



## MATERIAL SAFETY DATA SHEET

Version :02

PRODUCT NAME: 1,4-DIAZABICYCLO[2,2,2]OCTANE (TRIETHYLENEDIAMINE)

CAS Number: 280-57-9

**1. IDENTIFICATION:**

**Product Code** : 90988, 98889

**Company Name** : ADVENT CHEMBIO PRIVATE LIMITED

**Address** : W-279, MIDC, TTC INDUSTRIAL AREA, THANE-BELAPUR ROAD, RABALE,  
NAVI MUMBAI - 400 701, MAHARASHTRA, INDIA.

**E-mail** : [sales@adventchembio.com](mailto:sales@adventchembio.com)

**WEBSITE** : [www.adventchembio.com](http://www.adventchembio.com)

**Company Phone Number** : +91 77770 84837

**2. HAZARDS IDENTIFICATION:****Hazard classification****Physical hazards**

**Flammable solids** : Category 1

**Health hazards**

**Acute toxicity, Oral** : Category 4

**Skin irritation** : Category 2

**Serious eye damage** : Category 1

**Labels elements** :

**Hazard symbol**

**Signal word** : Danger

**Hazard statement**

Flammable solid.  
Harmful if swallowed.  
Causes skin irritation.  
Causes serious eye damage.

**Precautionary statement****Prevention**

Obtain special instructions before use.  
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Do not handle until all safety precautions have been read and understood.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.  
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
Keep container tightly closed. Ground/ bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
Use only non-sparking tools. Take precautionary measures against static discharge.

**Response**

IF exposed or concerned: Get medical advice/ attention.



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	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Storage	: Store in a dry & well-ventilated place. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Strongly hygroscopic Air and moisture sensitive. Handle and store under inert gas.
Disposal	: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification	: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. <b>Ecological information:</b> The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. <b>Toxicological information:</b> The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**3. COMPOSITION/ INFORMATION ON INGREDIENTS:**

Ingredient	CAS Number	Percent	Hazardous
1,4-Diazabicyclo[2,2,2] octane (Triethylenediamine)	280-57-9	NLT 99.0%	Yes

**4. FIRST AID MEASURES:**

General information	: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion	: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Inhalation	: Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.
Skin contact	: Get medical attention if symptoms persist.
Eye contact	: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
Most important symptoms/effects, acute and delayed	: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
	: The most important known symptoms and effects are described in the labelling.



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Indication of immediate  
medical attention and : No data available  
special treatment needed

**5. FIRE FIGHTING MEASURES:****General information****Suitable (and unsuitable) extinguishing media**

**Suitable extinguishing media** : Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder.

**Unsuitable extinguishing media** : For this substance/mixture no limitations of extinguishing agents are given.

**Specific hazards arising from the chemical** : Nature of decomposition products not known.  
Combustible.  
: Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

**Special protective equipment and precautions for firefighters**

**Special firefighting procedures** : Fight fire from a protected location. Move containers from fire area if you can do so without risk.

**Special protective equipment for fire-fighters** : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

**6. ACCIDENTAL RELEASE MEASURES:**

**Personal precautions, protective equipment and emergency procedures** : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).  
: Avoid breathing mists or vapors. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.

**Methods and material for containment and cleaning up** : Eliminate all ignition sources if safe to do so. Use only non-sparking tools. Take precautionary measures against static discharges. Stop leak if possible without any risk.  
: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

**Notification Procedures** : Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

**Environmental precautions** : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**7. HANDLING AND STORAGE:**

**Precautions for safe handling** : Do not handle until all safety precautions have been read and understood. Take precautionary measures against static discharges. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/ face protection. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Wash hands



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thoroughly after handling.

**Conditions for safe storage, including any incompatibilities** : Tightly closed. Keep away from heat and sources of ignition. Strongly hygroscopic Air and moisture sensitive. Handle and store under inert gas.

**Storage class** : Flammable solid hazardous materials

**8. EXPOSURE CONTROLS PERSONAL PROTECTION:****Appropriate engineering**

**controls** : No data available

**Individual protection measures, such as personal protective equipment**

**General information** : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

**Eye/face protection** : Wear safety glasses with side shields (or goggles).

**Hand protection** : Chemical resistant gloves.

**Other** : Wear suitable protective clothing.

**Respiratory protection** : Required when dusts are generated.  
Recommended Filter type: Filter type P2

**Hygiene measures** : Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower. Avoid contact with eyes, skin, and clothing.

