



MATERIAL SAFETY DATA SHEET

Glycerol Phosphate Oxidase

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Glycerol Phosphate Oxidase

Product Number: 70-6051-00; 70-6051-01

Synonym(s): Glycerol phosphate oxidase - Pediococcus sp.

Product Use: Enzyme reagent for laboratory use.

Description: Lyophilized powder containing enzyme (protein) and stabilizers.

Corporate Headquarters

Genzyme Corporation

500 Kendall Street
Cambridge, MA 02142
USA

Phone: 617-252-7500

Distributor

Genzyme Diagnostics

31 New York Avenue
Framingham, MA 01701-9322
USA

Phone: 800-332-1042

Emergency Telephone Numbers

Genzyme (U.S.): 617-562-4555

CHEMTREC (U.S.): 800-424-9300

CHEMTREC (Outside U.S.): 703-527-3887

2. HAZARDS IDENTIFICATION

Precautionary Statements:

CAUTION! The chemical, physical and toxicological properties of this preparation have not been thoroughly characterized. Avoid contact with eyes and skin. Do not ingest or inhale. Preparation appearance: yellow powder.

Routes of Exposure:

Occupational exposure routes may include eye contact, skin contact and inhalation.

Potential Health Effects:

Inhalation	No data available. Although there is no evidence that the enzyme(s) in this preparation induces specific respiratory hypersensitivity, all proteins are potential respiratory allergens and may result in respiratory sensitization in certain individuals after repeated and/or prolonged inhalation exposure, producing mild to severe symptoms similar to pollen allergy or asthma, including mucous membrane or eye irritation, itching of the skin or eyes, sneezing, nasal or sinus congestion, coughing, and tightness in the chest. These symptoms may develop as late as 12 hours after exposure.
Eye	No data available. Eye exposure may cause irritation, redness and itching.
Skin	No data available. Skin contact may cause irritation, dryness and redness.
Ingestion	No data available.
Chronic Effects	No data available. Repeated inhalation may result in respiratory sensitization.
Target Organs	Unknown.

Regulatory Status:

This preparation is classified as hazardous under U.S. OSHA 29 CFR 1910.1200; E.C. Directive 1999/45/EC; Canadian R.S. 1985, c. H-3; U.K. CHIP 2002 No. 1689; and/or U.N. GHS ST/SG/AC 10/30. Refer to Sec. 15, Regulatory Information, for details regarding hazard classification.

None of the components present in this preparation at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Potential Environmental Effects:

No data available.



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3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS #	EC #	% (wt/wt)
Glycerol phosphate oxidase EC R-Phrases: None	9046-28-0 EC Hazard Class: None	232-932-0	50 - 98
Flavin adenine dinucleotide disodium salt dihydrate (FAD) EC R-Phrases: None	146-14-5 EC Hazard Class: None	205-663-1	1 - 50
Sucrose EC R-Phrases: None	57-50-1 EC Hazard Class: None	200-334-9	1 - 50

NOTE - Glycerol phosphate oxidase - Enzyme source: *Pediococcus* sp., Enzyme Commission number: 1.1.3.21

4. FIRST AID MEASURES

Inhalation:

If inhaled, move from exposure area to fresh air. Seek medical attention if breathing becomes difficult or if cough or other symptoms develop.

Eye Contact:

Immediately flush eyes with plenty of tepid water for 15 minutes while separating eyelids with fingers. Remove contact lenses if worn. Obtain medical attention if needed or if symptoms, such as redness or irritation persist.

Skin Contact:

In case of contact, flush skin with cool water and remove contaminated clothing. Obtain medical attention if needed or if irritation or other symptoms develop.

Ingestion:

In case of ingestion, contact a poison control center or physician for instructions.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Material may burn when exposed to sufficient heat.

Suitable Extinguishing Media:

Use extinguishing media suitable for surrounding fire, such as carbon dioxide, chemical foam, dry chemical or water spray.

Unsuitable Extinguishing Media:

Unknown.

Specific Hazards Arising from the Chemical:

Toxic gases may be generated by combustion, including carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxides (NO_x) and phosphorus oxides (PO_x).

Standard Protective Equipment and Precautions for Firefighters:

Firefighters should wear NIOSH-approved or equivalent Self-Contained Breathing Apparatus and full protective gear.



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6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Avoid physical contact with material and avoid generating or inhaling dust. Ensure adequate ventilation. Wear Personal Protective Equipment (PPE) as indicated in Section 8. Wash hands thoroughly after handling.

Environmental Precautions:

No information available.

Methods and Materials for Containment and Clean-Up:

Do not dry sweep powder. Use HEPA-filtered vacuum, if available, otherwise wet mop to clean up a powder spill. Decontaminate the spill site following standard procedures. Dispose of materials in accordance with all applicable federal, state, local and provincial environmental regulations, per Section 13.

7. HANDLING AND STORAGE

Handling:

Follow good laboratory hygiene practices. See Section 8, Engineering Controls. Minimize contact and contamination of personal clothing and skin. Wash hands thoroughly after handling.

