

Safety Data Sheet

1 Chemical Product and Company Identification

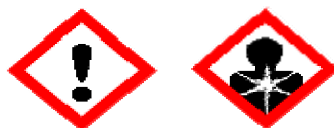
Identification of the product	Choline oxidase
Product Code	CHO-301
Supplier	
Name	TOYOBO CO., LTD.
Address	Osaka Umeda Twin Towers South, 1-13-1 Umeda Kita-ku, Osaka 530-0001, Japan
Department	Biotechnology Overseas Sales and Marketing Department
Phone	+81-6-6348-3846
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Recommended use and restrictions on use	diagnostic product

2 Hazard Identification

Most Important Hazards and Effects	Harmful if Boric acid is swallowed.
Hazards and Effect for human health	Lethal dose (Boric acid) : Adult 10g, Child 5g
GHS classification	
Physical hazards	-
Health hazards	
Acute toxicity : Oral	Category 5
Acute toxicity : Dermal	-
Acute toxicity : Inhalation (Gas, Vapour)	Not applicable
Acute toxicity : Inhalation (Dust, Mist)	-
Skin corrosion/irritation	Category 2
Serious eye damage/Eye irritation	Category 2
Sensitization : Respiratory	-
Sensitization : Skin	-
Germ cell mutagenicity	-
Carcinogenicity	-
Toxic to reproduction	Category 1B
Specific target organ toxicity (Single exposure)	Category 1(nervous system, digestive trace) Category 3(respiratory irritation)
Specific target organ toxicity	Category 1(kidneys)
Aspiration hazard	-
Environmental hazards	
Acute hazards to the aquatic environment	-
Long-term hazards to the aquatic	-
Hazard to the ozone layer	-
	-:Classification not possible

GHS Label Elements

Symbol/Pictograms



Signal word

Danger

Hazard statements

Harmful if swallowed.
Cause skin irritation.
Causes serious eye irritation.
Damage fertility or the unborn child
Causes damage to organs (Nervous system, digestive organ, respiratory organ).
May cause respiratory irritation.
Cause harm to kidneys through prolonged or repeated exposure.

Instructions

Precaution Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.
Wear protective gloves/eye protection/face protection.
Do not breathe dust/fume.

Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
First-aid measures IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If on skin: Take off immediately all contaminated clothing. Rinse skin with water /shower.
If skin irritation occurs: Get medical advice/attention.
If in eye: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice /attention.
IF exposed or concerned: Get medical attention/advice.
Get medical advice/attentions if you feel unwell.
Storage Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Disposal Dispose of contents/container in accordance with local/regional/national/international/regulation.
Important symptoms (Boric acid) Symptoms of vomit, diarrhea, collapse, erythema may appear after 2-3 hours later and die after 3-5 days later from ingestion.

3 Composition/Information on Ingredients

Substance/Mixture	Mixture
Chemical Nature	Choline oxidase
Chemical specificity	Freeze and drying powder including enzyme
Amounts contained	ca 60%(W/W)
	CAS#
Cholesterol esterase	9028-67-5
Boric acid	10043-35-3
Ingredients Contributing to the Hazard	
Common Chemical name	Boric acid
Amounts contained	ca 20%(W/W)
Chemical formula	H ₃ BO ₃
CAS#	10043-35-3

4 First Aid Measures

Inhalation	Remove to fresh air. Consult a physician when unpleasantness occurs.
Skin Contact	Wash off with plenty of water.
Eye Contact	Rinse off with running water for several minutes. Consult a physician afterwards.
Ingestion	Rinse mouth. Swill plentiful amount of water or milk for immediate vomiting. Consult a physician.
Most important symptoms/effects, acute and delayed.	Inhalation: Cough, Sore throat Skin: Redness Eyes: Redness, Pain Ingestion: Abdominal pain. Convulsions. Diarrhoea. Nausea. Vomiting. Skin rash.

