

# 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** 1-chloro-2-nitrobenzene

### 1.2 Other means of identification

**Product number** -

**Other names** 2-Nitrochlorobenzene; Benzene, 1-chloro-2-nitro-

### 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).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral

Acute toxicity - Category 3, Dermal

Acute toxicity - Category 3, Inhalation

Carcinogenicity, Category 1B

Specific target organ toxicity – repeated exposure, Category 1

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

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word**

Danger

**Hazard statement(s)**

H301 Toxic if swallowed

H311 Toxic in contact with skin  
H331 Toxic if inhaled  
H350 May cause cancer  
H372 Causes damage to organs through prolonged or repeated exposure  
H411 Toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

**Prevention**

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.  
P271 Use only outdoors or in a well-ventilated area.  
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.

**Response**

P301+P316 IF SWALLOWED: Get emergency medical help immediately.  
P321 Specific treatment (see ... on this label).  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P316 Get emergency medical help immediately.  
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P318 IF exposed or concerned, get medical advice.  
P319 Get medical help if you feel unwell.  
P391 Collect spillage.

**Storage**

P405 Store locked up.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

**Disposal**

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
1-chloro-2-nitrobenzene	1-chloro-2-nitrobenzene	88-73-3	201-854-9	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

**If inhaled**

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

**Following skin contact**

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention .

**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 a slurry of activated charcoal in water to drink. Refer for medical attention .

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

INHALATION: Headache, languour, anemia. Irritation of nose and throat, cyanosis, shallow respiration, convulsions, and coma. EYES: Irritation. SKIN: Irritation. INGESTION: Forms methemoglobin giving rise to cyanosis and blood changes. (USCG, 1999)

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

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. 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 0.9% saline (NS) 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. Administer activated charcoal . Aromatic hydrocarbons and related compounds

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

#### **5.1 Suitable extinguishing media**

Water may cause foaming or frothing. Use water spray, dry chemical, foam, or carbon dioxide.

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

Special Hazards of Combustion Products: Ignites at high temperatures with evolution of nitrogen oxide and chloride fumes. Behavior in Fire: Volatile solid which gives off flammable vapors when heated; may form explosive mixtures with air. (USCG, 1999)

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

Use water spray, powder, foam, carbon dioxide.

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

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

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

#### **6.2 Environmental precautions**

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

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

Environmental considerations-land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents. Chloronitrobenzenes, ortho, liquid

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

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

NO open flames. NO contact with flammables. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. 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

Separated from combustible substances, reducing agents and food and feedstuffs. Store in cool, dry, well-ventilated location. Separate from alkalies and oxidizing materials.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

MAK: skin absorption (H); carcinogen category: 3B

#### 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 or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use 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>	Solid. Liquid (hot melt).
<b>Colour</b>	Pale green to yellow.
<b>Odour</b>	no data available
<b>Melting point/freezing point</b>	32.5 °C.
<b>Boiling point or initial boiling point and boiling range</b>	246 °C. Atm. press.:100 kPa.;119 °C. Atm. press.:1.1 kPa.
<b>Flammability</b>	Combustible. Many reactions may cause fire or explosion. 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>	123 °C. Atm. press.:1 013 hPa.
<b>Auto-ignition temperature</b>	470 °C.
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	dynamic viscosity (in mPa s) = 2.09. Temperature:44.5°C.

