

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: January 11, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Diphenylamine Solution Reference Material in Methanol

1.2 Other means of identification

Product number CPRM3921

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

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

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

Hazard statement(s)

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

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.

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. 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

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Diphenylamine Solution Reference Material in Methanol	Diphenylamine	122-39-4	204-539-4	≈ 99%

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/.

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.

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

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.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 10 mg/m³, as TWA; A4 (not classifiable as a human carcinogen). MAK: (inhalable fraction): 5 mg/m³; 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

SECTION 9: Physical and chemical properties and safety characteristics

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

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/.

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.

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

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: 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

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.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2024
Revision Date January 11, 2025

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
- 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 info@cato-chem.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.