

## SAFETY DATA SHEET POTASSIUM TETRABORATE

SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION		
<b>Product Name</b>	:POTASSIUM TETRABORATE	
<b>SYNONYMS</b>	: Potassium tetraborate tetrahydrate , Dipotassium tetraboate tetrahydrate , Potassium borate	
<b>CAS No</b>	: 12045-78-2	
<b>Chemical Designation</b>	: K2B4O7·4H2O	
<b>General Use</b>	: Industrial / Chemical Manufacturing, Laboratory Chemicals, Manufacture of substances	
<b>Contact Information</b>	<b>OFFICE :</b> <b>Madras Fluorine Private Ltd</b> No.71, 4 <sup>th</sup> Main Road Gandhi Nagar, Adyar Chennai 600 020, India E-mail : <a href="mailto:exim@mfpfluorine.com">exim@mfpfluorine.com</a>	<b>FACTORY</b> <b>Madras Fluorine Private Ltd</b> Express Highway Manali Chennai – 600 068, India
<b>Emergency Telephone No:</b>	<b>+91 44 2442 6830 / 2442 0654</b>  <b>MON – FRI : 9.30 AM – 6.00 PM</b>	<b>+91 44 2901 1768 / 73054 10296</b>  <b>MON – SAT : 9.00 AM – 5.30 PM</b>

### SECTION 2 : HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008**

Reproductive toxicity (Category 2), H361d

**Label elements**

**Labelling according Regulation (EC) No 1272/2008**

Pictogram



**Signal word**

**Warning**

Hazard statement(s)  
H361d

Suspected of damaging the unborn child.

Precautionary statement(s)  
P281

Use personal protective equipment as required.

Supplemental Hazard  
Statements

none

### Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENT

### Composition:

Name	CAS #	% by Weight
Potassium tetraborate tetrahydrate	12045-78-2	100

Toxicological Data on Ingredients: Potassium tetraborate tetrahydrate LD 50: Refer Section 11. LC 50: Not available.

## SECTION 4 : FIRST AID MEASURES

### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention

### Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

### Inhalation:

Allow the victim to rest in a well ventilated area. Seek immediate medical attention

**Serious Inhalation: Not available.**

### Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion: Not available.**



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## SECTION 5 : FIRE-FIGHTING MEASURES

**General hazard:** None, because Potassium Tetraborate is not flammable, combustible or explosive. The product is itself a flame retardant.

**Extinguishing media:** Any fire extinguishing media may be used on nearby fires.

**Flammability classification (29 CFR 1910.1200):** Nonflammable solid.

## SECTION 6 : ACCIDENTAL RELEASE MEASURES

**General:** Potassium Tetraborate is a water-soluble, white powder that may, at high concentrations, cause damage to trees or vegetation by root absorption. (Refer to Ecological information, Section 12, for specific information.)

**Land spill:** Vacuum, shovel or sweep up Potassium Tetraborate and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during cleanup and disposal. Personal protective equipment is not needed to clean up land spills.

**Spillage into water:** Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level. (Refer to Sections 12, 13 and 15 for additional information.) Potassium Tetraborate is a non-hazardous waste when spilled or disposed of, as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261). (Refer to Regulatory information, Section 15, for additional references.)

## SECTION 7 : HANDLING AND STORAGE

### Precautions:

Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.

### Storage:

No specific storage is required. Use shelves or cabinets sturdy enough to bear the weight of the chemicals. Be sure that it is not necessary to strain to reach materials, and that shelves are not overloaded.



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## SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering controls:** Use local exhaust ventilation to keep airborne concentrations of Potassium Tetraborate dust below permissible exposure levels.

**Personal protection:** Where airborne concentrations are expected to exceed exposure limits, NIOSH/MSHA certified respirators should be used. Eye goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty

**Occupational exposure limits:** Potassium tetraborate tetrahydrate (Potassium Tetraborate) is treated by OSHA, Cal OSHA and ACGIH as “Particulate Not Otherwise Classified” or “Nuisance Dust”.

