Glucose Dehydrogenase (NAD(P)-dependent) from Microorganism

GLD-311

SPECIFICATIONS

Name	β-D-Glucose:NAD(P)$^+$1-oxidoreductase
EC	1.1.1.47
Appearance	White amorphous powder lyophilized
Activity	Grade III, 250U/mg-solid or more
Contaminants	NADH oxidase ≤ 1.0×10^{-3}%
	α-Glucosidase ≤ 1.0×10^{-3}%
	Glucose-6-phosphate dehydrogenase ≤ 1.0×10^{-3}%
Stability	Stable at -20°C for at least 12 months
Molecular weight	approx. 101,000 (Gel filtration)
Isoelectric point	4.5
Michaelis constants	NAD^+ linked: 1.38×10^{-2}M (D-Glucose), 3.09×10^{-4}M (NAD^+)
	$NADP^+$ linked: 1.25×10^{-2}M (D-Glucose), 4.07×10^{-5}M ($NADP^+$)
Inhibitors	Ag^+, Hg^{2+}, Monoiodoacetate
Optimum pH	9.0
Optimum temperature	55 °C
pH Stability	pH 6.0 - 7.5 (20°C, 16hr)
Thermal stability	45 °C (15 min treatment with 50mM K-Phosphate buffer, pH 7.0)
Substrate specificity	Specific for β-D-Glucose or 2-Deoxy-glucose.
	Either NAD + or NADP + serves as coenzyme.)

ENZYMES BY SORACHIM

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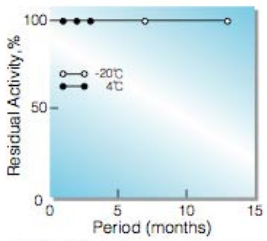

Fig.1. Stability (Powder form)

(kept under dry conditions)

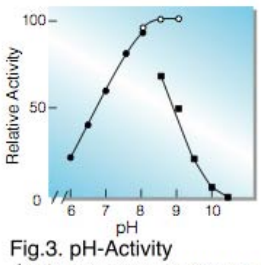

Fig.3. pH-Activity

37℃,5min-reaction in 80mM buffer solution
●:pH6.0-8.0 K-phosphate
○:pH7.5-9.0,Tris-HCl
■:pH8.5-10.5 Carbonate

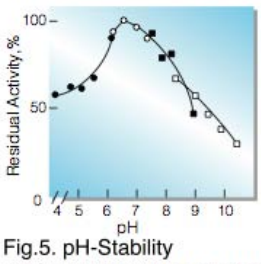

Fig.5. pH-Stability

20℃,16hr with 0.1M buffer solution
●:pH4.0-6.0 acetate
○:pH6.0-8.0 K-phosphate
■:pH7.5-9.0 Tris-HCl
□:pH8.5-10.5 carbonate
enzyme concn.:10U/ml

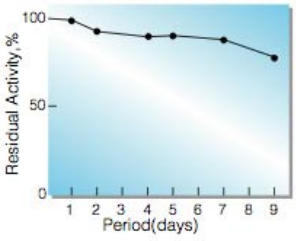

Fig.2. Stability (Liquid form)

25℃,in 83mM Tris-HCl buffer solution
pH8.0(contg.3.7mM β-NAD,40U/ml mutarotase)
enzyme concn.:300U/ml

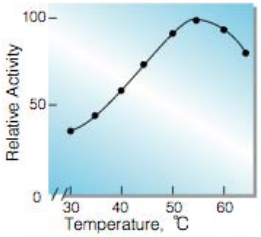

Fig.4. Temperature activity

(in 80 mM Tris-HCl buffer, pH8.0)

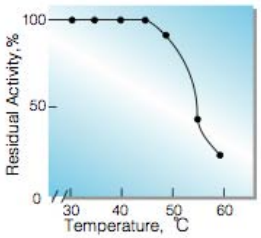

Fig.6. Thermal stability

15min-treatment with 50mM K-phosphate buffer pH7.0 enzyme concn.: 12U/ml