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

**Appearance** : White to off-white, light yellow hygroscopic, crystalline powder.

**Odor** : Ammonia odor

**Solubility** : Soluble in water.

**Formula** :  $C_6H_{12}N_2$

**Molecular Weight** : 112.17 g/mol

**Density** : 1.02 g/cm<sup>3</sup> at 25°C

**pH** : at 20 °C alkaline, Aqueous solution

**% Volatiles by volume @ 21C (70F)** : No data available

**Boiling Point** : 173.4°C

**Melting Point** : 156 - 159°C



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Flash Point	:	62.2 °C
Vapor Density (Air=1)	:	No data available
Vapor Pressure (mm Hg)	:	No data available
Evaporation Rate (BuAc=1)	:	No data available

**10. STABILITY AND REACTIVITY:**

Reactivity	:	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical. The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Chemical stability	:	Material is stable under ambient conditions..
Possibility of hazardous reactions	:	<b>Violent reactions possible with:</b> mineral acids, Strong oxidizing agents, peroxi compounds iron/iron-containing compounds acids <b>Risk of explosion with:</b> hydrogen peroxide.
Conditions to avoid	:	Exposure to moisture. Strong heating.
Incompatible materials	:	Aluminum, Iron, Copper, Zinc
Hazardous decomposition products	:	In the event of fire: see section 5

**11. TOXICOLOGICAL INFORMATION:**

## Information on toxicological effects

## Acute toxicity (list all possible routes of exposure)

Oral Product	:	LD 50 (Rat): 700 mg/kg
Dermal Product	:	LD 50 (Rabbit): 2.000 mg/kg
Inhalation Product	:	No data available.
Repeated dose toxicity Product	:	No data available.
Skin corrosion/irritation Product	:	Irritation
Serious eye damage/eye irritation Product	:	Causes serious eye damage.
Respiratory or skin sensitization Product	:	<b>Maximization Test</b> - Guinea pig <b>Result:</b> negative
Carcinogenicity Product	:	No data available
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans	:	No data available
US. National Toxicology Program (NTP) Report on	:	No data available



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**Carcinogens**

US. OSHA Specifically  
Regulated Substances (29  
CFR 1910.1001-1050

: No data available.

Germ cell mutagenicity

: No data available.

Reproductive toxicity  
Product

: No data available.

Specific target organ  
toxicity - single exposure  
Product

: No data available.

Specific target organ  
toxicity - repeated  
exposure Product

: No data available.

Aspiration hazard Product

: No data available.

Other effects

: None known.

**12. ECOLOGICAL INFORMATION:****Ecotoxicity****Acute hazards to the aquatic environment**

Fish Product

: static test LC50 - Cyprinus carpio (Carp) - &gt; 100 mg/l - 96 h

Toxicity to daphnia and  
other aquatic invertebrates

: static test EC50 - Daphnia magna (Water flea) - &gt; 100 mg/l - 48 h

Toxicity to algae

: static test EC50 - Pseudokirchneriella subcapitata (green algae) - 110 mg/l - 72 h

Toxicity to bacteria

: static test EC50 - Pseudomonas putida - 355,6 mg/l - 17 h

**Chronic hazards to the aquatic environment**

Fish Product

: No data available.

Aquatic invertebrates  
Product

: No data available.

Toxicity to Aquatic Plants  
Product:

: No data available.

**Persistence and degradability**

Biodegradation Product

: Not readily biodegradable

BOD/COD ratio Product

: No data available.

**Bioaccumulative potential**

Bioconcentration factor  
(BCF) Product

: Cyprinus carpio (Carp) - 42 d - 1 mg/l(1,4-Diazabicyclo[2.2.2]octane)  
Bioconcentration factor (BCF): < 1,3



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Partition coefficient n-octanol / water (log Kow) : No data available.

Product Mobility in soil : No data available.

Other adverse effects : No data available.

**13. DISPOSAL CONSIDERATION:**

**Disposal instructions** : Discharge, treatment, or disposal may be subject to national, state, or local laws. Disposal recommendations are based on uncontaminated material.

**Contaminated packaging** : Since emptied containers retain product residue, follow label warnings even after container is emptied.

**14. TRANSPORT INFORMATION:**

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR/RID	UN 1325	1,4-Diazabicyclo[2,2,2]octane (Triethylenediamine)	4.1	II	No
IMDG	UN 1325	1,4-Diazabicyclo[2,2,2]octane (Triethylenediamine)	4.1	II	No
IATA	UN 1325	1,4-Diazabicyclo[2,2,2]octane (Triethylenediamine)	4.1	II	No

**15. REGULATORY INFORMATION:**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture

No Data Available.

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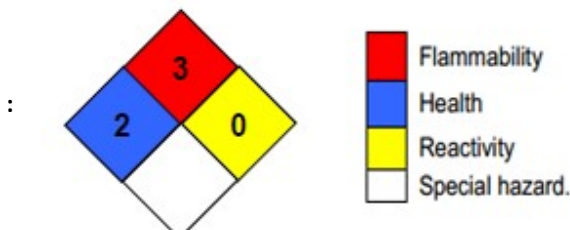
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## 16. OTHER INFORMATION:

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Issue Date : 06/01/2025

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