

# 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** Phenothiazine

### 1.2 Other means of identification

**Product number** -  
**Other names** Thiodiphenylamine; Dibenzothiazine; 10H-Phenothiazine

### 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 Yansheng Internet Technology Co., Ltd  
**Address** 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China  
**Telephone** +86-4000-6969-66

### 1.5 Emergency phone number

**Emergency phone number** +86-4000-6969-66  
**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 4, Oral  
Skin sensitization, Category 1  
Specific target organ toxicity – repeated exposure, 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)**



**Signal word**

**Hazard statement(s)**

Warning  
H302 Harmful if swallowed  
H317 May cause an allergic skin reaction  
H373 May cause damage to organs through prolonged or repeated exposure  
H410 Very 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.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P273 Avoid release to the environment.

**Response**

P301+P317 IF SWALLOWED: Get medical help.  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P333+P317 If skin irritation or rash occurs: Get medical help.  
P321 Specific treatment (see ... on this label).  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P319 Get medical help if you feel unwell.  
P391 Collect spillage.

**Storage**

none

**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

---

**SECTION 3: Composition/information on ingredients****3.1 Substances**

| Chemical name | Common names and synonyms | CAS number | EC number | Concentration |
|---------------|---------------------------|------------|-----------|---------------|
| Phenothiazine | Phenothiazine             | 92-84-2    | 202-196-5 | 100%          |

---

**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. Refer for medical attention if skin irritation occurs.

**Following eye contact**

Rinse with plenty of water (remove contact lenses if easily possible).

**Following ingestion**

Rinse mouth. Seek medical attention if you feel unwell.

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

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact  
Symptoms: Itching, irritation, reddening skin; hepatitis, hemolytic anemia, abdominal cramps, tachycardia; kidney damage; skin photo sensitization Target Organs: Skin, cardiovascular system, liver, kidneys (NIOSH, 2016)

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

**Minimum/Potential Fatal Human Dose**

3. probably lies near borderline between toxicity classes 3 & 4. 3= moderately toxic: probable oral lethal dose (human) 0.5-5 g/kg, between 1 oz & 1 pint for 70 kg person (150 lb). 4= very toxic: probable oral lethal dose (human) 50-500 mg/kg between 1 teaspoon & 1 oz for 70 kg person (150 lb).

#### **Absorption, Distribution and Excretion**

Because of its low solubility, rate of its absorption from gi tract is dependent on particle size. micronized form of drug is absorbed rapidly.

---

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

### **5.1 Suitable extinguishing media**

Fires involving this compound should be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

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

Flash point data for this chemical are not available, but it is probably combustible. (NTP, 1992)

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

Use powder, water spray, foam, carbon dioxide.

---

## **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 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 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**

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.

---

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

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

NO open flames. 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 strong oxidants and strong acids. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.

---

## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Occupational Exposure limit values**

TLV: 5 mg/m<sup>3</sup>, as TWA; (skin)

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

### Skin protection

Protective gloves. Protective clothing.

### Respiratory protection

Avoid inhalation of dust.

### Thermal hazards

no data available

---

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

|  |   |
|--|---|
| Physical state   | Solid. Pellets.   |
| Colour   | Yellow.   |
| Odour  | SLIGHT ODOR   |
| Melting point/freezing point                             | 185 °C.   |
| Boiling point or initial boiling point and boiling range | 381 °C. Atm. press.:1 011 hPa.  |
| Flammability   | Combustible Solid, but not a high fire risk.  |
| Lower and upper explosion limit/flammability limit       | no data available   |
| Flash point  | 62°C(lit.)  |
| Auto-ignition temperature                                | 397 °C. Remarks:At atm. press. of 1013.0 hPa.   |
| Decomposition temperature                                | no data available   |
| pH   | 6. Remarks:Aqueous suspension.  |
| Kinematic viscosity                                      | no data available   |
| Solubility   | less than 1 mg/mL at 68° F (NTP, 1992)  |
| Partition coefficient n-octanol/water                    | log Pow = Ca. 3.78. Temperature:25 °C. Remarks:Log Pow is mean value of 7 independent measurements, ranging from 3,76 - 3,82. |
| Vapour pressure  | 0 Pa. Temperature:20 °C.  |
| Density and/or relative density                          | 1.296. Temperature:20 °C.   |
| Relative vapour density                                  | no data available   |
| Particle characteristics                                 | no data available   |

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes on heating and on contact with strong acids. This produces toxic and irritating fumes including nitrogen oxides and sulfur oxides. Reacts violently with strong oxidants. This generates fire hazard.

### 10.2 Chemical stability

Readily oxidized by sunlight or when in presence of finely divided inert carrier, acquiring greenish-brown tint

### 10.3 Possibility of hazardous reactions

ALTHOUGH PHENOTHIAZINE OXIDIZES FAIRLY EASILY WHEN IT IS EXPOSED TO AIR, RISK OF FIRE IS NOT HIGH. PHENOTHIAZINE is slowly decomposed by sunlight. (NTP, 1992). Organosulfides are incompatible with acids, diazo and azo compounds, halocarbons, isocyanates, aldehydes, alkali metals, nitrides, hydrides, and other strong reducing agents. Reactions with these materials generate heat and in many cases hydrogen gas. Many of these compounds may liberate hydrogen sulfide upon decomposition or reaction with an acid.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

STABILITY: This compound is slowly decomposed by sunlight. (NTP, 1992)

### 10.6 Hazardous decomposition products

If involved in fire, phenothiazine produces highly toxic sulfur & nitrogen oxides, which are dangerous lung irritants.

---

## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 - rat (male/female) - 1 370 mg/kg bw.
- Inhalation: no data available
- Dermal: LD50 - rat (male/female) - > 2 000 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

no data available

### Reproductive toxicity

no data available

### STOT-single exposure

The substance is mildly irritating to the skin.

### STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged exposure may cause skin photosensitization. The substance when ingested may have effects on the blood and nervous system.

### Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

---

## SECTION 12: Ecological information

## 12.1 Toxicity

- Toxicity to fish: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 70.7 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 11.92 mg/L - 48 h.
- Toxicity to algae: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - > 100 mg/L - 72 h.
- Toxicity to microorganisms: IC10 - activated sludge of a predominantly domestic sewage - > 100 mg/L - 30 min. Remarks: Respiration rate.

## 12.2 Persistence and degradability

A four-week biodegradation study using 30 mg/l sludge and a phenothiazine concentration of 100 mg/l gave a theoretical BOD of 0%(1).

## 12.3 Bioaccumulative potential

An estimated BCF value of 840 was calculated for phenothiazine(SRC), using an experimental log Kow of 4.15(1) and a recommended regression-derived equation(2). An eight-week bioconcentration study using carp and phenothiazine concentrations of 20 and 2 ug/l gave BCF values of 127-660 and 180-528, respectively(4). According to a classification scheme(3), these BCF values suggest that bioconcentration in aquatic organisms is high(SRC).

## 12.4 Mobility in soil

The Koc of phenothiazine is estimated as approximately 4300(SRC), using an experimental log Kow of 4.15(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that phenothiazine has slight mobility in soil(SRC). The adsorptivity of phenothiazine is expected to be sensitive to pH since phenothiazine is a base with a pKa of 2.52(4).

## 12.5 Other adverse effects

no data available

---

# 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.

---

# 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

---

### 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   |
|--|---------------------------|------------|-------------|
| Phenothiazine  | Phenothiazine             | 92-84-2    | 202-196-5   |
| 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                                |                           |            | 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.     |

---

### 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)**

---

*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.*