



MATERIAL SAFETY DATA SHEET

Version :02

**PRODUCT NAME: TETRAMETHYLAMMONIUM HYDROXIDE
25 wt.% SOLUTION IN WATER**

CAS Number: NA

1. IDENTIFICATION:

Product Code : 93113, 93248

Company Name : ADVENT CHEMBIO PRIVATE LIMITED

Address : W-279, MIDC, TTC INDUSTRIAL AREA, THANE-BELAPUR ROAD, RABALE,
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2. HAZARDS IDENTIFICATION:**Hazard classification****Health hazards**

Acute toxicity : Category 2

Acute toxicity : Category 1

Skin corrosion : Sub-category 1B

Serious eye damage/eye irritation : Category 1

Specific target organ toxicity single exposure : Category 1

Specific target organ toxicity repeated exposure : Category 1

Long-term (chronic) aquatic hazard : Category 1

Labels elements :

Hazard symbol : 

Signal word : Danger

Hazard statement

Fatal if swallowed or in contact with skin.
Causes severe skin burns and eye damage.
Causes damage to organs (Central nervous system).
Causes damage to organs (Liver, thymus) through prolonged or repeated exposure in contact with skin.
Toxic to aquatic life with long lasting effects.

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.



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Response	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.
	: 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
Tetramethylammonium Hydroxide 25 wt.% Solution in Water	NA	24.5 - 25.5%	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. If easy to do, remove contact lenses. 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 (see section 2.)
Indication of immediate medical attention and special treatment needed	: No data available.



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5. FIRE FIGHTING MEASURES:

General information : No data available.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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 : Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. 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.



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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. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. EXPOSURE CONTROLS PERSONAL PROTECTION:**Control parameters****Occupational exposure limits****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 : At 20 °C soluble Miscible in water.

Formula : No data available.

Molecular Weight : No data available.

Density : 1.014 g/l at 20 °C

pH : 13 at 20 °C

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



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Boiling Point	: No data available
Melting Point	: No data available.
Flash Point	: No data available.
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	: No data available.
Chemical stability	: Material is stable under ambient conditions. Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!
Possibility of hazardous reactions	: Violent reactions possible with: Strong oxidizing agents Acids Generates dangerous gases or fumes in contact with: ammonium compounds Violent reactions possible with: The generally known reaction partners of water.
Conditions to avoid	: No data available.
Incompatible materials	: Aluminum, bronze, Zinc, Tin Gives off hydrogen by reaction with metals.
Hazardous decomposition products	: In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION:**Information on likely routes of exposure**

Acute toxicity	: Estimate Oral - 16,67 mg/kg
Inhalation	: Dermal- Rapid absorption.
Skin contact	: Mixture causes burns.
Eye contact	: Mixture causes serious eye damage.

Information on toxicological effects**Acute toxicity (list all possible routes of exposure)**

Oral Product	: LD50 Oral - Rat - female - 1,000 mg/kg.
Dermal Product	: No data available.
Inhalation Product	: No data available.
Repeated dose toxicity Product	: No data available.
Skin corrosion/irritation Product	: No data available.



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Serious eye damage/eye irritation Product	:	Mixture causes serious eye damage. Risk of blindness.
Respiratory or skin sensitization Product	:	Mixture may cause an allergic skin reaction.
Carcinogenicity Product	:	This substance has no evidence of carcinogenic properties
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans	:	No carcinogenic components identified.
US. National Toxicology Program (NTP) Report on Carcinogens	:	No carcinogenic components identified.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	:	No carcinogenic components identified.
Germ cell mutagenicity	:	
In vitro Product	:	No data available.
Reproductive toxicity Product	:	No components toxic to reproduction.
Specific target organ toxicity - single exposure Product	:	Mixture causes damage to organs. - Central nervous system
Specific target organ toxicity - repeated exposure Product	:	Mixture causes damage to organs through prolonged or repeated exposure.
Aspiration hazard Product	:	No data available.
Other effects	:	No data available.
Components	:	Tetramethylammonium hydroxide : Acute toxicity : LD50 Oral - Rat - male and female - 12,5 - 125 mg/kg LD50 Dermal - Rat - male and female - > 12,5 - < 50 mg/kg Skin corrosion/irritation : Corrosive Serious eye damage/eye irritation : Causes serious eye damage Specific target organ toxicity : Causes damage to organs. - Central nervous system - single exposure Specific target organ toxicity - repeated exposure: Skin contact - Causes damage to organs through prolonged or repeated exposure. - Liver, thymus

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

: No data available.

Aquatic invertebrates Product

: EC50 - Daphnia magna (Water flea) - 3,0 mg/l - 48 h



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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** : No data available.**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.**Components****Tetramethylammonium hydroxide:****Toxicity to fish:** Flow-through test LC50 - Pimephales pomoxis - 462 mg/l - 96 h**Toxicity to daphnia and other aquatic invertebrates:** Static test EC50 - Daphnia magna (Water flea) - 3 mg/l - 48 h: **Toxicity to algae:** Static test ErC50 - Raphidocelis subcapitata (freshwater green alga) - 96,3 mg/l - 72 h

Static test NOEC - Raphidocelis subcapitata (freshwater green alga) - 6,25 mg/l - 72 h

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity): Semi-static test NOEC - Daphnia magna (Water flea) - 0,025 mg/l**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
DOT	UN 1835	Tetramethylammonium Hydroxide 25 wt.% Solution in Water	8	II	No
IMDG	UN 1835	Tetramethylammonium	8	II	No



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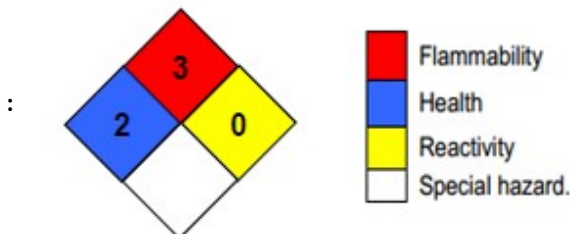
IATA	UN 1835	Hydroxide 25 wt.% Solution in Water Tetramethylammonium Hydroxide 25 wt.% Solution in Water	8	II	No
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15. REGULATORY INFORMATION:

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.

16. OTHER INFORMATION:

NFPA Hazard ID



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

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