

# Material Safety Data Sheet

## PBTCA

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** 2-Phosphonobutane-1,2,4-tricarboxylic acid

**COMPANY:** SPE Chemicals Co., Ltd

**TEL:** +86-21-68735647

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	Average concentration	Concentration range	Units
2-phosphonobutane-1,2,4-tricarboxylic acid	37971-36-1		50.0 min	%

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**Form:** liquid

**Colour:** clear to colourless

**Odour:** characteristic

#### WARNING STATEMENTS

WARNING!

Causes eye irritation

#### POTENTIAL HEALTH EFFECTS

**Likely routes of exposure:** eye and skin contact

Inhalation

**Eye contact:** Highly irritating to eyes.

**Skin contact:** No more than slightly irritating to skin.

No more than slightly toxic if absorbed.

**Inhalation:** No information available.

**Ingestion:** No more than slightly toxic if swallowed.

Significant adverse health effects are not expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

### 4. FIRST AID MEASURES

**If in eyes:** Immediately flush with plenty of water for at least 15 minutes.

If easy to do, remove any contact lenses.

Get medical attention.

Remove material from skin and clothing.

**If on skin:** Immediate first aid is not likely to be required.

This material can be removed with water.

Wash heavily contaminated clothing before reuse.

- If inhaled:** Immediate first aid is not likely to be required.  
If symptoms occur, remove to fresh air.  
Remove material from eyes, skin and clothing.
- If swallowed:** Immediate first aid is not likely to be required.  
A physician or Poison Control Center can be contacted for advice.  
Wash heavily contaminated clothing before reuse.

## 5. FIRE FIGHTING MEASURES

- Flash point:** Non flammable aqueous solution
- Hazardous products of combustion:** phosphorus oxides (P<sub>x</sub>O<sub>y</sub>); carbon monoxide (CO)
- Extinguishing media:** Water spray, foam, dry chemical, or carbon dioxide
- Unusual fire and explosion hazards:** None known
- Fire fighting equipment:** Firefighters, and others exposed, wear self-contained breathing apparatus.  
Equipment should be thoroughly decontaminated after use.

## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions:**  
Use personal protection recommended in section 8.
- Environmental precautions:**  
Keep out of drains and water courses.
- Methods for cleaning up:**  
Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Neutralize washings with soda ash or lime. Flush spill area with water.
- Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

## 7. HANDLING AND STORAGE

### Handling

- Avoid contact with eyes, skin and clothing.  
Avoid breathing vapour or mist.  
Keep container closed.  
Use with adequate ventilation.  
Wash thoroughly after handling.  
Emptied containers retain vapour and product residue. Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed. Do not reuse this container.

### Storage

- Temperature:** > -10 C
- Suitable materials of construction:**  
glass lining; PVC; polypropylene; glass reinforced plastic; polyethylene
- Unsuitable materials of construction:**

mild steel; aluminium; other metals

General: Freeze sensitive.

Keep in a cool, well-ventilated place.

Stable under normal conditions of handling and storage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Eye protection:** Wear chemical goggles.

Have eye flushing equipment available.

**Hand protection:** Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice.

Wearing protective gloves is recommended.

Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application.

**Body protection:** Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice.

Wash thoroughly after handling.

**Respiratory protection:** Avoid breathing vapour or mist.

Use approved respiratory protection equipment (full facepiece recommended) when airborne exposure is excessive.

If used, full facepiece replaces the need for face shield and/or chemical goggles.

Consult the respirator manufacturer to determine the appropriate type of equipment for a given application.

Observe respirator use limitations specified by the manufacturer.

**Ventilation:** Provide natural or mechanical ventilation to minimize exposure.

If practical, use local mechanical exhaust ventilation at sources of air contamination such as processing equipment.

**Airborne exposure limits:** (ml/m<sup>3</sup> = ppm)

### 2-phosphonobutane-1,2,4-tricarboxylic acid

No specific occupational exposure limit has been established.

Components referred to herein may be regulated by specific Canadian provincial legislation.

