

ENZYMES
CAT# GLOX-70-6599
EC# 1.1.3.4

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Glucose Oxidase L150

ORIGIN *Aspergillus niger*

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► SPECIFICATIONS

Appearance	Yellow to brown liquid
Activity	14,500 to 22,000 U/mL at 25°C
Specific Activity	>250 U/mg protein at 25°C
Contaminants	GO: Catalase Ratio >100:1 Invertase < 0.05% Amylase < 0.05% α-Glucosidase < 0.05%

► APPLICATION

Used in the determination of D-glucose in blood or urine.

► UNIT DEFINITION

One unit of activity is defined as the amount of enzyme that will catalyse the oxidation of one micromole of glucose per minute at 25°C under the standard assay method conditions.

► ASSAY PRINCIPLE

Glucose Oxidase catalyses the following reaction:



SEKISUI
DIAGNOSTICS

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CHARACTERISTICS

L150 is a liquid glucose oxidase suitable for use in colorimetric assays.

The data below shows properties of the Glucose Oxidase L150 product:

Molecular Weight⁽¹⁾:	160kD
Structure⁽¹⁾:	Glycoprotein with 2 equal subunits and 2 moles of FAD
Isoelectric point⁽²⁾:	4.2
K_m (Calculated in-house):	2.8 x 10 ⁻² M
Optimum pH (Fig. 1):	pH 5.5 to 7.0
Optimum Temperature (Fig. 2):	30°C to 45°C
pH Stability (Fig. 3):	pH 4.0 to 8.0 (25°C for 20 hours)
Thermal Stability (Fig. 4):	Stable up to 50°C (pH 5.0 for 15 minutes)

TABLE 1: SUBSTRATE SPECIFICITY

Substrate specificity was tested in-house by substituting different sugars for glucose in the standard glucose oxidase assay procedure. Assays were based on a sugar concentration of 30mM.

SUBSTRATE	% OF D-(+)-GLUCOSE ACTIVITY	SUBSTRATE	% OF D-(+)-GLUCOSE ACTIVITY	SUBSTRATE	% OF D-(+)-GLUCOSE ACTIVITY
D-(+)-Glucose	100	D-(+)-Maltose	0.015	D-(+)-Trehalose	0.0003
2-Deoxy-D-Glucose	9.2	D-(+)-Gluconic acid α -lactone	0.003	L-(-)-Glucose	0.0001
D-(+)-Mannose	0.22	Sucrose	0.003	D-Ribose	<0.0001
D-(+)-Galactose	0.09	D-(-)-Fructose	0.002	D-Mannitol	<0.0001
D-(+)-Xylose	0.033	D-Sorbitol	0.0009	D-(+)-Lactose	<0.0001

FIGURE 1: OPTIMUM pH

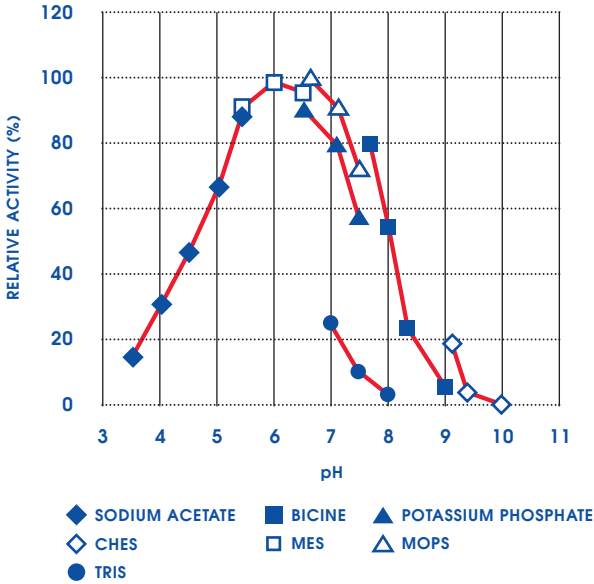


FIGURE 2: OPTIMUM TEMPERATURE

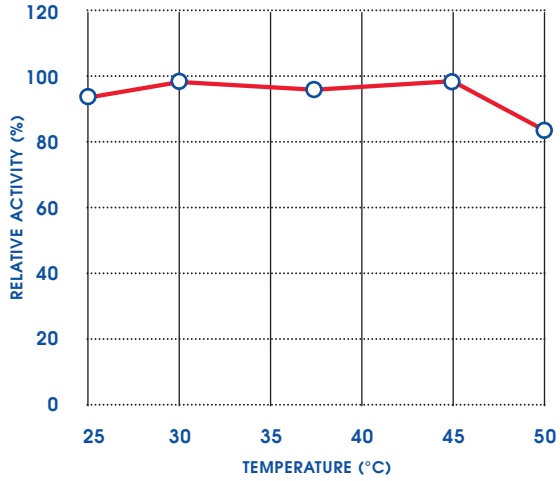


FIGURE 3: pH STABILITY (25°C FOR 20 HOURS)

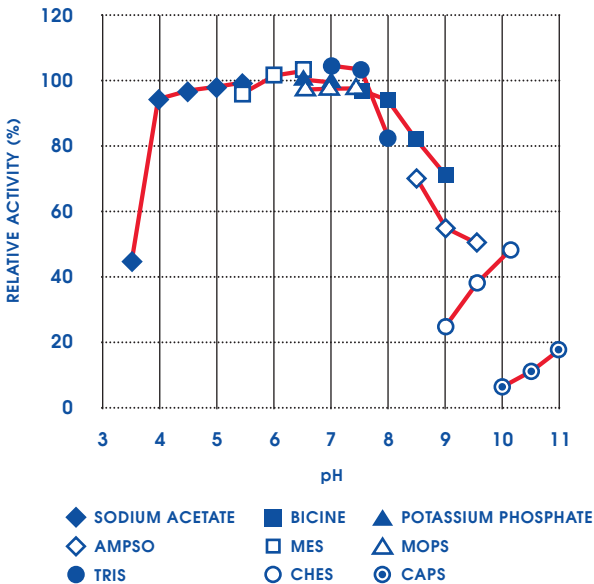
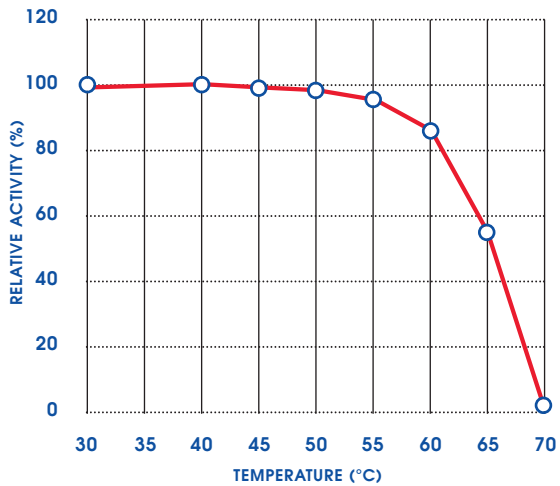


FIGURE 4: THERMAL STABILITY (pH 7.0 FOR 15 MINUTES)



(1) Tsuge, H.J., et al. Purification, properties, and molecular features of glucose oxidase from *Aspergillus niger*. J. Biochem., 78, 835-843 (1975).
 (2) Pazar, J.H. and Kleppe, K. The oxidation of glucose and related compounds by the glucose oxidase from *Aspergillus niger*. Biochemistry 3: 578 – 583(1964).

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