



Effective Date: 01/02/14  
Replaces Revision: 08/20/08

NON-EMERGENCY TELEPHONE  
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE  
800-424-9300

## SDS – SAFETY DATA SHEET

### 1. Identification

**Product Identifier:** TETRAMETHYLAMMONIUM HYDROXIDE 25%

**Synonyms:** Ammonium, Tetramethyl-, Hydroxide; TMAH

**Chemical Formula:** (CH<sub>3</sub>)<sub>4</sub>NOH

**Recommended Use of the Chemical and Restrictions On Use:** Laboratory Reagent

**Manufacturer / Supplier:** Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225

**Emergency Phone Number:** 24-Hour Chemtrec Emergency Telephone 800-424-9300

### 2. Hazard(s) Identification

**Classification of the Substance or Mixture:**

Acute toxicity, Oral (Category 3)

Acute toxicity, Dermal (Category 5)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 3)

**Risk Phrases:**

R24: Toxic in contact with skin.

R28: Very toxic if swallowed.

R35: Causes severe burns.

R52: Harmful to aquatic organisms.

**Label Elements:**

**Trade Name:** TETRAMETHYLAMMONIUM HYDROXIDE 25%

**Signal Word:** Danger



**Hazard Statements:**

H300: Fatal if swallowed.

H311: Toxic in contact with skin.

H314: Causes severe skin burns and eye damage.

H402: Harmful to aquatic life.

**Precautionary Statements:**

P280: Wear protective glove s/ protective clothing / eye protection / face protection.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor / physician.

### 3. Composition / Information on Ingredients

**CAS Number:** 75-59-2

**EC Number:** 200-882-9

**Molecular Weight:** 91.18 g/mol

Ingredient	CAS No.	EC Number	Percent	Hazardous	Chemical Characterization
Tetramethylammonium Hydroxide	75-59-2	200-882-9	8 - 28%	Yes	Substance
Water	7732-18-5	231-791-2	72 - 92%	No	Mixture

### 4. First-aid Measures

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. Get medical attention immediately.

**Ingestion:** DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

### 5. Fire-fighting Measures

**Fire:** Not considered to be a fire hazard.

**Explosion:** Not considered to be an explosion hazard.

**Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire.

**Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

### 6. Accidental Release Measures

**Personal Precautions, Protective Equipment and Emergency Procedures:** Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

**Environmental Precautions and Methods and Materials for Containment and Cleaning Up:** Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as Acetic, Hydrochloric or Sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

## 7. Handling and Storage

**Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities:** Keep in a tightly closed container. Store in a cool, dry, corrosion-proof, ventilated area away from moisture, sources of heat or ignition, combustibles and oxidizers. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

## 8. Exposure Controls / Personal Protection

**Airborne Exposure Limits:** None established.

**Ventilation System:** A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):** For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in Oxygen-deficient atmospheres.

**Skin Protection:** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:** Use chemical safety goggles and / or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

**Appearance:** Colorless to straw-colored liquid

**Odor:** Strong ammonia-like odor

**Odor Threshold:** Not determined

**pH:** > 13 A very strong base

**% Volatiles by volume @ 21C (70F):** Not determined

**Melting Point:** Not determined

**Boiling Point / Boiling Range:** ca. 102C (ca. 216F)

**Flash Point:** > 94C (> 201F) CC

**Evaporation Rate (BuAc=1):** Not determined

**Flammability:** Not applicable

**Upper / Lower Flammability or Explosive Limits:** Not applicable

**Vapor Pressure (mm Hg):** Not determined

**Vapor Density (Air=1):** Not determined

**Relative Density:** 1.005 g/mL at 25C (77F)

**Solubility:** 100% in water

**Partition Coefficient: n-octanol / water:** Not determined

**Auto-ignition Temperature:** Not determined

**Decomposition Temperature:** Not determined

**Viscosity:** Not determined

## 10. Stability and Reactivity

**Reactivity and / or Chemical Stability:** Stable under ordinary conditions of use and storage. Readily absorbs CO<sub>2</sub> from the air.

**Possibility of Hazardous Reactions and Conditions to Avoid:** Heat, flames, ignition sources and incompatibles.

**Incompatible Materials:** Strong acids.

**Hazardous Decomposition Products:** Ammonia, volatile amines, Nitrogen oxides, and alcohols.

## 11. Toxicological Information

**Emergency Overview:** POISON! DANGER! CORROSIVE ALKALINE SOLUTION. CAUSES BURNS TO ANY AREA OF CONTACT. MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.

