Safety Data Sheet

1. Identification

Product name	N,N-Diethylaniline
Product code	DEA
Manufacturer name	Mitsuboshi Chemical Co., Ltd.
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2. Hazards identification

GHS classification

Physical hazards	
Flammable liquid	Category 4
Health hazards	
Acute toxicity (Oral)	Category 4
Acute toxicity(inhalation)	Category 4
Skin corrosion	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity - Single exposure	Category 2(central nervous system)
Specific target organ toxicity - Repeated exposure	Category 2(blood)
Environmental hazards	
Acute aquatic hazard	Category 2
Long-term aquatic hazard	Category 2

GHS label elements

Pictograms and hazard symbol

Signal word: Warning

Hazard statements:

Combustible liquid
Harmful if swallowed or if inhaled
Causes skin irritation Causes serious eye irritation
May cause damage to organs: Central nervous system
May cause damage to organs through prolonged or repeated exposure: Blood
Toxic to aquatic life
Toxic to aquatic life with long lasting effects

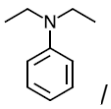
Precautionary statement

Prevention

Keep away from flames and hot surfaces. –No smoking.
Do not breathe mist, vapors or spray.

	Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Wear protective gloves, eye protection.
First aid measures	If swallowed: Call a poison center or doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. If exposed or concerned: Call a poison center or doctor. In case of fire: Use dry chemical, dry sand or foam to extinguish. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container to a specialist waste disposal contractor authorized by the prefectural governor.

3. Composition/Information on Ingredients

Substance/ Mixture	Substance
Components	N, N-Diethylaniline
Synonyms	N, N-Diethylphenylamine Diethylaminobenzene
Concentration	>99.0%
Chemical formula	 / $C_{10}H_{15}N$
CAS number	91-66-7

4. First aid measures

If inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician.
If on skin	Wash with plenty of soap and water.
If in eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If swallowed	Call a Poison Center or doctor/physician if you feel unwell. Make the victims drink water with active carbon.

5. Fire-fighting measures

Extinguishing Media	Water spray, Foam fire extinguisher, Powder fire extinguisher, Carbon dioxide fire extinguisher
Inappropriate fire extinguisher	Concentrated water jet
Specific hazard	Irritative or toxic fume and gases are generated in a fire.
Specific fire extinguishing method	Stop the supply of the conbustible material, and extiguish the fire by appropriate fire extiguisher. Cool the neighbouring tanks and architectures by water spray to prevent the expansion of fire. Fire extinguishing activities should be done on the windward side of the fire. Prohibit the entry of non-essential personnel to the area of fire. Move the container away from the fire zone if it is not dangerous to do so.
Protective equipment and precautions for fire fighters	Wear appropriate self-contained breathing apparatus and chemical resistant protective clothing that can protect eyes and skin.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Workers should wear appropriate protective equipment, and should avoid contact with eyes and skin and inhalation of gas. Prohibit the entry of non-essential personnel.
Environmental precautions	Prevent leaked substances from entering surface and ground water in order to avoid impact on the environment.
Containment and clean-up methods and materials	Promptly remove the all ignition sources. (Prohibit smoking and fireworks in the neighbouring area) Collect spillage to metal- or glass-made container as possible. Move the residual liquid to the safe place by asborption to sand or unreactive absorbent.

7. Handling and storage

Handling

Engineering control	Carry out the measures described in “8. Exposure controls/personal protection” and wear protective equipment.
Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/ sparks /open flames/ hot surfaces. No smoking. Avoid breathing dust/ fume/ gas/mist/ vapors/ spray. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well- ventilated area. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection. Wear respiratory protection. Wash contaminated clothing before reuse.

Avoidance of contact	Please refer to “10. Stability and reactivity”.
Storage	
Storage condition	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep away from strong oxidizing reagents, food, and feed. Ventilate through floor. Store in a place that have no access to drain tube or sewer pipe.
Container and packaging materials	Use a container specified in the Fire Service Law or United Nations transportation regulations.

8. Exposure control/ Personal protection	
Control concentration	No set
Threshold limit value	
Japan Society for Occupational Health (2017 edition)	No set
ACGIH (2017 edition)	No set
Facility controls	In the place where the substance is stored and used, provide facilities for eye-washing and a shower for washing the entire body. Install ventilation equipment for maintaining air-polluting substances below the control concentration and threshold limit value when mist is emitted during processing at high heat.
Personnel protective equipment	
Respiratory protection	If ventilation is not enough, wear appropriate protective respiratory equipment.
Hand protection	Wear appropriate protective gloves.
Eye protection	Wear appropriate eye protection.
Skin and body protection	Wear appropriate protective clothing and face protection.

