



Urease
 First issue : Apr. 2, 2012
 Revised: Apr. 1, 2021
 MSDS No. 610F

Material Safety Data Sheet

1 Product and Company Identification

Product Name	Urease
Product Code	URH-201
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	The product might be harmful if swallowed. Causes damage to organs through prolonged or repeated exposure. (kidney)	
GHS classification		
Physical hazards	Classification not possible	
Health hazards	Acute toxicity - Oral	5
-: Classification not possible	Acute toxicity - Dermal	-
	Acute toxicity - Inhalation (Gas)	-
	Acute toxicity - Inhalation (Vapours)	-
	Acute toxicity - Inhalation (Dust)	-
	Acute toxicity - Inhalation (Mist)	-
	Skin corrosion/irritation	-
	Eye damage/irritation	-
	Sensitization - Respiratory	-
	Sensitization - Skin	-
	Germ cell mutagenicity	-
	Carcinogenicity	-
	Toxic to reproduction	2
	Specific target organ systemic toxicity (Single exposure)	-
	Specific target organ systemic toxicity (Repeated exposure)	1(kidney)
	Aspiration toxicity	-
Environmental hazards	Hazardous to the aquatic environment (Acute hazard)	3
	Hazardous to the aquatic environment (Chronic hazard)	3



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Label elements

Symbol



Signal word

Danger

Hazard statements

May be harmful if swallowed
 Suspected of damaging fertility or the
 Causes damage to organs through prolonged or
 repeated exposure (kidney)

Prevention

Harmful to aquatic life with long lasting effect
 Do not handle until all safety precautions have been
 read and understood.

Do not eat, drink or smoke when using this product.
 Wear protective gloves.
 Wear protective eye/face protection.
 Use ventilation equipment or respiratory protection
 if necessary.

Do not breathe dust/fume.

Response

Avoid release to the environment

Wash hands thoroughly after handling.

Call a POISON CENTER or doctor if you feel unwell.

IF ON SKIN: Wash with plenty of soap and water. If
 skin irritation occurs, get medical
 advice/attention.

IF IN EYES: Rinse cautiously with water for several
 minutes. Remove contact lenses, if present and easy
 to do. Continue rinsing.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with
 regulation.

3 Composition/Information on Ingredients

Substance/Preparation

Preparation

Chemical Nature

Urease

CAS#

9002-13-5

Amounts contained

16% (W/W)

Ingredients Contributing to the Hazard

Chemical name

Ethylenediaminetetraacetate

Abbreviation

EDTA

Amounts contained

11% (W/W)

Chemical formula

$C_{10}H_{16}N_2O_8$

CAS#

60-00-4



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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 15 minutes or longer immediately, consult a physician afterwards.
Ingestion	Swill plentiful amount of water or milk for immediate vomiting, consult a physician.

5 Fire Fighting Measures

Extinguishing Media	Water spray, dry chemical powder, or carbon dioxide etc.
Protection of Firefighters	Avoid working at leeward.

6 Accidental Release Measures

Personal Precautions	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 for Cleaning up	Use cloth, paper or anything similar to soak up the solution leaking out of the container. Take up under vacuum using dust collecting filter, wash residual spill with copious amounts of water (Waste water should be treated with activated sludge etc.).

7 Handling and Storage

Handling	
Technical Measures	Wear protective gear to avoid eye/skin contact and inhalation. Do not drop the container to prevent the content popping out.
Precautions	None specified.
Safe Handling Advice	Wear protective gear, avoiding contact on eye, skin and cloths.
Storage	
Technical Measures	Keep sealed container in refrigerator.
Incompatible Products	None specified.
Storage Conditions	Store under -20°C.
Packaging Materials	Use the initial container of the product.

8 Exposure Controls/Personal Protection

Engineering Measures	Provide shower and vanity unit nearby.
Personal Protective Equipment	
Respiratory Protection	Protecting mask.
Hand Protection	Protecting gloves(rubbers or plastic gloves etc.).
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	Solid, powder, white
Odour	No odour
pH	Approximate pH7.5 in the case of 10 mg/ml in water.
Decomposition Temperature	No information available.
Flash Point	No information available.
Density	No information available.
Solubility	Freely soluble in water.

10 Stability and Reactivity

Stability	Stable at temperatures below -20°C. Proteins, when left for long at room temperature, might be degraded, which does not cause any hazardous reaction though.
Possible hazard reactions at specific condition	Not specified.
Conditions to avoid	Prolonged storage under higher temperature than room temperature and high humidity.
Materials to avoid	Any materials which dissolve or destroy proteins such as strong acid or alkali.
Hazardous Decomposition Products	No information available.

11 Toxicological Information

Though there is no information about this product, there are information about EDTA as follows.

Acute Toxicity (Oral)	Rat LD50 2580mg/kg
Eye damage/irritation	Temporal Edema/Rubefaction/Opacity of the cornea were observed in test on rabbit.
Toxic to reproduction	Birth defect was observed in test on animals.
Specific target organ systemic toxicity (Repeated exposure)	A case of human kidney damage was reported.

12 Ecological Information

Though there is no information about this product, there are information about EDTA as follows.

Ecotoxicity	Algae (Selenastrum); 72hErC50=6mg/L
Bioaccumulative potential	Bio-concentration factor (BCF) =123
Persistence and degradability	Hardly biodegradable (0% by BOD)

13 Disposal Considerations

Waste from Residues	Dispose of protein in accordance with all applicable local and national laws and regulations.
Contaminated packaging	Wash with copious amounts of water and waste conforming to local regulations depending on the type of the material.



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14 Transport Information

International Regulations

None specified (Not classified as hazardous material as per the UN recommendation).

Specific Precautions

Keep at temperatures below -20°C.

15 Regulatory Information

Regulations

None specified.

16 Other Information

Notice

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