

SPECIFICATION SHEET

Product Name: Glutamate dehydrogenase (NAD-dependent)
Catalog # GD04D1-E311H

Product Description: This enzyme is a diagnostic grade reagent from a microorganism host. It is useful for enzymatic determination of NH₃, α-Ketoglutaic acid and L-Glutamic acid, and for assay of leucine aminopeptidase and urease. This enzyme is also used for enzymatic determination of urea when coupled with urease in clinical analysis.

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.

EC 1.4.1.2
Principle:

Data for a Sample Lot:

Unit Definition	: One unit produces one micromole of NAD ⁺ per minute at pH 7.3 and 25°C	
Appearance	: White amorphous powder, lyophilized	
Activity	: 80 U/mg-solid or more	
Contaminants	: NAD oxidase	≤1.0×10 ⁻² %
Molecular weight	: 47.3 kDa	
Michaelis constant	: 5.4×10 ⁻² M (NH ₃), 7.83×10 ⁻⁵ M (α-Ketoglutarate), 3.0×10 ⁻³ M (L-Glutamate), 4.13×10 ⁻⁵ M (NADH), 3.16×10 ⁻³ M (NAD ⁺)	
Inhibitors	: Heavy metals, SDS	
Optimum pH	: 8.0 – 8.5	(Fig.1)
Optimum temperature	: 65°C	(Fig.2)
pH stability	: pH 5.0 – 10.0 (25°C, 20hr)	(Fig.3)
Thermal stability	: below 55°C (pH 7.3, 10 min)	(Fig.4)
Effect of various chemicals	: (Table 1)	

Table 1. Effect of Various Chemicals on Glutamate dehydrogenase

The enzyme dissolved in 58mM Imidazole-HCl buffer, pH7.3 (10U/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	109
CaCl ₂	2	92	Hydroxylamine	2	92
MgSO ₄	2	90	EDTA	5	92
ZnSO ₄	2	92	NaF	20	97
NiCl ₂	2	87	NaN ₃	20	94
CoCl ₂	2	86	Proclin-300	0.045% (v/v)	89
MnCl ₂	2	91	SDS	0.05% (w/v)	4
FeCl ₃	2	64	Na-Cholate	0.1%(w/v)	94
CuSO ₄	2	80	Tween-20	0.1%(v/v)	94
AgNO ₃	2	5	Triton X-100	0.1% (v/v)	97

HgSO ₄	2	4
NEM	2	83
IAA	2	92

Span-20	0.1% (v/v)	98
Brij-35	0.1% (w/v)	100

Fig.1. pH-Activity

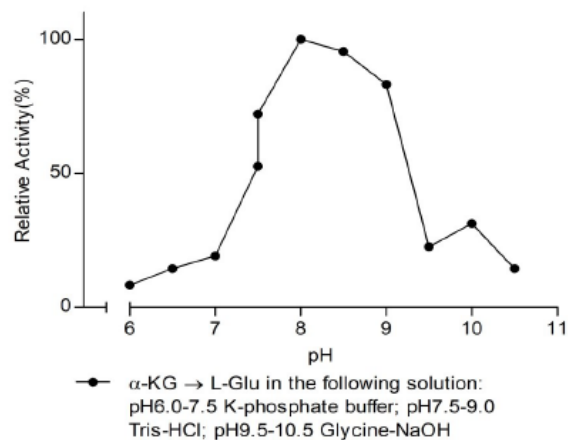


Fig.2. Temperature Activity

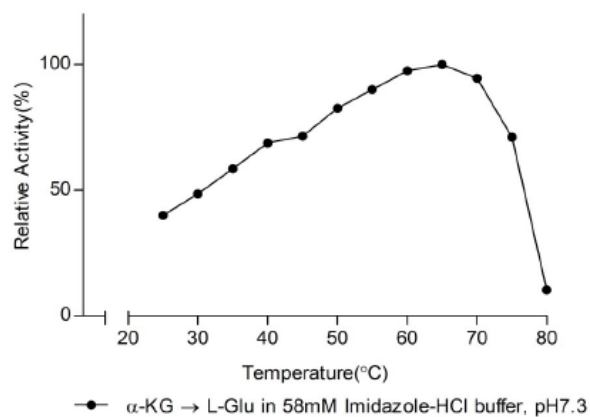


Fig.3. pH Stability

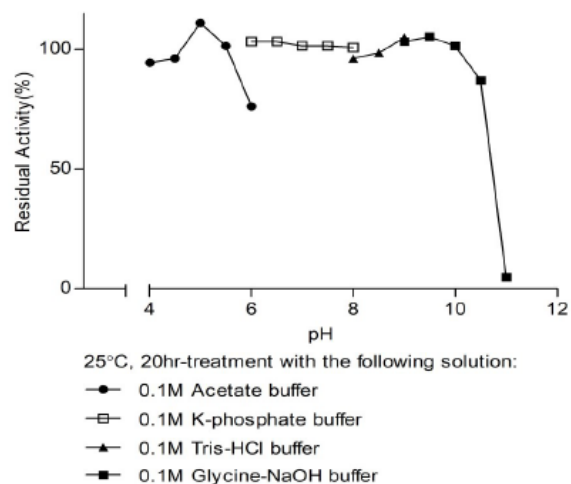


Fig.4. Thermal Stability

