

DHALOP CHEMICALS PRIVATE LIMITED

A-901, PARTHENON CHSL, J.P. RAOD, AMBIVALI, VERSOVA AREA, ANDHERI (W),
MUMBAI 400053,INDIA.

SAFETY DATA SHEET (S D S)

The date of preparation

August 22,2007

Revised date

November 27,2022

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND THE SUPPLIER

Product Name	DETA (DIETHYLENE TRIAMINE)
Supplier	DHALOP CHEMICALS PVT. LTD.
Address	A-901, PARTHENON CHSL. J.P. ROAD, AMBIVALI, VERSOVA AREA, ANDHERI (W), Mumbai 400053,INDIA.

2. HAZARD IDENTIFICATION

GHS classification

Explosives:	Not applicable
Flammable gases:	Not applicable
Aerosols:	Not applicable
Oxidizing gases:	Not applicable
Gases under pressure:	Not applicable
Flammable liquids:	Not classified
Flammable solids:	Not applicable
Self-reactive substances and mixtures:	Not applicable
Pyrophoric liquids:	Not classified
Pyrophoric solids:	Not applicable
Self-heating substances and mixtures:	Classification not possible
Substances and mixtures which, in contact with water, emit flammable gases:	Not applicable
Oxidizing liquids:	Not applicable
Oxidizing solids:	Not applicable
Organic peroxides:	Not applicable
Corrosive to metals:	Classification not possible

Acute toxicity

Oral:	Category 4
Dermal:	Category 3
Inhalation(Gases):	Not applicable
Inhalation(Vapours):	Category 2
Inhalation(Dusts/Mists):	Classification not possible
Skin corrosion/Irritation:	Category 1A
Serious eye damage/eye irritation:	Category 1

Sensitization

Respiratory:	Category 1
Skin:	Category 1
Germ cell mutagenicity:	Not classified

Carcinogenicity:	Classification not possible
Reproductive toxicity:	Classification not possible
Specific target organ toxicity (Single exposure):	Classification not possible
Specific target organ toxicity (Repeated exposure):	Classification not possible
Aspiration hazard:	Classification not possible
Aquatic environment	
Acute hazard:	Category 3
Long-term hazard:	Not classified

GHS label elements

**Danger**

Hazard Statement:

Harmful if swallowed
 Toxic in contact with skin
 Causes severe skin burns and eye damageMay
 cause an allergic skin reaction
 Fatal if inhaled
 May cause allergy or asthma symptoms or breathing difficulties if inhaledHarmful to
 aquatic life

Precautionary statement:

«Precautionary measures»

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.Use
 only outdoors or in a well-ventilated area.
 If this is not the intended use, avoid release to the environment.Do not
 eat, drink or smoke when using this product.
 Contaminated work clothing should not be allowed out of the workspace.Wash
 hands thoroughly after handling.
 Wear respiratory protection.
 Wear protective gloves/ protective clothing.

«Measures to be taken»

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortablefor
 breathing. Immediately call a POISON CENTER or doctor/physician.

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a
 position comfortable for breathing.

IF SWALLOWED: Rinse mouth. Do not induce vomiting.

IF SWALLOWED: Call a POISON CENTER or doctor/physician, if you feel unwell.
 Rinse mouth.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contactlenses,
 if present and easy to do. Continue rinsing.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinseskin
 with water/shower.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.Remove/Take off
 immediately all contaminated clothing.

Wash contaminated clothing and remove contamination before reuse. Immediately call a POISON CENTER or doctor/physician.

If experiencing respiratory symptoms: CALL A POISON CENTER or doctor/physician.

Specific measure is urgent.

«Storage»

Store locked up.

«Disposal»

Consign dispose of the contents and container to the disposal-specialized services approved by a prefectural governor.

