

# Material Safety Data Sheet

## LD Enzyme (R1)

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** LD Enzyme (R1)

**Catalog Numbers:** 7500-120

**Use:** This reagent is intended for the in vitro quantitative determination of Lactate Dehydrogenase in human serum.

THERMO ELECTRON  
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NOBLE PARK VIC 3174  
AUSTRALIA

Tel: +61 3 9790 4100

Fax: +61 3 9790 4155

E-mail: [info.clinicalchemistry@thermo.com](mailto:info.clinicalchemistry@thermo.com)

THERMO ELECTRON  
331 South 104<sup>th</sup> Street  
LOUISVILLE, CO 80027  
U.S.A

Tel: (303) 581 6428

Fax: (303) 581 6429

E-mail: [info.clinicalchemistry@thermo.com](mailto:info.clinicalchemistry@thermo.com)

#### Contact Point

##### Australia

Quality Assurance Manager:

Tel: +61 3 9790 4100

Mon – Fri 9:00am to 5:00pm

##### U.S.A

Chemtel

24 Hour Emergency Assistance

1-800-255-3924

### 2. HAZARD IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO EU CRITERIA

**Hazard Classification:** HAZARDOUS SUBSTANCE, DANGEROUS GOODS.

**Hazard Category:** Toxic, Irritant

#### RISK PHRASES

R25 Toxic if swallowed.

R32 Contact with acids liberates very toxic gas.

R36/38 Irritating to eyes and skin.

#### SAFETY PHRASES

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 After contact with skin, wash immediately with plenty of soap and water.

**Poison Schedule:** None allocated.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
TRIS(HYDROXYMETHYL)AMINOMETHANE	30 to 60 %	77-86-1
SODIUM AZIDE	1 to 2 %	26628-22-8
FILLERS, ADDITIVES NON-HAZARDOUS	30 to 60 %	Mixture

All other ingredients determined not to be hazardous according to the criteria of Worksafe Australia and OSHA Communication Standard 29 CFR 1910.1200

### 4. FIRST AID MEASURES

#### Swallowed:

If swallowed, **DO NOT** induce vomiting. If conscious, give 1 to 2 glasses of water to drink. Seek urgent medical assistance.

#### Eye:

If material is splashed into eyes, flush with plenty of water for at least 15 minutes, ensuring eye lids are held open. Immediately transport to hospital or doctor.

# Material Safety Data Sheet

## LD Enzyme (R1)

### 4. FIRST AID MEASURES (continued)

**Skin:**

If material is splashed onto the skin, remove any contaminated clothing and wash skin thoroughly soap and water. Urgently transport to hospital or doctor.

**Inhaled:**

Remove victim to fresh air. Do not use mouth-to-mouth method if victim inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.

**First Aid Facilities:**

Eye wash fountain, safety shower and normal wash room facilities.

**Advice to Doctor:**

Treat symptomatically.

**In case of poisoning, contact Poisons Information Centre**

**In Australia call Tel: 131126**

**In New Zealand Tel: 034747000**

### 5. FIRE-FIGHTING MEASURES

**Fire/Explosion Hazard**

**EXTINGUISHING MEDIA:** Use dry chemical, carbon dioxide, foam or water fog.

**SPECIAL FIRE FIGHTING PROCEDURES:** Self-contained breathing apparatus (SCBA) required for fire-fighting personnel. Use water spray to spray to cool fire-exposed surfaces and to protect personnel.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Fire or heat will produce irritating and noxious smoke.

**Flammability**

Material does not burn. Runoff will pollute waterways, drains or sewers.

### 6. ACCIDENTAL RELEASE MEASURES

Remove all unnecessary personnel from spill site. Avoid generating dusts. **Wear suitable protective equipment.** Ventilate area. DO NOT DRY SWEEP. Otherwise, cover the entire spill area with vermiculite, then collect using industrial dry/wet vacuum system fitted with a HEPA filter, then place into a suitably labeled container for later disposal.

