



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Diphenylamine, 99%
Product Number 112763
Brand Aldrich Chemical

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052

Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
DIPHENYLAMINE	122-39-4	Yes	204-539-4	612-026-00-5

Formula C12H11N
Synonyms Aniline, N-phenyl-, Anilinobenzene, Benzenamine, N-phenyl- (9CI), Benzene, anilino-, Benzene, (phenylamino)-, Big Dipper, C.I. 10355, Deccoscald 282, DFA, Difenylamin (Czech), N,N-Diphenylamine, Diphenylamine (ACGIH:OSHA), N-Fenylanilin (Czech), Naugalube 428L, No-Scald, No-Scald DPA 283, N-Phenylaniline, N-Phenylbenzenamine, Scaldip, Shield DPA

Section 3 - Hazards Identification

Emergency Overview

Toxic.
Toxic by inhalation, in contact with skin and if swallowed. May cause sensitization by skin contact. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to eyes, respiratory system and skin.
Target organ(s): Kidneys. Liver.

HMIS Rating
Health: 3* Flammability: 1 Reactivity: 1

NFPA Rating
Health: 3 Flammability: 1 Reactivity: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Explosion Data

Dust Potential

This material, like most materials in powder form, is capable of creating a dust explosion.

Flash Point: 307.4 °F 153 °C

Autoignition Temp: 635 °C

Extinguishing Media

Suitable

Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

Storage

Suitable

Keep tightly closed.

Section 8 - Exposure Controls / PPE

Engineering Controls

Use only in a chemical fume hood, Safety shower and eye bath.

Personal Protective Equipment

Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or

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type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

General Hygiene Measures

Wash contaminated clothing before reuse. Wash thoroughly after handling.

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	10 MG/M3
USA	MSHA Standard-air	TWA	10 MG/M3
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	10 MG/M3

Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color	Form
	Solid	White	Fine crystals

Molecular Weight: 169.23 AMU

Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	302 °C	760 mmHg
MP/MP Range	52 °C	
Freezing Point	N/A	
Vapor Pressure	1 mmHg	108 °C
Vapor Density	5.82 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.16 g/cm3	
Bulk Density	610 kg/l	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	39.3 mN/m	60 °C
Partition Coefficient	Log Kow: 3.5	
Decomposition Temp.	N/A	
Flash Point °F	307.4 °F	Method: closed cup
Flash Point °C	153 °C	Method: closed cup

Explosion Limits N/A

Flammability N/A
Autoignition Temp 635 °C

Solubility

Solubility in Water: Insoluble.

Other Solvents: BENZENE, ETHER, ETHYL ACETATE, GLACIAL ACETIC ACID, CARBON DISULFIDE.

N/A = not available

Section 10 - Stability and Reactivity

Stability

Stable.

Stable.

Conditions of Instability

May discolor on exposure to light.

Materials to Avoid

Strong oxidizing agents, Strong acids.

Hazardous Decomposition Products

Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide, Nitrogen oxides.

Hazardous Polymerization

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

Route of Exposure

Skin Contact

Causes skin irritation.

Skin Absorption

Toxic if absorbed through skin.

Eye Contact

Causes eye irritation.

Inhalation

Toxic if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion

Toxic if swallowed.

Sensitization

Skin

May cause allergic skin reaction.

Target Organ(s) or System(s)

Liver. Kidneys. Blood. Heart. Bladder. Spleen.

Signs and Symptoms of Exposure

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Exposure can cause: Nausea, vomiting, diarrhea. Damage to the liver. Damage to the kidneys.

RTECS Number: JJ7800000

Toxicity Data

Oral - Rat: 1120 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).

Lungs, Thorax, or Respiration:Respiratory depression.

Blood:Methemoglobinemia-Carboxyhemoglobin.

Oral - Mouse: 1230 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).

Lungs, Thorax, or Respiration:Respiratory depression.

Blood:Methemoglobinemia-Carboxyhemoglobin.

Oral - Guinea pig: 300 mg/kg (LD50)

Oral - Mammal: 3200 mg/kg (LD50)
Remarks: Lungs, Thorax, or Respiration: Cyanosis.

Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

ACGIH Carcinogen List

Rating
A4

Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	7500 MG/KG	Oral	(17-22D PREG)

Result: Specific Developmental Abnormalities: Urogenital system.

Section 12 - Ecological Information

Acute Ecotoxicity Tests

Test Type	
EC50 Algae	
Species	
Selenastrum capricornutum resp.	
Time:	Value:
72.0 h	2.01 - 2.36 mg/l
Test Type	
IC50 Algae	
Species	
Scenedesmus subspicatus	
Time:	Value:
72.0 h	1.5 mg/l
Test Type	
EC50 Daphnia	
Species	
Daphnia magna	
Time:	Value:
48.0 h	0.27 - 0.36 mg/l
Test Type	
LC0 Fish	
Species	
Leuciscus idus	
Time:	Value:
48.0 h	20 mg/l

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: None
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s
IATA UN Number: 3077
Hazard Class: 9

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Packing Group: III

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: T N

Indication of Danger

Toxic. Dangerous for the environment.

Risk Statements R: 23/24/25 33 50/53

Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements S: 28 36/37 45 60 61

After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

US Classification and Label Text

Indication of Danger

Toxic.

Risk Statements

Toxic by inhalation, in contact with skin and if swallowed. May cause sensitization by skin contact. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to eyes, respiratory system and skin.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. Do not breathe dust.

US Statements

Target organ(s): Kidneys. Liver.

United States Regulatory Information

SARA Listed: Yes

Deminimis: 1 %

Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

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. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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