1 Chemical Product and Company Identification

Identification of the product

Product Code

Cholesterol esterase

COE-311

Supplier

Name

TOYobo CO., LTD.

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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.

Hazard 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

Category 1(nervous system,digestive trace)

Category 3(respiratory tract)

Specific target organ toxicity

(Repeted 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.
Safety Data Sheet

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/protection/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 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/attention 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)

Cholesterol esterase
CAS# 9026-00-0
Boric acid
CAS# 10043-35-3

Ingredients Contributing to the Hazard

Common Chemical name Boric acid
Amounts contained ca 10%(W/W)
Chemical formula H₃BO₃
CAS# 10043-35-3
Common Chemical name Polyethylene Glycol-p-octylphenyl Ether
Concentration or concentration range TritonX-100
ca 6%(W/W)
Chemical formula (C₉H₁₇-C₇H₄O(C₂H₄O)nH
CAS# 9002-93-1
Safety Data Sheet

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
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

Environmental Precautions
Wear proper protective gear to avoid eye/skin contact and inhalation. Work from the windward side.

Methods and materials for containment and cleaning up
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
Wear protective gear to avoid eye/skin contact and inhalation.

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

Precautions

Storage
Keep sealed container in freezer.

Technical Measures
None specified.

Incompatible substances and mixtures
None specified.

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.
(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 / Light brown
Odour: No odour
pH: Approximate pH 7.5 (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: Prolonged storage under higher temperature than room temperature and high humidity.
Conditions to avoid: Oxidizing agent
Materials to avoid: No information available.

11 Toxicological Information

Boric acid
Acute Toxicity (Oral): LD₅₀ 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
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
Specific target organ systemic toxicity (Single exposure): Rat: Developmental toxicity: Teratogenicity is observed.
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.
Triton X-100
Eye damage/irritation: Rabbit eye irritation was observed, and the symptoms had been healed within 21 days (ECETOC TR 48 (2)
Safety Data Sheet

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
- 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℃.

15 Regulatory Information
Registration, Evaluation, Authorization and Restriction of Chemicals (EU)
- Common Chemical name
- Polyethylene Glycol-p-octylphenyl Ether (Triton X-100)
- Regulations
- The following ingredient is included in SVHC (Candidate list of authorization).
- Boric acid
- 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.