



Diagnostic Reagent Grade

Catalog # Aliquot Size

LX01D1-E311H-20	20 KU
LX01D1-E311H-50	50 KU
LX01D1-E311H-100	100 KU
LX01D1-E311H-200	200 KU

Lactate Oxidase

EC 1.13.12.4

Catalog # LX01D1-E311H

Lot # 1Y2372-3

Product Description

Lactate Oxidase is a diagnostic grade reagent from a microorganism host. This enzyme is useful for enzymatic determination of L-lactate in clinical analysis.

PRINCIPLE

L-Lactate + O₂ $\xrightarrow{\text{Lactate oxidase}}$ Pyruvate + H₂O₂

2H₂O₂ + 4-AA + EHSPT $\xrightarrow{\text{peroxidase}}$ Quinoneimine dye + 4H₂O

The appearance of quinoneimine dye is measured at 555nm by spectrophotometry.

STORAGE AND STABILITY

Storage at -20 °C in the presence of a desiccant.

SPECIFICATION

Unit Definition	One unit causes the formation of one micromole of hydrogen peroxide (half a micromole of quinoneimine dye) per minute at pH 7.5 and 37°C
Appearance	: Yellowish amorphous powder, lyophilized
Activity	: 80 U/mg-solid or more
Contaminants	: Pyruvate oxidase, Cholesterol oxidase, Uricase and Glucose oxidase all $\leq 1.0 \times 10^{-3} \%$

PROPERTIES

Molecular weight	: 42.0 kDa	
Isoelectric point	: 5.75	
Michaelis constant	: $1.0 \times 10^{-3} \text{M}$ (L-Lactate)	
Inhibitors	: Fe ³⁺ , Ag ⁺ , Hg ²⁺ , SDS	
Optimum pH	: 7.5	(Fig.1)
Optimum temperature	: 30-35°C	(Fig.2)
pH stability	: pH 5.5~10.5 (25°C, 16hr)	(Fig.3)
Thermal stability	: below 60°C (pH 7.0, 10 min)	(Fig.4)
Effect of various chemicals	: (Table 1)	

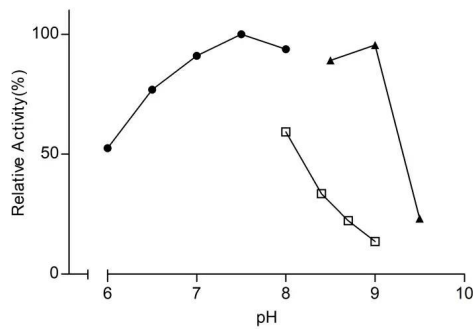
Manufactured in an ISO 9001 certified facility

To place your order, please contact us by phone 1-778-326-0223 or 1-888-606-3424 (Toll free) or by email: orders@signalchemdx.com or info@signalchemdx.com - www.signalchemdx.com

Table 1. Effect of Various Chemicals on Lactate Oxidase

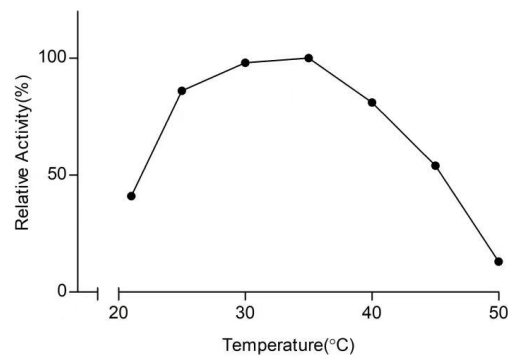
The enzyme dissolved in 20mM ACE-NaOH buffer, pH7.0 (49U/ml) was incubated with each chemical at 25°C for 1hr.

Chemical	Concn.(mM)	Residual activity (%)	Chemical	Concn.(mM)	Residual activity (%)
None	—	100	BME	2	95
CaCl ₂	2	98	Hydroxylamine	2	93
MgSO ₄	2	90	EDTA	5	93
ZnSO ₄	2	99	NaF	20	95
NiCl ₂	2	87	NaN ₃	20	95
CoCl ₂	2	93	Proclin-300	0.045% (v/v)	100
MnCl ₂	2	89	SDS	0.05% (w/v)	0
FeCl ₃	2	74	Na-Cholate	0.1%(w/v)	93
CuSO ₄	2	91	Tween-20	0.1%(v/v)	104
AgNO ₃	2	42	Triton X-100	0.1% (v/v)	106
HgSO ₄	2	0	Span-20	0.1% (v/v)	107
NEM	2	92	Brij-35	0.1% (w/v)	104

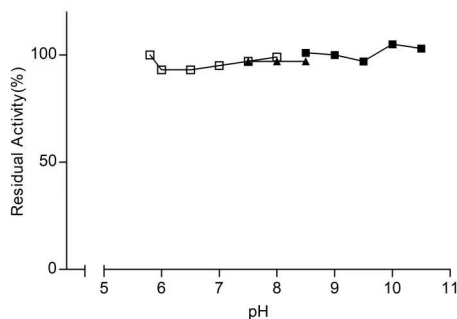
Fig.1. pH-Activity


37°C in the following solution:

- 20mM K-phosphate buffer
- 20mM Tris-HCl buffer
- ▲ 20mM Glycine-NaOH buffer

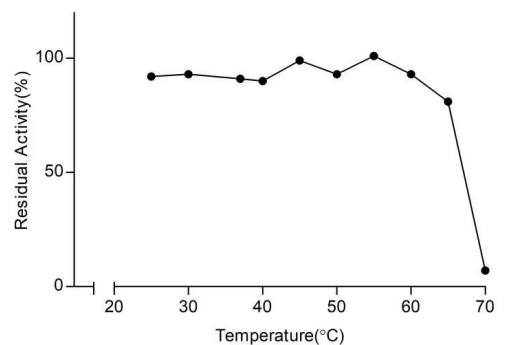
Fig.2. Temperature Activity


in 50mM K-phosphate buffer, pH7.5

Fig.3. pH Stability


25°C 16hr-treatment with 50mM buffer solution:

- K-phosphate buffer
- ▲ Tris-HCl buffer
- Glycine-NaOH buffer

Fig.4. Thermal Stability


10min-treatment with 20mM ACES-NaOH buffer, pH7.0

SAFETY DATA SHEET

Article 1 - Product Identification

Product Name: Lactate Oxidase**Catalog # LX01D1-E311H**

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Supplier of Datasheet:	SignalChem Diagnostics Inc.
Street Address:	190-13160 Vanier Place
City, Prov. Postal Code:	Richmond, BC, V6V 2J2
Country:	Canada
Emergency Phone:	1-888-606-3424 (Toll free) 1-778-326-0223 (local)

Article 2 - Hazard Identification

- **WHMIS Classification:** Not WHMIS controlled.
- **GHS classification:** Not GHS classified.
- **Hazard Pictograms:** No labelling applicable.
- **Signal words:** None.
- **Hazard statements:** None.
- **Precautionary statements:** None.
- **Other hazards:** None known.

Article 3 – Composition/Information on Ingredients

Chemical Characterization: Mixtures.

Description: No hazardous substances in concentrations to be declared.

Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
- **After inhalation:** In case of irritation by inhaling this product, move affected person to fresh air and await recovery. If irritation persists, seek immediate medical attention. If casualty cannot breathe, give artificial respiration and seek immediate medical attention.
- **After skin contact:** Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- **After eye contact:** Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- **After swallowing:** Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.

Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** None known.
- **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus if necessary.

Article 6 – Accidental Release Measures

- **Personal precautions, protective equipment, and emergency procedures:** Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- **Environmental precautions:** Do not allow to enter drains.
- **Methods and materials for containment and cleaning up:** Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- **Precautions for safe handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- **Conditions for safe storage:** Store according to product label instructions. Keep container upright and tightly closed.

SAFETY DATA SHEET

Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**
NA
- **Appropriate engineering controls:**
Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- **Individual protection measures:**
Respiratory protection:
Use appropriate respirator if there is inadequate ventilation by following the government standards.
Hand protection:
Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.
Eye/face protection:
Safety goggles with side-shields approved under appropriate government standards.
Skin/body protection:
Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Appearance: yellowish lyophilized powder	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	Explosion limits: Not available.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: Not determined.	Density: Not determined.
Flash point: Not determined.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: Fully miscible.

Article 10 - Stability and Reactivity

- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat and moisture.
- **Incompatible materials:** Not determined.
- **Hazardous decomposition products:** Not determined.

Article 11 - Toxicological Information

- **Acute toxicity:** Not available.
- **LD/LC50:** Not available.
- **Skin corrosion/irritation:** Not available.
- **Serious eye damage/eye irritation:** Not available.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- **Reproductive toxicity:** Not available.
- **Teratogenicity:** Not available.
- **Specific target organ toxicity - single exposure / - repeated exposure (GHS):** Not available.
- **Aspiration hazard:** Not available.
- **Potential health effects:**
Inhalation: No data available
Ingestion: No data available
Skin: No data available
Eyes: No data available
- **Signs and Symptoms of Exposure:** No data available
- **Synergistic effects:** Not available.

Article 12 - Ecological Information

- **Eco-toxicity:** No data available.
- **Biodegradability:** Not applicable.
- **Bio-accumulative potential:** Not applicable.
- **Mobility in soil:** Not applicable.
- **PBT and vPvB assessment:** Not applicable.
- **Other adverse effects:** Not applicable.

SAFETY DATA SHEET

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- **Contaminated packaging:** Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- **DOT:** Not dangerous goods.
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.

Article 15 – Regulatory Information

- **WHMIS Classification:** Non-hazardous.
- **GHS label elements:** Not applicable.
- **Signal word:** Not applicable.
- **Hazard statements:** Not applicable.

Article 16 - Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.