Please refer to exposure limits legislated for the province in which the substance will be used.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Specific gravity:** 1.27 - 1.30

**pH:** 2.0

**Boiling point :** > 100 C @ 1,013 hPa

**Freezing point:** -15 C

**NOTE:** These physical data are typical values based on material tested but may vary from sample to sample.

Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

## 10. STABILITY AND REACTIVITY

**Conditions to avoid:** Do not expose to extreme temperatures.

**Materials to avoid -Hazardous reactions:**

Attacks many metals.  
Corrosive to aluminum and mild steel.  
Hazardous polymerization does not occur.

**Hazardous decomposition products:**

carbon monoxide (CO); phosphorus oxides (PxOy)

## 11. TOXICOLOGICAL INFORMATION

This product has not been tested for toxicity, but data obtained on similar products are summarised below :

**Acute animal toxicity data**

**Oral:** LD50 , rat, > 2,000 mg/kg , No more than slightly toxic  
**Dermal:** LD50 , rabbit, > 2,000 mg/kg , No more than slightly toxic  
**Eye irritation:** rabbit , Severely irritating,  
**Skin irritation:** rabbit , No more than slightly irritating to skin.,  
**Skin sensitization:** guinea pig , This material did not produce skin sensitization in laboratory animals.  
Guinea pig maximization test (GPMT)

**Developmental toxicity:** rat, diet, , No adverse treatment related effects in offspring.

**Mutagenicity:** not mutagenic.

## 12. ECOLOGICAL INFORMATION

**Environmental Toxicity:**

**Invertebrates** 24 h, EC50 Water flea (Daphnia magna) 265 mg/l  
**Fish:** 48 h, LC50 Rainbow trout (Oncorhynchus mykiss) > 3440 mg/l  
48 h, Golden orfe (Leuciscus idus) > 500 mg/l  
**Algae:** 72 h, EC50 Scenedesmus subspicatus 140 mg/l  
96 h, EC50 Algae 860 mg/l  
**Biodegradation** Zahn-Wellens (OECD 302B) 17 % 28 d

## 13. DISPOSAL CONSIDERATIONS

**US EPA RCRA Status:**

This material when discarded is a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA),40 CFR 261. See disposal considerations below for U.S. EPA disposal requirements. Consult regulatory officials for performance standards.

**US EPA RCRA hazardous waste number:**

D002

**Compound/Characteristic:**

Corrosivity

**Disposal considerations:**

Deactivation

Consult 40 CFR 268.48 for concentration based standards.

**Miscellaneous advice:**

Local, state, provincial, and national disposal regulations may be more or less stringent.

Consult your attorney or appropriate regulatory officials for information on such disposal.

This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

## 14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

### US DOT

**Proper shipping name:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
*2-phosphonobutane-1,2,4-tricarboxylic acid*

**Hazard Class:** 8

**Hazard Identification number:** UN3265

**Packing Group:** Packing Group III

**Transport label:** Corrosive

### Canadian TDG

**Proper shipping name:** CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
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## 15. REGULATORY INFORMATION

All components are in compliance with the following inventories:

U.S. TSCA, Canadian DSL, EU EINECS, Japanese ENCS, Australian AICS, Korean, Chinese, Phillipine PICCS

### Other chemical inventory information:

One or more of this product's components is considered to be an impurity and is not subject to the New Substances Notification Regulation under the Canadian Environmental Protection Act (CEPA).

### Canadian WHMIS classification:

D2(B) - Materials Causing Other Toxic Effects

E - Corrosive Material

### SARA Hazard Notification:

Hazard Categories Under Title III Rules (40 CFR 370):

Immediate

### Section 302 Extremely Hazardous Substances:

Section 313 Toxic Chemical(s):

### CERCLA Reportable Quantity:

Not applicable

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the

Canadian Controlled Products Regulation.

Refer to Section 11 for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

Safety data sheet also created in accordance with Brazilian law NBR 14725

## 16. OTHER INFORMATION

**Usage:** Cleaning/washing agents and disinfectants, Complexing agents, Scale inhibition.

**Reason for revision:** New ANSI Standard

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating	2	0	1	
Suggested HMIS Rating:	2	0	1	G