

# MATERIAL SAFETY DATA SHEET (MSDS)

## 4-amino-N,N-dimethylaniline

### 1. Product Identification

**Synonyms:** 4-amino-N,N-dimethylaniline

**CAS No.:** 99-98-9

**Chemical Formula:** C<sub>8</sub>H<sub>12</sub>N<sub>2</sub>

**Urgent contact:** Shanghai Sunivo Supply Chain Management Co., Ltd.

Tel: +86 21 3393 3299

Fax: +86 21 5830 7878

URL: [www.sunivo.com](http://www.sunivo.com)

Address: Room 502, Building 5, Lane 289 Bisheng Rd., Pudong District,  
Shanghai, 201204 - P.R. of China

### 2. Composition/Information on Ingredients

CAS#	Chemical Name	content	EINECS#
99-98-9	N,N-Dimethyl-p-phenylenediamine	85	202-807-5

### 3. Hazards Identification

#### EMERGENCY OVERVIEW

Toxic by inhalation, in contact with skin and if swallowed. Light sensitive.

#### Potential Health Effects

Eye:

Causes eye burns.

Skin:

Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause blistering of the skin. Causes skin irritation and possible burns. Substance is readily absorbed through the skin.

Life-threatening toxicity may result from adult skin exposure to very minute quantities (1 teaspoon), based on animal studies.

**Ingestion:**

May be fatal if swallowed. Methemoglobinemia is characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown colored blood. May cause tremors and convulsions. May form methemoglobin which in sufficient concentration causes cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood).

**Inhalation:**

Dust is irritating to the respiratory tract. Harmful if inhaled.

Inhalation of high concentrations of vapors has produced toxicity and death in experimental animals.

**Chronic:**

Absorption into the body leads to the formation of methemoglobin which in sufficient concentrations causes cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood).

Laboratory experiments have resulted in mutagenic effects. Prolonged skin exposure may cause allergic dermatitis and possible hemorrhage.

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## 4. First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

**Skin:**

Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Remove contaminated clothing and shoes.

**Ingestion:**

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:**

Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

Treat symptomatically and supportively.

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## 5. Fire Fighting Measures

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Extinguishing Media:

Use carbon dioxide, water spray, or dry chemical.

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## 6. Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions.

Provide ventilation.

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## 7. Handling and Storage

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale.

Use only with adequate ventilation.

Storage:

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from light.

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## 8. Exposure Controls/Personal Protection

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under

a chemical fume hood.

Exposure Limits CAS# 99-98-9: Personal Protective Equipment Eyes: Wear chemical splash goggles.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

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## 9. Physical and Chemical Properties

Physical State: Solid or liquid

Color: red-violet - brown-violet

Odor: Not available.

pH: Not available.

Vapor Pressure: 0.0277 mm Hg @ 25 deg C

Viscosity: Not available.

Boiling Point: 262 deg C

Freezing/Melting Point: 34-53 deg C

Autoignition Temperature: Not available.

Flash Point: Not applicable.

Explosion Limits, lower: Not available.

Explosion Limits, upper: Not available.

Decomposition Temperature:

Solubility in water: Slightly soluble 7.38g/l @ 25C

Specific Gravity/Density: 1.04 g/cm3

Molecular Formula: C8H12N2

Molecular Weight: 136.20

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## 10. Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures. May discolor on exposure to light. Light sensitive. Stable in air when pure.

If impure, the crystals will liquefy.

Conditions to Avoid:

Light, dust generation, prolonged exposure to air.

Incompatibilities with Other Materials:

Strong oxidizing agents.

Hazardous Decomposition Products:

Carbon monoxide, oxides of nitrogen, carbon dioxide.

Hazardous Polymerization: Will not occur.

## 11. Toxicological Information

RTECS#:

CAS# 99-98-9: ST0874000 LD50/LC50:

CAS# 99-98-9: Dermal, guinea pig: LD50 = 500 uL/kg; Oral, mouse: LD50 = 30 mg/kg; Oral, rat: LD50 = 50 mg/kg.

TDLo (Dermal, human) = 14 ug/kg (Toxic Effects: Blood--hemorrhage and Skin--primary irritation and allergic dermatitis).

rabbit, LCLo: 500 ppb.

ppb.

Carcinogenicity:

N,N-Dimethyl-p-phenylenediamine - Not listed by ACGIH, IARC, or NTP.

Other:

See actual entry in RTECS for complete information

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## 12. Ecological Information

Ecotoxicity:

Bacteria: *Phytobacterium phosphoreum*: EC50 = 0.84-2.16 mg/L; 5,15,30 min; Microtox test at 15C If released to water, covalent bonding with humic materials in the water column and sediments may result in significant partitioning from the water column.

N-N-dimethyl-p-phenylenediamine in the water column may be susceptible to significant photooxidation via hydroxyl and peroxy radicals and singlet molecular oxygen. Direct photolysis may also contribute to aquatic degradation. The lack of data makes statements regarding the degradation of N,N-dimethyl-p-benzenediamine impractical.

## 13. Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations

## 14. Transport Information

IATA

Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.\*

Hazard Class: 6.1

UN Number: 2811

Packing Group: III

IMO

Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.

Hazard Class: 6.1

UN Number: 2811

Packing Group: III

RID/ADR

Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.

Hazard Class: 6.1

UN Number: 2811

Packing group: III

## 15. Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 23/24/25 Toxic by inhalation, in contact with skin  
and if swallowed.

Safety Phrases:

S 28A After contact with skin, wash immediately with  
plenty of water.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 99-98-9: No information available.

Canada

CAS# 99-98-9 is listed on Canada's DSL List.

CAS# 99-98-9 is not listed on Canada's Ingredient Disclosure List.

US FEDERAL

TSCA

CAS# 99-98-9 is listed on the TSCA inventory.

## 16. Other Information

### Disclaimer:

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