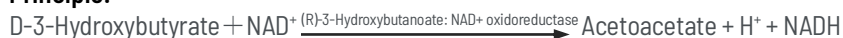


SPECIFICATION SHEET

Product Name: D-3-Hydroxybutyrate Dehydrogenase
Catalog # HD01D1-E311H

Product Description: This enzyme is a diagnostic grade reagent from a microorganism host. It is useful for enzymatic determination of ketone bodies (D-3-hydroxybutyrate and acetoacetate) 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 1.1.1.30
Principle:


Unit Definition	: One unit causes the formation of one micromole of NADH per minute at pH 8.5 at 37°C	
Appearance	: White amorphous powder, lyophilized	
Activity	: ≥50 U/mg solid (Grade III)	
Contaminants	: Malate dehydrogenase, Lactate dehydrogenase and NADH oxidase	all ≤2.0 × 10 ⁻³ %
Stabilizers	: Sucrose, mannitol, BSA	
Molecular Weight	: 28 kDa	
Isoelectric Point	: 6.59	
Michaelis Constant	: 3.79 × 10 ⁻³ M (37°C), 2.04 × 10 ⁻³ M (25°C) pH 8.5 (D-3-Hydroxybutyrate) 7.74 × 10 ⁻⁵ M (37°C), 3.68 × 10 ⁻⁵ M (25°C) pH 8.5 (NAD ⁺)	
Inhibitors	: PCMB, IAA, MIA, Cu ²⁺ , Hg ²⁺ , Ag ⁺ , NEM, EDTA, SDS, Procline	
Optimum pH	: 7.5-8.5	(Figure 1)
Optimum Temperature	: 55°C	(Figure 2)
pH Stability	: pH 5.5-8.0 (25°C, 24 hr)	(Figure 3)
Thermal Stability	: Below 45°C (pH 8.5, 30 min)	(Figure 4)
Effect of Various Chemicals	: (Table 1)	

Table 1. Effect of Various Chemicals on D-3-Hydroxybutyrate Dehydrogenase

The enzyme solution dissolved in 0.05 M K-phosphate buffer, pH 6.5 at 25°C for 1 hr. *

The enzyme solution dissolved in 0.1 M Tris-HCl buffer, containing 0.1% BSA, 8% Sucrose and 2% Mannitol, pH 8.5 at 37°C for 2 hr. **

Chemical	Conc. (mM)	Residual activity (%)		Chemical	Conc. (mM)	Residual activity (%)	
None	—	100*	100**	MIA	2	0	0.1
CaCl ₂	2	77.0	96.8	BME	2	48.4	72.7
MgSO ₄	2	91.0	99.4	Hydroxylamine	2	47.0	76.8
ZnSO ₄	2	110.0	68.2	EDTA	5	9.0	15.0
NiCl ₂	2	32.0	92.9	NaF	20	45.0	74.7
CoCl ₂	2	116.0	96.8	NaN ₃	20	51.0	72.9
MnCl ₂	2	81.0	94.8	Proclin-300	0.045% (v/v)	6.0	4.0
FeCl ₃	2	63.0	88.3	SDS	0.05% (w/v)	1.0	1.3
CuSO ₄	2	73.0	47.4	Na-Cholate	0.1% (w/v)	28.0	71.0
AgNO ₃	2	1.0	0	Tween-20	0.1% (v/v)	91.0	73.4
HgSO ₄	2	0	0.6	Triton X-100	0.1% (v/v)	123.0	77.6

NEM	2	2.0	0
-----	---	-----	---

Table 1(Continued)

Chemical	Conc. (mM)	Residual activity (%)	
IAA	2	35.0	22.1
PCMB	2	3.7	1.3

Span-20	0.1% (v/v)	50.0	61.0
---------	------------	------	------

Chemical	Conc. (mM)	Residual activity (%)	
Brij-35	0.1% (v/v)	68.0	70.1

Fig.1. pH Activity

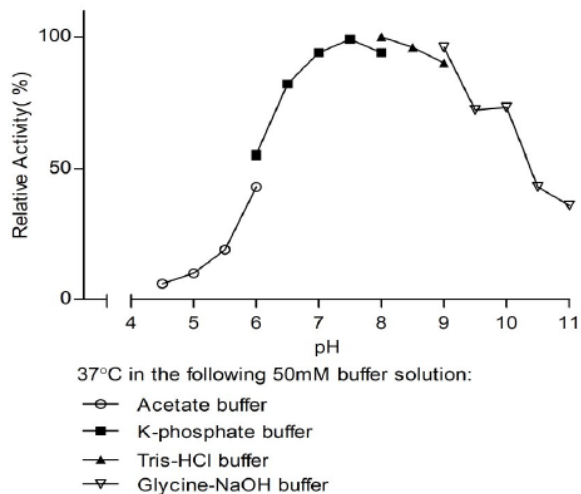


Fig.2. Temperature Activity

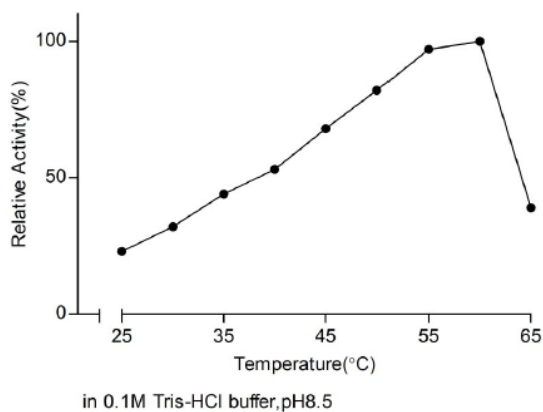


Fig.3. pH Stability

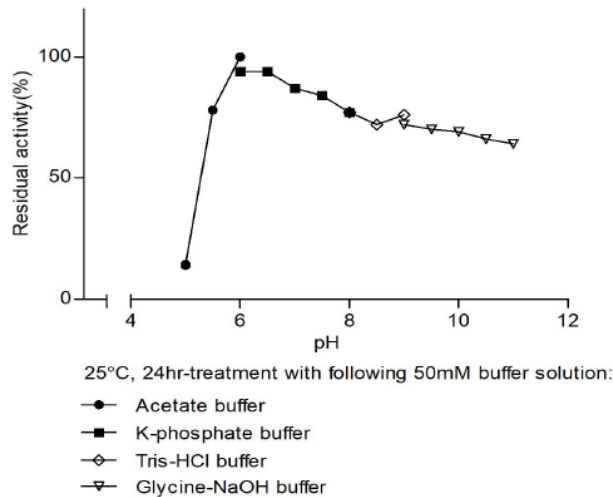


Fig.4. Thermal Stability

