Material Safety Data Sheet
Poly(tetramethylene ether)glycol

Section 1 - Product Identification

Synonyms : Poly(Oxy-1,4-Butanediyl), Alpha-Hydro-Omega-Hydroxy
Chemical Formula : $(C_4H_8O)_n$
Company Identification : Tradeasia International Pte. Limited
Address : 133 Cecil Street # 12-03 Keck Seng Tower, Singapore
Tel: +65-6227 6365
Fax: +65-6225 6286
Email: contact@chemtradeasia.com

Section 2 – Composition/Information on Ingredients

Chemical Name	EC No/CAS No	Purity, %
Polytetramethylene Ether	25190-06-1	max. 99.9

Section 3 – Hazards Identification

NFPA RATINGS (SCALE 0-4) :
Health=1 Fire=1 Reactivity=0
EMERGENCY OVERVIEW : White, waxy solid or clear, colorless liquid. May form flammable or explosive dust-air mixtures. Avoid contact with eyes, skin and clothing. Avoid creation of dust, wash thoroughly after handling. POTENTIAL HEALTH EFFECTS : INHALATION : SHORT TERM EFFECTS : No information is available. LONG TERM EFFECTS : No information is available. SKIN CONTACT : SHORT TERM EFFECTS : May cause mild irritation. TransTank LONG TERM EFFECTS : No information is available. EYE CONTACT : SHORT TERM EFFECTS : May Cause mild irritation. LONG TERM EFFECTS : No information is available. INGESTION : SHORT TERM EFFECTS : No information available on significant adverse effects. LONG TERM EFFECTS : No information is available CARCINOGEN STATUS : OSHA : N NTP : N IARC : N

Section 4 – Composition/ information on ingredients

4.1 Composition comments
Component Propylene glycol monomethyl ether acetate
CAS No. 107-98-2
Weight >95

Section 5 – First-Aid Measures

5.1. Description of first aid measures
Skin contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Inhalation

If symptoms such as nose or throat irritation are observed, remove to fresh air.

Ingestion

Do NOT induce vomiting. Get medical attention.

5.2. Most important symptoms and effects, both acute and delayed

N.A.

5.3. Indication of any immediate medical attention and special treatment needed

N.A.

Section 6 – Fire Fighting Measures

6.1. Suitable Extinguishing media

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

6.2. Specific hazards arising from the chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

6.3. Special protective actions for fire-fighters

N.A.

Section 7 – Accidental Release Measures

7.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing

7.2. Environmental precautions

Avoid release to environment.

7.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

Section 8 – Handling and Storage

8.1. Precautions for safe Handling

Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.

8.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Protect from direct sunlight.

Section 9 – Exposure Controls/Personal Protection

9.1. Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

9.2. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation (make reference to the appropriate CEN standard)

Eyes and hands protection

Goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty.

Section 10 – Physical and Chemical Properties

10.1. Information on basic physical and chemical properties

Appearance : Colorless liquid
Odour : Negligible
Odour threshold : N.A.
pH @ 20°C : N.A.
Melting point : 25 ℃ ~ 32 ℃
Boiling point : > 204 ℃ (> 398 ℉)
Flash point : 259 ℃
Evaporation rate : N.A.
Flammability : N.A.
Upper/lower flammability or explosive limits : N.A
Vapour pressure : N.A
Vapour density : N.A.
Relative density : N.A.
Solubility in water : N.A.
Partition coefficient: n-octanol/water : N.A
Auto-ignition temperature : N.A.
Viscosity : N.A.

Section 11 – Stability and Reactivity

11.1. Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

11.2. Chemical stability

Stable under normal conditions of use, storage, and transportation.

11.3. Possibility of hazardous reactions

Hazardous polymerization does not occur.

11.4. Conditions to avoid:

Keep away from open flames, hot surfaces and sources of ignition. Incompatible products

11.5. Incompatible materials

Avoid contact with strong reducing agents such as metal hydrides, acetic anhydride or alkali metals.

11.6. Hazardous decomposition products
N.A.

Section 12 – Toxicological Information

12.1 Health effects associated with ingredients
LD50 Oral 11,340 mg/kg rat
LD50 Dermal 8,370 mg/kg rabbit

12.2 Health effects associated with compounds formed during processing
No new/additional compounds are expected to be formed during processing.

12.3 Information on likely routes of exposure
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Section 13 – Ecological Information

13.1.Toxicity
N.A.

