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Material Safety Data Sheet

Tetramethylammonium Hydroxide, 25% (Aqueous solution)

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Revision Number: 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product name Tetramethylammonium Hydroxide, 25% (Aqueous solution)
Product code 322
UN-No 1835
Recommended Use For use in industrial installations only, Catalyst, stripping solution, laboratory chemicals

Contact Manufacturer

- SACHEM Americas
2311 Pipeline Road
Cleburne, Texas 76031
Tel: 817-202-3200
Fax: 817-641-5637
- SACHEM Europe BV
Van Voordenpark 15
5301 KP Zaltbommel
The Netherlands
Telephone: 0031-4186-82000
E-mail: msds@sachemeurope.nl
- SACHEM Asia Co., Ltd.
5-6-27 Mizuhai
Higashi Osaka 578-0921 Japan
TEL 81-729-64-4300
FAX 81-729-64-4301
- SACHEM
No.116 Meiyu Road
Wuxi National Hi-Tech Industrial
Development Zone
P.R.China 214028
Phone: 0086-510-88556461

Supplier

- SACHEM Americas
2311 Pipeline Road
Cleburne, Texas 76031
Tel: 817-202-3200
Fax: 817-641-5637
- SACHEM Europe BV
Van Voordenpark 15
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5-6-27 Mizuhai
Higashi Osaka 578-0921 Japan
TEL 81-729-64-4300
FAX 81-729-64-4301

Emergency Telephone Number

- 512-421-4900 from 8 a.m. - 5 p.m. Central
or 817-202-3200
- Chemtrec 1-800-424-9300
- 0031-6537-70227
- Higashi Osaka Japan
TEL 81-729-64-4300
- SACHEM Wuxi China 0086-523-83889090

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Strong bases

Causes severe caustic burns to skin and eyes

May be fatal if inhaled, absorbed through skin, or swallowed

Avoid contact with skin, eyes and clothing

Avoid release to the environment

Appearance Colorless, Light yellow.

Physical State Liquid.

Odor Slight, Amines

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential Health Effects

Principle Routes of Exposure

Skin contact, Eye contact, Inhalation.

Acute Effects

Eyes

Corrosive. Causes severe caustic burns to skin and eyes. Large exposures may be fatal.

Skin

Corrosive. Causes burns. May be fatal if absorbed through skin.

Inhalation

Corrosive. Causes burns. Avoid breathing vapors or mists. May be fatal if inhaled.

Ingestion

Corrosive. Can burn mouth, throat, and stomach. May be fatal if swallowed.

Chronic Effects

Chronic Toxicity

Repeated contact may cause allergic reactions in very susceptible persons

See Section 11 for additional Toxicological information.

Main Symptoms

Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes. Breathing difficulties. If coughing, difficult breathing or other symptoms of poisoning occur, even after several hours, call a physician immediately. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. May cause irregular heartbeats, especially under conditions of stress. blurred vision.

Aggravated Medical Conditions

No information available

Interactions with Other Chemicals

No information available.

Potential Environmental Effects

Harmful to aquatic organisms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Quaternary ammonium compound

Formula C4H12N.HO

Component	CAS-No	Weight %
Water	7732-18-5	75
Tetramethylammonium Hydroxide	75-59-2	25

4. FIRST AID MEASURES

General Advice Do not get in eyes, on skin, or on clothing
Take off contaminated clothing and shoes immediately
In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
Show this safety data sheet to the doctor in attendance

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. IF ON SKIN (or hair):
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Remove and wash contaminated clothing before re-use. Call a physician immediately.

Inhalation Immediate medical attention is required. Move to fresh air. If breathing is difficult, give oxygen.
If not breathing, give artificial respiration. Consult a physician.

Ingestion Immediate medical attention is required. Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink 1 or 2 glasses of water. Call a physician immediately.

Notes to Physician Treat symptomatically

Protection of First-aiders Avoid contact with skin, eyes and clothing.

5. FIRE-FIGHTING MEASURES

Flammable Properties

The product is not flammable. Heating can release vapors which can be ignited.

Suitable Extinguishing Media

Use:, Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Hazardous Combustion Products

Nitrogen oxides (NOx), Carbon monoxide.

Explosion Data

Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes. May be fatal if inhaled, absorbed through skin, or swallowed. Hazardous combustion products. Nitrogen oxides (NOx). Carbon monoxide.

Protective Equipment and Precautions for Firefighters

In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self contained breathing apparatus. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Recommended NFPA

Health 4

Flammability 1

Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Use personal protective equipment. Do not ingest.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Methods for containment

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Methods for Clean-up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Prevent product from entering drains. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling	<p>Do not get in eyes, on skin, or on clothing Do not breathe vapours or spray mist In case of insufficient ventilation, wear suitable respiratory equipment Do not ingest Wear personal protective equipment Remove and wash contaminated clothing before re-use Do not eat, drink or smoke when using this product Ensure that eyewash stations and safety showers are close to the workstation location</p>
Storage	<p>Keep container tightly closed Keep away from heat To avoid thermal decomposition, do not overheat Store in accordance with local regulations stainless steel Polyethylene containers</p>