9. Physical and chemical properties	
Physical state	
Appearance	Liquid (20℃, 1atm)
color	Pale yellow or pale brown
odor	Irritating, aniline odor
pH	No data
Melting point	-38℃(GESTIS)
Boiling point	216.3℃(GESTIS)
Flash point	92℃(GESTIS)
Evaporation rate (Butyl acetate＝１)	No data
Vapor pressure	0.2 hPa(25℃)(GESTIS)
Relative vapor density(air＝1)	5.0
Specific gravity(density)	0.9302 g/cm3 (25℃)(GESTIS)
Solubility	Water：0.13 g/L (20℃) Soluble in alcohol, chloroform, ether; soluble in acetone, benzene, organic solvent.
Partition coefficient :octanol／water	3.31

Auto-ignition temperature	330℃
	No data
Viscosity	No data

10. Stability and reactivity

Reactivity	Please refer to “Hazardous decomposition products”.
Chemical stability	Stable under normal use and storage.
Conditions to avoid	Contact with open- flame, high temperature, incompatible substances.
Incompatible substance	Oxidizer, strong acid, especially nitric acid
Hazardous decomposition products	Heating causes combustion, harmful fume gas (Aniline, Nitrogen Oxide) is produced.

11. Toxicological information

Acute toxicity	
Oral	orl-rat LD50:606 mg/kg(IUCLID（2000）), Category 4
Dermal	skn-rat LD50:>5000 mg/kg(IUCLID（2000）)
Inhalation(vapor)	No data
Inhalation(mist)	GHS classification: not possible The data necessary for classification is insufficient.
Skin corrosion/irritation	skn-rbt 0.5 mL/24H SEV(IUCLID（2000）)
Serious eye damage/eye irritation	eye-rbt 0.1 mL MLD (IUCLID（2000）)
Respiratory sensitization	GHS classification: impossible The data necessary for classification is insufficient.
Skin sensitization	GHS classification: impossible The data necessary for classification is insufficient.
Germ sell mutagenicity	GHS classification: impossible The data necessary for classification is insufficient.
Carcinogenicity	GHS classification: impossible The data necessary for classification is insufficient.
Reproduction toxicity	GHS classification: impossible The data necessary for classification is insufficient.
Specific target organ toxicity (single exposure)	In rat studies, oral administration (LD50; 606 mg / kg) reports on cyanosis, sensory disorders, palmar contraction etc. Inhalation test (LC50; 1.92 mg / L) reports on ataxia or tremors Based on [IUCLID (2000)], the substance was classified into Category 2 (central nervous system).
Specific target organ toxicity (Repeated exposure)	Hemosiderin deposition of spleen and Kupffer cells in all administration groups (28 days: 10, 50, 250 mg / kg / day: 3 mg / kg / day converted to 90 days) in the oral administration test (OECD TG 407) in rats Based on reports of extramedullary hematopoiesis and congestion in the spleen [IUCLID (2000)], the dose falls under Category 1, but since it is the data of List 2, it was classified as Category 2 (blood).
Aspiration hazard	GHS classification: impossible The data necessary for classification is insufficient.

12.Ecological information

Hazard to the aquatic	
Acute hazard	EC50 (Daphnia magna):1.3mg/L/48hr (AQUIRE, 2010) .
Chronic hazard	Acute toxicity is Category 2, not rapidly degradable.
Hazard to the ozone layer mobility	No information available

13.Disposal consideration

Residual waste	For disposal, follow relevant regulations and local authority standards. Dispose of contents / container by a special waste disposal contractor who received permission from the local governor. When consigning waste to a contractor, be sure to provide sufficient notice of hazards and toxicity.
Contaminated packaging	Containers should be cleaned and recycled, or appropriate disposal according to relevant laws and local government standards. When empty containers are discarded, contents should be completely removed.

14. Transport information

International regulations	
UN number	2432
Proper shipping name	N,N-DIETHYLANILINE
Class	6.1
Packing groupe	III
Marine pollutant	Not applicable
Chemicals listed in MARPOL73/78 annex Ⅱ and with IBC code	Not applicable

Domestic regulations

Regulations on transport in your region should be checked by your own responsibility.

15. Regulatory information

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

16. Other information

References	The original data are indicated in each item.

Disclaimer

The content of this SDS was prepared based on currently available materials, and the data and evaluations are not necessarily full and complete, therefore the content must be treated with caution. Moreover, the precautions shown here are for normal handling of the product. If you intend to use the product for special purposes, additional safety measures appropriate to the application and usage may be required.