
MATERIAL SAFETY DATA SHEET

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SECTION 1 – CHEMICAL IDENTIFICATION

Trade Name: Dimethylaniline
Synonyms: DMA;
N,N-Dimethylaniline;
N,N-dimethylbenzeneamine;
Dimethylphenylamine;
Dimethylaminobenzene
Formula: C₈H₁₁N
Chemical Family: Amine
Chemical Use: Chemical intermediate
Telephone Number: Information (281) 474-3271
Emergency Number: Chemtrec (800) 424-9300 Domestic
(703) 527-3887 International

Date of Issue: August 13, 2004
Revised Date: July 26, 2006

HMIS Hazard Rating

Health:	3*	4 = Extreme
Fire:	2	3 = High
Reactivity:	0	2 = Moderate
*-Chronic effect indicator. See Section 11.		1 = Slight
PPE rating to be supplied by user depending on use conditions.		0 = Least

SECTION 2 – HAZARDS IDENTIFICATION

Inhalation: May cause irritation to the nose, throat, and respiratory tract. May depress the central nervous system and decrease the ability of the blood to carry oxygen. Reacts with blood hemoglobin to form methemoglobin, which does not participate in oxygen transport. Sufficient concentrations of methemoglobin in the blood can result in suffocation in the presence of oxygen. Methemoglobinemia causes a blue coloration of the lips, nail beds, and eyelids (cyanosis). Exposure may cause headache, dizziness, weakness, fast labored breathing, increased pulse, lack of energy, loss of coordination, cardiac arrest, convulsions, coma, and possibly death.

Skin Contact: May cause irritation. May be rapidly absorbed through the skin resulting in central nervous system depression and hypoxia (cyanosis).

Eye Contact: May cause irritation. May be rapidly absorbed through the mucous membranes resulting in central nervous system depression and hypoxia (cyanosis).

Ingestion: Will cause central nervous system depression and hypoxia (cyanosis).

SECTION 3 – COMPOSITION

<u>Components</u>	<u>Percentage</u>	<u>TLV (ppm)</u>	<u>CAS #</u>
N,N-Dimethylaniline	>99	2	121-69-7
N-Methylaniline	0.45	0.5	100-61-8
Aniline	0.05	2	62-53-3

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove victim to fresh air. Get medical attention. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration.

Skin Contact: Immediately remove contaminated clothing and shoes. Wipe excess material from skin and flush with water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Get medical attention.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical attention.

Ingestion: IMMEDIATELY INDUCE VOMITING IF VICTIM IS CONSCIOUS.
GET MEDICAL ATTENTION.

Note to Physician: Blood methemoglobin if exposure or degree of cyanosis is in doubt. Avoid aspirin or aspirin-like precuts from complaints of headache. Advise patient to avoid alcohol for 2 to 3 days. Symptoms from skin may be delayed. Methemoglobinemia may require treatment with methylene blue. Exchange transfusion may be required in severe or unresponsive cases.

SECTION 5 – FIREFIGHTING MEASURES

Extinguishing Media: Use water, foam, dry chemical, or carbon dioxide (CO₂). Use water in flooding quantities to fight fire.

Special Firefighting Procedures/Precautions: Firefighters should wear NIOSH approved self-contained breathing apparatus. Responders should wear protective clothing to prevent skin contact. Move containers from fire area. If unable to move, cool sealed containers with water.

Unusual Fire and Explosion Information: Toxic vapors such as oxides of carbon and nitrogen. Possibly nitriles, aromatic amines, aldehydes, acids, cyanide, and phenols.

Environmental Note: Prevent entry into waterways or sewers.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Protective Measures: Evacuate area of unprotected personnel. Eliminate sources of ignition. Stay upwind and out of low areas. Wear personal protective equipment (See section 8) when responding to spills.

Spill Management: Stop source of leak if safe to do so. Dike and contain spill. Use water spray (fog) to reduce vapors. If vapor cloud forms, blanket area with water fog and foam. Use vacuum truck or pump to storage/salvage vessels. Clean up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. Spray area with water to remove trace residue. Contain runoff from residue flush and dispose of properly. Prevent entry into waterways, sewer, or confined areas. Remove contaminated trace residues from soil and dispose of in same manner as material. For small spills, clean up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and dispose of material properly.