Storage:

Store desiccated at -20°C (-4°F). Do not store with incompatible substances; see Section 10.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:**ACGIH - Threshold Limits Values - Time Weighted Averages (TLV-TWA)**

Sucrose 57-50-1 10 mg/m³ TWA

Australia - Occupational Exposure Standards - TWAs

Sucrose 57-50-1 10 mg/m³ TWA

Canada - Quebec - Occupational Exposure Limits - TWAEVs

Sucrose 57-50-1 10 mg/m³ TWAEV

Israel - Occupational Exposure Limits - TWAs

Sucrose 57-50-1 10 mg/m³ TWA

Korea - Occupational Exposure Limits - TWAs

Sucrose 57-50-1 10 mg/m³ TWA

U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

Sucrose 57-50-1 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)

Engineering Controls:

Use in well ventilated areas. If handling large quantities or there is a potential for dust or aerosol generation, use local exhaust ventilation. Facilities storing or using this preparation should be equipped with an eyewash fountain.

Personal Protective Equipment (PPE):

Respiratory	A respirator is not required under normal conditions of use.
Eye/Face	Wear appropriate protective chemical safety glasses.
Skin	Wear lab coat or other protective garments. Remove contaminated clothing promptly.
Gloves	Wear chemical resistant protective gloves.
General	Follow company-specific safety procedures.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow powder **pH:** Not applicable



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Odor:	Not available	Solubility:	Water-soluble
Boiling Point:	Not applicable	Evaporation Rate:	Not applicable
Melting Point:	Not available	Density:	Not available
Freezing Point:	Not applicable	Vapor Pressure:	Not available
		Partition Coefficient (n-octanol/water):	Not available
Flammability/Explosivity Limits in Air, Lower:	Not applicable		
Flammability/Explosivity Limits in Air, Upper:	Not applicable		
Auto-Ignition Temperature:	Not available		
Flash Point:	Not applicable		

10. STABILITY AND REACTIVITY

Chemical Stability:

Stable under ordinary conditions of use and storage. See Section 7.

Conditions to Avoid:

Unknown.

Incompatible Materials:

Unknown.

Hazardous Decomposition Products:

Thermal decomposition may lead to release of irritating gases and vapors.

Possibility of Hazardous Reactions:

Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Effects:**Toxicology Data - Selected LD50s and LC50s**

Sucrose	57-50-1	Oral LD50 Rat: 29700 mg/kg
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Local Effects:

No data available.

Chronic Effects:

No data available.

Carcinogenicity:**ACGIH - Threshold Limits Values - Carcinogens**

Sucrose	57-50-1	A4 - Not Classifiable as a Human Carcinogen
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Mutagenicity:

No data available.

Teratogenicity:

No data available.

Reproductive Effects:

No data available.

Sensitization:

No data available.



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12. ECOLOGICAL INFORMATION

Ecotoxicity:

No data available.

Persistence and Degradability:

No data available.

Bioaccumulative Potential:

No data available.

Mobility in Environmental Media:

No data available.

13. DISPOSAL CONSIDERATIONS

Methods of Disposal:

Dispose of unused product, spilled material and waste in accordance with all applicable federal, state, local and provincial environmental and hazardous waste regulations.

14. TRANSPORT INFORMATION

Basic Shipping Description:

Not classified as dangerous goods. Not regulated per IATA and DOT regulations.

15. REGULATORY INFORMATION

US Federal Regulations:**Inventory - United States - Section 8(b) Inventory (TSCA)**

Flavin adenine dinucleotide disodium salt dihydrate (FAD)	146-14-5	Present
Sucrose	57-50-1	Present



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International Regulations:

Canada - WHMIS - Classifications of Substances

Sucrose	57-50-1	Uncontrolled product according to WHMIS classification criteria
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Inventory - Australia - Inventory of Chemical Substances (AICS)

Glycerol phosphate oxidase	9046-28-0	Present
Sucrose	57-50-1	Present

Inventory - Canada - Domestic Substances List (DSL)

Sucrose	57-50-1	Present
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Inventory - Canada - Non-Domestic Substances List (NDSL)

Flavin adenine dinucleotide disodium salt dihydrate (FAD)	146-14-5	Present
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Inventory - Canada - Organisms on the Domestic Substances List (DSL)

Glycerol phosphate oxidase	9046-28-0	IUB #1.1.3.21
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Inventory - China

Glycerol phosphate oxidase	9046-28-0	Present
Sucrose	57-50-1	Present

Inventory - European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

Flavin adenine dinucleotide disodium salt dihydrate (FAD)	146-14-5	205-663-1
Glycerol phosphate oxidase	9046-28-0	232-932-0
Sucrose	57-50-1	200-334-9

Inventory - Japan Existing and New Chemical Substances (ENCS)

Flavin adenine dinucleotide disodium salt dihydrate (FAD)	146-14-5	9-1170
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Inventory - Korea - Existing and Evaluated Chemical Substances

Flavin adenine dinucleotide disodium salt dihydrate (FAD)	146-14-5	KE-30337
Glycerol phosphate oxidase	9046-28-0	KE-18027
Sucrose	57-50-1	KE-17258

Canadian Hazardous Products:

WHMIS Status	Non-controlled
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European Communities Dangerous Substances/Preparations:

EC Hazard Class None

Risk Phrases None

Safety Phrases None

16. OTHER INFORMATION

Further Information:

This MSDS has been prepared in accordance with the ANSI Z400.1 format. Every effort has been made to adhere to the hazard criteria and content requirements of the U.S. OSHA Hazard Communication Standard, Canadian Controlled Products Regulation (CPR), UK Chemical Hazard Information and Packaging Regulations, European Communities REACH Regulation, and UN Globally Harmonized System of Classification and Labelling of Chemicals.



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MSDS Origination Date: June 30, 2005

Version #: 2

Revision Date: October 30, 2008

Disclaimer:

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