5 Fire Fighting Measures

Extinguishing Media
Particular hazardous

Water spray, dry chemical powder, or carbon dioxide etc.
Firefighter should work from the windward side.

6 Accidental Release Measures

Personal Precautions, protective equipment,
and emergency procedure
Environmental Precautions
Methods and materials for containment and
cleaning up

Wear proper protective gear to avoid eye/skin contact and
inhalation. Work from the windward side.
Do not wash away into sewer, watercourse or river.
Take up under vacuum using dust collecting filter, wash
residual spill with copious amounts of water. Use
cloth, paper or anything similar to soak up the
solution leaking out of the container.
(Waste water should be treated with activated sludge or
adsorbed with activated carbon etc.)

7 Handling and Storage

Handling

Technical Measures

Wear protective gear to avoid eye/skin contact and
inhalation.

Precautions

Do not drop the container to prevent the content popping
out.

Storage

Technical Measures

Keep sealed container in freezer.
Store under -20°C to avoid deactivating.

Incompatible substances and mixtures

None specified.

Packaging Materials

Use the initial container of the product.

8 Exposure Controls/Personal Protection

Engineering controls

Provide shower and eye washing apparatus nearby.

Occupational exposure limit, biological
limit

(Boric acid) TLV: TWA 2mg/m³, STEL 6mg/m³

Personal Protective Equipment

Respiratory Protection

Protecting mask

Hand Protection

Protecting gloves

Eye Protection

Safety goggles

Skin and Body Protection

Long sleeve working wear

9 Physical and Chemical Properties

Physical State, form and colour

Powder / Yellow

Odour

No odour

pH

ca pH7.5 (1% W/V)

Flash Point

No information available.

Explosiveness

No information available.

Density

No information available.

Solubility

Freely soluble in water.

10 Stability and Reactivity

Stability

Stable at temperatures below -20°C. When left for long at
room temperature, proteins might be degraded, which does
not cause any hazardous reaction.

Possible hazard
reactions at specific condition

Conditions to avoid

Prolonged storage under higher temperature than room
temperature and high humidity.

Materials to avoid

Oxidizing agent

Hazardous Decomposition Products

No information available.

11 Toxicological Information

Acute Toxicity (Oral)	Boric acid
Skin corrosion/irritation	LD ₅₀ 2660mg/kg (Rat)
Serious eye damage/irritation	May cause rubefaction.
Toxic to reproduction	May cause pain.
Specific target organ systemic toxicity (Single exposure)	May affect reproduction.
Specific target organ systemic toxicity (Repeated exposure)	This product may irritate eye, skin, respiratory tract and may damage to digestive tract, livers, kidneys.
Aspiration hazard	This product may causes dermatitis through repeated contact.
	Cough, sore throat.

12 Ecological Information

Aquatic environmental toxicity	No information available.
Persistence/Degradability	No data, but it's considered to decomposes and does not remain on the environment for long, since it consists of protein.

13 Disposal Considerations

Residues	Dispose in accordance with local regulations. Consign a qualified industrial waste treatment firm.
A pollution container and packing	Wash with copious amounts of water and waste conforming to local regulations depending on the type of the material.

14 Transport Information

International regulations	Not applicable
Domestic regulations	Not applicable
Specific precautions transport measures and conditions	Avoid direct sunshine and check the container and loading to prevent leakage or turnover,fall and damage. Transport in accordance with regulations.Do not load with foods and feed. Keep at temperatures below -20°C.

15 Regulatory Information

Registration, Evaluation, Authorization and Restriction of Chemicals (EU)	The following ingredient is included in SVHC (Candidate list of authorization).
Common Chemical name	Boric acid
Amounts contained	ca 17%(W/W)
Chemical formula	H ₃ BO ₃
CAS#	10043-35-3

16 Other Information

Notice	The contents specified here is made based on the documents, information or data which are currently available and subject to revision in the future. TOYOBO makes no warranty and assumes no liability whatsoever in connection with any use of this information.
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