

Safety data sheet as per Commission Regulation (EU) 2015/830
Product: Tetrakis Hydroxymethyl Phosphonium Sulphate



◆ **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

1.1 Product identifier

Trade name	Tetrakis Hydroxymethyl Phosphonium Sulphate/ THPS
Chemical Name	Bis [tetrakis(hydroxymethyl)phosphonium sulphate]
CAS Number	55566-30-8
EC Number	259-709-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses THPS is a broad spectrum bactericide and fungicide particularly effective against sulfate-reducing bacteria and general aerobic bacteria. It is used as an anti-foulant in oil recovery systems and for controlling microbial growth in industrial freshwater systems, in paper manufacture, coatings and emulsions. It is used to produce crease-resistant and flame-retardant finishes on textile fabrics.

Uses identified against Not for use other than those specified

1.3 Details of the supplier of the safety data sheet:

Manufacturer	Prasol Chemicals Pvt. Ltd., Prasol House, Plot No.A-17/2/3, T.T.C. Indl. Area, Khairne M.I.D.C., Navi Mumbai - 400 710. Maharashtra, India.
Telephone	+91-22-27782555
Telefax	+91-22-27782430
e-mail address	sales@prasolchem.com; inquiry@prasolchem.com

1.4 Emergency telephone number

Telephone	+91-22- 27782555
Language	English

◆ **SECTION 2: Hazards identification**

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Acute Toxicity (Oral)	Category 4	H302	Harmful if swallowed
Skin Sensitizer	Category 1A	H317	May cause an allergic skin reaction
Eye Damage	Category 1	H318	Causes serious eye damage
Acute Toxicity	Category 3	H331	Toxic if inhaled
Effect on Reproduction	Category 1B	H361d	Suspected of damaging fertility or the unborn child
Aquatic Acute Toxicity	Category 1	H400	Very toxic to aquatic life
Aquatic Chronic Toxicity	Category 2	H411	Toxic to aquatic life with long lasting effects

Information concerning particular hazards for human and environment: No further information

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms



GHS05

GHS06

GHS08

GHS09

Signal word

Danger

Hazard statements

H302 Harmful if swallowed
 H317 May cause an allergic skin reaction
 H318 Causes serious eye damage
 H331 Toxic if inhaled
 H361d Suspected of damaging fertility or the unborn child
 H400 Very toxic to aquatic life
 H411 Toxic to aquatic life with long lasting effects

Precautionary statements

General

P103 Read label before use.

Prevention

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P261 Avoid breathing mist/vapors/spray.
 P264 Wash hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.

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	P272	Contaminated work clothing should not be allowed out of the workplace.
	P273	Avoid release to the environment.
	P280	Use protective gloves and eye protection.
Response	P301 + P312	IF SWALLOWED: Call a doctor if you feel unwell.
	P302+P352	IF ON SKIN: Wash with plenty of water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
	P308+P313	IF exposed or concerned: Get medical attention.
	P310	Immediately call a doctor.
	P311	Call a doctor.
	P333 + P313	If skin irritation or rash occurs: Get medical advice.
	P321	Specific treatment: wash with plenty of water.
	P330	Rinse mouth.
Storage	P362+P364	Take off contaminated clothing and wash it before reuse.
	P391	Collect spillage
	P403+P233	Store in a well-ventilated place. Keep container tightly closed.
Disposal	P405	Store locked up.
	P501	Dispose of contents and container in accordance with national regulations

2.3 Other hazards

Not a PBT, vPVB substance according to the criteria of REACH regulation

SECTION 3: Composition/information on ingredients

3.1 Substances

Ingredient	CAS No.	EC No.	Concentration (%)
Tetrakis Hydroxymethyl Phosphonium Sulphate	55566-30-8	259-709-0	75-77
Water	7732-18-5	215-185-5	23-25

Additional information:

Molecular Formula	C ₈ H ₂₄ O ₁₂ P ₂ S
Molecular Weight	406.28

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

After inhalation

Take off all contaminated clothing immediately.
 If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If unconscious, evaluate the need for artificial respiration. Get immediate medical attention

After skin contact

After eye contact

After swallowing

Wash off with plenty of water immediately, seek medical advice if necessary.
 Rinse with plenty of water immediately and seek medical advice.

