

SDS Number: SDS/TMAH/03
Revision date: 25-Sep-2020

Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: TMAH
Chemical Name: Tetramethylammonium hydroxide
Generic Name: TMAH
Chemical Formula: $C_4H_{12}NOH$
Formula Wt.: 91.15

Manufacturer: Agnos Chemicals Pte Ltd
2 Tuas South Street 5
Singapore 637788

Phone number: +65-68625428
Fax number: +65-68623418
Emergency: +65-68620276

2. HAZARD(S) IDENTIFICATION

Physical Hazard

Acute Toxicity – Oral (Category 3)
Acute Toxicity – Dermal (Category 3)
Skin Corrosion / Irritation (Category 1)
Eye Damage / Irritation (Category 1)
Specific Target Organ Systemic Toxicity – Single Exposure (Category 1)

GHS Label elements

Pictogram :



Signal Word : Danger!

Hazard Statement(s)

- H301 : Toxic if swallowed.
H311 : Toxic in contact with skin.
H314 : Causes severe skin burns and eye damage.
H318 : Causes serious eye damage.
H370 : Causes damage to organs nervous system.

Precautionary Statement(s)

- P101 : If medical advice is needed, have product container or label at hand.
P262 : Do not get in eyes, on skin, or on clothing.
P281 : Wear personal protective equipment as required.
P285 : In case of inadequate ventilation wear respiratory protection.

Response Precautionary Statement(s)

- P301+330+331 : IF SWALLOWED : Rinse mouth. Do NOT induce vomiting.
P303+361+353 : IF ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340 : IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338 : 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.
P321 : Specific treatment
(see supplemental first aid instructions on this label).
P363 : Wash contaminated clothing before reuse.

Storage Precautionary Statement(s)

P402+404 : Store in a dry place. Store in a closed container.

P403+235 : Store in a well-ventilated place. Keep cool.

Disposal Precautionary Statement(s)

P501 : Dispose of contents / containers in accordance with local regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No.	EC No.	Weight %
Tetramethylammonium Hydroxide	75-59-2	200-882-9	<10%
Water	7732-18-5	231-791-2	Balance

4. FIRST AID MEASURES**Eye Contact :**

In case of contact. Flush immediately with water for at least 15 minutes.

Seek medical attention.

Skin Contact :

In case of contact, immediately flush with water for at least 15 minutes while removing contaminated clothing and shoes.

Wash clothing before reuse.

Ingestion :

If victim is conscious and alert, give 2-4 cupfuls of water or milk.

Never give anything by mouth to an unconscious person.

Get medical aid immediately.

Do not induce vomiting.

Inhalation :

If breathed in, move person into fresh air.

If not breathing, give artificial respiration.

If breathing is difficult, give oxygen.

Prompt action is essential. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flash Point :

Not Flammable nor combustible

Explosion Hazard :

None

Suitable extinguishing media :

Water, carbon dioxide, dry chemicals or foam.

Precautions for fire-fighters :

Wear protective gear against splash. Full face breathing apparatus with positive pressure supplied air.

Toxic Gases Produced: Fumes of NO_x and NH₃ when heated to decomposition.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions :

Full face respirator with cartridges (caustic fume); full caustic-proof gown, glove and boots.

Spillage :

Stop source, contain and absorb spill with chemical resistant absorbent, ventilate area, dilute with water. Do not use metallic container. Polyethylene container may be used.

May neutralise with dilute acid.

Waste Disposal :

As governed by local authority.

7. HANDLING AND STORAGE

Handling :

Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Empty containers retain product residue can be dangerous. Keep container tightly closed. Avoid ingestion and inhalation.

Storage :

Store in corrosion resistant area. Do not store with incompatible materials. Keep tightly closed. Keep containers away from heat and out of sun. Exposure to air causes absorption of CO₂ to produce carbonate.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory :

Not required with adequate ventilation.

Eye :

Use chemical safety glasses and/or a full face shield where splashing is possible.
Maintain shower/eyewash facilities in work area.

Ventilation :

Use general or local exhaust ventilation.

Skin :

Avoid skin contact, wear gloves and protective clothing (lab coat, apron, coveralls).
Gloves subject to permeation or any sign of degradation must be removed and replaced immediately.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odour	: Clear to yellow liquid. Slight amine-like odour
Physical State (@ STP)	: Liquid
Boiling Point	: > 100 °C
Melting Point	: < 0 °C
Specific Gravity (H ₂ O =1)	: 1.0
Water Solubility	: Miscible in all proportions
pH	: > 12.5
Vapour Pressure	: Not Established
Evaporation Rate	: Not Established
% Volatiles by volume	: Not Applicable

10. STABILITY AND REACTIVITY

Stability	: Stable at standard temperature and pressure
Water Reactivity	: Not Applicable. Miscible in all proportions
Incompatibility	: Strong acids, metal
Hazardous Polymerization	: Will not Occur
NFPA:	: Health = 3, Fire = 0, Reactivity = 0
Decomposed Products	: Tetramethylammonium carbonate, methanol, trimethylamine

11. TOXICOLOGICAL INFORMATION

When exposed via:

Contact	: Can cause burns to skin and eye.
Inhalation	: May cause respiratory tract burn and/or irritation.
Ingestion	: May cause digestive tract burn and/or irritation. Can be fatal if inhaled, ingested or in contact with the skin.

Tetramethylammonium Hydroxide : orl-rat LD₅₀; 34-50 mg/kg
dermal-rat LD₅₀; 112mg/kg

Carcinogenicity : OSHA Reg : No
IARC : No
NTP : No
Z list : No

Reproductive Effects : None Identified

12. ECOLOGICAL INFORMATION

Ecotoxicity : Daphnia magna EC50 = 3mg/L(48Hr) (100%TMAH)

Environmental : Not established.

13. DISPOSAL CONSIDERATION

To comply with local authority for eventual disposal.

Compatible container mate : Polyethylene
Protection : Personal Protective Equipment as per described
Section 6.

14. TRANSPORTATION INFORMATION

To comply with local authority regulation.

Hazchem code : 2R
Proper D.O.T Shipping Name : Tetramethylammonium hydroxide solution
UN/NA : UN 1835
Hazard Class : 8
Label : Corrosive
Packing Group : II

15. REGULATORY INFORMATION

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: This product is subject to Singapore Regulations.

The Environmental Protection and Management Act, and the Environment Protection and Management (Hazardous Substances) Regulations.

Risk/Safety Phrases

R35 : Causes severe burns
S2 : Keep out of reach of children
S26 : In case of contact with eyes, rinse immediately with plenty of water
and seek medical advice
S45 : In case of accident or if you feel unwell, seek medical advice (show
the label where possible)

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used 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.

We make no warranty, express or implied with respect to information. We assume no liability resulting from direct or indirect use of the product.