

# 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** Diphenylamine

### 1.2 Other means of identification

**Product number** -

**Other names** Diphenylamine, Redox-indicator; Diphenylamine; N-phenylbenzenamine

### 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

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**

Danger

<b>Hazard statement(s)</b>	H301 Toxic if swallowed H311 Toxic in contact with skin H331 Toxic if inhaled H373 May cause damage to organs through prolonged or repeated exposure H410 Very toxic to aquatic life with long lasting effects
<b>Precautionary statement(s)</b>	
<b>Prevention</b>	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. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P273 Avoid release to the environment.
<b>Response</b>	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. P319 Get medical help if you feel unwell. P391 Collect spillage.
<b>Storage</b>	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
<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
Diphenylamine	Diphenylamine	122-39-4	204-539-4	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

Rinse and then wash skin with water and soap.

#### Following eye contact

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

#### Following ingestion

Rinse mouth. Give one or two glasses of water to drink.

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

Inhalation may irritate mucous membranes. Overexposure, including ingestion of solid or skin contact, may cause fast pulse, hypertension, and bladder trouble. Contact with dust

irritates eyes. (USCG, 1999)

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

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

Stated to be less readily absorbed through the skin and respiratory tract /than aniline/.

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

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

Foam, dry chemical, carbon dioxide. ...Water or foam may cause frothing

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

Special Hazards of Combustion Products: Toxic oxides of nitrogen may form in fire.  
Behavior in Fire: Dust may be explosive if mixed with air in critical proportions and in the presence of a source of ignition. (USCG, 1999)

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

Use water spray, powder, alcohol-resistant foam, carbon dioxide.

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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 containers. If appropriate, moisten first to prevent dusting. 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. Then store and dispose of according to local regulations.

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

Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting, then remove to safe place

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

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

NO open flames. 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**

Provision to contain effluent from fire extinguishing. Separated from strong acids and oxidants. Store in an area without drain or sewer access. In general, materials which are toxic as stored or which can decompose into toxic components...should be stored in a cool, well-ventilated place, out of direct rays of the sun, away from areas of high fire hazard, and should be periodically inspected... Incompatible materials should be isolated from each other.

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

#### **8.1 Control parameters**

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

TLV: 10 mg/m<sup>3</sup>, as TWA; A4 (not classifiable as a human carcinogen). MAK: (inhalable fraction): 5 mg/m<sup>3</sup>; peak limitation category: II(2); skin absorption (H); carcinogen category: 3B; pregnancy risk group: C

**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 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. Crystalline.
<b>Colour</b>	Monoclinic leaflets from dilute alcohol
<b>Odour</b>	Pleasant, floral odor.
<b>Melting point/freezing point</b>	> 53 - < 54 °C.
<b>Boiling point or initial boiling point and boiling range</b>	298.8 °C. Remarks: Indications on atmospheric pressure were not provided.
<b>Flammability</b>	Combustible Solid; explosive if a cloud of dust is exposed to a source of ignition.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	153 °C
<b>Auto-ignition temperature</b>	> 400 °C. Remarks: No ignition detected below 400 °C.
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	Insoluble in water
<b>Partition coefficient n-octanol/water</b>	log Pow = 3.71. Temperature: 20.2 °C.; log Pow = 3.82. Temperature: 20.2 °C.; log Pow = 3.81. Temperature: 20.2 °C.
<b>Vapour pressure</b>	0.085 Pa. Temperature: 25 °C.; 0.309 Pa. Temperature: 35 °C.; 0.946 Pa. Temperature: 45 °C.
<b>Density and/or relative density</b>	1.188 g/cm <sup>3</sup> . Temperature: 20 °C.
<b>Relative vapour density</b>	5.82 (vs air)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes on heating and on burning. This produces toxic fumes including nitrogen oxides. Reacts with strong oxidants and strong acids.

## **10.2 Chemical stability**

Discolors in light.

## **10.3 Possibility of hazardous reactions**

Combustible when exposed to heat or flame. Dust explosion possible if in powder or granular form, mixed with air. DIPHENYLAMINE discolors in light. This chemical can react violently with hexachloromelamine and trichloromelamine. It is incompatible with strong oxidizing agents and strong acids. It is also incompatible with iron and silver salts. It reacts with nitrogen oxides. (NTP, 1992)

## **10.4 Conditions to avoid**

no data available

## **10.5 Incompatible materials**

Can react with oxidizing materials

## **10.6 Hazardous decomposition products**

When heated to decomposition it emits highly toxic fumes of /nitrogen oxides/.

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# **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LD50 - Hamster, Rat, Gerbil (male) - ca. 600 mg/kg bw. Remarks: Syrian hamsters.
- 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**

Cancer Classification: Not Likely to be Carcinogenic to Humans

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is irritating to the eyes and respiratory tract.

### **STOT-repeated exposure**

The substance may have effects on the kidneys. This may result in impaired functions. The substance may have effects on the blood. This may result in anaemia.

### **Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 Brachydanio rerio (Zebrafish) 2.2 mg/L/48 hr /Conditions of bioassay not specified
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 2 mg/L - 48 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 2.17 mg/L - 72 h.
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

AEROBIC: N,N-Diphenylamine, present at 30 mg/l, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 100 mg/l and the Japanese MITI test(1).

### 12.3 Bioaccumulative potential

BCFs ranging from 101 to 242 and 51 to 253 (species unidentified) were measured using 0.1 and 0.01 mg/liter of N,N-diphenylamine, respectively, and a 8-week study period(1). According to a classification scheme(2), these BCFs suggest the potential for bioconcentration in aquatic organisms is moderate(SRC).

### 12.4 Mobility in soil

The Koc of N,N-diphenylamine is estimated as 1,900(SRC), using a log Kow of 3.50(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that N,N-diphenylamine is expected to have low 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: 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

IMDG: 6.1 (For reference

IATA: 6.1 (For reference

only, please check.)

only, please check.)

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
Diphenylamine	Diphenylamine	122-39-4	204-539-4
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)			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

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#### 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

Technical product may contain a carcinogenic impurity (4-aminobiphenyl).

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

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*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.*