Disposal: Proper disposal should be evaluated based on regulatory status of this material (refer to section 13).

SECTION 7 – HANDLING AND STORAGE

Containers do not have to be grounded and bonded when material is transferred, but it is recommended as a good practice. Store in a cool, dry place. Keep away from heat, sparks, and flames.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection:	NIOSH approved respiratory protection for organic vapors.
Ventilation:	Utilize local exhaust to control high vapor connections in confined areas.
Protective Gloves:	Utilize appropriate impervious chemical gloves.
Eye Protection:	Chemical goggles and possibly a face shield. Have eyewash facilities readily available.
Other Protective Equipment:	Wear additional protective clothing to prevent skin contact. This may include chemical resistant boots and chemical resistant suits.
Work Practices:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	380-382°F (193.5-194.5°C)
Melting Point:	63°F (2.1°C)
Molecular Weight:	121.18
Volatility/Vol (%):	Not Established
Vapor Pressure (mm Hg):	1 mm Hg at 86°F (30°C); 10 mm Hg at 158°F (70°C)
Vapor Density (Air = 1):	4.2
Solubility in H ₂ O (%):	0.18%; 1.2 g/L at 68°F (20°C) (Insoluble)
Appearance/Odor:	Pale-yellow oily liquid (turns brown on exposure to air) / Amine-like odor.
Odor Threshold	0.013 ppm
Viscosity (cps):	Not Established
Specific Gravity (H ₂ O = 1):	0.96 at 39°F (4°C)

pH:	Not Established
Log Octanol / Water Partition Coefficient:	2.31
Evap. Rate (Butyl Acetate = 1):	Not Established
Flash Point:	145°F (63°C) PMCC, ASTM D93
Lower Explosive Limit:	1 %
Upper Explosive Limit:	7 %
Autoignition Temperature	698°F (370°C)

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability:	Stable at ambient temperatures; may darken slowly with age. Unstable at elevated temperatures. Oxidizes slowly in air. Forms tarry residues after prolonged heating and distillation.
Conditions to Avoid:	Sources of ignition and incompatibles.
Incompatible Materials:	Benzoyl peroxide, diisopropyl peroxydicarbonate, acids, oxidizing agents, and aldehydes in acidic media.
Decomposition Products:	Toxic vapors such as oxides of carbon and nitrogen. Possibly nitriles, aromatic amines, aldehydes, acids, cyanide, and phenols.
Hazardous Polymerization:	Will not occur at ambient temperatures.

SECTION 11 – TOXICOLOGICAL INFORMATION

ACGIH	N,N-Dimethylaniline	TLV:	2 ppm (Skin)	STEL:	10 ppm
	N-Methylaniline	TLV:	0.5 ppm (Skin)	STEL:	Not Established
	Aniline	TLV:	2 ppm (Skin)	STEL:	Not Established
OSHA	N,N-Dimethylaniline	PEL:	5 ppm (Skin)	STEL:	Not Established
	N-Methylaniline	PEL:	2 ppm (Skin)	STEL:	Not Established
	Aniline	PEL:	5 ppm (Skin)	STEL:	Not Established
NIOSH	N,N-Dimethylaniline	IDLH	100 ppm		
	N-Methylaniline	IDLH	100 ppm		
	Aniline	IDLH	100 ppm		

Carcinogenicity listed by: **NTP: Yes** **IARC: Yes** **OSHA: No**

Long-term animal experiments have shown to affect the liver, spleen, kidneys, and blood. Teratogenic effects have also been shown.

Target Organs: Blood, liver, kidneys, cardiovascular system, and central nervous system.

Inhalation: N,N-Dimethylaniline

LCLo: 250 mg/m³ /4 Hours (rat)

Aniline

LCLo: 250 ppm / 4 Hours (rat)

TCLo: 10000 mg/m³: Eye effects, Pulmonary effects (human)

Skin: N,N-Dimethylaniline

LD50: 1770 mg/kg (adult rabbit)
500 mg / 24 Hours Moderate (adult rabbit)

Aniline

LD50: 1400 mg/kg (adult rabbit)
500 mg / 24 Hours Moderate (adult rabbit)

Eyes: Aniline

102 mg Severe (adult rabbit)

Ingestion: N,N-Dimethylaniline

LDLo: 50 mg/kg (human)

LD50: 1410 mg/kg (rat)

N-Methylaniline

LDLo: 280 mg/kg (adult rabbit)

Aniline

LD50: 250 mg/kg (rat)

SECTION 12 – ECOLOGICAL INFORMATION

Terrestrial Fate: N,N-Dimethylaniline is expected to have moderate mobility in soil.

