SAFETY DATA SHEET

1. Identification

Product Name: Tetramethylammonium hydroxide, 25% in water

Cat No.: AC420520000; AC420520010; AC420520050; AC420520250; AC420521000

Synonyms: N,N,N-Trimethylmethanaminium hydroxide.

Recommended Use: Laboratory chemicals.

Uses advised against: Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No.US: 001-800-424-9300 / Europe: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity: Category 3
Acute dermal toxicity: Category 2
Skin Corrosion/Irritation: Category 1 B
Serious Eye Damage/Eye Irritation: Category 1
Specific target organ toxicity (single exposure): Category 1
Target Organs - Central nervous system (CNS).
Specific target organ toxicity - (repeated exposure): Category 1
Target Organs - Thymus.

Label Elements

Signal Word: Danger
Hazard Statements
Toxic if swallowed
Fatal in contact with skin
Causes severe skin burns and eye damage
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
Rinse mouth
Do NOT induce vomiting
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>75</td>
</tr>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>75-59-2</td>
<td>25</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact
Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Do not rub affected area. Keep eye wide open while rinsing.

Skin Contact
Immediate medical attention is required. Wash off immediately with plenty of water for at
Tetramethylammonium hydroxide, 25% in water

least 15 minutes.

**Inhalation**
Immediate medical attention is required. Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Ingestion**
Do NOT induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects**
Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Notes to Physician**
Treat symptomatically

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### 5. Fire-fighting measures

**Suitable Extinguishing Media**
Carbon dioxide (CO\(_2\)). Dry chemical. Chemical foam.

**Unsuitable Extinguishing Media**
No information available

**Flash Point**
> 95 °C / > 203 °F

**Method -**
No information available

**Autoignition Temperature**
No information available

**Explosion Limits**
No data available

**Upper**
No data available

**Lower**
No data available

**Sensitivity to Mechanical Impact**
No information available

**Sensitivity to Static Discharge**
No information available

**Specific Hazards Arising from the Chemical**
Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

**Hazardous Combustion Products**

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### 6. Accidental release measures

**Personal Precautions**
Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment as required.

**Environmental Precautions**
Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up**
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Do not let this chemical enter the environment.

### 7. Handling and storage

**Handling**
Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Remove and
wash contaminated clothing and gloves, including the inside, before re-use. Handle product only in closed system or provide appropriate exhaust ventilation. Wash thoroughly after handling. Do not taste or swallow.


8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure. Impervious clothing. Chemical resistant apron. Boots. Impervious gloves.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Ammonia-like</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>&gt; 13</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-25 °C / -13 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>102 °C / 215.6 °F @ 760 mmHg</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt; 95 °C / &gt; 203 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability or explosive limits Upper</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability or explosive limits Lower</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>16 mmHg (25°C)</td>
</tr>
<tr>
<td>Vapor Density</td>
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</tr>
<tr>
<td>Specific Gravity</td>
<td>1.014</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>3.13 cP (19°C)</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Air sensitive.
**Conditions to Avoid**
Temperatures above 100°C. Exposure to air. Incompatible products. Exposure to air or moisture over prolonged periods.

**Incompatible Materials**
Strong oxidizing agents, Strong acids, Metals

**Hazardous Decomposition Products**
Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂), Ammonia, Amines, Thermal decomposition can lead to release of irritating gases and vapors, Methanol

**Hazardous Polymerization**
Hazardous polymerization does not occur.

**Hazardous Reactions**
None under normal processing.

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### 11. Toxicological information

#### Acute Toxicity

**Product Information**

- **Oral LD₅₀**
  - Category 3. ATE = 50 - 300 mg/kg.
- **Dermal LD₅₀**
  - Category 4. ATE = 1000 - 2000 mg/kg.
- **Vapor LC₅₀**
  - Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

**Component Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD₅₀ Oral</th>
<th>LD₅₀ Dermal</th>
<th>LC₅₀ Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>LD₅₀ 34 - 50 mg/kg (Rat)</td>
<td>25-50 mg/kg (Rabbit)</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**

No information available

**Irritation**
Causes burns by all exposure routes

**Sensitization**
No information available

**Carcinogenicity**
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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<tr>
<td>Tetramethylammonium hydroxide</td>
<td>75-59-2</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Mutagenic Effects**
Not mutagenic in AMES Test

**Reproductive Effects**
No information available.

**Developmental Effects**
No information available.

**Teratogenicity**
No information available.

**STOT - single exposure**
Central nervous system (CNS)

**STOT - repeated exposure**
Thymus

**Aspiration hazard**
No information available

**Symptoms / effects, both acute and delayed**
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Endocrine Disruptor Information**
No information available

**Other Adverse Effects**
The toxicological properties have not been fully investigated.
12. Ecological information

Ecotoxicity
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Persistence and Degradability
Soluble in water, Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation
No information available.

Mobility
Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- UN-No: UN1835
- Proper Shipping Name: TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION
- Hazard Class: 8
- Packing Group: II

TDG
- UN-No: UN1835
- Proper Shipping Name: TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION
- Hazard Class: 8
- Packing Group: II

IATA
- UN-No: UN1835
- Proper Shipping Name: TETRAMETHYLAMMONIUM HYDROXIDE, SOLUTION
- Hazard Class: 8
- Packing Group: II

IMDG/IMO
- UN-No: UN1835
- Proper Shipping Name: TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION
- Hazard Class: 8
- Packing Group: II

15. Regulatory information

United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active-Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>X</td>
<td>ACTIVE</td>
<td>-</td>
</tr>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>75-59-2</td>
<td>X</td>
<td>ACTIVE</td>
<td>-</td>
</tr>
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Legend:
TSCA - US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export
Not applicable

International Inventories
Canada (DSL/NDSEL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).
Tetramethylammonium hydroxide, 25% in water

Water 7732-18-5 X - 231-791-2 X X X X KE-35400
Tetramethylammonium hydroxide 75-59-2 X - 200-882-9 X X X X KE-33550

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable
SARA 311/312 Hazard Categories See section 2 for more information
CWA (Clean Water Act) Not applicable
Clean Air Act Not applicable
OSHA - Occupational Safety and Health Administration Not applicable
CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
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<td>Tetramethylammonium hydroxide</td>
<td>-</td>
<td>X</td>
<td>-</td>
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U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Slight risk, Grade 1

Authorisation/Restrictions according to EU REACH

Safety, health and environmental regulations/legislation specific for the substance or mixture

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>OECD HPV</th>
<th>Persistent Organic Pollutant</th>
<th>Ozone Depletion Potential</th>
<th>Restriction of Hazardous Substances (RoHS)</th>
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<td>7732-18-5</td>
<td>Listed</td>
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<td>Not applicable</td>
<td>Not applicable</td>
</tr>
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<td>Tetramethylammonium hydroxide</td>
<td>75-59-2</td>
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<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
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</tbody>
</table>
16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
09-Apr-2010

Revision Date
26-Dec-2021

Print Date
26-Dec-2021

Revision Summary
This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of SDS