



Material Safety Data Sheet

TOLCIDE PS70AF

Date Prepared: 10/15/08

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1. PRODUCT AND COMPANY IDENTIFICATION

RHODIA INC.
RHODIA NOVE CARE
CN7500
8 Cedar Brook Drive
Cranbury NJ 08512-7500

Emergency Phone Numbers:

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC (800-424-9300 within the United States or 703-527-3887 for international collect calls) or Rhodia CAERS (Communication and Emergency Response System) at 800-916-3232.

For Product Information:
(888) 776-7337

EPA FIFRA Registration Number:
4564-19

Chemical Name or Synonym:
TETRAKIS(HYDROXYMETHYL) PHOSPHONIUM SULFATE; THPS

Molecular Formula:
 $2(C_4H_{12}O_4P)O_4S$

2. HAZARDS IDENTIFICATION

A. EMERGENCY OVERVIEW:

Physical Appearance and Odor:
colorless / liquid, characteristic odor.

Acute Skin:

May cause irritation upon prolonged contact. May cause sensitization.

Acute Inhalation:

Harmful if inhaled. May cause coughing, shortness of breath, chest pain.

Acute Ingestion:

Harmful if ingested. May cause nausea, vomiting.

Chronic Effects:

Repeated, prolonged ingestion may cause liver damage, (See Section 11-Chronic for a discussion of animal studies.) In a rabbit study, animals fed this product during pregnancy produced an increase in the numbers of offspring with eye abnormalities and/or minor skeletal variations, only at doses that also caused maternal (parental) toxicity. (See Section 11 for details of chronic studies).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Reg Number	OSHA Hazard	% WT/WT
TETRAKIS(HYDROXYMETHYL) PHOSPHONIUM SULFATE	55566-30-8	Y	~ 70

4. FIRST AID MEASURES

FIRST AID MEASURES FOR ACCIDENTAL:

Eye Exposure:

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

Skin Exposure:

In case of contact, immediately wash with plenty of soap and water for at least 15 minutes. Seek medical attention. Remove contaminated clothing and shoes while washing. Clean contaminated clothing and shoes before re-use or discard if they cannot be thoroughly cleaned.

Inhalation:

Remove victim from immediate source of exposure and assure that the victim is breathing. If breathing is difficult, administer oxygen, if available. If victim is not breathing, administer CPR (cardio-pulmonary resuscitation). Seek medical attention.

Treat symptomatically. No specific antidote available.

5. FIRE FIGHTING MEASURES

FIRE HAZARD DATA:

Flash Point:
Not Applicable

Extinguishing Media:
Recommended: water fog, carbon dioxide, dry chemical, foam.

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 the build-up of pressure) when exposed to extreme heat.

Hazardous Decomposition Materials (Under Fire Conditions):
oxides of sulfur
oxides of phosphorus
oxides of carbon

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 8. 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 runoff. Collect and contain contaminated absorbent and dike material for disposal.

Cleanup and Disposal of Spill:
Recover material, if possible. DO NOT RETURN MATERIAL TO ITS ORIGINAL CONTAINER. Absorb with an inert absorbent. Shovel up into an appropriate closed container (see Section 7: Handling and Storage). Clean up residual material by washing area with water. Collect washings for disposal. The material should be properly

Minimum/Maximum Storage Temperatures:
Not Available

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

**** HAZARD 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 OBSERVABLE ADVERSE HEALTH EFFECTS in laboratory animals. There is a possibility that this thermal decomposition produces bicyclic phosphates and/or phosphites. Bicyclic phosphates and phosphites have acute neurotoxic properties and may cause convulsive seizures in laboratory test animals. Therefore, this product should not be used in conjunction with Trimethylolpropane or Trimethylolpropane derived products unless tested to determine their decomposition toxicity. Follow all precautionary measures outlined in this Material Safety Data Sheet and/or contact Rhodia Inc.

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. Store in original container.

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 13: Disposal Considerations.

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

Exposure Guidelines:
Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting the regulatory requirements. The following limits apply to this material, where, if indicated, S=skin and C=ceiling limit:

TETRAKIS(HYDROXYMETHYL) PHOSPHONIUM SULFATE	
ACGIH	Notes
	TWA
	STEL
	2 mg/cu m

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product Information phone number in Section 1 for its exact specifications.

Physical Appearance:
colorless / liquid.

Odor:
characteristic odor.

pH:
3 to 6 at 100 wt/wt%.

Specific Gravity:
1.37 at 25 C (77 F).

Density:
1.34 to 1.4 g/ml at 25 C (77 F).

Water Solubility:
miscible

Not Available

Vapor Density:
Not Available

Viscosity:
viscosity (centistokes) : 4 cs at 23 C (73 F).

Molecular Weight:
406.3

10. STABILITY AND REACTIVITY

Chemical Stability:

This material is stable under normal handling and storage conditions described in Section 7. 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 Rhodia Water Technical Service personnel when considering such applications.

Conditions To Be Avoided:

heat
Temperatures above 160C.
See HAZARD WARNING under HANDLING : in Section 7.

Materials/Chemicals To Be Avoided:

strong bases
strong acids
strong oxidizing agents
strong reducing agents

Decomposition Temperature Range:

> 160 C (320 F)

The Following Hazardous Decomposition Products Might Be Expected:

Decomposition Type: thermal

oxides of sulfur
oxides of phosphorus
oxides of carbon
phosphine gas

Hazardous Polymerization Will Not Occur.

