

## Safety Data Sheet

---

### 1. Chemical product and company identification

Product name : Boric acid

**Company information**

Name of manufacturer : KANTO CHEMICAL CO., INC.  
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP  
 Name of section : Business Administration Department, Reagent Division  
 Telephone number : +81-3-6214-1090  
 Facsimile number : +81-3-3241-1047  
 Mail address : BC32@kanto.co.jp  
 Reference No : 04232

Product numbers applied by the SDS : 04232, 05831

Recommended use : For research use only

Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

### 2. Hazards identification

#### GHS classification

Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity (single exposure)	Category 1 (central nervous system, digestive tract)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)

Hazard pictograms



Signal word : Danger

Hazard statements : Causes skin irritation  
 Causes serious eye irritation  
 May cause respiratory irritation  
 May damage fertility or the unborn child  
 Causes damage to organs (central nervous system, digestive tract)

#### Precautionary statements

Prevention : Do not handle until all safety precautions have been read and understood.  
 Do not breathe dust.  
 Wash hands, forearms and face thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Use only outdoors or in a well-ventilated area.  
 Wear protective gloves/protective clothing/eye protection/face protection.



- Response : IF ON SKIN: Wash with plenty of water.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF exposed or concerned: Call a POISON CENTER or doctor.  
IF exposed or concerned: Get medical advice/attention.  
Call a POISON CENTER or doctor if you feel unwell.  
If skin irritation occurs: Get medical advice/attention.  
If eye irritation persists: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.
- Storage : Store in a well-ventilated place. Keep container tightly closed. Store locked up.
- Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Boric acid	≥ 99.5	H3BO3	Listed	233-139-2	10043-35-3

### 4. First aid measures

#### First aid measures

- First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.
- First-aid measures after skin contact : Wash the affected areas under running water.
- First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
- First-aid measures after ingestion : Give the victim water or salt water and make him vomit. Get medical attention.
- Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

#### Most Important Symptoms/Effects

- Symptoms/effects : If swallowed, may cause abdominal pain, muddle, diarrhea, headache, nausea.

### 5. Fire fighting measures

- Suitable extinguishing media : This product is noncombustible.
- Unsuitable extinguishing media : None
- Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
- Personal protection (Emergency response) : Firefighters should wear protective equipment.

## 6. Accidental release measures

### Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

### Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

### Methods and Equipment for Containment and Cleaning up

For containment : Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.

## 7. Handling and storage

### Handling

Technical measures : Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.

Precautions for safe handling : Avoid formation of dust and aerosols.

### Storage

Storage conditions : Store in a dark, cool place and tightly closed.

Material used in packaging/containers : Glass, polyethylene, polypropylene.

## 8. Exposure controls / Personal protection equipment

ACGIH TWA	2 mg/m <sup>3</sup> (I)
ACGIH STEL	6 mg/m <sup>3</sup> (I)

Appropriate engineering controls : Install a local ventilation system in case of dusty condition.

### Protective equipment

Respiratory protection : If necessary, wear dust mask

Hand protection : Impervious protective gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

## 9. Physical and chemical properties

Physical state : Solid

Color : White

Odor : Odorless

pH : 3.5 - 4.1 (saturated aqueous solution, 20°C)

Melting point : 184 ° C

Freezing point : No data available

Boiling point : Decomposition

Flash point : No data available

Auto-ignition temperature : No data available

---

Decomposition temperature	: When heated, it changes to metaboric acid at 100 ° C, tetraboric acid at 140 ° C, and boron oxide at 300 ° C.
Flammability	: Non flammable.
Vapor pressure	: No data available
Relative density	: No data available
Density	: 1.49 g/cm <sup>3</sup> (20°C)
Relative gas density	: No data available
Solubility	: Organic solvents: Readily soluble in glycerol, soluble in ethanol. Water: 4.8 % (20°C)
Partition coefficient n-octanol/water (log Pow)	: No data available
Explosive limits (vol %)	: No data available
Viscosity, kinematic	: No data available
Particle characteristics	: No data available

## 10. Stability and reactivity

Reactivity	: May react when in contact with alkaline substances.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: When an ester-type complex ion is formed with a polyhydric alcohol, it becomes a strong acid.
Conditions to avoid	: Light, heat.
Incompatible materials	: Alkaline substances.
Hazardous decomposition products	: fume.

