilizers or emulsifiable herbicides is not recommended.

## 10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride, hydrogen cyanide, and nitrogen oxides/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Mouse oral male 2126 mg/kg (14 day observation period) female 2056 mg/kg (14 day observation period)
- Inhalation: LC50 Rat inhalation >250 mg/cu m/4 hr
- 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

Cancer Classification: Group C Possible Human Carcinogen

### Reproductive toxicity

no data available

### STOT-single exposure

no data available

### STOT-repeated exposure

The substance may have effects on the skin. This may result in chloracne.

### Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 *Lepomis macrochirus* (bluegill) 120 mg/L/96 hr at 24 deg C /weight of test organism= 1.0 g, using 100% technical material of 2,6-dichlorobenzoic acid metabolite/. Static bioassay without aeration, pH 7.2-7.5, water hardness 40-50 mg/L as calcium carbonate and alkalinity of 30-35 mg/L.
- Toxicity to daphnia and other aquatic invertebrates: EC50 *Daphnia magna* (Water flea, 1st instar; intoxication, immobilization) 6.2 ppm/48 hr; static /99% AI formulated product
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

## 12.2 Persistence and degradability

AEROBIC: Dichlobenil was degraded to 2,6-dichlorobenzamide and several other unidentified metabolites by an aquatic *Arthrobacter* species isolated from hydrosol(1). When dichlobenil was added to sterilized and unsterilized soil suspensions prepared from pond water and sediments, 22.9 and 3.5%, respectively, of the herbicide added remained after 4 weeks(1). The disappearance of dichlobenil from the hydrosol and water in a farm pond treated with the herbicide was attributed in part to biodegradation(2). No quantitative information on the extent of biodegradation was given. Biodegradation of 0.05 mg/L during incubation in activated sludge for 5 days was <0.1%(3). Incubation of <sup>14</sup>C-dichlobenil in aerobic and anaerobic soil suspension resulted in no evolution of <sup>14</sup>CO<sub>2</sub> in 5 days(4).

## 12.3 Bioaccumulative potential

The bioconcentration factor of dichlobenil in fish is 15-20(1). BCF values for dichlobenil ranged from 9.95 for bass to 18.5 for bluegill(2). Dichlobenil accumulated in edible (fillet) and nonedible (viscera) tissues of rainbow trout, largemouth bass, and brown bullhead catfish that were exposed to dichlobenil applied at 15 lb ai/A to a pond in Oregon. Maximum bioconcentration factors for edible, nonedible, and whole fish tissues were 12, 35, and 27 for rainbow trout; 10, 17, and 15 for largemouth bass; and 14, 21, and 17, respectively, for brown bullhead catfish(3). According to a classification scheme(4), these BCF values suggest bioconcentration in aquatic organisms is low to moderate(SRC).

## 12.4 Mobility in soil

An average Koc value of 167 was reported for dichlobenil in soils(1). Soil column studies with sandy loam and loam showed that leaching was considerably less in loam, but did occur in sandy loam depending upon the irrigation rate(2). With loam and moderate irrigation most of the dichlobenil remained in the top 10 cm, while its metabolite, dichlorobenzamide, was more readily leached(2). Koc values of 49, 110, 114, 205 and 106, were measured in a silt loam (0.6% organic matter), silty loam (1.9% organic matter), aquatic sediment (2.8% organic matter), loam (3.0% organic matter) and sand (4.8% organic matter), respectively(3). Additional Koc values of 195, 323, 272, 133 and 262 were measured for dichlobenil in a sandy soil (0.28% organic matter), hydrosol (2.24% organic matter), silt loam (4.7% organic matter), clay soil (12.4% organic matter), and sandy loam (6.9% organic matter), respectively. According to a classification scheme(4), these Koc values suggests that dichlobenil is expected to have high to moderate mobility in soil(SRC).

## 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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

## 14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)      IMDG: Not dangerous goods. (For reference only, please check.)      IATA: Not dangerous goods. (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
Dichlobenil	Dichlobenil	1194-65-6	214-787-5
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			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/>

## Other Information

Dichlobenil is a major metabolite of Chlorthiamid. Other melting points: 139-145°C (technical). See ICSC 0852.

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

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