### 7. HANDLING AND STORAGE

Store in a cool place and out of direct sunlight. Store away from oxidizing agents. Keep containers closed, when not using the product. Store at 2-8°C and the reagent will be stable until the expiry date stated on the bottle and kit box labels. Store in original packages as approved by manufacturer.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Standards**

No exposure standards are available for this product, however, the following exposure standards have been assigned by the National Occupational Health & Safety Commission (NOHSC) to the following component of the product:

**SODIUM AZIDE**

(Worksafe Australia)

[TWA]0.11 ppm 0.3 mg/m<sup>3</sup>

[STEL]Peak limitation

**References: H**

# Material Safety Data Sheet

## LD Enzyme (R1)

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

**Peak Limitation:** For some rapidly acting substances and irritants, the averaging of the airborne concentration over an eight hour period is inappropriate. These substances may induce acute effects after relatively brief exposure to high concentrations and so the exposure standard for these substances represents a maximum or "peak concentration" to which workers may be exposed.

#### Engineering Controls

Toxic material. Single significant exposure may cause death. Maintain adequate ventilation at all times.

#### Personal Protection Equipment

**GLOVES:** Nitrile or neoprene.

**EYES:** Chemical goggles or faceshield to protect eyes.

**RESPIRATORY PROTECTION:** Avoid breathing of mists. Select and use respirators in accordance with AS/NZS 1715/1716. The use of a half-face organic vapour respirator is recommended. Filter capacity and respirator type depends on exposure levels and type of contaminant. If entering spaces where the airborne concentration of a contaminant is unknown then the use of a Self-contained breathing apparatus (SCBA) with positive pressure air supply complying with AS/NZS 1715 / 1716, or any other acceptable International Standard is recommended.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White to off white powder with no odour.

**Boiling Point:** Not available.

**Freezing Point:** Not available.

**Vapour Pressure:** Not available.

**Specific Gravity:** Not available.

**Flash Point:** Not applicable.

**Flammability Limits:** Not applicable.

**Solubility in Water:** Completely miscible.

#### Other Properties

**pH:** 9.56 - 9.90 at 19-22°C

### 10. STABILITY AND REACTIVITY

#### STABILITY:

Stable under normal conditions of use.

#### HAZARDOUS DECOMPOSITION PRODUCTS:

Emits toxic fumes when heated to decomposition.

#### HAZARDOUS POLYMERIZATION:

Will not occur.

#### INCOMPATIBILITIES:

Strong mineral acids (Sulfuric, Nitric and Hydrochloric) and oxidizing agents. Lead and copper salts, when mixed with sodium azide (in solution), will produce highly unstable and explosive compounds.

#### CONDITIONS TO AVOID:

Strong acids and incompatibles.

### 11. TOXICOLOGICAL INFORMATION

There is no toxicological information available for this product, however, for the ingredient:

#### Sodium azide:

Oral LD50(rat): 27 mg/kg

Dermal LD50(rabbit): 20 mg/kg

Oral LDLo(human): 143 mg/kg

Systemic effects: CNS disorders, cardiovascular failure, tachycardia, drop in blood pressure, coughing, dyspnoea, spasms, headache, dizziness, nausea, vomiting, collapse, unconsciousness.

# Material Safety Data Sheet

## LD Enzyme (R1)

### 3. HAZARD IDENTIFICATION (continued)

A several gram dose ingested of sodium azide produced collapse and death within 40 minutes in an adult. Pathologic findings were limited to swelling of the brain, lungs and mild fatty degeneration of liver.

#### ACUTE HEALTH EFFECTS

##### Swallowed:

Toxic if swallowed. Over exposure to sodium azide will include headache, nausea, blurred vision, dizziness, vomiting and low blood pressure. May cause irritation to mouth, throat and stomach.

##### Eye:

Will cause irritation to the eyes, with effects including: tearing, pain, stinging and blurred vision.

