



Safety Data Sheet

1 Chemical Product and Company Identification

Identification of the product	Cholesterol esterase
Product Code	COE-311
Supplier	
Name	TOYOBO CO.,LTD.
Address	2-8, Dojima hama 2-chome, Kita-ku, Osaka, 530-8230, Japan
Department	Biotechnology Overseas Sales and Marketing Department
Phone	+81-6-6348-3843
Fax	+81-6-6348-3833
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	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 tract)
Specific target organ toxicity (Repeated exposure)	-
Aspiration hazard	-
Environmental hazards	
Acute hazards to the aquatic	Category 3
Long-term hazards to the aquatic	Category 3
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.
Harmful to aquatic life with long lasting effects.



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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/protective clothing/eye protection/face protection.
 Do not breathe dust/fume.
 Do not eat, drink or smoke when using this product.
 Wash hands thoroughly after handling.
 Avoid release to the environment.

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
 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
 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.

3 Composition/Information on Ingredients

Substance/Mixture	Mixture
Chemical Nature	Cholesterol esterase
Chemical specificity	Freeze and drying powder including enzyme
Amounts contained	Approximate 50% (W/W)
	CAS#
Cholesterol esterase	9026-00-0
Boric acid	10043-35-3
Ingredients Contributing to the Hazard	
Common Chemical name	Boric acid
Amounts contained	ca 10% (W/W)
Chemical formula	H ₃ BO ₃
CAS#	10043-35-3
Common Chemical name	Polyethylene Glycol-p-octylphenyl Ether
	TritonX-100
Concentration or concentration range	ca 6% (W/W)
Chemical formula	C ₈ H ₁₇ -C ₆ H ₄ O (C ₂ H ₄ O) _n H
CAS#	9002-93-1



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

6 Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedure	Wear proper protective gear to avoid eye/skin contact and inhalation. Work from the windward side.
Environmental Precautions	Do not wash away into sewer, watercourse or river.
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/m ³ , STEL 6mg/m ³
Personal Protective Equipment	
Respiratory Protection	Protecting mask
Hand Protection	Protecting gloves
Eye Protection	Safety goggles
Skin and Body Protection	Long sleeve working wear



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9 Physical and Chemical Properties

Physical State, form and colour	Powder / Light brown
Odour	No odour
pH	Approximate 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

No information available on the product in toxicity, however, the information on the boric acid and triton X-100 is shown below.

	Boric acid
Acute Toxicity (Oral)	LD ₅₀ 2660mg/kg (Rat)
Skin corrosion/irritation	Guinea pig skin irritation tests (exposure duration unknown) : At 24 and 72 hours, moderate irritation
Serious eye damage/irritation	Irritates the human eye (though the severity of the effects and recovery period are not presented).
Germ cell mutagenicity	in vivo: Mouse bone marrow cell mutagenicity tests (micronucleus tests): Negative in vitro: Reverse mutation test using bacteria, gene mutation test and chromosome aberration test using mammalian cultured cells: Negative
Carcinogenicity	ACGIH classified as Category A4 (as inorganic borate compounds)
Toxic to reproduction	Mouse: Reproductive Assessment by Continuous Breeding, Rat: 3 generation reproductive toxicity study: Adverse effects on reproduction Rat: Developmental toxicity: Teratogenicity is observed.
Specific target organ systemic toxicity (Single exposure)	Human: Nausea, vomiting, abdominal pain and diarrhea, central nervous system depression, convulsion and respiratory irritation. Animal studies: Slight respiratory irritation was observed.
Specific target organ systemic toxicity (Repeated exposure)	Human: No information available. Animal studies: Oral administration, adverse effects were observed at over the guidance dose for category 2. Though this corresponds to "not classified" in oral route, no information of the effects via the other routes of administration.
	TritonX-100
Eye damage/irritation	Rabbit eye irritation was observed, and the symptoms had been healed within 21 days (ECETOC TR 48 (2))



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12 Ecological Information

No information available on the product in toxicity, however, the information on the boric acid and triton X-100 is shown below.

Ecotoxicity	Boric acid Algae (Pseudokirchneriella subcapitata) 72hr ErC50 = 290 mg/L Crustacea (Daphnia magna) 48hr LC50 = 133 mg/L (as boron) Fish (Coho salmon) 96hr LC50 = 447 mg/L
Bioaccumulative potential	Considered not bioaccumulative Triton X-100
Ecotoxicity	LC50/96hr = 3mg/L (bluegill)
Persistence /Degradability	Persistent substance: 22% by BOD (National Institute of Technology and Evaluation, Japan) Enzyme and other organic ingredients are 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	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. 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
Common Chemical name	Polyethylene Glycol-p-octylphenyl Ether (Triton X-100)
Regulations	Follow all of laws and regulations in your country.

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.
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