## 11. Toxicological information

Acute toxicity (oral)	: No classification rat LD50=2660-5140 mg/kg
Acute toxicity (dermal)	: No classification rat LD50>2000 mg/kg
Acute toxicity (inhalation)	: No classification (gas) No classification (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	: Causes skin irritation Since there was a description in skin irritation tests with guinea pigs and rabbits in which 5 mL of a 10% aqueous solution of this substance was applied that irritation was observed after 24 and 72 hours in both guinea pigs and rabbits, and a description that slight to moderate skin irritation was seen, it was classified in category 2.
Serious eye damage/irritation	: Causes serious eye irritation In the eye irritation/corrosion test using 6-rabbits, result of eyewash, blisters were observed in the conjunctiva after applying the substance 100 mg for 24 hour, however, it was recovered within 7 days. In the description of the health effects in humans, its extent, is unclear about the recovery period, however, since there was received the results that causes irritation, it was classified into category 2.
Respiratory sensitization	: Classification not possible
Skin sensitization	: Classification not possible



---

Germ cell mutagenicity	: Classification not possible As for in vivo, it was negative in a micronucleus test with mouse bone marrow cells. As for in vitro, it was all negative in a bacterial reverse mutation test, a gene mutation test and a chromosomal aberration test with cultured mammalian cells.
Carcinogenicity	: Classification not possible ACGIH classifies it as the group A4(not classifiable as a human carcinogen).
Reproductive toxicity	: May damage fertility or the unborn child In a continuous breeding study in mice, effects on male fertility were observed such as sperm (womb) capacity reduction, infertility, birth number decrease, the birth weight loss. For developmental toxicity, from the fact that fetal weight loss in are not dose the actual effect on the mother animal, increase of 13 rib shortening and wavy ribs, in teratogenicity study in rats, it was classified into category 1B.
STOT-single exposure	: Causes damage to organs (central nervous system, digestive tract) May cause respiratory irritation Based on the description in humans that nausea, vomiting, abdominal pain, diarrhea, depression of the central nervous system, convulsions, and irritation of the respiratory tract were observed, and in experimental animals that slight irritation of the respiratory tract was observed, it was classified into category 1(central nervous system, digestive tract), category 3(respiratory tract irritation).
STOT-repeated exposure	: Classification not possible In the 13-week or 2-year dietary administration test to mice and rats, from the description that effect on testes (atrophy, seminiferous tubules atrophy), spleen (extramedullary hematopoiesis increased), blood system (hemoglobin, decrease of the hematocrit) were observed at a dose exceeding the guidance value range of categories 2 (150mg/kg/day or equivalent), although the oral route is out of category equivalent, there is no toxicity information by other routes, it was not possible to classify because of insufficient data.
Aspiration hazard	: Classification not possible

## 12. Ecological information

### Ecotoxicity

Aquatic acute	: No classification Daphnia magna LC50=133 mg/L/48h
Aquatic chronic	: No classification Oncorhynchus mykiss NOEC=2.1 mg/L/87-day

### Persistence and degradability

No additional information available

### Bioaccumulative potential

No additional information available

### Mobility in soil

No additional information available

### Hazardous to the ozone layer

Ozone : Classification not possible



---

### 13. Disposal considerations

- Ecological waste information : Dilute the chemical with a large amount of water and confirm the pH, then flush in a drain. Or entrust approved waste disposal companies with the disposal.
- Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

### 14. Transport information

#### International Regulations

##### Transport by sea(IMDG)

- UN-No. (IMDG) : Not applicable  
Proper Shipping Name (IMDG) : Not applicable  
Packing group (IMDG) : Not applicable  
Transport hazard class(es) (IMDG) : Not applicable

##### Air transport(IATA)

- UN-No. (IATA) : Not applicable  
Proper Shipping Name (IATA) : Not applicable  
Packing group (IATA) : Not applicable  
Transport hazard class(es) (IATA) : Not applicable
- Marine pollutant : Not applicable

### 15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

### 16. Other information

- Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .  
Registry of Toxic Effects of Chemical Substances (RTECS) 1985-86 ed. National Instituted for Occupational Safety and Health (1987) .  
Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .  
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.

