

MATERIAL SAFETY DATA SHEET

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Version 1.12

Section 1 - Product and Company Information

Product Name	TETRAMETHYLAMMONIUM HYDROXIDE, 25 WT. % SOLUTION IN WATER
Product Number	331635
Brand	SIAL
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	
TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION IN WATER (>=25%)	None	No	
Ingredient Name	CAS #	Percent	SARA 313
TETRAMETHYLAMMONIUM HYDROXIDE	75-59-2	>= 25	No
		<= 30	
WATER	7732-18-5	>= 70	No
Formula	C4H13NO		

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Toxic (EU).

Toxic in contact with skin. Very toxic if swallowed. Causes burns.

Readily absorbed through skin.

HMIS RATING

HEALTH: 3

FLAMMABILITY: 1

REACTIVITY: 1

NFPA RATING

HEALTH: 3

FLAMMABILITY: 1

REACTIVITY: 1

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

> 210 °F > 100 °C

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.
Incompatible Materials: Absorbs carbon dioxide from air.

SPECIAL REQUIREMENTS

Store under inert gas. Air sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
Molecular Weight	91.15 AMU	
pH	> 13	20 °C
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	17.5 mmHg	20 °C
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	1.016 g/cm ³	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	> 210 °F > 100 °C	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	1.3521	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: Absorbs carbon dioxide from air.

Conditions to Avoid: Air.

Materials to Avoid: Strong oxidizing agents, Aluminum, Halogens, Alkali metals, Acids, Acid anhydrides, Acid chlorides.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Harmful if absorbed through skin. Readily absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Toxic if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

TOXICITY DATA

Skin

Rat

449 mg/kg

25% SOLUTION (OECD 402)

LD50

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia

Species: Daphnia magna

Time: 48 h

Value: 12 mg/l

ELIMINATION

Classification: Substantially biodegradable.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Tetramethylammonium hydroxide,

solution
UN#: 1835
Class: 8
Packing Group: Packing Group II
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Tetramethylammonium hydroxide,
solution
IATA UN Number: 1835
Hazard Class: 8
Packing Group: II

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T
Indication of Danger: Toxic.
R: 21-25-34
Risk Statements: Harmful in contact with skin. Toxic if
swallowed. Causes burns.
S: 26-36/37/39-45
Safety Statements: In case of contact with eyes, rinse
immediately with plenty of water and seek medical advice. Wear
suitable protective clothing, gloves, and eye/face protection.
In case of accident or if you feel unwell, seek medical advice
immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Toxic (EU).
Risk Statements: Toxic in contact with skin. Very toxic if
swallowed. Causes burns.
Safety Statements: In case of contact with eyes, rinse
immediately with plenty of water and seek medical advice. Wear
suitable protective clothing, gloves, and eye/face protection.
In case of accident or if you feel unwell, seek medical advice
immediately (show the label where possible).
US Statements: Readily absorbed through skin.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in
accordance with the hazard criteria of the CPR, and the MSDS
contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not
purport to be all inclusive and shall be used only as a guide. The
information in this document is based on the present state of our
knowledge and is applicable to the product with regard to
appropriate safety precautions. It does not represent any
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