

# Material Safety Data Sheet

## N,N-Dimethyl-p-phenylenediamine

ACC# 89564

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** N,N-Dimethyl-p-phenylenediamine

**Catalog Numbers:** AC408460000, AC408460050, AC408461000, AC408465000

**Synonyms:** p-Aminodimethylaniline; N,N-Dimethyl-1,4-benzenediamine; p-(Dimethylamino)aniline; 4-(Dimethylamino)aniline; 4-(Dimethylamino)benzenamine; 4-(Dimethylamino)phenylamine; DMPD; DMPPDA; aromatic amine.

**Company Identification:**

Acros Organics N.V.  
One Reagent Lane  
Fair Lawn, NJ 07410

**For information in North America, call:** 800-ACROS-01

**For emergencies in the US, call CHEMTREC:** 800-424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
99-98-9	N,N-Dimethyl-p-phenylenediamine	>80	202-807-5

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: dark brown solid.

**Danger!** May be fatal if absorbed through the skin or swallowed. Causes eye burns. Causes skin irritation and possible burns. Harmful if inhaled. Causes respiratory tract irritation. May cause allergic skin reaction. May cause central nervous system effects. Light sensitive.

**Target Organs:** Central nervous system, respiratory system, eyes, skin.

#### 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.

## Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

**Skin:** POISON material. In case of contact, get medical aid immediately. Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

**Ingestion:** POISON material. If swallowed, get medical aid immediately. Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 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.

**Flash Point:** 130 deg C ( 266.00 deg F)

**Autoignition Temperature:** 539 deg C ( 1,002.20 deg F)

**Explosion Limits, Lower:**Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 1; Instability: 0

## Section 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.

## Section 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, mist, or vapor. 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.

## Section 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

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
N,N-Dimethyl-p-phenylenediamine	none listed	none listed	none listed

**OSHA Vacated PELs:** N,N-Dimethyl-p-phenylenediamine: No OSHA Vacated PELs are listed for this chemical.

### 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.

## Section 9 - Physical and Chemical Properties

**Physical State:** Solid

**Appearance:** brown-violet - dark brown

**Odor:** Not available.

**pH:** Not available.

**Vapor Pressure:** 0.0277 mm Hg @ 25 deg C

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 262 deg C

**Freezing/Melting Point:** 53 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Slightly soluble 7.38g/l @ 25°C

**Specific Gravity/Density:** 1.09 g/cm<sup>3</sup>

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

**Molecular Weight:** 136.2

## Section 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.

## Section 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).; Inhalation, rabbit, LCLo: 500 ppb.; Inhalation, guinea pig, LCLo: 240 ppb.; Dermal, dog, LDLo: 84 mg/kg.; Dermal, rabbit, LDLo: 60 mg/kg.

**Carcinogenicity:**

CAS# 99-98-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** See actual entry in RTECS for complete information.

**Neurotoxicity:** No information found

**Other Studies:**

## Section 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.

**Environmental:** If released to the atmosphere, N-N-dimethyl-p-phenylenediamine will degrade rapidly (estimated half-life of 1.368 hours) by reaction with photochemically produced hydroxyl radicals. If released to soil, N-N-dimethyl-p-phenylenediamine may be susceptible to high amounts of leaching in soil based on an estimated Koc range of 10.8 to 19.1. However, N-N-dimethyl-p-phenylenediamine may undergo a covalent chemical bonding with humic materials which can result in its chemical alteration to a latent form and prevent leaching. Readily biodegradable.

**Physical:** No information available.

**Other:** No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	PHENYLENEDIAMINES	Toxic Solid, Organic, N.O.S.
<b>Hazard Class:</b>	6.1	6.1
<b>UN Number:</b>	UN1673	UN2811
<b>Packing Group:</b>	III	II

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

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

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

CAS# 99-98-9: 10 lb lower threshold TPQ; 10000 lb upper threshold TPQ

#### SARA Codes

CAS # 99-98-9: immediate.

**Section 313** No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### STATE

CAS# 99-98-9 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

#### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

### 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.
- R 36/37/38 Irritating to eyes, respiratory system and skin.

**Safety Phrases:**

- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 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 - DSL/NDSL**

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

**Canada - WHMIS**

This product has a WHMIS classification of D1A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

<b>Section 16 - Additional Information</b>
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**MSDS Creation Date:** 5/26/1999

**Revision #4 Date:** 9/14/2006

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