Do not induce vomiting and seek medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed

Burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, CNS depression, narcosis.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media

CO₂, dry powder, foam or water spray
 water jet

5.2 Special hazards arising from the substance or mixture

Products of combustion include smoke, toxic fumes, oxides of carbon including carbon monoxide, phosphorous oxides, phosphine and sulfur oxides

5.3 Advice for firefighters

Cool closed containers exposed to fire with water spray.
 Wear self-contained breathing apparatus.

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SECTION 6: Accidental release measures

- ◆ **6.1 Personal precautions, protective equipment and emergency procedures** Use personal protective equipment. Do not touch or walk through spilled material. Can cause slippery condition. Ensure adequate ventilation.
- 6.2 Environmental precautions** Do not allow to enter sewers, surface or ground water.
- 6.3 Methods and material for containment and cleaning up** Soak up with inert absorbent material and dispose of as hazardous waste.
Keep in suitable, closed containers for disposal.
Suitable binder: sand
- 6.4 Reference to other sections** Section 8 for information on personal protection equipment.
Section 13 for disposal information

◆ **SECTION 7: Handling and storage**

- 7.1 Precautions for safe handling** If possible, use material transfer, metering and blending plants that are closed.
Avoid contact with skin and eyes.
Avoid inhalation of vapour or mist.
- 7.2 Conditions for safe storage, including any incompatibilities** Follow normal measures for preventive fire protection.
- Advice on protection against fire and explosion** Follow normal measures for preventive fire protection.
- Storage** Stored in HDPE containers or 316 Steel containers. Avoid using containers, pipes and fittings made of zinc-clad, copper-bearing alloys or aluminum.
Storage in open containers may result in formation of an ammonium polyphosphate solid on walls.
Not recommended: Aluminum due to possible pitting.
Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Store in a cool place. Keep container tightly closed in a dry and well-ventilated place. Mechanical exhaust required.
- Advice on common storage** Observe prohibition against storing together!
- Storage stability** Stable under recommended storage conditions
- 7.3 Specific end use(s)** No further relevant information available

◆ **SECTION 8: Exposure controls/personal protection**

- 8.1 Control parameters**
Occupational Exposure Limit 2 mg/m³ (TWA)
- 8.2 Exposure controls**
- Appropriate engineering controls** If possible, use material transfer, metering and blending plants that are closed
- Personal protective equipment**
- Eye/ face protection** closed goggles, face shield
- Skin protection**
- Hand protection**

Type of material	Thickness	Breakthrough time
Butyl-rubber	0.5 mm	> 480 min
Polychloroprene (PCP)	0.5 mm	110 min
- Body protection** Boots, body suit
- Respiratory protection** Respiratory equipment with suitable filter or a self-contained respiratory apparatus.
- Thermal hazards** Possibility of decomposition on excess heating
- Industrial hygiene** Do not inhale vapours / aerosols.
Avoid contact with skin and eyes.
Remove immediately all contaminated clothing.
Use disposable clothing if appropriate.
Smoking, eating and drinking should be prohibited in the application area.

◆ **SECTION 9: Physical and chemical properties**

- 9.1 Information on basic physical and chemical properties**
- Appearance** colourless to yellow liquid
- Odour** characteristic pungent odour
- Odour threshold** not determined

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pH	3-4 (at 25°C, 1w/w%)
Melting point	-35°C
Boiling point	109°C
Flash point	96°C (Closed cup)
Evaporation rate	<1(nBuAc=1)
Flammability (solid, gas)	not applicable (product is a liquid)
Flammability limits	no data available
Vapour pressure	1.7kPa at 20°C
Vapour density	>1 (air =1)
Relative density	1.37-1.4 at 20°C
Solubility in water	miscible
Partition coefficient	9.8 log Kow (n-octanol/water) at 20°C
Ignition temperature	279°C
Decomposition temperature	275°C
Viscosity at 20 °C	50mPa.s
Explosive properties	no explosive properties
Oxidizing properties	no oxidizing properties
9.2 Other information	no further information

◆ **SECTION 10: Stability and reactivity**

10.1 Reactivity	No hazardous reaction when handled and stored according to provisions.
10.2 Chemical stability	Under storage at normal ambient temperatures (-35°C to +35°C), the product is stable. Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems
10.3 Possibility of hazardous reactions	No known hazardous reactions if used as directed
10.4 Conditions to avoid	Alkalis and oxidizers; elevated temperatures
10.5 Incompatible materials	Strong acids. Strong bases. Strong oxidizers. Strong reducing agents.
10.6 Hazardous decomposition products	Phosphine, phosphorous and sulfur oxides

