



Safety data sheet

Tetrakis (Hydroxymethyl) Phosphonium Sulfate(THPS)

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

1.1 Product identifier

Trade name: Tetrakis (Hydroxymethyl) Phosphonium Sulfate

CAS number:
55566-30-8

1.2 Recommended use of the chemical and restrictions on use:

- Mainly used as a fungicide.
- Used as pure cotton, polyester cotton fabric permanent flame retardant.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Chongqing Chuandong Chemical (Group) CO., LTD.
NO 70 Danxin Street Dashiba, Nanan District, Chongqing, CHINA
Tel: +86-23-62513938
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SECTION 2: Hazards Identification

Components Wt. CAS # OSHA ACGIH OTHER

% PEL STEL TWA STEL

Tetrakis (Hydroxymethyl)
Phosphonium Sulfate ~35 55566-30-8

SECTION 3: Composition/information on ingredients

Emergency Overview: DANGER!

RISK OF SERIOUS DAMAGE TO EYES. HARMFUL IF SWALLOWED.
MAY CAUSE ALLERGIC SKIN REACTION.

Acute Eye Contact: Expected to cause significant irritation to the eyes. May cause redness, burns, irritation, tearing.

Acute Skin Contact: Not expected to cause irritation to the skin. May cause redness, inflammation.
May cause sensitization.

Acute Inhalation: Can cause respiratory tract irritation. May cause coughing, a burning sensation, shortness of breath.

Acute Ingestion: Harmful if ingested. May cause nausea, vomiting.

Chronic Effect: (See Section 11-Chronic for a discussion of animal studies).

SECTION 4: First aid measures

Eye Contact: Hold eyelids open and flush with a steady, gentle stream of water for a least 15 minutes.
Seek immediate medical attention.

Skin Contact: In case of contact, immediately wash with plenty of soap and water for at least 5 minutes.
Seek medical attention if irritation develops or persists. Removed contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.

Inhalation: If respiratory irritation or distress occurs remove victim to fresh air. Seek medical attention if respiratory irritation or distress continues.

Ingestion: Wash out mouth and keep at rest. Seek immediate medical attention.

Medical conditions possibly aggravated by exposure: Skin contact may aggravate existing skin disease.

NOTES TO PHYSICIAN:

All treatments should be based on observed signs and symptoms of distress in the patient.

Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Treat symptomatically. No specific antidote available.

SECTION 5: Fire-fighting measures

Flash Point, oF, (Setaflash) NA

Lower Flammability Limits N/D

Upper Flammability Limits N/D

Extinguishing Media Agents approved for Class B hazards, (i.e. water fog, foam, dry chemical, carbon dioxide)

Special Fire Fighting Procedures. Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind; keep out of low areas. Evacuate residents who are downwind of fire.

Unusual Fire and Explosion Hazards: Containers may explode (due to build-up of pressure) when exposed to extreme heat.

Hazardous Decomposition Materials (Under Fire Conditions): Oxides of sulfur, Oxides of phosphorus, and/or Oxides of carbon.

SECTION 6: Accidental release measures

Evacuation Procedures and Safety:

Ventilate closed spaces before entering. Personnel handling this material should be thoroughly trained to handle spills and releases.

Wear appropriate protective gear for the situation. See Personal Protection information in Section VIII.

Evacuate and isolate spill area.

Containment of Spill:

Stop leak if it can be done without risk. Dike spill using absorbent or impervious materials such as earth, sand or clay. Dike area to prevent run-off. Collect and contain contaminated absorbent and dike material for disposal.

Cleanup and Disposal of Spill:

Recover material, if possible. DO NOT RETURN MATERIALS TO ITS ORIGINAL CONTAINER.

Absorb with an inert absorbent.

Shovel up into an appropriate closed container (see Section VII: Handling and Storage).

Decontaminate tools and equipment following cleanup.

Environmental and Regulatory Reporting:

Do not flush to drain. Runoff from fire control or dilution water may cause pollution. Prevent material from entering public sewer system or any waterways. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

SECTION 7: Handling and storage

Handling: Personnel handling this product should be thoroughly trained as to its hazards. Do not get on skin or in eyes. Avoid direct Or prolonged contact with skin and eyes. Avoid breathing vapors and mists. Use only as directed.

****Hazardous Warning:** This product belongs to a chemical family that HAS BEEN TESTED in combination with Trimethylolpropane, Trimethylolpropane derived products or their corresponding Trimethylolpropane

homologs for toxicity of the thermal decomposition products in the absence of flame. Products in this chemical family

PRODUCED NO SIGNIFICANT

ADVERSE HEALTH EFFECTS in laboratory animals. However, there is a possibility that this thermal decomposition may produce bicyclic phosphates and/or phosphites in combination with certain other phosphorus compounds.

Bicyclic phosphates and phosphites have acute neurotoxic properties and may cause convulsive seizures

in laboratory test animals. Follow all precautionary measures outlined in this Material Safety Data Sheet.

Storage: Store in an area that is clean, cool, dry, well-ventilated. Store away from bases, oxidizers, reducing agents. Store in tightly closed containers. Container material to avoid: Ordinary steel. Recommended container material: high density, high molecular weight polyethylene containers.