Other hazards which do not result in GHS classification: No information available

Important symptoms:

No information available

Summary of assumed emergency: No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Classification of the chemical substance or/mixture:

Single product

Chemical name or common name:

Diethylenetriamine

Synonyms:

2,2'-iminodi(ethylamine)

Concentration or concentration range:

Chemical name or common name	Abbreviation	Concentration or concentration range	Reference number in Gazetted List in Japan		CAS No
			Japanese Chemical Substances Control Law (JCSCL)	Japanese Industrial Safety and Health Law	
Diethylenetriamine	—	More than 99.0%	(2)-159	Existing chemical substances	111-40-0

Chemical formula:

<Diethylenetriamine>

C₄H₁₃N₃

Component subject to regulation:

Ingredient	Japanese Industrial Safety and Health Law	Japanese PRTR Law (Pollutant Release and Transfer Register)
Diethylenetriamine	Japanese Industrial Safety and Health Law (Article 57-2 of the Law) -MSDS require Number 225	Not applicable to the specified chemical substances of Japanese PRTR Law

PRTR Law shows the information for each chemical substances since April, 2010 Impurities and stabilizing additives which contribute to the classification of GHS:
No information available

4. FIRST-AID MEASURES

IF INHALED:

Remove a victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, loosen clothing to ensure airways and give artificial respiration.

Wrap the body with blanket, etc. and keep warm and at rest. Make an arrangement to get medical attention immediately.

IF ON SKIN:

When touched skin: start washing as soon as possible, and it is necessary to rinse off the attached product thoroughly. If the start of washing is delayed or washing is not sufficient: May cause skin damage.

Even if neither pain nor any changes in appearance occur soon, get medical advice surely, since damage may be delayed.

IF IN EYES:

After washing eyes with clean water for at least 15 minutes, immediately get medical attention. During washing eyes, open eyelids with fingers and wash so that water can flow all over the eyeball and eyelid.

Even if effects on visual acuity are not observed soon: Get medical advice surely since damage may occur.

IF SWALLOWED:

Call a physician immediately. Rinse mouth.

If a victim is unconscious: Do not give anything from the mouth. Do not induce vomiting.

Most important effects and symptoms: No information available

Protection for first-aid responders:

First-aid responders should wear protective equipment such as rubber gloves and a closed goggle, etc.

Remove contaminated clothing and protective equipment. First-aid responders should wear gloves to avoid contacting hazards.

Note to physician:

No information available

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Dry chemical powder, foam, carbon dioxide, sand

Unsuitable extinguishing media:

Water spray may be used for cooling purposes, but water jet flow should not be used for extinguishing fire.

Specific hazards arising from the chemical if burning: No information available

Specific fire fighting measures: Fight

fire from upwind side.

Cool the surrounding facility with water spray.

Special protective equipment for fire fighter:

During fire-fighting, wear heat resistance gloves, safety goggles, and breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

In case of indoors, conduct ventilation sufficiently until the disposal is completed.

For handling during leakage, wear rubber gloves, safety glasses, and protective clothing surely.

Environmental precautions:

Exercise caution so as not to drain the leaked product into rivers, etc. but to minimize the

adverse events on the environment.

Prevent spills from entering sewers, watercourses and low areas.

Method of cleaning up:

In case the spill amount is small, let it be absorbed with dry sand, earth, sawdust, and rags, then recover in an empty container that can be sealed..

In case the spill amount is large, surround it with an earth dike and prevent it from flowing out, then dispose of it after leading it to a safe place.

Prevention measures of secondary disaster:

Immediately remove the nearby ignition source, and prepare fire extinguishing agent.

7. HANDLING AND STORAGE

Handling

Appropriate engineering controls:

Take facility measures stated in “Section 8. Exposure controls and personal protection” and wear protective equipment.

Handle in a place with good ventilation.

Be careful not to cause leakage, overflow, and scattering, and do not generate vapor without reason.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not get in eyes, on skin, or on clothing.

Local and entire ventilation:

Conduct local or entire exhaust ventilation stated in “Section 8. Exposure controls and personal protection.”