Acute Skin Irritation:**Toxicological Information and Interpretation:**

skin - skin irritation, rabbit. Minimally irritating. This material is not expected to cause significant irritation to the skin.
skin - sensitization, guinea pig. Sensitizing. May cause significant allergic skin reaction.

Acute Dermal Toxicity:

The following data is for similar or related products.

Toxicological Information and Interpretation:

LD50 - lethal dose 50% of test species, > 2000 mg/kg, rat. Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate.

Acute Respiratory Irritation:

No test data found for product.

Toxicological Information and Interpretation:

lung - lung irritation (qualitative), **. This material is not expected to cause significant irritation to the respiratory tract.

Acute Inhalation Toxicity:

The following data is for similar or related products.

Toxicological Information and Interpretation:

LC50 - lethal concentration 50% of test species, 0.59 mg/l/4 hr, rat. Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate.

Acute Oral Toxicity:

The following data is for similar or related products.

Toxicological Information and Interpretation:

LD50 - lethal dose 50% of test species, 575 mg/kg, rat. Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate.

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. No impairment of fertility was observed in a two generation feeding study. Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate. - 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]. - MUTAGENICITY, **. Ames Test: Negative. - MUTAGENICITY, **. Chinese hamster ovary cells (chromosomal aberrations): Positive. - TERATOGENICITY, **. A developmental toxicity study in rabbits resulted in statistically significant developmental effects in offspring, principally including eye malformations, hydrocephaly and skeletal variations, at doses that also caused maternal (parental) bodyweight

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

The following data is based on the technical grade active ingredient(s) (TGA).

Ecotoxicological Information and Interpretation:

- LC50 - lethal concentration 50% of test species, 19.4 mg/l/48 hr, *Daphnia magna*.
- LC50 - lethal concentration 50% of test species, 93 mg/l/96 hr, bluegill sunfish (*Lepomis macrochirus*).
- LC50 - lethal concentration 50% of test species, 119 mg/l/96 hr, rainbow trout (*Oncorhynchus mykiss*).
- LC50 - lethal concentration 50% of test species, 86 mg/l/96 hr, Juvenile Plaice.
- LC50 - lethal concentration 50% of test species, 340 mg/l/96 hr, Brown Shrimp.
- LC50 - ecotox Method for association with dry sediment weight, 2174 mg/kg/10 days, *Corophium volutator*. (dry sediment weight).
- LD50 - lethal dose 50% of test species, 311 mg/kg, Mallard duck (*Anas platyrhynchos*). Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate.

Chemical Fate Information:

Product is not expected to bioaccumulate. THPS has been shown to degrade rapidly once diluted to sub-ppm concentrations and forms trishydroxymethyl phosphine oxide which is classified as non-toxic.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Chemical additions, processing or otherwise altering this material may 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

14. TRANSPORT INFORMATION

Transportation Status: IMPORTANT! Statements below provide additional data on listed DOT classification.

The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

TDG:

Hazard Class..... 6.1
Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.
Technical Shipping Name: PHOSPHONIUM, TETRAKIS(HYDROXYMETHYL)-, SULFATE
ID Number..... UN2810
Packing Group.... III

IMO:

Hazard Class..... 6.1
Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.
Technical Shipping Name: PHOSPHONIUM, TETRAKIS(HYDROXYMETHYL)-, SULFATE
ID Number..... UN2810
Packing Group.... III

IATA:

Hazard Class..... 6.1
Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.
Technical Shipping Name: PHOSPHONIUM, TETRAKIS(HYDROXYMETHYL)-, SULFATE
ID Number..... UN2810
Packing Group.... III

15. REGULATORY INFORMATION

Inventory Status	Status
Inventory	
UNITED STATES (TSCA)	E
CANADA (DSL)	N
EUROPE (EINECS/ELINCS)	P
AUSTRALIA (AICS)	N
JAPAN (MITI)	N
SOUTH KOREA (KECL)	N

Y = All ingredients are on the inventory.
E = All ingredients are on the inventory or exempt from listing.
P = One or more ingredients fall under the polymer exemption or are on the no longer polymer list. All other ingredients are on the inventory or exempt from listing.
N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

FEDERAL REGULATIONS

Inventory Issues:

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

16. OTHER INFORMATION

National Fire Protection Association Hazard Ratings--NFPA(R):

- 2 Health Hazard Rating--Moderate
- 0 Flammability Rating--Minimal
- 1 Instability Rating--Slight

National Paint & Coating Hazardous Materials Identification System--HMIS(R):

- 2 Health Hazard Rating--Moderate
- 0 Flammability Rating--Minimal
- 1 Reactivity Rating--Slight

Reason for Revisions:

Change and/or addition made to Section 12.

Key Legend Information:

- ACGIH - American Conference of Governmental Industrial Hygienists
- OSHA - Occupational Safety and Health Administration
- TLV - Threshold Limit Value
- PEL - Permissible Exposure Limit
- TWA - Time Weighted Average
- STEL - Short Term Exposure Limit
- NTP - National Toxicology Program
- IARC - International Agency for Research on Cancer
- ND - Not determined
- RHODIA - Rhodia Established Exposure Limits

Disclaimer:

The information herein is given in good faith but no warranty, expressed or implied, is made.

**** End of MSDS Document ****