



MATERIAL SAFETY DATA SHEET

[HISHICOLIN THPS]

MSDS No.: 2101060210

Established: 09/07/2005

Revised: 10/21/2005

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- PRODUCT NAME (GRADES): HISHICOLIN THPS
- NAME OF MANUFACTURER: NIPPON CHEMICAL INDUSTRIAL CO., LTD.
- HEAD OFFICE (ADDRESS): 11-1, 9-chome, Kameido, Koto-ku, Tokyo, 136-8515, Japan
- NAME OF SECTION: Organic Chemicals Sales Dept., Organic Chemicals Division
TEL. +81-3-3636-8048, FAX. +81-3-3636-8132
- EMERGENCY TELEPHONE: Same phone number listed above

2. COMPOSITION/INFORMATION ON INGREDIENTS

- SUBSTANCE OR PREPARATION: Substance
- CHEMICAL NAME (GENERIC NAME): Tetrakis(hydroxymethyl)phosphonium sulfate
- INGREDIENTS AND COMPOSITION: 75-78 wt%
- CHEMICAL FORMULA: $(\text{HOCH}_2)_4\text{P}^+ \cdot 1/2\text{SO}_4^{2-}$
- CAS No.: 55566-30-8
- JAPANESE OFFICIAL GAZETTE SERIAL No.: (2)-2003
- TSCA INVENTORY: Registered
- EINECS No.: 259-709-0
- INGREDIENTS CONTRIBUTING TO THE HAZARD: THPS
- IMPURITIES CONTRIBUTING TO THE HAZARD: Formaldehyde (< 1.0%)

3. HAZARDS IDENTIFICATION

- MOST IMPORTANT HAZARDS: Irritant
- HUMAN HEALTH: Irritating to skin, mucous membrane.
- ENVIRONMENTAL EFFECT: Combustion produces acidic gas. After combustion, it turns to phosphoric acid.
- SPECIFIC HAZARDS: Combustion produces irritating P_2O_5 gas.
- MAIN SYMPTOM: Irritating substance

4. FIRST-AID MEASURES

- INHALATION:
Remove the victim from the contamination immediately to fresh air. If breathing is weak, irregular or has stopped, open his airway, loosen his collar and belt and administer artificial



respiration. And refer for medical attention.

• **SKIN CONTACT:**

Remove all contaminated clothing, shoes and socks from the affected are as quickly as possible, cutting them off if necessary. Wash the affected area under tepid running water using a mild soap. If irritation persists, arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

• **EYE CONTACT:**

Gently rinse the affected eyes with clean water for at least 15 minutes immediately. Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

• **INGESTION:**

Do not induce vomiting. Never give anything by mouth to someone who is unconscious or convulsing. If the victim is responsive, give him one or two glasses of milk or water. And refer for medical attention.

5. FIRE-FIGHTING MEASURES

• **EXTINGUISHING MEDIA:**

Regular dry chemical, carbon dioxide, water, regular form, and dry sand.

• **SPECIFIC HAZARDS:**

Not flammable. Phosphorus pentoxide, carbon dioxide and sulfur polyoxide will form upon combustion with other flammable materials.

• **SPECIFIC METHODS:**

Extinguish the fire from the windward side spraying a large quantity of water.

• **PROTECTION FIRE-FIGHTERS:**

For fire extinguishing work, wear an air respirator to avoid the hazards of fume. To avoid the harms of fumes, use breathing equipment.

6. ACCIDENTAL RELEASE MEASURES

• **PERSONAL PRECAUTIONS:**

None in particular.

• **ENVIRONMENTAL PRECAUTIONS:**

It is gradually hydrolyzed by the moisture in the air and turned to phosphoric acid.

• **METHODS FOR CLEANING UP:**

Small spills---Carefully sweep up. Place in a bag and hold for waste disposal

Use suitable protective equipment (gloves, safety goggles etc.)

Large spills---Cover with plastic sheet to minimize spreading and collect spilled material in appropriate container for disposal.



7. HANDLING AND STORAGE

• HANDLING:

TECHNICAL MEASURES:

Wear proper personal protective equipment to avoid coming into contact with the eyes, skin and clothing.

PRECAUTIONS :

The work is made in a place of good ventilation where a local ventilator is installed.

SAFE HANDLING ADVICE:

Wear personal protective equipment. Don't bring it into contact with metal instruments.

• STORAGE:

TECHNICAL MEASURES:

Keep away sunlight. Store in a cool, dark location.

STORAGE CONDITIONS:

Avoid coming into contact with fire. Store in a dark, cool place keeping isolated from inflammable substances, combustible substances and explosive substances as avoiding are mixing with oxidizing agents.

INCOMPATIBLE PRODUCTS:

Combustible substances, oxidizable substances.

PACKAGING MATERIALS:

Don't bring it into contact with metal instruments.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

• ENGINEERING MEASURES:

Installation of local ventilation equipment, explosion proof equipment, facilities for washing of hands and face.

• CONTROL PARAMETERS:

Japan Society for Occupational Health (2001): Not established.

ACGIH (2002): Not established.

• PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION:

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any chemical cartridge respirator with organic vapor cartridge(s). Any chemical cartridge expiratory with a full-face piece and organic vapor cartridge(s).

EYE PROTECTION:

Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

SKIN AND BODY PROTECTION:

Wear appropriate chemical resistant clothing and gloves.