General precautions:

No information available

Safe handling advice:

No information available

Avoid contact:

No information available

Hygiene measures:

Wash hands thoroughly and gargle after working, and eat and drink.

Storage

Appropriate engineering controls: Be

careful of fire.

Protect from sunlight.

Keep container tightly closed, and store in a well-ventilated place.

Storage site should be fire-proof structure, and natural lighting, lighting, and ventilating facilities should be installed to store and handle the hazardous substances.

Safe storage conditions:

No information available

Safe containers and packaging materials:

Use containers made of zinc phosphate-treated carbon steel, tin coat steel, polyethylene, and stainless-steel (SUS304, 316).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Facility measures

Install equipment to wash the hands and eyes nearby.

Use closed type apparatuses and equipment or local exhaust ventilation.

Administrative levels

Not established

Occupational Exposure Limits

Diethylenetriamine	1ppm(skin)	TWA	ACGIH
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Personal protective equipment

Respiratory protection:

Chemical-cartridge respirator for organic hazard gas, air-supplied mask, air respirator

Hand protection

Rubber or resin gloves

Eyes Protection:

Safety glasses or face shield

Skin and body protection:

Protective clothing, protective boots, and protective apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Colour:	Colorless transparency
Odour(Odour threshold):	Ammonia like odor
pH:	12.5 (25% aqueous solution at 25°C(77 °F))
Melting point/Freezing point:	-39°C
Boiling point:	207°C
Initial boiling point:	No information available
Boiling range:	No information available
Flash point:	104°C (COC)
Evaporation rate:	No information available
Flammability (solid, gas):	No information available
Lower flammability or explosive limits:	2Vol% 6.7Vol%
Upper flammability or explosive limits:	(in air)
Vapor pressure:	37Pa (20°C)
Vapor density:	3.56 (Air=1)
Specific gravity (Relative density):	0.952(Specific gravity)
Solubility:	Readily soluble(Water)
Partition coefficient; n-octanol/water:	-1.3
Auto-ignition temperature:	395°C
Decomposition temperature:	No information available
Viscosity:	Unknown
Other information:	No information available

10. STABILITY AND REACTIVITY

Reactivity:

No information available

Chemical stability:

Stable at storage conditions described in the Storage Items.

Reaction with oxygen in the air may color the product. If exposed in the air, this product absorbs moisture. This product reacts with carbon dioxide gas and crystalline salts may be formed.

Possibility of hazardous reactions:

If the product contacts with oxidizing substance, there is danger of ignition and explosion, since it is an organic substance.

Since it is an alkaline substance, it will react with acidic substance and generate heat..

Conditions to avoid:

Avoid contact with direct sunlight, flame, and high temperature body.

Incompatible materials:

Corrosive to copper and its alloy.

Hazardous decomposition products:

During ignition, carbon monoxide, carbon dioxide, and nitrogen oxides are generated.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Diethylenetriamine	1140mg/kg	Oral rat (LD50)	SIDS
Diethylenetriamine	672mg/kg	Dermal rabbit (LD50)	SIDS
Diethylenetriamine	70mg/m3(4h)	Inhalation rat (LC50)	Ministry of the Environment: Environmental Risk Assessment of Chemicals

Skin corrosion/Irritation:

Diethylenetriamine Causes serious skin burn/ eye damage.

Serious eye damage/eye irritation:

Diethylenetriamine Causes serious eye damages

Respiratory sensitization or Skin sensitization:

Diethylenetriamine NITE Initial Risk Assessment Report: Respiratory system: This product is considered to cause respiratory sensitization based on data on the human health effects.

Diethylenetriamine NITE Initial Risk Assessment Report: Skin: This product is considered to cause skin sensitization based on the maximization test results in the guinea pigs.

