

Safety Data Sheet

1 Chemical Product and Company Identification

Identification of the product	Uricase
Product Code	UAO-201
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
Fax	+81-6-6348-3833
Recommended use and restrictions on use	diagnostic product

2 Hazard Identification

Important hazards	Harmful if Boric acid or Sodium tetraborate are swallowed.
Adverse effects on human health	Lethal dose (Boric acid) : Adult 10g , Child 5g

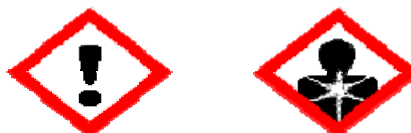
GHS classification

Physical hazards	-
Health hazards	
Acute toxicity : Oral	Category 5
Acute toxicity : Dermal	-
Acute toxicity : Inhalation (Gas, Vapour)	-
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 2
Specific target organ toxicity (Single exposure)	Category 1(nervous system, gastrointestinal tract, respiratory organ, kidneys)
Specific target organ toxicity (Repeated exposure)	Category 1(nervous system, gastrointestinal tract, respiratory organ, kidneys) Category 2(testis)
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.
May cause skin irritation.
May cause serious eye irritation.
May damage fertility or the unborn child.
Cause damage to nervous system, gastrointestinal tract, respiratory organ and kidneys.

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Cause damage to nervous system, gastrointestinal tract, respiratory organ, kidneys through prolonged or repeated exposure.

May cause damage to testis through prolonged or repeated exposure.

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.

Do not breathe dust/fume.

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

Wash hands thoroughly after handling.

Response Get medical advice/attentions if you feel unwell.

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

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.

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	Uricase
Chemical specificity	Freeze and drying powder including enzyme
Concentration or concentration range	ca. 31 % (W/W)
Main components	CAS #
Uricase	9002-12-4
Boric acid	10043-35-3
Sodium tetraborate decaydrate	1303-96-4
Ingredients Contributing to the Hazard	
Common Chemical name	Boric acid
Chemical formula	H ₃ BO ₃
CAS#	10043-35-3
Common Chemical name	Sodium tetraborate decahydrate
Chemical formula	Na ₂ B ₄ O ₇ · 10H ₂ O
CAS#	1303-96-4
Boron content of this product	ca. 15 % (W/W)

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.

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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, pharyngeal pain, nosebleed. Skin: dry skin. Eye: redness, pain Ingestion: stomachache, derangement, diarrhea, headache, nausea, vomit, Protector should wear appropriate wear. Need a rest and medical follow up.
Protection for first-aides	
Special notes for doctors	

5 Fire Fighting Measures

Specific extinguishing methods	Water spray, dry chemical powder, or carbon dioxide etc.
Precautions for fire-fighters	Firefighter should work from the windward side.

6 Accidental Release Measures

Personal Precautions, protective equipment and emergency procedure.	Wear protective gear to avoid eye/skin contact and inhalation. Do not work at leeward.
Environmental Precautions	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)

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. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gear, avoiding contact on eye, skin and cloths. Ventilate a room to keep air under permissible exposure limit. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Safe Handling Advice	
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	TLV: TWA 2mg/m ³ , STEL 6mg/m ³
Personal Protective Equipment	
Respiratory Protection	Protecting mask

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Hand Protection
Eye Protection
Skin and Body Protection

Protecting gloves
Safety goggles
Long sleeve working wear

9 Physical and Chemical Properties

Physical State, form and color
Odour
pH
Flash Point
Explosiveness
Density
Solubility

Powder / White
No odour
ca. pH 8.5 (1% W/V)
No information available.
No information available.
No information available.
Freely soluble in water.

10 Stability and Reactivity

Stability
Possible hazard reactions at
specific condition
Conditions to avoid
Materials to avoid
Hazardous Decomposition Products

Stable at temperatures below -20°C. When left for long at room temperature, proteins might be degraded, which does not cause any hazardous reaction.
Prolonged storage under higher temperature than room temperature and high humidity.
Oxidizing agent
No information available.

11 Toxicological Information

(1) Boric acid

Acute Toxicity (Oral)
Skin corrosion/irritation
Serious eye damage/irritation
Sensitization
Germ cell mutagenicity

Rat LD50 2660mg/kg
Moderate irritation (guinea pig, 24hr, 72hr)
Rubefaction /Pain
No data available
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
Toxic to reproduction

ACGIH (2005): Category A4
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.

(2) Sodium tetraborate

Acute Toxicity (Oral)

LD₅₀ 4450mg/kg (Category 5)
(EHC204)
3493mg/kg, 4500mg/kg, 4980mg/kg, 5660mg/kg, 6080mg/kg

Acute Toxicity (Dermal)

LD₅₀ > 10000mg/kg (HSDB) (Category 4)

Skin corrosion/irritation
Serious eye damage/irritation
Toxic to reproduction

May cause dermatitis (Category 2)
May cause strong eye irritation (Category 2A)
Affect spermatogenesis (Category 2). May damage fertility or the unborn child.

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Specific target organ toxicity
(Single exposure)

This product causes damage to the nervous system, respiratory organ, kidneys. (Category 1)

Specific target organ toxicity
(Repeated exposure)

This product causes damage to the nervous system, respiratory organ, kidneys and testis, through prolonged or repeated exposure. (Category 2)

Aspiration hazard

Not classification

12 Ecological Information

Acute hazards to the aquatic environment
Persistence /Degradability

Polyethylene Glycol-p-octylphenyl Ether (Triton X-100)
LC50/96hr = 3mg/L (bluegill)

This product is biodegradable and does not remain on the environment for long.

22% by BOD (National Institute of Technology and Evaluation, Japan)

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)

Following components of this product are included in SVHC (Candidate list of authorization).

Common Chemical name

Boric acid

Chemical formula

H₃BO₃

CAS#

10043-35-3

Common Chemical name

Sodium tetraborate

Chemical formula

Na₂B₄O₇ · 10H₂O

CAS#

1303-96-4

Boron content of this product

ca. 11 % (W/W)

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.