◆ **SECTION 11: Toxicological information**

11.1 Information on toxicological effects				
Acute toxicity				
LD50	oral	rat	575 mg/kg bw	harmful
LC50	inhalation	rat	0.9mg/l	not classified
LD50	dermal	not determined		
Skin irritation		Irritating 24 h (rabbit)		
Serious eye irritation		serious eye damage - 24 h (rabbit)		
Respiratory or skin sensitization		allergic effect on skin		
Germ cell mutagenicity		non mutagenic (Ames test)		
Carcinogenicity		not classifiable (Group 3)		
Reproductive toxicity		Has caused birth defects in laboratory animals (rat)		
STOT-single exposure		harmful to eyes, skin		
STOT-repeated exposure		adverse effect on liver, spleen and bone marrow		
Aspiration hazard		can cause serious adverse effects		

◆ **SECTION 12: Ecological information**

12.1 Toxicity				
Aquatic toxicity				
Toxicity to fish	LC50	96h	94mg/L	<i>Oncorhynchus mykiss</i>
Toxicity to aquatic invertebrates	LC50	48h	19.4 mg/L	<i>Daphnia magna</i>
Toxicity to aquatic algae and cyanobacteria	EC50	72h	475 mg/L	<i>Pseudokirchneriella subcapitata</i>
Toxicity to microorganisms	EC50	3h	24mg/L	activated sludge
12.2 Persistence and degradability				
Biodegradation		readily biodegradable (60% in 30days)		

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12.3	Bioaccumulative potential	Very low potential for bioaccumulation. THPS rapidly degrades to trishydroxymethyl phosphine oxide which is classified as non-toxic.
12.4	Mobility in soil	Koc = 9.8; very low potential for geoaccumulation (Blume scale)
12.5	Results of PBT and vPvB assessment	Not a PBT, vPvB substance according to the REACH regulation
12.6	Other adverse effects	No further information available

SECTION 13: Disposal considerations

13.1	Waste treatment methods	Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Do not dispose in sewage.
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◆ SECTION 14: Transport information

	ADR/RID	IMDG	ICAO/IATA
14.1	UN Number	2810	2810
14.2	UN proper shipping name	Toxic liquid, organic n.o.s [Tetrakis (hydroxymethyl) phosphonium sulfate]	
14.3	Transport hazard class	6.1	6.1
14.4	Packaging group	III	III
14.5	Environmental hazards	environmentally hazardous, marine pollutant	
14.6	Special precautions for the user		
	EmS number	F-A , S-A	
14.7	Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	See regulatory information for transport approval	

◆ SECTION 15: Regulatory information

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture		
	Major accident hazard	Seveso III	no

International Chemical Inventory Status

USA (TSCA)	listed
Canada (DSL)	listed
Australia (AICS)	listed
Japan (MITI)	listed
Korea (KECL)	listed
Philippines (PICCS)	listed
China	listed
New Zealand	listed
Taiwan	listed

15.2	Chemical safety assessment	A Chemical Safety Assessment will be carried out at the time of REACH registration
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◆ SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Further information:

Sections in which changes have been made since the last version are marked with a diamond ◆ in the left hand margin.

Abbreviations and acronyms in English language:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CLP	Classification for Labeling and Packaging
DSL	Domestic Substances List
EC	European Commission
EC50	Half maximal effective concentration
EINECS	European Inventory of Existing Commercial Chemical Substances

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GHS	Globally Harmonized System of Classification and Labeling of Chemicals
IATA	International Air Transport Association
IBC	International Bulk Chemical
ICAO	International Civil Aviation Organization
IMDG	International Maritime Code for Dangerous Goods
KECL	Korea Existing Chemicals List
KOC	Soil adsorption coefficient
KOW	Partition Coefficient octanol-water
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
MARPOL	International Convention for the Prevention of Pollution from Ships
MITI	Ministry of International Trade and Industry
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
PBT	Persistent, bioaccumulative and toxic substances
PICCS	Philippine Inventory of Chemicals and Chemical Substances
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
STOT	Specific target organ toxicity
TSCA	Toxic Substances Control Act
UN	United Nations
vPVB	(very) Persistent, (very) Bioaccumulative

Sources

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

ECHA <https://echa.europa.eu/registration-dossier/-/registered-dossier/16415/1>

Chemid <https://chem.nlm.nih.gov/chemidplus/rn/55566-30-8>

HSDB <https://toxnet.nlm.nih.gov/cgi-bin/sis/search/a?dbs+hsdb:@term+@DOCNO+4215>