Carcinogenicity:

Unknown

Reproductive toxicity:

Unknown

Specific target organ toxicity - Single exposure:

Unknown

Specific target organ toxicity - Repeated exposure:Unknown

Aspiration hazard:

Unknown

12. ECOLOGICAL INFORMATION

Ecotoxicity

Fish:

No information available

Crustacea:

Diethylenetriamine	16mg/L(48h)	Daphnia magna (EC50)	SIDS
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Algae:

No information available

Persistence/Degradability:

No information available

Bioaccumulative Potential: No

information available

Mobility in soil:

No information available

Hazardous to the Ozone layer:No

information available

Other adverse effects:

Do not dispose into a general environment due to no data in many items.

13. DISPOSAL CONSIDERATIONS

Residual wastes:

Consign disposal to the disposal-specialized services approved by a prefectural governor in accordance with "Waste Management and Public Cleansing Law."

Contaminated containers and packaging:

In case of disposal of empty containers, remove contents completely beforehand. When disposal of the contaminated containers is consigned, consign to the industrial waste disposal- specialized collector or services approved by a prefectural governor.

14. TRANSPORT INFORMATION

International regulations

Proper Shipping Name	Diethylene triamine
UN number:	2079
UN classification:	Class 8 (Corrosive Substances)
Marine pollutant:	Noxious Liquid Substances, Category Y
Packing group	II

Domestic regulations:

Refer to laws and regulation that are applied.

Special precautions:

Exercise caution for inversion, damages, leakage of the containers, prepare protective equipment such as a poison-proof mask, and comply with the prohibited consolidation terms of the Fire Defense Law.

Special precautions and conditions in transport:

Prior to transport, verify that there is no damage, corrosion or leakage of the container.

Load so that there will be no tumbling, dropping or damaging, and securely conduct loadcollapse prevention.

Conduct packaging, indication, and transportation in accordance with the corresponding lawsand regulations.

First-aid guide number:

Guide No. 154 Toxic substances/ Corrosive substances (Non-flammable)

15. REGULATORY INFORMATION

<Diethylenetriamine>

Japanese Chemical Substances Control Law, Article 2, section 5, Type II Monitoring chemical substance

Substances to be notified, which are specified in Article 57 Item 2 of the Japanese Law onIndustrial Safety and Hygiene

Fire Defense Law, Article 2 Hazardous Substance, Attached Table 1, Category 4,Flammable Liquids (Third-Class Petroleum, Water-soluble Liquids)

Law Relating to the Prevention of Marine Pollution and Maritime Disaster, Attached Table1 of the Enforcement Ordinance, Noxious Liquid Substances (Category Y)

Japanese Air Navigation Law Enforcement Ordinance Article 194 Hazardous MaterialNotification Attached Table 1 Corrosive Substance

Regulations for the Carriage and Storage of Dangerous Goods in Ship, Articles 2 and 3,Hazardous Substances, Attached Table 1 of Notification, Corrosive Substances

Japanese Port and Harbor Law Enforcement Regulation Article 12 Hazardous MaterialNotification Corrosive substance

Water Pollution Control Law (Section of Hydrogen Ion Concentration)Air

Pollution Control Law— During ignition — (Toxic Substances)

Waste Management and Public Cleansing Law (Special Management Industrial Waste)

16. OTHER INFORMATION

References

<Diethylenetriamine>

Emergency Response Guidebook, Japan Chemical Industry Association (Original Article: Emergency Response Guidebook: A Guidebook For First Responders During The Initial Phase Of A Dangerous Goods/Hazardous Materials Incident)

In-house Measurement Data

Registry of Toxic Effects of Chemical Substances, STN INTERNATIONAL

List of Chemical Substances Classified based on GHS Classification - GHS ClassificationResults, National Institute of Technology and Evaluation (NITE)

Official Gazette of Ministry of Economy, Trade and Industry, Existing Chemical Substances Safety Evaluation Data

Journal of Occupational Health Vol.52(2010)

ACGIH,TLVs and BEIs Based on the Documentation of the Threshold Limit Values forChemical Substances and Physical Agents & Biological Exposure Indices (2010)

Handbook of Dangerous Goods Edited by Gunter Hommel, Springer-Verlag Tokyo(1991)

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