



# MATERIAL SAFETY DATA SHEET

## Cholesterol Oxidase

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Cholesterol Oxidase

**Product Number:** 70-1101-01; 70-1101-10; CHOX-70-1101

**Synonym(s):** Cholesterol oxidase Ex. Nocardia sp

**Product Use:** Enzyme reagent for laboratory use.

**Description:** Lyophilized powder containing enzyme (protein) and buffering salt.

**Corporate Headquarters**

**Genzyme Corporation**

500 Kendall Street  
Cambridge, MA 02142  
USA

**Phone:** 617-252-7500

**Manufacturer/Distributor**

**Genzyme Diagnostics**

50 Gibson Drive  
Kings Hill, West Malling  
Kent, ME19 4AF  
UK

**Phone:** 44 (0) 1732 220022

**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:**

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: yellowish brown powder.

**Routes of Exposure:**

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

**Potential Health Effects:**

<b>Inhalation</b>	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.
<b>Eye</b>	No data available. Eye exposure may cause irritation, redness and itching.
<b>Skin</b>	No data available. Skin contact may cause irritation, dryness and redness.
<b>Ingestion</b>	No data available.
<b>Chronic Effects</b>	No data available. Repeated inhalation may result in respiratory sensitization.
<b>Target Organs</b>	Unknown.



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**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.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS #	EC #	% (wt/wt)
Cholesterol oxidase	9028-76-6	232-842-1	< 67
EC R-Phrases: None	EC Hazard Class: None		
Tris hydrochloride	1185-53-1	214-684-5	< 33
EC R-Phrases: None	EC Hazard Class: None		

NOTE - Cholesterol oxidase - Enzyme source: Nocardia sp., Enzyme Commission number: 1.1.3.6

### 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 (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>).



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#### Standard Protective Equipment and Precautions for Firefighters:

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

### 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:

There are no ACGIH, NIOSH, OSHA or country-specific occupational exposure limits currently established for components present in this preparation at concentrations equal to or greater than 1% (0.1% if carcinogen).

#### 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):

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

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Yellowish brown powder	<b>pH:</b>	Not applicable
<b>Odor:</b>	Not available	<b>Solubility:</b>	Water-soluble
<b>Boiling Point:</b>	Not applicable	<b>Evaporation Rate:</b>	Not applicable
<b>Melting Point:</b>	Not available	<b>Density:</b>	Not available
<b>Freezing Point:</b>	Not applicable	<b>Vapor Pressure:</b>	Not available



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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:**

No data available.

**Local Effects:**

No data available.

**Chronic Effects:**

No data available.

**Carcinogenicity:**

No data available.

**Mutagenicity:**

No data available.

**Teratogenicity:**

No data available.

**Reproductive Effects:**

No data available.

**Sensitization:**

No data available.

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity:**

No data available.



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**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)**

Cholesterol oxidase	9028-76-6	XU
Tris hydrochloride	1185-53-1	Present

**International Regulations:****Inventory - Australia - Inventory of Chemical Substances (AICS)**

Cholesterol oxidase	9028-76-6	Present
Tris hydrochloride	1185-53-1	Present

**Inventory - Canada - Domestic Substances List (DSL)**

Tris hydrochloride	1185-53-1	Present
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**Inventory - Canada - Organisms on the Domestic Substances List (DSL)**

Cholesterol oxidase	9028-76-6	IUB #1.1.3.6
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**Inventory - China**

Tris hydrochloride	1185-53-1	Present
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**Inventory - European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)**

Cholesterol oxidase	9028-76-6	232-842-1
Tris hydrochloride	1185-53-1	214-684-5

**Inventory - Korea - Existing and Evaluated Chemical Substances**

Cholesterol oxidase	9028-76-6	KE-05953
Tris hydrochloride	1185-53-1	KE-34819

**Canadian Hazardous Products:**

**WHMIS Status** Non-controlled

**European Communities Dangerous Substances/Preparations:**

**EC Hazard Class** None

**Risk Phrases** None

**Safety Phrases** None

### 16. OTHER INFORMATION



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**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.

**MSDS Origination Date:** March 01, 2005

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