<b>Solubility</b>	Insoluble in water
<b>Partition coefficient n-octanol/water</b>	log Pow = 2.24.
<b>Vapour pressure</b>	0.04 hPa. Temperature:20 °C. Remarks:Obtained by extrapolation with the regressed parameters of the Antoine-Equation.;0.07 hPa. Temperature:25 °C. Remarks:Obtained by extrapolation with the regressed parameters of the Antoine-Equation.;0.43 hPa. Temperature:50 °C. Remarks:Obtained by extrapolation with the regressed parameters of the Antoine-Equation.
<b>Density and/or relative density</b>	1.37 g/cm <sup>3</sup> . Temperature:22 °C.
<b>Relative vapour density</b>	5.4 (vs air)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes on burning. This produces toxic and corrosive fumes of nitrogen oxides, chlorine (see ICSC 0126), hydrogen chloride (see ICSC 0163) and phosgene (see ICSC 0007). The substance is a strong oxidant. It reacts with combustible and reducing materials.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air.O-NITROCHLOROBENZENE is incompatible with strong bases and strong oxidizing agents. It will react with ammonia. (NTP, 1992)

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Reacts with alkalies, oxidizing materials.

### 10.6 Hazardous decomposition products

no data available

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 - rat (male) - 219 mg/kg bw.
- Inhalation: LC50 - rat (male) - ca. 3 200 mg/m<sup>3</sup> air.
- Dermal: LD50 - rat (male) - 655 mg/kg bw.

### 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

Evaluation: There is inadequate evidence in humans for the carcinogenicity of chloronitrobenzenes. There is inadequate evidence in experimental animals for the carcinogenicity of chloronitrobenzenes. Overall evaluation: Chloronitrobenzenes are not classifiable as to their carcinogenicity to humans (Group 3).

#### **Reproductive toxicity**

no data available

#### **STOT-single exposure**

The substance is mildly irritating to the eyes. The substance may cause effects on the blood. This may result in the formation of methaemoglobin. The effects may be delayed. Medical observation is indicated. See Notes.

#### **STOT-repeated exposure**

The substance may have effects on the blood and liver. This may result in the formation of methaemoglobin, anaemia and liver impairment.

#### **Aspiration hazard**

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - 34.8 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: IC50 - Daphnia carinata - 21.3 mg/L - 48 h.
- Toxicity to algae: EC50 - algae: Scenedesmus obliquus - 18.1 mg/L - 96 h.
- Toxicity to microorganisms: EC50 - Photobacterium phosphoreum - 4.54 mg/L - 15 min.

### **12.2 Persistence and degradability**

AEROBIC: 21.1 ppm 1-Chloro-2-nitrobenzene in Ohio River water inoculated weekly with settled sewage underwent no degradation in 175 days(1). 1-Chloro-2-nitrobenzene, present at 100 mg/L, reached 0 percent of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(2).

### **12.3 Bioaccumulative potential**

Carp exposed to solutions containing 0.25 ppm 1-chloro-2-nitrobenzene for 8 weeks had BCF values ranging from 7.0-20.8, and carp exposed to solutions containing 0.025 ppm 1-chloro-2-nitrobenzene had BCF values ranging from 7.4-22.3(1). According to a classification scheme(2), these BCF values suggest 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 1-chloro-2-nitrobenzene can be estimated to be 316(SRC). According to a classification scheme(2), this estimated Koc value suggests that 1-chloro-2-nitrobenzene is expected to have 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: UN1578 (For reference only, please check.)

IMDG: UN1578 (For reference only, please check.)

IATA: UN1578 (For reference only, please check.)

### **14.2 UN Proper Shipping Name**

ADR/RID:

CHLORONITROBENZENES, SOLID (For reference only, please check.)

IMDG:

CHLORONITROBENZENES, SOLID (For reference only, please check.)

IATA:

CHLORONITROBENZENES, SOLID (For reference only, please check.)

### **14.3 Transport hazard class(es)**

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### **14.4 Packing group, if applicable**

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

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

IATA: II (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**

<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
1-chloro-2-nitrobenzene	1-chloro-2-nitrobenzene	88-73-3	201-854-9
<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  
**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

TLV (as para-nitrochlorobenzene): 0.1 ppm (skin) A3 (confirmed animal carcinogen with unknown relevance to humans) (ACGIH 2004). Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Rinse contaminated clothing with plenty of water because of fire hazard.

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

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