MATERIAL SAFETY DATA SHEET

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Section 1 - Product and Company Information

Product Name	N,N-DIMETHYLANILINE, 99%
Product Number	D145750
Brand	ALDRICH
Company	Sigma-Aldrich
Address	3050 Spruce Street 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
N,N-DIMETHYLANILINE	121-69-7	Yes

Formula	C8H11N
Synonyms	Benzenamine, N,N-dimethyl- * (Dimethylamino)benzene * Dimethylaniline (ACGIH:OSHA) * N,N-Dimethylaniline (OSHA) * N,N-Dimethylbenzenamine * N,N-Dimethylphenylamine * Dwumetyloanilina (Polish) * NCI-C56428 * NL 63-10P * Versneller NL 63/10
RTECS Number:	BX4725000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Toxic (EU).
Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Risk of serious damage to eyes.
Readily absorbed through skin. Combustible. Target organ(s): Blood. Central nervous system.

HMIS RATING

HEALTH: 3*
FLAMMABILITY: 2
REACTIVITY: 1

NFPA RATING

HEALTH: 3
FLAMMABILITY: 2
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.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

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 HAZARDS
Container explosion may occur under fire conditions.

FLASH POINT
167,000 °F 75,000 °C Method: closed cup

EXPLOSION LIMITS
Lower: 1,000 % Upper: 7,000 %

AUTOIGNITION TEMP
317,00 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. 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. Combustible liquid.
Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

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. Wear disposable coveralls and discard them after use.

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 container closed. Keep away from heat and open flame. Store in a cool dry place.

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 N100 (US) or type P3 (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	STEL	10 PPM
Remarks: Skin			
USA	ACGIH	TWA	5 PPM
Remarks: Skin			
USA	OSHA.	PEL	8H TWA 5 PPM (25 MG/M3) (SKIN)
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	5 PPM (SK)
		STEL	10 PPM (SK)

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	12 MG/M3
Poland		NDSCh	40 MG/M3
Poland		NDSP	-

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Liquid Color: Light yellow-green

Property	Value	At Temperature or Pressure
Molecular Weight	121,1800 AMU	
pH	7,4	20,00 °C Concentration: 1,20000 g/l

BP/BP Range	76,000. - 78,000 °C.10,000 mmHg	
MP/MP Range	2,000 °C	
Freezing Point	N/A	
Vapor Pressure	1,000000000 mmHg	30,00 °C
Vapor Density	4,200 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0,9560 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	1,200 Pas	30,000 °C
Surface Tension	3,830 mN/m	2,500 °C
Partition Coefficient	Log Kow: 2,620	
Decomposition Temp.	N/A	
Flash Point	167,000 °F 75,000 °C	Method: closed cup
Explosion Limits	Lower: 1,000 % Upper: 7,000 %	
Flammability	N/A	
Autoignition Temp	317,00 °C	
Refractive Index	1,5580	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:1 mg/ml H2O Other Solvents: ALCOHOL, CHLOROFORM ETHER, ACETONE, BENZENE	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.
Materials to Avoid: Strong oxidizing agents, Strong acids, Acid chlorides, Acid anhydrides, Chloroformates, Halogens.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be fatal if absorbed through skin.
Eye Contact: Causes eye irritation.
Inhalation: May be fatal if inhaled. Vapor or mist is irritating to the mucous membranes and upper respiratory tract.
Ingestion: May be fatal if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Blood. Central nervous system. Liver. Kidneys. Eyes. 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: Damage to the eyes. Blood effects.

TOXICITY DATA

Oral
Human
50,000000 mg/kg
LDLO
Remarks: Gastrointestinal:Other changes. Gastrointestinal:Nausea or vomiting.

Oral
Rat
951,000000 mg/kg
LD50
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Tremor. Lungs, Thorax, or Respiration:Cyanosis.

Skin
Rabbit
1770 UL/KG
LD50

Skin
Guinea pig
>20 ML/KG
LD50
Remarks: Skin and Appendages:Skin: After systemic exposure: Dermatitis, other

IRRITATION DATA

Skin
Rabbit
10,000000 mg
24H
Remarks: Open irritation test

Skin
Rabbit
500,000000 mg
24H
Remarks: Mild irritation effect

Eyes
Rabbit
20,000000 mg
24H
Remarks: Moderate irritation effect

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.

Species: Rat
Route of Application: Oral
Dose: 15450 MG/KG
Exposure Time: 2Y
Frequency: C
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Endocrine:Tumors.

Species: Mouse
Route of Application: Oral
Dose: 15450 MG/KG
Exposure Time: 2Y
Frequency: C
Result: Endocrine:Tumors. Tumorigenic:Equivocal tumorigenic agent by RTECS criteria.

IARC CARCINOGEN LIST

Rating: Group 3

NTP CARCINOGEN LIST

Rating: Some evidence.
Species: Rat
Route: Gavage

ACGIH CARCINOGEN LIST

Rating: A4

CHRONIC EXPOSURE - MUTAGEN

Species: Rat
Route: Intraperitoneal
Dose: 485 MG/KG
Mutation test: DNA damage

Species: Mouse
Route: Intraperitoneal
Dose: 485 MG/KG
Mutation test: DNA damage

Species: Mouse
Dose: 20 MG/L
Cell Type: lymphocyte
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster
Dose: 900 UMOL/L
Cell Type: lung
Mutation test: Micronucleus test

Species: Hamster
Dose: 83 MG/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 30 MG/L
Cell Type: ovary

Mutation test: Sister chromatid exchange

Section 12 - Ecological Information

PHYSICAL PROPERTIES AFFECTING ECOTOXICITY

BOD after 5 Days: < 20,000000 %

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Bacteria
Time: 30,0 min
Value: 650,000 mg/l

Test Type: IC50 Algae
Time: 96,0 h
Value: 340,000 mg/l

Test Type: EC50 Algae
Time: 72,0 h
Value: 1,900. - 27,000 mg/l.

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48,0 h
Value: 5,000 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96,0 h
Value: 65,600 mg/l

Test Type: LC50 Fish
Species: Carassius auratus (Goldfish)
Time: 48,0 h
Value: 69,000 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: N,N-Dimethylaniline
UN#: 2253
Class: 6.1
Packing Group: Packing Group II
Hazard Label: Toxic substances.
PIH: Not PIH

IATA

Proper Shipping Name: N,N-Dimethylaniline
IATA UN Number: 2253
Hazard Class: 6.1
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T-N

Indication of Danger: Toxic. Dangerous for the environment.

R: 23/24/25-40-51/53

Risk Statements: Toxic by inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S: 28-36/37-45-61

Safety Statements: 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). Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Toxic (EU).

Risk Statements: Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Risk of serious damage to eyes.

Safety Statements: Do not breathe vapor. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Readily absorbed through skin. Combustible.

Target organ(s): Blood. Central nervous system.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

DEMINIMIS: 1,000 %

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.