• HYGIENE MEASURES:

Any air-purifying respirator with a full-face piece and an organic vapor canister. For Unknown Concentrations or Immediately Dangerous to Life or Health: Any supplied-air respirator with full-face piece and operated in a pressure demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

9. PHYSICAL AND CHEMICAL PROPERTIES

• PHYSICAL STATE:

FORM:	Viscous liquid
COLOUR:	Clear colorless
ODOR:	Antiseptic like smell
• pH VALUE:	3-6
• BOILING POINT:	109 °C (25% Aqueous solution)
• MELTING POINT:	Not applicable
• FLASH POINT:	Does not ignite(25% Aqueous solution)
• AUTOIGNITION TEMPERATURE:	279 °C
• EXPLOSION LIMIT:	Not available
• VAPOR PRESSURE:	0.13 Pa (193.3 °C)
• DECOMPOSITION TEMPERATURE:	Not available
• DENSITY:	1.42 (20 °C)
• SOLUBILITY:	DMSO: > 100mg/ml(25 °C) 95%Ethanol: < 1mg/ml(18 °C) Methanol: > 100mg/ml(18 °C) Acetone: < 1mg/ml(19 °C) Toluene: < 1mg/ml(19 °C) Water: > 100mg/ml Benzene, Ether: Insoluble

10. PHYSICAL HAZARD (STABILITY & REACTIVITY)

• STABILITY:

Stable under normal handling.

• CONDITION TO AVOID:

High temperature and contact with alkalis or oxidizing agents.

• MATERIALS TO AVOID:

Oxidizing agents or alkalis. (Do not mix therewith)

• HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon monoxide, carbon dioxide, oxides of sulfur, oxides of phosphorus, formaldehyde, phosphine gas, vapor of organophosphine, hydrogen.



11. TOXICOLOGICAL INFORMATION

• ACUTE TOXICITY:

Oral(rat)	LD ₅₀	400mg/kg
Dermal(rabbit)	LD ₅₀	900mg/kg

• LOCAL EFFECTS:

Irritating to skin(rabbit) : Corrosive

Irritating to eyes(rabbit) : Danger of very serious damage

• SENSITIZATION: No report of sensitization

• SPECIFIC EFFECT:

CARCINOGENICITY:

THPS irritate skin in 3.75 or 7.5mg/kg for 2 years, no carcinogenic effects were noted.

IARC: Group 3.No report of carcinogenicity

MUTAGENICITY :

System	Organism	Cell Type	Dose
On cogenic transformation	Mouse	Embryo	5000ppm
Mutation in mammalian somatic cells	Mouse	Lymphocyte	6mg/l
On cogenic transformation	Hamster	Kidney	5000ppm
Mutation in mammalian somatic cells	Hamster	Lung	5000ppm

12. ECOLOGICAL INFORMATION

• MOBILITY:

When contact with metals in a long term, the materials rust and THPS color light yellow. Sunlight and ultraviolet rays discolor THPS. Long term preservation slightly acidifies THPS.

• ECOTOXICITY:

Toxic to aquatic organisms, may cause adverse effects in the aquatic environment. THPS is not biodegradable.

13. DISPOSAL CONSIDERATION

Incinerate in an incinerator equipped with a cleaner of waste gases. Phosphorus pentoxide, carbon dioxide and sulfur polyoxide will form upon combustion with other flammable materials.

14. TRANSPORT INFORMATION

• INTERNATIONAL REGULATIONS: DOT, IMO and ICAO/IATA.

• LAND:

D.O.T. SHIPPING NAME : Organophosphorus compound, toxic, liquid, n.o.s.

D.O.T. HAZARD CLASSIFICATION : 6.1

D.O.T. PACKING GROUP :



D.O.T. UN/ID NUMBER : 3278

D.O.T. LABELS REQUIRED : Toxic, Marine Pollutant

TECHNICAL NAME(N.O.S.) : Contains Tetrakis(hydroxymethyl)phosphonium sulfate

• SEA

IMDG CODE

I.M.O. SHIPPING NAME : Organophosphorus compound, toxic, liquid, n.o.s.

I.M.O. RISK LABEL : 6.1

MARINE POLLUTANTS : MP

• AIR

SHIPPING NAME : Organophosphorus compound, toxic, liquid, n.o.s.

HAZARD CLASSIFICATION : 6.1

UN NUMBER : 3278

PACKING GROUP :

TECHNICAL NAME(N.O.S.) : Contains Tetrakis(hydroxymethyl)phosphonium sulfate

15. REGULATORY INFORMATION

• REGULATIONS:

UNITED STATES:

All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

EUROPEAN UNION:

All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

JAPAN:

All components of this product are included on the Japanese inventory (ENCS) or are not required to be listed on ENCS.

KOREA:

All components of this product are included on the Korean inventory (ECL) or are not required to be listed on ECL.

16. OTHER INFORMATION

**** Notices ****

- 1) The Material Safety Data Sheet is a brief summary of general precautions necessary for proper use of Our Company Product. For a special use and handling, use upon safety confirmation and implementation of the measures suited to the application.



- 2) The contents entered into this sheet was prepared based on the documents and test data available at the time of preparation but does not guarantee at all the descriptions of Composition/Information on Ingredients, Physical & Chemical Properties and Hazards Identification.
- 3) Every chemical product may present unknown hazards and should be used with utmost caution. All users should bear the responsibility of setting of the safe use conditions.
- 4) The information herein is subject to change by new findings such as new literatures and test results and revisions of laws and regulations.