



Product Name :Leucine dehydrogenase (LED-201)
 First issue : Jan. 11. 2011
 Revised: Feb. 15. 2023
 SDS No 2389F

Material Safety Data Sheet

1 Product and Company Identification

Product Name	Leucine dehydrogenase
Product Code	LED-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
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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 -
-: 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 1(kidney) (Repeated exposure)
	Aspiration toxicity -
Environmental hazards	Hazardous to the aquatic environment (Acute hazard) -
	Hazardous to the aquatic environment (Chronic hazard) -

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Label elements

Symbol



Signal word

Danger

Hazard statements

Suspected of damaging fertility or the unborn child
 Causes damage to organs through prolonged or repeated exposure (kidney)

Prevention

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

Do not eat, drink or smoke when using this
 Wear protective gloves.
 Wear protective eye/face protection.
 Do not breathe dust/fume.

Response

Wash hands thoroughly after handling.
 Get medical advice/attention if you feel unwell.
 If exposed or concerned: Get medical advice/attention.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with regulation.

3 Composition/Information on Ingredients

Substance/Preparation

Preparation

Chemical Nature

Leucine dehydrogenase

CAS#

9082-71-7

Amounts contained

30%(W/W)

Ingredients Contributing to the Hazard

Chemical name

Ethylenediaminetetraacetate

Abbreviation

EDTA

Amounts contained

1%(W/W)

Chemical formula

 $C_{10}H_{16}N_2O_8$

CAS#

6381-92-6

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.



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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)

Eye Protection Safety goggles.

Skin and Body Protection Long sleeve working wear.

9 Physical and Chemical Properties

Physical State, form and colour Solid, powder, white

Odour No odour

pH Approximate pH7.0

Decomposition Temperature No information available.

Flash Point No information available.

Density No information available.

Solubility Freely soluble in water.



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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
Contaminated packaging	Wash with copious amounts of water and waste conforming to local regulations depending on the type of the material.

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.
Follow all of the laws and regulations in your country.	

16 Other Information

Notice	The contents specified here is made based on the documents, information or data which are currently available and subject to revision in the future. TOYOBO makes no warranty and assumes no liability whatsoever in connection with any use of this information.
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