

MATERIAL SAFETY DATA SHEET

Version Number:- 02

PRODUCT NAME: N,N,N,N'-TETRAMETHYLETHYLENEDIAMINE

CAS Number: 110-18-9

1. IDENTIFICATION:

Product Code : 93298, 96114

Company Name : ADVENT CHEMBIO PRIVATE LIMITED

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

Flammable liquids : Category 2

Health hazards

Acute toxicity : Category 4

Acute toxicity : Category 3

Skin corrosion : Sub-category 1B

Serious eye damage : Category 1

Labels elements :

Hazard symbol : 

Signal word : Danger

Hazard statement : Highly flammable liquid and vapor.
: Harmful if swallowed.
: Causes severe skin burns and eye damage.
: Toxic if inhaled.

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.



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- Response** : IF exposed or concerned: Get medical advice/ attention.
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.
- 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.

3. COMPOSITION/ INFORMATION ON INGREDIENTS:

Ingredient	CAS Number	Percent	Hazardous
N,N,N,N'-Tetramethylethylenediamine	110-18-9	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.
Get medical attention if symptoms persist.
- Skin contact** : Immediately flush with plenty of water for at least 15 minutes. Get medical attention.
- 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** : The most important known symptoms and effects are described in the labelling.
- Indication of immediate medical attention and special treatment needed** : No data available.

5. FIRE FIGHTING MEASURES:

- General information** : Flammable liquid and vapor.
- Suitable (and unsuitable) extinguishing media**
- Suitable extinguishing** : Foam, dry powder or carbon dioxide.



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media

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

Specific hazards arising from the chemical : Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard. Heat may cause the containers to explode.

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. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. 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 thoroughly after handling.

Conditions for safe storage, including any incompatibilities : Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a dry, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks.



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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. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. 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** : In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge.**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** : Clear colourless to pale yellow liquid.**Odor** : No data available**Solubility** : Miscible in water.**Formula** : $C_6H_{16}N_2$ **Molecular Weight** : 116.21 g/mol**Density** : 0.774 - 0.776 g/cm³ at 20°C**pH** : No data available**% Volatiles by volume @ 21C (70F)** : No data available**Boiling Point** : 120 - 122 °C**Melting Point** : -55 °C**Flash Point** : 16.5 °C**Vapor Density (Air=1)** : No data available**Vapor Pressure (mm Hg)** : ca.19,19 hPa at ca.25 °C**Evaporation Rate (BuAc=1)** : No data available

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10. STABILITY AND REACTIVITY:

Reactivity	:	Vapours may form explosive mixture with air.
Chemical stability	:	Material is stable under ambient conditions.
Possibility of hazardous reactions	:	Violent reactions possible with: Oxidizing agents Acids Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!
Conditions to avoid	:	Warming.
Incompatible materials	:	Strong oxidizing agents.
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): 550 mg/kg
Dermal Product	:	No data available.
Inhalation Product	:	LC 50 (Rat): 4 h - 6,3 mg/l - vapour
Repeated dose toxicity Product	:	No data available.
Skin corrosion/irritation Product	:	Corrosive.
Serious eye damage/eye irritation Product	:	Causes serious eye damage.
Respiratory or skin sensitization Product	:	No data available.
Carcinogenicity Product	:	This substance has no evidence of carcinogenic properties
Germ cell mutagenicity	:	Animal testing did not show any mutagenic effects. Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Remarks: (ECHA) Test Type: Ames test Test system: Escherichia coli Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Remarks: (ECHA)

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Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Remarks: (ECHA)

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 490

Result: negative

Remarks: (ECHA)

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Remarks: (ECHA)

Reproductive toxicity Product : Based on available data the classification criteria are not met.

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 : No data available.

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

Fish Product : static test LC50 - Oncorhynchus mykiss (rainbow trout) - 240 mg/l - 96 h

Aquatic invertebrates Product : semi-static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h

Toxicity to algae : static test ErC50 - Pseudokirchneriella subcapitata - 20,5 mg/l - 72 h

Toxicity to bacteria : static test NOEC - activated sludge - 56,7 mg/l - 28 Days

Chronic hazards to the aquatic environment



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Fish Product	: No data available.
Aquatic invertebrates Product	: No data available.
Toxicity to Aquatic Plants Product:	: No data available.
Persistence and degradability	
Biodegradation Product	aerobic - Exposure time 28 d : Result: < 60 % - Inherently biodegradable. (OECD Test Guideline 301B)
BOD/COD ratio Product	: No data available.
Bioaccumulative potential	
Bioconcentration factor (BCF) Product	: No data available on bioaccumulation.
Partition coefficient n-octanol / water (log Kow) Product	: No data available.
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	Environmental hazards
ADR/RID	UN 2372	N,N,N,N'-Tetramethylethylenediamine	3	II	No
IMDG	UN 2372	N,N,N,N'-Tetramethylethylenediamine	3	II	No
IATA	UN 2372	N,N,N,N'-Tetramethylethylenediamine	3	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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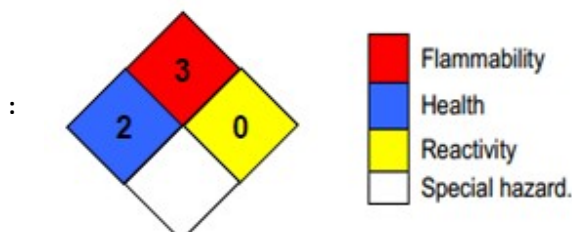
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16. OTHER INFORMATION:

NFPA Hazard ID



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

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