### Potential Health Effects:

Exposure may result in intense burning of the eyes, nose, throat, lungs and skin. Experimental studies have indicated that TMAH is a weak inhibitor of acetylcholinesterase and acts as a cholinergic (muscarinic and nicotinic) agonist. Depending on the level and duration of exposure, signs and symptoms may include blurred or double vision; pinpoint pupils; changes in heart rate and blood pressure; abdominal cramping, nausea and vomiting; diarrhea, excessive salivation sweating or bronchial secretions; urinary incontinence; muscle twitching, tremors or convulsions. Other symptoms consistent with cholinergic activity may also be observed.

**Inhalation:** Inhalation of alkaline vapors can produce upper airway edema, respiratory failure, wheezing, pulmonary edema, and pneumonitis.

**Ingestion:** Alkaline corrosive ingestion may produce burns to the lips, tongue, oral mucosa, upper airway, esophagus and occasionally stomach.

**Skin Contact:** Dermal contact with alkaline corrosives may produce pain, redness, severe irritation or full thickness burns. May be absorbed through the skin with possible systemic effects.

**Eye Contact:** Alkaline eye exposures produce severe irritation with effects similar to those of dilute caustics. Inflammation or burns with possible damage to the eye tissues can occur together with tearing and considerable pain.

**Chronic Exposure:** No information found.

**Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

**Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:)** No data available.

**Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:)** No data available.

**Numerical Measures of Toxicity:** Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Tetramethylammonium Hydroxide (75-59-2)	No	No	None
Water (7732-18-5)	No	No	None

### Acute Toxicity:

Skin guinea pig LD50 = 25 mg/kg.

Preliminary results from an experimental study in rats demonstrated lethality following one or more skin applications of Tetramethylammonium Hydroxide at dose levels of 30 mg/kg and higher.

## 12. Ecological Information

**Ecotoxicity:** Harmful to aquatic life. Acute aquatic toxicity testing on a pH neutralized solution of this compound has been shown to be highly toxic to the ceriodaphnia dubia (water flea.)

**Persistence and Degradability:** If neutralized, this material may be biodegradable. No specific information available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

### 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

### 14. Transport Information

**UN Number:** UN1835

**UN Proper Shipping Name:** TETRAMETHYLAMMONIUM HYDROXIDE, SOLUTION

**Packing Group:** II



DOT

IMDG

IATA

**Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)**

**Transport Hazard Class(es):** 8

**Maritime Transport IMDG/GGVSea**

**Transport Hazard Class(es):** 8

**Marine Pollutant:** No

**Air Transport ICAO-TI and IATA-DGR**

**Transport Hazard Class(es):** 8

**Transport in Bulk (According to Annex II of MARPOL 73/78 and the IBC Code:)** Not applicable

**Special Precautions for User:** None

### 15. Regulatory Information

#### Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Tetramethylammonium Hydroxide (75-59-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

#### Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
Tetramethylammonium Hydroxide (75-59-2)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

**Federal, State & International Regulations - Part 1**

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List Chemical	Catg.
Tetramethylammonium Hydroxide (75-59-2)	No	No	No	No
Water (7732-18-5)	No	No	No	No

**Federal, State & International Regulations - Part 2**

Ingredient	RCRA		TSCA
	CERCLA	261.33	8(d)
Tetramethylammonium Hydroxide (75-59-2)	No	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No		TSCA 12(b): No		CDTA: No
SARA 311/312:	Acute: Yes	Chronic: No	Fire: No	Pressure: No
Reactivity: No		Mixture / Liquid		

**Australian Hazchem Code:** 2R

**Poison Schedule:** None allocated

## 16. Other Information

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO PURITAN PRODUCTS AT THIS TIME. WHILE BELIEVED TO BE ACCURATE, PURITAN PRODUCTS DOES NOT CLAIM IT TO BE ALL INCLUSIVE. IT IS PROVIDED INDEPENDENT OF ANY SALE OF THE PRODUCT, FOR THE PURPOSE OF HAZARD COMMUNICATION, AND AS A GUIDE FOR THE APPROPRIATE PRECAUTIONARY HANDLING OF THE PRODUCT BY PROPERLY TRAINED INDIVIDUALS. IT IS NOT INTENDED TO PROVIDE PRODUCT PERFORMANCE OR APPLICABILITY INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, THE UNDERLYING PRODUCT DATA, OR THE INFORMATION CONTAINED HEREIN.

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