SECTION 8: Exposure controls/personal protection

Introductory Remarks:

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section XIII: Disposal Considerations.

Assistance with this selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

Exposure Guidelines:

No exposure limits were found for this product.

Engineering Controls:

Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures.

Respiratory Protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standard and/or industrial recommendations.

Eye/Face Protection:

Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices.

Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.

Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area. Face contact should be prevented through use of a face shield.

Skin Protection:

Skin contact should be prevented through use of suitable protective clothing, gloves and footwear, selected with regard for use conditions and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Work Practice Controls:

Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material:

- (1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- (2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- (3) Wash exposed skin promptly to remove accidental splashes or contact with this material.

SECTION 9: Physical and chemical properties and safety characteristics

Appearance/odor: Colorless Liquid with characteristic odor

State: Liquid **pH:** 3.24 at 100 wt/wt%

Specific Gravity: 1.164 at 200C (680F) **Boiling Point:** N/D

Solubility in Water: Miscible **Evaporation Rate:** N/D

Melting Point: N/D **Viscosity (centistokes):** 21cs at 250C (770F)

Vapor Pressure: N/D **Vapor Density:** N/D

SECTION 10: Stability and reactivity

Chemical Stability: This product is stable under normal handling and storage conditions described in Section VII. Under unusual conditions, such as very high temperatures and/or in the presence of strong

reducing agents, the product may break down to form hazardous decomposition products noted below. The customer is advised to seek further advice from Water Management Chemicals Technical Service personnel when considering such applications.

Conditions to Avoid: Heat, Temperatures above 1600C. See HAZARD WARNING and HANDLING: in Section VII.

Incompatible Materials: Strong bases and/or Strong oxidizing agents.

Decomposition Products: Thermal Decomposition: Oxides of Sulfur, Oxides of Phosphorus, Oxides of Carbon, and/or Phosphine Gas.

Hazardous Polymerization: Will not occur

SECTION 11: Toxicological information

The following data are for similar or related products.

Toxicological Information and Interpretation:

LD50 - lethal dose 50% of test species, 967 mg/kg, rat.

Chronic Toxicity:

This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens.

The following data is for similar or related products.

Toxicological Information and Interpretation - REPRODUCTIVE TOXICITY, rat. Material is not a reproductive toxin. -

CARCINOGENICITY, **. There was no evidence of carcinogenicity in F344/N rats and B6C3F1 mice (both sexes) dosed by gavage at 5 or 10 mg THPS/kg/day for 2 years. Aref. NTP study report TR296, 1987]. -

CHRONIC EXPOSURE, **. Medical surveillance for over 30 years of employees in our manufacturing facility has shown no evidence of developmental toxicity from long-term exposure following an acute incident, for example, a major or minor spillage. -

MUTAGENICITY, **. Ames test: Negative. -

MUTAGENICITY, **. Chinese hamster ovary cells (chromosomal aberrations): Positive.

TERATOGENICITY, **. Studies in both rats and rabbits showed no indications of developmental toxicity in the absence of marked material (parental) toxicity. No observed effect level for development 15 mg/kg/body weight. No observed effect level for development 18 mg/kg body weight. -

MUTAGENICITY, **. Mouse micronucleus (in vivo): Negative. -MUTAGENICITY, **.

Unscheduled DNA synthesis assay:

Negative.

SECTION 12: Ecological information

Ecotoxicological Information:

Not expected to cause significant adverse environmental impact if product reaches waterways. The following data is based on the technical grade active ingredient(s) (TGA).

Ecotoxicological Information and Interpretation:

LG50 - Lethal concentration 50% of test species, 19.4 mg/l/48 hr, Daphnia magna.

LG50 - Lethal concentration 50% of test species, 93 mg/l/96 hr, bluegill sunfish (*Lepomis macrochirus*).

LG50 - Lethal concentration 50% of test species, 119 mg/l/96 hr, rainbow trout (*Oncorhynchus mykiss*).

LG50 - Lethal concentration 50% of test species, 86 mg/l/96 hr., Juvenile Plaice.

LG50 - Lethal concentration 50% of test species, 340 mg/l/96 hr. Brown Shrimp.

LC50 - ecotox Method for association with dry sediment weight., 2174 mg/l/10 days, *Corophium Volutator*. (Dry sediment weight).

LD50 - lethal dose 50% of test species, 311 mg/kg, Mallard duck (*anas platyrhynchos*).

Chemical Fate Information:

Product is not expected to bioaccumulate. The following data is for similar or related product. This product is readily biodegradable under aerobic and anaerobic conditions in a sediment-water system. 28 days (aerobic) and 30 days (anaerobic). THPS has been shown to degrade rapidly once diluted to sub-ppm concentrations and forms trishydroxymethyl phosphine oxide which is classified as nontoxic.

