



# 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** o-phenylenediamine dihydrochloride

### 1.2 Other means of identification

**Product number** -

**Other names** benzene-1,2-diamine,dihydrochloride; 1,2-Benzenediamine, dihydrochloride

### 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

Acute toxicity - Category 3, Oral  
Acute toxicity - Category 4, Dermal  
Eye irritation, Category 2  
Skin sensitization, Category 1  
Acute toxicity - Category 4, Inhalation  
Germ cell mutagenicity, Category 2  
Carcinogenicity, Category 2  
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)**



|                                   |   |
|-----------------------------------|---|
| <b>Signal word</b>                | Danger  |
| <b>Hazard statement(s)</b>        | H301 Toxic if swallowed<br>H312 Harmful in contact with skin<br>H319 Causes serious eye irritation<br>H317 May cause an allergic skin reaction<br>H332 Harmful if inhaled<br>H341 Suspected of causing genetic defects<br>H351 Suspected of causing cancer<br>H410 Very toxic to aquatic life with long lasting effects   |
| <b>Precautionary statement(s)</b> |   |
| <b>Prevention</b>                 | P264 Wash ... thoroughly after handling.<br>P270 Do not eat, drink or smoke when using this product.<br>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...<br>P261 Avoid breathing dust/fume/gas/mist/vapours/spray.<br>P272 Contaminated work clothing should not be allowed out of the workplace.<br>P271 Use only outdoors or in a well-ventilated area.<br>P203 Obtain, read and follow all safety instructions before use.<br>P273 Avoid release to the environment.  |
| <b>Response</b>                   | P301+P316 IF SWALLOWED: Get emergency medical help immediately.<br>P321 Specific treatment (see ... on this label).<br>P330 Rinse mouth.<br>P302+P352 IF ON SKIN: Wash with plenty of water/...<br>P317 Get medical help.<br>P362+P364 Take off contaminated clothing and wash it before reuse.<br>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P333+P317 If skin irritation or rash occurs: Get medical help.<br>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.<br>P318 IF exposed or concerned, get medical advice.<br>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 |
|------------------------------------|------------------------------------|------------|-----------|---------------|
| o-phenylenediamine dihydrochloride | o-phenylenediamine dihydrochloride | 615-28-1   | 210-418-7 | 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**

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and 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 if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the 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 bases/Amines and related compounds/

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

### **5.1 Suitable extinguishing media**

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: SMALL FIRE: Dry chemical, CO<sub>2</sub> or water spray. LARGE FIRE: Dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

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

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For electric vehicles or equipment, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. (ERG, 2016)

### **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/flammable 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**

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|---|--|
| <b>Physical state</b>   | 1,2-phenylenediamine dihydrochloride is a brownish-yellow crystals. Slightly soluble in water. Used in the manufacture of dye. |
| <b>Colour</b>   | Needles  |
| <b>Odour</b>  | no data available  |
| <b>Melting point/freezing point</b>                             | 258 °C   |
| <b>Boiling point or initial boiling point and boiling range</b> | 250°C(lit.)  |
| <b>Flammability</b>   | no data available  |
| <b>Lower and upper explosion limit/flammability limit</b>       | no data available  |
| <b>Flash point</b>  | 59°C(lit.)   |
| <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>   | Miscible with water  |
| <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  |

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Slightly soluble in water.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Acidic organic/inorganic salts, such as 1,2-PHENYLENEDIAMINE DIHYDROCHLORIDE, are generally soluble in water. The resulting solutions contain moderate to high concentrations of hydrogen ions and have pH's of less than 7.0. They react as acids to neutralize bases. These neutralizations generate heat, but less or far less than is generated by neutralization of inorganic acids, inorganic oxoacids, and carboxylic acid. They usually do not react as either oxidizing agents or reducing agents but such behavior is not impossible. Many of these compounds catalyze organic reactions.

### 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 /hydrogen chloride and nitrogen oxides/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: no data available
- 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**

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**

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

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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: UN2811 (For reference only, please check.)

IMDG: UN2811 (For reference only, please check.)

IATA: UN2811 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IATA: TOXIC SOLID, ORGANIC, N.O.S. (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: I (For reference only, please check.)

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

IATA: I (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   |
|--|------------------------------------|------------|-------------|
| o-phenylenediamine dihydrochloride                                       | o-phenylenediamine dihydrochloride | 615-28-1   | 210-418-7   |
| European Inventory of Existing Commercial Chemical Substances (EINECS)   |                                    |            | Listed.     |
| EC Inventory   |                                    |            | Listed.     |
| United States Toxic Substances Control Act (TSCA) Inventory              |                                    |            | Listed.     |
| China Catalog of Hazardous chemicals 2015                                |                                    |            | Listed.     |
| New Zealand Inventory of Chemicals (NZIoC)                               |                                    |            | Listed.     |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS)       |                                    |            | Not 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/>

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

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