13.2.3. Bioaccumulative potential
Not significantly bioaccumulative.

13.4. Mobility in soil
Not considered mobile.

13.5. Other adverse effects
No Data Available

Section 14 – Disposal Considerations

14.1. Disposal methods
Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations. Dispose in accordance with all applicable regulations.

Section 15 – Transport Information

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15.1. UN number : UN1993
15.2. UN proper shipping name : Flammable liquid. n.o.s
15.3. Transport of hazard classes : 3
15.4. Packing group : III
15.5. Environmental hazards : N.A.
15.6. Special precautions for user : N.A
15.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: N.A.

Section 16 – Regulatory Information

15.1. Safety, health and environmental regulations

It should be noted that the product is safe under conditions of normal handling and use, besides, they are essential nutrients to plants, and research shows that they play a beneficial role in human health. CLP classification has been solely based on animal tests where animals were exposed to high doses of boric acid over long periods of time. These doses were many times higher than humans are exposed to under conditions of normal handling and use. Consequently, a precautionary decision was taken by the European Commission. Although we will comply with the body of legislation triggered by that decision, we are in process of all possible legal actions.

Ensure all national/local regulations are observed.

Section 16 : Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

• This MSDS complies with ISO 11014; the requirements of UN-GHS

Revision No	Revision content
05	• This SDS is updated in accordance with the GHS (Rev.6) (2015)-Guidance on the Compilation of Safety data Sheets. • This SDS is updated in line with Eti Maden Corporate identity.

16.2. List of abbreviation and acronyms used in this MSDS

SDS : Safety Data Sheets
Index N° : atomic number of the element most characteristic of the properties of the substance
CAS No : Chemical Abstracts Service number
EC No : EINECS Number : European Inventory of Existing Commercial Substances
Repr. Cat. 2 : Substance presumed human reproductive toxicant
Acute Oral Cat. 5 : Substance which is of relatively low acute oral toxicity.
GHS : Globally Harmonised System of Classification and Labelling
LD_{50} : Median Lethal Dose
LC_{50} : Lethal Concentration, 50%
N.A. : Not Applicable
OSHA : Occupational Safety & Health Administration
Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)
PEL : Permissible Exposure Limits
ACGIH : American Conference of Governmental Industrial Hygienists
TLV : Threshold Limit Value
Japanese MITI : Japanese Ministry of International Trade and Industry
EC_{50} : Half maximal effective concentration
UN : United Nations
U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the autority of the Environmental Protection Agency
Canadian DSL: Canadian Domestic Substances List

16.3. List of relevant hazard statements and precautionary statements used in this MSDS

Hazard Statement
H361 d: Suspected of damaging the unborn child
H319: Causes serious eye irritation
H303: May be harmful if swallowed
Precautionary Statements

Prevention
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P264: Wash eyes thoroughly after handling.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P308 + P313: If exposed or concerned: get medical advice/attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
Storage
P405: Store locked up.
Disposal
P501: Dispose of contents/container to in accordance with local regulations.

16.4. References

1. Litovitz T L, Norman S A, Veltri J C, Annual Report of the American Association of Poison Control Centers Data Collection System. Am. J. Emerg. Med. (1986), 4, 427-458
2. Denton SM (1996). Acute oral toxicity study in the rat: anhydrous boric acid. Final report. Report no.: 1341/7-1032.
3. National Toxicology Program (NTP) – Technical Report Series No. TR324, NIH Publication No. 88 2580 (1987), PB88 213475/XAB
4. Fail et al., Fund. Appl. Toxicol. (1991) 17, 225-239
5. Heindel et al., Fund. Appl. Toxicol. (1992) 18, 266-277
6. Birge W J, Black J A, EPA-560/-76-008 (April 1977) PB 267 085
7. Scialli AR, Bonde JP, Brüske-Hohlfeld I, Culver D, Li Y, Sullivan FM; ELSEVIER 2009
8. Robbins WA, Xun L, Jia J, Kennedy N, Elashoff DA, Ping L. ;ELSEVIER 2009;(Reproductive Toxicology)
9. Hansveit and Oldersma, 2000; TNO Nutrition and Food Research Institute. Report No. V99.157.
10. Gersich, FM (1984a). Environ.Toxicol.Chem., 3 #1, 89-94 (1984)
11. Soucek et al., 2010. Illinois Natural History Survey, University of Illinois.

For general information on the toxicology of borates see ECETOC Technical Report No. 63 (1995); Patty's Industrial Hygiene and Toxicology, 4th Edition Vol. II, (1994) Chap. 42, 'Boron'.

16.5. Disclaimer of Liability

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