SECTION 13: Disposal considerations**Waste Classification:**

Chemical additions, processing or otherwise altering this material any make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

EPA Hazardous Waste – NO

SECTION 14: Transport information**DEPARTMENT OF TRANSPORTATION:**

DOT Proper Shipping Name: Toxic Liquid, Organic, n.o.s., (Contains Phosphonium, tetrakis (Hydroxymethyl)-, Sulfate), 8.1, UN2922, PGII

DOT Hazard Class: 8.1

DOT Identification Number: UN2922

DOT Identification Name: Phosphonium, Tetrakis (Hydroxynethyl)-, Sulfate

DOT Packaging Group: II

2000 ERG Guide Number: 153

SECTION 15: Regulatory information

TSCA: This product is excluded from TSCA because it is solely for FIFRA regulated use.

CERCLA: If reportable quantity of this product is accidentally spilled the incident is subject to the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act and must be reported to the National Response Center by calling (800) 424-8802.

CERCLA Component CAS # Wt. % RQ, lbs Product RQ Value

NONE

SARA TITLE III:

This product contains the following Extremely Hazardous Substance under EPCRA section 302/304 lists.

EHS Component CAS# Wt. % RQ, lbs TPQ, lbs

None

Under the provisions of Title III, Sections 311/312 of the Superfund Amendments and Reauthorization Act, this product is classified into the following hazard categories:

Accute Health X Chronic Health Fire Pressure Reactive

This product contains the following Section 313 Reportable Ingredients:

313 Component CAS # Wt. %

None

SECTION 16: Other information

Hazardous Material Identification System Category Rating:

Health: 2

Flammability: 0

Reactivity: 1

Personal Protection: C

This rating scheme rates health, fire, and reactivity on a scale of 0 to 4.

0 = No significant hazard 1 = Slight Hazard 2 = Moderate Hazard 3 = High Hazard 4 = Extreme Hazard

Personal Protective Equipment Guide:

A = Safety Glasses G = Safety Glasses, Gloves, Vapor Respirator
 B = Safety Glasses, Gloves H = Safety Goggles, Gloves, Apron, Vapor Respirator
 C = Safety Glasses/Goggles, Gloves, Apron I = Safety Glasses, Gloves, Apron, Dust & Vapor Respirator
 D = Gloves, Apron, Faceshield J = Splash Goggles, Gloves, Apron, Dust & Vapor Respirator
 E = Safety Glasses, Gloves, Dust Respirator K = Air Line Hood/Mask, Gloves, Full Suit, Boots
 F = Safety Glasses, Gloves, Apron, Dust Respirator X = Ask supervisor for special handling instructions
 Component data taken from Sax's Dangerous properties of Industrial Materials, 10th Edition, John Wiley & Sons; Vendor's MSDS

Sheets, NIOSH "Pocket Guide to CHEMICAL HAZARDS", U.S. Department of Health and Human Resources, 1997; The Merck

Index, 9th Edition, Merck & Co., Inc.; "ACGIH 2002 TLVs and BEIs", American Conference of Governmental Industrial Hygienists;

"Quick Selection Guide to CHEMICAL PROTECTIVE CLOTHING", 3RD Edition, John Wiley & Sons, Inc., 1997.

Definitions

ACGIH: American Conference of Governmental & Industrial Hygienists

ANSI: American National Standard Institute

BEI: Biological Exposure Indices - individual tests via urine or exhaled air

CERCLA: Comprehensive Emergency Response, Compensation, and Liability Act

DOT: U.S. Department of Transportation

EPA: U.S. Environmental Protection Agency

HMIS: Hazardous Materials Identification System

IARC: International Agency For Research On Cancer

LC50: Lethal Concentration 50: A calculated concentration of the substance which is expected to cause death in 50% of an entire defined experimental animal population.

LCLo: Lethal Concentration Low: The lowest concentration of a material in air (other than LC50) that has been reported to have caused death in humans or animals.

LD50: Lethal Dose 50: A calculated concentration of the substance which is expected to cause death in 50% of an entire defined experimental animal population.

LDLo: Lethal Dose Low: the lowest dose (other than LD50) of a material introduced by any route, other than inhalation, over any given period of time in one or more divided portions and reported to have caused death in humans or animals.

MSHA: Mine Safety and Health Administration

N/A: Not Applicable

N/D: Not Determined

NE: Not Established

NFPA: National Fire Protective Association

NIOSH: National Institute for Occupational Safety & Health

NSF: National Sanitation Foundation

NTP: National Toxicology Program

OSHA: U.S. Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

PPE: Personal Protective Equipment

RCRA: Resource Conservation and Recovery Act

REL: Recommended Exposure Limit (NIOSH)

RQ: Reportable Quantity

SARA: Superfund Amendments and Reauthorization Act of 1986 Title III

SCBA: Self Contained Breathing Apparatus

STEL: Short Term Exposure Limit

TCLo: Toxic Concentration Low: The lowest concentration of a material in air to which humans or animals have been exposed for any given period of time that has produced any toxic effect in humans or produced a carcinogenic, neoplastigenic, or teratogenic effect in animals or humans.

TLV: Threshold Limit Value: A recommended upper limit or TWA concentration of a substance to which most workers can be exposed without adverse effects.

TSCA: Toxic Substances Control Act

TWA: Time Weighted Average

Wt: Weight

<: Less Than

>: Greater Than

DISCLAIMER OF LIABILITY

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