

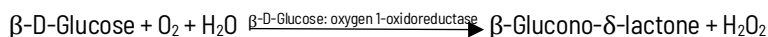
SPECIFICATION SHEET

Product Name: Glucose Oxidase
Catalog # GX01D1-E311H

Product Description: This enzyme is a diagnostic grade reagent from a microorganism host. It is useful for enzymatic determination of glucose, and for amylase-activity assay when coupled with α -glucosidase (if maltooligosaccharide or modified starch is used as a substrate) in clinical analysis.

EC 1.1.3.4

Storage and Stability: Product can be stored at 2~8°C for transportation process up to ten days but long-term storage at -20°C.

Principle:


Unit Definition	: One unit causes the formation of one micromole of hydrogen peroxide (half a micromole of quinoneimine dye) per minute at 37°C.	
Appearance	: Grey green amorphous powder, lyophilized	
Activity	: ≥ 70 U/mg solid	
Contaminants	: Catalase	≤ 3.0 %
Stabilizers	: Potassium gluconate, sodium glutamate	
Molecular Weight	: 65 kDa	
Isoelectric Point	: 5.43	
Michaelis Constant	: 2.54×10^{-2} M (β -D-Glucose) 4.15×10^{-2} M (2-Deoxyglucose)	
Inhibitors	: Cu^{2+} , Ag^+ , Hg^{2+} , Fe^{3+}	
Optimum pH	: 4.5 ~ 5.5	(Figure 1)
Optimum Temperature	: 45 ~ 50°C	(Figure 2)
pH Stability	: pH 4.5 – 9.0 (30°C, 20 hr)	(Figure 3)
Thermal Stability	: Below 55°C (pH 5.7, 1 hr)	(Figure 4)
Substrate Specificity	: (Table 1)	
Effect of Various Chemicals	: (Table 2)	

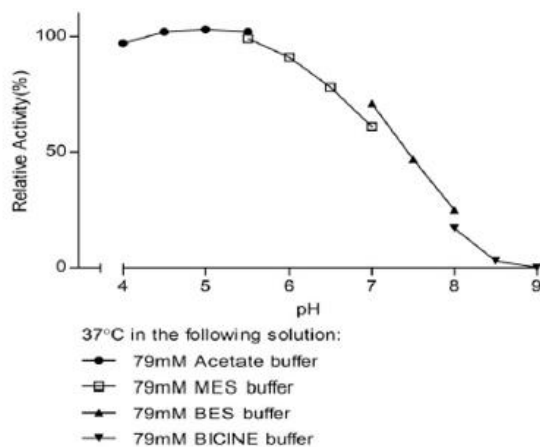
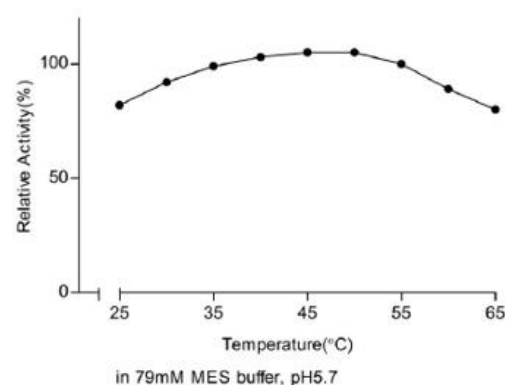
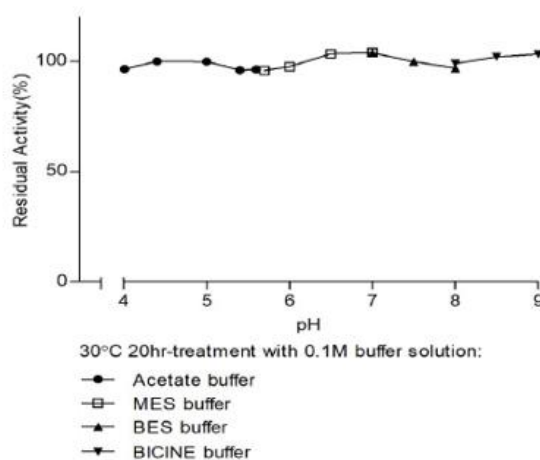
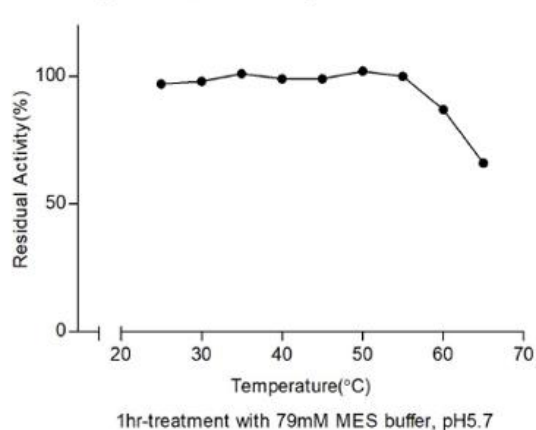
Table 1. Substrate Specificity of Glucose oxidase

Substrate (0.1 mM)	Relative activity (%)	Substrate (0.1 mM)	Relative activity (%)
D-Glucose	100.0	Fructose	1.37
2-Deoxyglucose	11.3	Xylose	0.59
Galactose	0.99	Lactose	0
Mannose	0.39		

Table 2. Effect of Various Chemicals on Glucose Oxidase

The enzyme dissolved in 0.1 M MES buffer, pH 5.7 (10 U/mL) was incubated with each chemical at 25 °C for 1 hr.

Chemical	Conc. (mM)	Residual activity (%)	Chemical	Conc. (mM)	Residual activity (%)
None	—	100	BME	2	87
CaCl ₂	2	97	Hydroxylamine	2	84
MgSO ₄	2	95	EDTA	5	88
ZnSO ₄	2	96	NaF	20	86
NiCl ₂	2	90	NaN ₃	20	86
CoCl ₂	2	92	Proclin-300	0.045% (v/v)	90
MnCl ₂	2	94	SDS	0.05% (w/v)	91
FeCl ₃	2	65	Na-Cholate	0.1% (w/v)	85
CuSO ₄	2	71	Tween-20	0.1% (v/v)	90
AgNO ₃	2	58	Triton X-100	0.1% (v/v)	91
HgSO ₄	2	1	Span-20	0.1% (v/v)	91
NEM	2	88	Brij-35	0.1% (v/v)	95
IAA	2	83			

Fig.1. pH-Activity**Fig.2. Temperature Activity****Fig.3. pH Stability****Fig.4. Thermal Stability**

Version: 1.0