



TOLCIDE PS20A

Date Prepared: 10/13/11

Supersedes Date: 10/15/08

**1. PRODUCT AND COMPANY IDENTIFICATION**

RHODIA INC.  
RHODIA NOVECARE  
CN7500  
8 Cedar Brook Drive  
Cranbury, NJ 08512-7500 US

**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:**

4564-18

**Chemical Name or Synonym:**

TETRAKIS(HYDROXYMETHYL) PHOSPHONIUM SULFATE; THPS

**Molecular Formula:**2(C<sub>4</sub>H<sub>12</sub>O<sub>4</sub>P).04S**2. HAZARDS IDENTIFICATION****A. EMERGENCY OVERVIEW:****Physical Appearance and Odor:**

colorless to pale pink / liquid, characteristic odor.

**Warning Statements:**

DANGER! RISK OF SERIOUS DAMAGE TO EYES. HARMFUL IF INHALED. MAY BE  
HARMFUL IF INGESTED. MAY CAUSE ALLERGIC SKIN REACTION. POSSIBLE  
DEVELOPMENTAL HAZARD, MAY ADVERSELY EFFECT THE DEVELOPING FETUS (BASED  
ON ANIMAL DATA). DO NOT USE IN AEROSOL FORM.

**B. POTENTIAL HEALTH EFFECTS:****Acute Eye:**

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Expected to cause significant irritation to the eyes. Can cause tearing, pain, burns, permanent damage to the cornea.

**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:**

May be harmful if swallowed. 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	18 - 22

### 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.

**Ingestion:**

Do not induce vomiting, unless directed to do so by a physician. If victim is conscious and alert, wash out mouth with water and keep at rest. Do not leave victim unattended. Vomiting may occur spontaneously. To prevent aspiration of swallowed product, lay victim on side. Seek 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.

**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:**

Under fire conditions and at high temperatures, as water evaporates, the residue can decompose and support combustion. Under fire conditions or at high temperatures, irritating, toxic vapors are emitted. 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  
phosphine gas

**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 packaged and disposed of in compliance with applicable regulations. 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.

**7. HANDLING AND STORAGE****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.

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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, away from ignition sources, away from incompatible materials (see Section 10. Stability and Reactivity), 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

	Notes	TWA	STEL
ACGIH		2 mg/cu m	

### 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: general area dilution/exhaust ventilation.

### 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 standards 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:

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Skin contact must be prevented through the use of permeation resistant clothing, gloves and footwear, selected with regard for use conditions and exposure potential. An emergency shower must be readily accessible to the work area. 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 to pale pink / liquid.

**Odor:**

characteristic odor.

**pH:**

3 to 6 at 100 wt/wt%.

**Specific Gravity:**

Not Available

**Density:**

1.08 to 1.13 g/ml at 25 C (77 F).

**Water Solubility:**

soluble

**Melting Point Range:**

Not Available

**Freezing Point Range:**

0 C (32 F)

**Boiling Point Range:**

108 C (226 F) at 759 mmHg

**Vapor Pressure:**

Not Available

Vapor Density:  
Not Available

Octanol/Water Partition Coefficient:  
Not Available

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  
open flame  
Temperatures above 160C.  
See HAZARD WARNING under HANDLING : in Section 7.  
ignition sources

### 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.

### Avoid The Following To Inhibit Hazardous Polymerization:

not applicable

## 11. TOXICOLOGICAL INFORMATION

Acute Eye Irritation:

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**Toxicological Information and Interpretation**

eye - eye irritation, rabbit.

Severely irritating. This material is expected to cause significant irritation to the eyes.

**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. [ref. 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 gain reduction. The No Observed Effect Level (NOEL) for development toxicity and maternal toxicity (rabbit) = 18 mg/kg/day. A developmental toxicity study in rats showed a statistically significant increase only in one skeletal variation (supernumary ribs), at doses that also caused maternal toxicity. The No Observed Effect Level for development toxicity (rat) = 30 mg/kg/day; No observed effect level for maternal toxicity (rat) = 15 mg/kg/day. Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate. Medical surveillance for over 30 years of employees in our manufacturing facility has shown no evidence of developmental toxicity from long-term exposure nor from exposure following an acute incident, for example, a major or minor spillage.

- MUTAGENICITY, \*\*.

Dominant Lethal Assay [rat] (in vivo): Negative.

- MUTAGENICITY, \*\*.

Mouse micronucleus (in vivo): Negative.

- MUTAGENICITY, \*\*.

Unscheduled DNA synthesis assay: Negative. Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate.

- SUB-CHRONIC EXPOSURE, 1 mg/kg/90 days, rat.

Material tested was a 75% aqueous solution of Tetrakis (hydroxymethyl) phosphonium sulfate.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicological Information:

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

#### Ecotoxicological Information and Interpretation:

LC50 - lethal concentration 50% of test species, 19.4 mg/l/48 hr, freshwater invertebrate *Daphnia magna* (water flea).

LC50 - lethal concentration 50% of test species, 93 mg/l/96 hr, fish: *Lepomis macrochirus* (Bluegill sunfish).

LC50 - lethal concentration 50% of test species, 119 mg/l/96 hr, fish: *Oncorhynchus mykiss* (rainbow trout).

LC50 - lethal concentration 50% of test species, 86 mg/l/96 hr, fish: juvenile plaice (*Pleuronectes platessa*).

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LC50 - lethal concentration 50% of test species, 340 mg/l/96 hr, shrimp: Farfantepenaeus aztecus (brown shrimp).

LC50 - ecotox Method for association with dry sediment weight., 2174 mg/kg/10 days, shrimp: Corophium volutator (mud shrimp). (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 transport classification.**

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

**US DOT:**

Shipping Name: NOT REGULATED

**TDG:**

Shipping Name: NON DANGEROUS

**IMO:**

Shipping Name: NOT REGULATED

**IATA:**

Shipping Name: NOT REGULATED

**15. REGULATORY INFORMATION**

**Inventory Status**

Inventory	Status
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.

**SARA Title III Hazard Classes:**

- Fire Hazard - NO
- Reactive Hazard - NO
- Release of Pressure - NO
- Acute Health Hazard - YES
- Chronic Health Hazard - YES

**STATE REGULATIONS:**

This product contains the following components that are regulated under California Proposition 65:

Ingredient Name	Cancer List	Reprod. List	No Sign. Risk California	Risk Lvl (ug/day) RHODIA
FORMALDEHYDE	Y	N	40	ND

**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:**

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Change and/or addition made to Section 2, Section 4, Section 5, Section 7, Section 8, Section 9, Section 10, Regulatory Review and Update.

**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\*\***