

SPECIFICATION SHEET

Product Name: Glycerol Dehydrogenase
Catalog # GD01D1-E311H

Product Description: Glycerol Dehydrogenase is a diagnostic grade reagent from a microorganism host. This enzyme is useful for enzymatic determination of glycerol and of triglyceride when coupled with lipoprotein lipase in clinical analysis.

EC 1.1.1.6

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

Principle:


Unit Definition	: One unit causes the formation of one micromole of NADH per minute at pH 11 and 25°C	
Appearance	: White amorphous powder, lyophilized	
Activity	: ≥35 U/mg solid	
Contaminants	: NADH oxidase	≤1.0 × 10 ⁻³ %
Stabilizers	: BSA	
Molecular Weight	: 39.8 kDa	
Isoelectric Point	: 5.09	
Michaelis Constant	: 1.17 × 10 ⁻² M (Glycerol), 1.25 × 10 ⁻⁴ M (NAD ⁺)	
Inhibitors	: Cu ²⁺ , Ag ⁺ , Hg ²⁺ , NEM, Brij-35	
Optimum pH	: 10.8	(Figure 1)
Optimum Temperature	: 65°C	(Figure 2)
pH Stability	: pH 7.0-9.0 (25°C, 20 hr)	(Figure 3)
Thermal Stability	: Below 45°C (pH 7.5, 15 min)	(Figure 4)
Substrate Specificity	: (Table 1)	
Effect of Various Chemicals	: (Table 2)	

Table 1. Substrate Specificity of Glycerol Dehydrogenase

Substrate(0.1mM)	Relative activity (%)	Substrate(0.1mM)	Relative activity (%)
Glycerol	100	2,3-Butanediol	52
Glycerol-α-monochlorohydrin	50	1,3-Propanediol, 1,3-Butanediol, 1,4-Butanediol, Xylitol, D-Mannitol, D-Glucose, Methanol & Ethanol	No Response
Ethylene glycol	7.5		
1,2-Propanediol	128		

Table 2. Effect of Various Chemicals on Glycerol Dehydrogenase

The enzyme dissolved in 0.1 M K-phosphate buffer, pH 7.5 containing 0.2% of BSA (28 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	95
CaCl ₂	2	104	Hydroxylamine	2	95

Table 2 (Continued)

Chemical	Conc. (mM)	Residual activity (%)	Chemical	Conc. (mM)	Residual activity (%)
MgSO ₄	2	104	EDTA	5	88
ZnSO ₄	2	116	NaF	20	97
NiCl ₂	2	188	NaN ₃	20	96
CoCl ₂	2	179	Borate	50	92
MnCl ₂	2	96	Proclin-300	0.045% (v/v)	89
FeCl ₃	2	88	SDS	0.05% (w/v)	88
CuSO ₄	2	0	Na-Cholate	0.1% (w/v)	90
AgNO ₃	2	0	Tween-20	0.1% (v/v)	90
HgSO ₄	2	0	Triton X-100	0.1% (v/v)	89
NEM	2	5	Span-20	0.1% (v/v)	120
IAA	2	88	Brij-35	0.1% (w/v)	37

Fig.1. pH-Activity

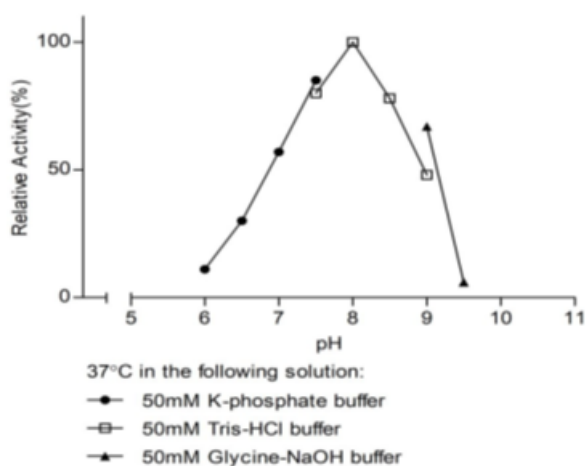


Fig.2. Temperature Activity

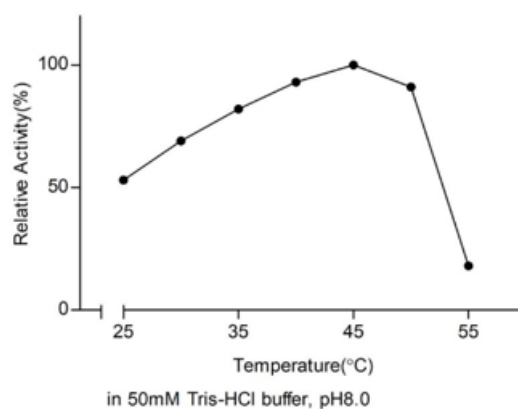


Fig.3. pH Stability

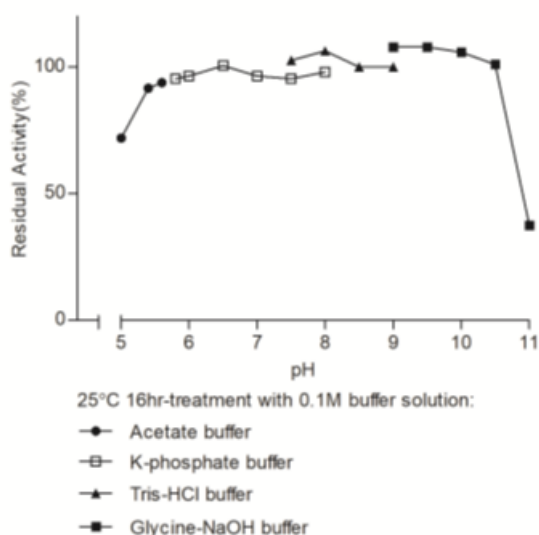


Fig.4. Thermal Stability