Aquatic Fate: N,N-Dimethylaniline is expected to adsorb slightly to sediment and suspended solids in water.

Atmospheric Fate: N,N-Dimethylaniline is expected to exist solely as a vapor in the ambient atmosphere.

Ecotoxicity: N,N-Dimethylaniline

LC50 Pimephales promelas (fathead minnow) 78.2 mg/l/96 hr (confidence limit: 74.2-82.4 mg/l), flow-through bioassay measure concentrations, 23.4 °C, dissolved oxygen 7.0 mg/l, hardness 43.5 mg/l calcium carbonate, alkalinity 43.4 mg/l calcium carbonate, and pH 7.38.

Aniline

LC50 Pimephales promelas (fathead minnow) 33 days old 134 mg/l/96 hr (95% confidence limit: 122-148 mg/l), sample purity 99+%, temp 26.1 C, pH 7.58 hardness 47 mg of CaCO₃/l. /Conditions of bioassay not specified.

SECTION 13 – DISPOSAL INFORMATION

Place in a city, state, or federally permitted disposal facility. Handle in accordance with all applicable hazardous waste regulations.

RCRA Waste Number U012 (Aniline)

SECTION 14 – TRANSPORTATION INFORMATION

Proper Shipping Name:	N,N-Dimethylaniline
Primary Hazard Class:	6.1
Secondary Hazard Class:	None

Identification Number:	UN 2253
Packing Group:	II
Reportable Quantity:	100 pounds
Marine Pollutant:	No
Label(s) Required:	TOXIC

SECTION 15 – REGULATORY INFORMATION

TSCA: All substances are listed on, or are exempt from reporting.

TSCA 12(b) Export Notification: Not Listed

States Listings:

California Proposition 65: Aniline is known by the State of California to cause cancer.

Illinois Right-to-Know

Massachusetts Right-to-Know

Minnesota Right-to-Know

New Jersey Right-to-Know

New York State List of Hazardous Substances

Pennsylvania Right-to-Know

Rhode Island Right-to-Know

SARA Hazard Notification:

Hazard Categories Under Title III:

Acute, Chronic, Fire.

Section 302 Extremely Hazardous Substances:

1000 pounds TPQ (Aniline)

Section 313 Toxic Chemicals:

Aniline

CERCLA RQ:

100 pounds (N,N-Dimethylaniline).

European Regulations:

EINECS Number: *N,N*-dimethylaniline: 204-493-5

EC-No. 612-016-00-0

Labeling according to EC directives.

Symbol: T, N

Toxic, Dangerous For The Environment



R-Phrases: R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R40 Limited evidence of a carcinogenic effect.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-Phrases: S1/2 Keep locked up and out of the reach of children.

S28 After contact with skin, wash immediately with plenty of . . . (to be specified by

- the manufacturer)
- S36/37 Wear suitable protective clothing and gloves.
- S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

German Water Hazard Classification (WGK) Number: 2.

Canadian Regulations:

Listed on the DSL.

WHMIS Ingredient List

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

Japanese Regulations:

ENCS Number: 3-114X

Australian Regulations:

Listed on the AICS.

Korean Regulations:

ECL Number. KE-05-0532

Philippines Regulations:

Listed on the PICCS.

Swiss Regulations:

Listed on the Giftliste 1.

SWISS Number: G-1557

Toxic Category 2.

Taiwan Regulations:

Not Listed

SECTION 16 – OTHER INFORMATION

PPE Codes (NPCA-HMIS)

A – Glasses

B – Glasses, Gloves

C – Glasses, Gloves, Apron

D – Faceshield, Gloves, Apron

E – Glasses, Gloves, Dustmask

G – Glasses, Gloves, Vapor Respirator

H – Goggles, Gloves, Apron, Vapor Respirator

I – Glasses, Gloves, Dust/Vapor Respirator

J – Goggles, Gloves, Apron, Dust/Vapor Respirator

K – Supplied Air, Gloves, Full Protective Suit, Boots

F – Glasses, Gloves, Apron, Dust Respirator

Disclaimer

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