



Safety Data Sheet

1 Chemical Product and Company Identification

Identification of the product	Peroxidase
Product Code	PEO-301
Supplier	
Name	TOYOBO CO., LTD.
Address	2-8, Dojimahama 2-chome Kita-ku, Osaka 530-8230, Japan
Department	Biotechnology Overseas Sales and Marketing Department
Phone	+81-6-6348-3843
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Recommended use and restrictions on use	diagnostic product

2 Hazard Identification

Important hazards	This product might be harmful if swallowed, because it contains boric acid.
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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 2A
Sensitization : Respiratory	-
Sensitization : Skin	-
Germ cell mutagenicity	-
Carcinogenicity	-
Toxic to reproduction	Category 1B
Specific target organ toxicity (Single exposure)	Category 1(nervous system, gastrointestinal tract) Category 3(respiratory tract irritation)
Specific target organ toxicity (Repeated exposure)	Category 1(kidneys)
Aspiration hazard	-
Environmental hazards	
Acute hazards to the aquatic environment	-
Long-term hazards to the aquatic environment	-
Hazard to the ozone layer	-

--:Classification not possible

GHS Label Elements

Symbol/Pictograms



Signal word

Danger

Hazard statements

May be harmful if swallowed.
Cause skin irritation.
Cause serious eye irritation.
May damage fertility or the unborn child.
Cause damage to nervous system, gastrointestinal tract.
May cause respiratory irritation
Cause damage to kidneys through prolonged or repeated exposure.



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Precautionary statements

Prevention Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wear protective gloves/protective clothing/eye protection/face protection.

Use only outdoors or in a well-ventilated area.

Do not breathe dust/fume.

Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Response If inhaled: Remove person to fresh air and keep comfortable for breathing.

Get medical advice/attentions if you feel unwell.

If in eye: Wash with plenty of water/soap. Take off contaminated clothing and wash it before use.

IF ON SKIN: Wash with plenty of soap and water.

Take off contaminated clothing and wash before reuse.

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 advise/attention.

IF exposed or concerned: Get medical attention/advice.

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.

3 Composition/Information on Ingredients

Substance/Mixture	Mixture
Chemical Nature	Peroxidase
Chemical specificity	Freeze and drying powder including enzyme
Concentration or concentration range	50 %(W/W)
Cas #	9003-99-0
Ingredients Contributing to the Hazard	
Common Chemical name	Boric acid
Concentration or concentration range	50% (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. Consult a physician when inflammation on the skin occurs.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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, pant, pharygeal pain, nosebleed. Skin: dry skin. Eye: redness, pain Ingestion: stomachache, derangement, diarrhea, headache, nausea, vomit, lassitude, cramp.



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5 Fire Fighting Measures

Specific extinguishing methods
Precautions for fire-fighters

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

Wear protective gear to avoid eye/skin contact and inhalation. Do not work at leeward.
High concentrated waste fluid should not be directly discharged into rivers.

Methods and materials for containment and cleaning up.

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.

Incompatible substances and mixtures

None specified.

Storage Conditions

Store under -20°C to avoid deactivating.

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 color

Powder / Reddish-Brown

Odour

No odour

pH

ca. pH 5.5 (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

Possible hazard reactions at specific condition

room temperature, proteins might be degraded, which does not cause any hazardous reaction.

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.



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11 Toxicological Information

Boric acid	
Acute Toxicity (Oral)	Rat LD50 2660mg/kg
Skin corrosion/irritation	Moderate irritation (guinea pig, 24hr, 72hr)
Serious eye damage/irritation	Rubefaction /Pain
Sensitization	No data available
Germ cell mutagenicity	Absence of data on multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo, and negative data on somatic cell mutagenicity tests in vivo (micronucleus tests)
Carcinogenicity	ACGIH (2005): Category A4
Toxic to reproduction	Adverse effects on reproduction of parental animals and development of pups at doses producing no parental toxicity.
Specific target organ toxicity (Single exposure)	Human:Gastrointestinal tract effects such as nausea, vomiting, abdominal pain and diarrhea, and central nerve effects such as lethargy, headaches, fever, increased irritability and muscle convulsion. Irritation of the upper respiratory tract. Animal:cyanosis, tetany, spasm and shock-like symptoms at dosing levels within the guidance value ranges for Category 1.
Specific target organ toxicity (Repeated exposure)	Human:oliguresis, anuria, and nephropathy including renal tubular necrosis.

12 Ecological Information

Acute hazards to the aquatic environment	Boric acid: Fish (Rainbow Trout) LC50=78.1mg (Boron)/L (96hr) (Boric acid equivalent 447mg/L)
Persistence /Degradability	This product is biodegradable and does not remain on the environment for long.

13 Disposal Considerations

Residues	Dispose of in accordance with all applicable local and national laws and regulations.
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	
IMO information	Not applicable
IATA information	Not applicable
Domestic regulations	
Rail and road transportation information	Not applicable
Marine transportation information	Not applicable
Aviation transportation information	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)	A following component of this product is included in SVHC (Candidate list of authorization).
Common Chemical name	Boric acid
Concentration or concentration range	ca 50% (W/W)
Chemical formula	H ₃ BO ₃
CAS#	10043-35-3



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16 Other Information

Notice

The information shall not be taken as being all inclusive and is to be used only a guide. All materials and mixtures may be present unknown hazards and should be used with caution. The SDS is subject to revision as new information becomes available. The information in this SDS, to the best of our knowledge, is accurate and correct. However, TOYOBO makes no warranty and assumes no liability whatsoever in connection with any use of this information.