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls	<p>Avoid formation of aerosol Ensure adequate ventilation, especially in confined areas Exhaust ventilation equipped with scrubbers Skin and body protection</p>
Personal Protective Equipment	
Eye/face Protection	<p>Do not get in eyes, on skin, or on clothing. Causes severe skin burns and eye damage. Face-shield. Tightly fitting safety goggles.</p>
Skin Protection	<p>Causes severe caustic burns to skin and eyes. Chemical resistant apron. Impervious clothing. Wear protective gloves/clothing. Long sleeve gloves. Nitrile rubber. Neoprene gloves.</p>
Respiratory Protection	<p>In case of insufficient ventilation wear suitable respiratory equipment. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.</p>
Other protective equipment	<p>Ensure that eyewash stations and safety showers are close to the workstation location.</p>
General Hygiene Considerations	<p>Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and immediately after handling the product.</p>

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless. Light yellow.
Odor	Slight Amines
Odor Threshold	No information available
Physical State	Liquid
pH	>13
Flash Point	>95 C
Autoignition Temperature	No data available
Freezing Point	-25 C
Boiling Point/Range	Ca. 102 C
Melting Point/Range	No data available
Flammability Limits in Air	Upper No data available Lower No data available
Explosive Properties	According to experience not expected
Oxidizing Properties	According to experience not expected
Vapor Pressure	16.0 mm Hg @ 25 C
Vapor Density	No information available
Specific Gravity	1.014 @ 20 C
Water Solubility	Miscible with water
Partition Coefficient (n-octanol/water)	No information available
Viscosity	3.13 centipoise @ 19 C
Molecular Weight	91.15

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions. Hazardous polymerisation does not occur.
Conditions to Avoid	To avoid thermal decomposition, do not overheat. Heating can release hazardous gases. Temperatures above 100°C.
Incompatible Materials	Strong acids. Strong oxidizing agents. PVDF.
Hazardous decomposition products	Trimethylamine and Methanol.
Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information	Causes burns May be fatal if absorbed through skin May be fatal if swallowed and enters airways
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Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetramethylammonium Hydroxide	34 - 50 mg/kg rat	25 mg/kg Guinea pig for 50% (reported in RTECS)	

Chronic Toxicity

Carcinogenicity Contains no ingredient listed as a carcinogen.

Legend:

RTECS: (Registry of Toxic Effects of Chemical Substances)
 ACGIH: (American Conference of Governmental Industrial Hygienists)
 IARC: (International Agency for Research on Cancer)
 NTP: (National Toxicity Program)
 OSHA: (Occupational Safety & Health Administration)

Other Toxicity Information: Additional information may be found in RTECS.
RTECS No: PA0875000

Mutagenic Effects Not mutagenic in AMES Test.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity testing has shown this compound to be highly toxic to the ceriodaphnia dubia (water flea).

Ecotoxicity effects Harmful to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Tetramethylammonium Hydroxide				48-Hour LC50 = 55.6 mg/l (Daphnia magna)

Persistence and degradability No information available

Bioaccumulation No information available.

Mobility No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Dispose of contents/container in accordance with local regulation. Can be disposed as waste water, when in compliance with local regulations. Neutralization is normally necessary before waste water is discharged into water treatment plants. Can be incinerated, when in compliance with local regulations.
Contaminated packaging	Empty remaining contents. Triple rinse containers.
Waste from Residues / Unused Products	Dispose of in accordance with local regulations. Neutralization is normally necessary before waste water is discharged into water treatment plants. Solutions with high pH-value must be neutralized before discharge. Can be incinerated, when in compliance with local regulations.
US EPA Waste Number	D002 Would be considered as a characteristic hazardous waste under RCRA if disposed in the form as shipped from SACHEM

14. TRANSPORT INFORMATION



DOT

Proper shipping name	Tetramethylammonium hydroxide solution
Hazard Class	8
Packing Group	PGII

IATA

IATA Proper Shipping Name	Tetramethylammonium hydroxide solution
Hazard Class	8
Packing Group	PGII
Description	UN1835, Tetramethylammonium hydroxide solution, 8, PGII

IMDG/IMO

IMDG/IMO Proper Shipping Name	Tetramethylammonium hydroxide solution
Hazard Class	8
Packing Group	PGII
Description	UN1835, Tetramethylammonium hydroxide solution, 8, PGII

15. REGULATORY INFORMATION

USA

Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Chronic Health Hazard	No
Acute Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

CERCLA

Not applicable

Listed on the New Jersey Right to Know Hazardous Substances List.

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Tetramethylammonium Hydroxide		Listed			

International Regulations

International Inventories

Component	ENCS	PICCS	DSL	TSCA	CHINA	AICS	KECL	NDSL	EINECS	ELINCS	EC No.
Water	X	X	X	X	X	X	X	-	X	-	231-791-2
Tetramethylammonium Hydroxide	2-186	X	X	X	X	X	X	-	X	-	200-882-9

TSCA

All components of this product are listed on the TSCA Chemical Inventory.

16. OTHER INFORMATION

Health Hazard	3
Fire Hazard	0
Reactivity	1



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Revision Note

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. In case of any questions, please refer to the official document in English and contact us in your region.

End of Safety Data Sheet