

SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Tetramethylammonium Hydroxide

Other means of identification

Product No.: 5879, 5878, 5866, V649, 37812, 21415

Recommended restrictions

Recommended use: Not available.
Restrictions on use: For industrial use only.

Details of the supplier of the safety data sheet

Manufacturer

Company Name:	Avantor Performance Materials, LLC.
Address:	3477 Corporate Parkway Center Valley, PA 18034
Telephone:	Customer Service: 855-282-6867
Fax:	610-573-2610
Contact Person:	Environmental Health & Safety
E-mail:	info@avantormaterials.com

Emergency telephone number:
CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 4
Acute toxicity (Dermal)	Category 2
Skin Corrosion/Irritation	Category 1B
Serious Eye Damage/Eye Irritation	Category 1
Specific Target Organ Toxicity - Single Exposure	Category 1 ¹
Specific Target Organ Toxicity - Repeated Exposure	Category 1 ²

Target Organs

1. autonomic nervous system
2. Central nervous system

Unknown toxicity - Health

Acute toxicity, inhalation, vapor	23 %
Acute toxicity, inhalation, dust or mist	23 %

Environmental Hazards

Chronic hazards to the aquatic environment Category 2

Unknown toxicity - Environment

Acute hazards to the aquatic environment 0 %
Chronic hazards to the aquatic environment 23 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Harmful if swallowed.
Fatal in contact with skin.
Causes severe skin burns and eye damage.
Causes damage to organs through prolonged or repeated exposure.
Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

Response: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Wash contaminated clothing before reuse. IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTER or doctor/physician. Take off immediately all contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Call a POISON CENTER/doctor. Get medical advice/attention if you feel unwell. Collect spillage.

Storage: Store locked up.

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.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Tetramethylammonium Hydroxide	75-59-2	20 - 30%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

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:	Rinse mouth. Get medical attention if symptoms occur. 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. If breathing is difficult, give oxygen. Apply artificial respiration if victim is not breathing. Get medical attention if symptoms persist.
Skin Contact:	Call a physician or poison control center immediately. Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Thorough skin decontamination followed by prompt respiratory support may be needed. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing. In case of irritation from airborne exposure, move to fresh air.

Most important symptoms/effects, acute and delayed

Symptoms:	Causes severe skin and eye burns. Fatal in contact with skin. Harmful if swallowed.
Hazards:	Absorption through the skin may cause respiratory failure. Corrosive.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically. Symptoms may be delayed.
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5. Fire-fighting measures

General Fire Hazards:	In case of fire and/or explosion do not breathe fumes.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	None known.
Specific hazards arising from the chemical:	During fire, gases hazardous to health may be formed. Product is highly caustic. Product is acidic. Wear appropriate protective gear if spilled during firefighting.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:

Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

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:

Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.

Methods and material for containment and cleaning up:

Neutralize with lime or soda ash. Neutralize spill area and washings with dilute acetic acid. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. 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:

Wear protective gloves/protective clothing/eye protection/face protection. Do not taste or swallow. Do not breathe dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Use caution when adding this material to water. See Section 8 of the SDS for Personal Protective Equipment. Avoid contact with skin. Avoid contact with eyes.

Conditions for safe storage, including any incompatibilities:

Keep away from food, drink and animal feeding stuffs. Keep container tightly closed. Store in a cool and well-ventilated place. Store in a corrosion-resistant container with a resistant inner liner. Store locked up.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned 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.

Eye/face protection:	Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed.
Skin Protection	
Hand Protection:	Chemical resistant gloves
Other:	Wear suitable protective clothing. Wear appropriate clothing to prevent any possibility of skin contact with solutions containing 10% or more of this chemical. Long sleeves
Respiratory Protection:	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.
Hygiene measures:	Provide eyewash station and safety shower. 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. Do not get this material in contact with skin. Do not get in eyes.

9. Physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Liquid
Color:	Colorless to slightly yellow
Odor:	Ammonia odor
Odor threshold:	No data available.
pH:	13
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	102 °C
Flash Point:	> 94 °C
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Density:	1 g/ml (20 °C)
Relative density:	1 (20 °C)
Solubility(ies)	
Solubility in water:	Completely Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Contact with acids. Moisture. Contact with incompatible materials.
Incompatible Materials:	Strong oxidizing agents. Acids.
Hazardous Decomposition Products:	Fire or excessive heat may produce hazardous decomposition products. Amines. Alcohols. Nitrogen Oxides

11. Toxicological information

Information on likely routes of exposure

Inhalation:	May be harmful if inhaled.
Skin Contact:	Fatal in contact with skin. Causes severe skin burns.
Eye contact:	Causes serious eye damage.
Ingestion:	Harmful if swallowed. May cause burns of the gastrointestinal tract if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product:	LD 50 (Rat): 50 - 300 mg/kg
Dermal Product:	LD 50 (Rat) 28.7 mg/kg
Inhalation Product:	Not classified for acute toxicity based on available data.

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: Causes severe skin burns.

Serious Eye Damage/Eye Irritation

Product: Causes serious eye damage.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.

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 mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: autonomic nervous system - Causes damage to organs.

Specific Target Organ Toxicity - Repeated Exposure

Product: Central nervous system. - Causes damage to organs through prolonged or repeated exposure.

Target Organs

Specific Target Organ Toxicity - Single Exposure: autonomic nervous system

Specific Target Organ Toxicity - Repeated Exposure: Central nervous system

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

Tetramethylammonium Hydroxide EC 50 (Water Flea, 48 h): 3.0 mg/l

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.

Specified substance(s):

Tetramethylammonium Hydroxide EC 50 (Algae (*Pseudokirchneriella subcapitata*), 72 h): 96 mg/l

Persistence and Degradability

Biodegradation

Product: There are no data on the degradability of this product.

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.

Specified substance(s):

Tetramethylammonium Hydroxide Log Kow: -2.47

Mobility in soil:

No data available.

Other adverse effects:

Toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal instructions:

Discharge, treatment, or disposal may be subject to national, state, or local laws. 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.

Contaminated Packaging:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number:	UN 1835
UN Proper Shipping Name:	Tetramethylammonium hydroxide solution
Transport Hazard Class(es)	
Class:	8
Label(s):	8
Packing Group:	II
Marine Pollutant:	No

Special precautions for user: Not determined.

IMDG

UN Number: UN 1835
 UN Proper Shipping Name: TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION
 Transport Hazard Class(es)
 Class: 8
 Label(s): 8
 EmS No.: F-A, S-B
 Packing Group: II
 Marine Pollutant: No
 Special precautions for user: Not determined.

IATA

UN Number: UN 1835
 Proper Shipping Name: Tetramethylammonium hydroxide, solution
 Transport Hazard Class(es):
 Class: 8
 Label(s): 8
 Packing Group: II
 Marine Pollutant: No
 Special precautions for user: Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
 None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
 None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):
 None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

- Acute toxicity
- Skin Corrosion/Irritation
- Serious Eye Damage/Eye Irritation
- Specific Target Organ Toxicity - Single Exposure
- Specific Target Organ Toxicity - Repeated Exposure

SARA 302 Extremely Hazardous Substance
 None present or none present in regulated quantities.

SARA 304 Emergency Release Notification
 None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
Tetramethylammonium Hydroxide	10000 lbs.

SARA 313 (TRI Reporting)
 None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

Tetramethylammonium Hydroxide

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

International regulations

Montreal protocol

not applicable

Stockholm convention

not applicable

Rotterdam convention

not applicable

Kyoto protocol

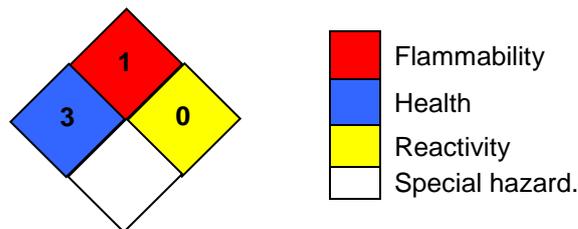
not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan (ENCS) List:	Not in compliance with the inventory.
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16. Other information, including date of preparation or last revision
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NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 09-27-2017
Revision Information: Not relevant.
Version #: 3.2
Further Information: No data available.

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