



Material Safety Data Sheet

1 Product and Company Identification

Product Name	Glucose dehydrogenase
Product Code	GLD-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
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Recommended use and restrictions on use	diagnostic product

2 Hazard Identification

Most Important Hazards and Effects	The product might cause allergic reactions upon inhaling or skin contact because of the protein contained.
GHS classification	Classification not possible

3 Composition/Information on Ingredients

Substance/Mixture	Mixture
Chemical Nature	Glucose dehydrogenase
CAS#	9028-53-9
amounts contained	ca. 45%(W/W)
Ingredients Contributing to the Hazard	No information available.

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.
Eye Contact	Wash 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 freezer.
Incompatible Products	None specified.
Storage Conditions	Store under -20°C.
Packaging Materials	Use the initial container of the product.



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8 Exposure Controls/Personal Protection

Engineering Measures	Provide shower and vanity nait 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.

9 Physical and Chemical Properties

Physical State	Powder
Colour/Odour	White/No odour
pH	Approximate pH7.0 in the case of 10 mg/ml in water.
Decomposition Temperature	No information available.
Flash Point	No information available.
Density	No information available.
Solubility	Easily 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 at temperatures higher 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

Acute Toxicity	Not available.
Local Effects	Not available.
Sensitization	Not available.

12 Ecological Information

Persistence/Degradability	Glucose dehydrogenase decomposes and does not remain on the environment for long, since it consists of protein.
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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.

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.
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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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