**ACGIH/TLV:** 10 mg/m<sup>3</sup>

**Cal OSHA/PEL:** 10 mg/m<sup>3</sup>

**OSHA/PEL (total dust):** 15 mg/m<sup>3</sup>

**OSHA/PEL (respirable dust):** 5 mg/m<sup>3</sup>

## SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	White Crystalline
MOLECULAR WEIGHT	303.53
SPECIFIC GRAVITY	1.92
MELTING POINT	100°C, 400°C ANHYDROUS SALT, 815°C FUSES TO CLEAR GLASS
SOLUBILITY IN WATER	17.8% BY WT. @ 25°C
FLAST POINT	N/A
EXPLOSION LIMITS	N/A

## SECTION 10 : STABILITY AND REACTIVITY

CHEMICAL STABILITY	Stable under normal temperatures and pressures
CONDITIONS TO AVOID	Incompatible materials
INCOMPATIBILITIES WITH OTHER MATERIALS	Strong oxidizing agents, strong acids
HAZARDOUS DECOMPOSITION PRODUCTS	None known

## SECTION 11 : TOXICOLOGICAL INFORMATION

### Acute toxicity

**Ingestion:** Low acute oral toxicity; LD 50 in rats is 3,500 to 4,100 mg/kg of body weight.

**Skin/dermal:** Low acute dermal toxicity; LD 50 in rabbits is greater than 2,000 mg/kg of body weight. Potassium Tetraborate is poorly absorbed through intact skin.

**Inhalation:** No experimental data. Other borates indicate low acute inhalation toxicity. Many years of occupational exposure to boric acid and other borates indicate no increase in pulmonary disease.

**Skin irritation:** Non-irritant.

**Eye irritation:** No experimental test data. Eye irritation seen in rabbits treated with sodium tetraborates. Many years of occupational exposure to sodium and potassium borate products indicate no adverse effects on human eye. Therefore, Potassium Tetraborate is not considered to be a human eye irritant in normal industrial use.

**Sensitization:** Potassium Tetraborate is not a skin sensitizer.

**Other Reproductive/developmental toxicity:** Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes<sup>2</sup>. Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus, including fetal weight loss and minor skeletal variations<sup>3, 4</sup>. The doses administered were many times in excess of those to which humans would normally be exposed

**Carcinogenicity/mutagenicity:** Boric acid did not produce any evidence of carcinogenicity in mice<sup>6</sup>, nor was any mutagenic activity observed in a battery of short-term mutagenicity assays.

**Human data:** Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.

## SECTION 12 : ECOLOGICAL INFORMATION

### Ecotoxicity data

**General:** Boron (B) is the element in potassium tetraborate tetrahydrate (Potassium Tetraborate) which is used by convention to report borate product ecological effects. It occurs naturally in seawater at an average concentration of 5 mg B/L and generally occurs in freshwater at concentrations up to 1 mg B/L. In dilute aqueous solutions the predominant boron species present is undissociated boric acid. To convert potassium tetraborate tetrahydrate into the equivalent boron (B) content, multiply by 0.1415.



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**Phytotoxicity:** Boron is an essential micronutrient for healthy growth of plants; however, it can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimize the amount of Potassium Tetraborate released to the environment.

#### **Environmental fate data**

**Persistence/degradation:** Boron is naturally occurring and ubiquitous in the environment. Potassium Tetraborate decomposes in the environment to natural borate.

**Octanol/water partition coefficient:** No value. In aqueous solution potassium tetraborate tetrahydrate is converted substantially into undissociated boric acid.

**Soil mobility:** Potassium Tetraborate is soluble in water and is leachable through normal soil.

## SECTION 13 : DISPOSAL CONSIDERATIONS

**Disposal guidance:** Small quantities of Potassium Tetraborate can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements. Tonnage quantities of product should, if possible, be used for an appropriate application.

**RCRA (40 CFR 261):** Potassium Tetraborate is not listed under any sections of the Federal Resource Conservation and Recovery Act (RCRA).

**NPRI (Canada):** Potassium Tetraborate is not listed on the Canadian National Pollutant Release Inventory.

## SECTION 14 : TRANSPORT INFORMATION

**DOT hazardous classification:** Potassium Tetraborate is not regulated by the U.S. Department of Transportation (DOT) and is therefore not considered a hazardous material/substance.

**TDG Canadian transportation:** Potassium Tetraborate is not regulated under Transportation of Dangerous Goods (TDG).

**International transportation:** Potassium Tetraborate has no UN Number, and is not regulated under international rail, road, water or air transport regulations.

## SECTION 15 : REGULATORY INFORMATION

**Federal and State Regulations:** No products were found.

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).



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## Other Classifications:

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):** R36/38- Irritating to eyes and skin.

## HMIS (U.S.A.):

**Health Hazard: 2**

**Fire Hazard: 0**

**Reactivity: 0**

**Personal Protection: E**

## National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

## Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## SECTION 16 : OTHER INFORMATION

**References: Not available**

**Other Special Considerations: Not available**

## Disclaimer:

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