##### Skin:

Will cause irritation to the skin, with effects including; Redness, itchiness, and drying/defatting.

##### Inhaled:

Dusts from the product may cause irritation to the nose, throat and respiratory system with effects including: Cough, discomfort, difficulty breathing and shortness of breath.

##### Chronic:

Prolonged or repeated skin contact may lead to dermatitis.

Prolonged contact may cause severe eye irritation and some form of permanent eye damage may occur.

### 12. ECOLOGICAL INFORMATION

This substance is Very Toxic to aquatic organisms. This substance may cause long term adverse effects in the aquatic environment.

**Environmental Degradation:** Dissipation of azides in soil is not by microbial action but is strictly a chemical process, which is accelerated by increased acidity and elevated temperatures. This reaction appears to occur rapidly in soils by oxidation or by reaction of hydrazoic acid with soil organic acids to form azides of these acids which then decompose by a Curtius Rearrangement. Sodium azide appears to be stable in water in the absence of light, however, it appears to be susceptible to photo-decomposition by UV radiation. Photolysis of sodium azide may result in metal nitrides initially, *with the eventual formation* of the free metal and nitrogen gas.

### 13. DISPOSAL CONSIDERATIONS

Refer to appropriate authority in your State. Normally suitable for disposal by approved waste disposal agent.

### 14. TRANSPORT INFORMATION

#### Road Transport:

**UN Number:** 2811

**Proper Shipping Name:** TOXIC SOLID, ORGANIC, N.O.S.(Contains SODIUM AZIDE)

**Dangerous Goods Class:** 6.1

**Packing Group:** III

#### Emergency information(Transport):

For TOXIC AND/OR CORROSIVE SUBSTANCES - Guide No: 36

#### Marine Transport:

**UN Number:** UN2811

**Proper Shipping Name:** TOXIC SOLID, ORGANIC, N.O.S.(Contains SODIUM AZIDE)

**Dangerous Goods Class:** 6.1

**Packing Group:** III

**Labels:** TOXIC

#### Air Transport:

**UN No:** UN2811

**PROPER SHIPPING NAME:** TOXIC SOLID, ORGANIC, N.O.S.(Contains SODIUM AZIDE)

**CLASS:** 6.1

**PACK GROUP:** III

**LABELS:** TOXIC

# Material Safety Data Sheet

## LD Enzyme (R1)

### 15. REGULATORY INFORMATION

**Poison Schedule:** None allocated

**Inventory Status:**

Australia (AICS)	Y
United States (TSCA)	Y
Canada (DSL)	Y
Europe (EINECS/ELINCS)	Y
Japan (MITI)	Y
South Korea (KECL)	Y

Y = all ingredients are on the inventory.

### 16. OTHER INFORMATION

**Date of Preparation:**

Issue date: August, 2004

**Key Legend Information:**

NOHSC - National Occupational Health & Safety Commission [Aust]  
TWA - Time Weighted Average [Int]  
STEL - Short Term Exposure Limit [Int]  
AICS - Australian Inventory of Chemical Substances  
EPA - Environmental Protection Agency [Int]  
NIOSH - National Institute for Occupational Safety and Health [US]  
AS/NZS 1715 - Selection, use and maintenance of respiratory protective devices. [Aust/NZ]  
AS/NZS 1716 - Respiratory protective devices. [Aust/NZ]  
SAA/SNZ HB76:1997 Dangerous Goods - Initial Emergency Response Guide (IERG) [Aust/NZ]  
IATA - International Aviation Transport Authority [Int]  
ICAO - International Civil Aviation Organization  
IMO - International Maritime Organisation. [Int]  
IMDG - International Maritime Dangerous Goods  
United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the classification and labelling of Chemicals. {Road Transport} [Int]  
EU - European Union

[Aust/NZ] = Australian/New Zealand

[Int] = International

[US] = United States of America

**Principal References:**

Information supplied by manufacturer, reference sources including the public domain.

**Disclaimer**

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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**END OF MSDS**