

SPECIFICATION SHEET

Product Name: Malate Dehydrogenase
Catalog # MD01D1-E311H

Product Description: Malate dehydrogenase is a diagnostic grade reagent from a microorganism host. This enzyme is useful for enzymatic determination of L-malate and of glutamate oxaloacetate transaminase (GOT) 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 1.1.1.37
Principle:


Unit Definition	: One unit causes the oxidation of one micromole of NADH per minute at pH 7.5 and 30°C	
Appearance	: White amorphous powder, lyophilized	
Activity	: ≥40 U/mg solid	
Contaminants	: Glutamate oxaloacetate transaminase	≤1.0 × 10 ⁻³ %
	Lactate dehydrogenase	≤1.0 × 10 ⁻³ %
	NADH oxidase	≤1.0 × 10 ⁻³ %
Molecular Weight	: 33.4 kDa	
Isoelectric Point	: 6.25	
Michaelis Constant	: 4.3 × 10 ⁻⁵ M (Oxaloacetate), 9.6 × 10 ⁻⁵ M (NADH)	
Inhibitors	: Ag ⁺ , Hg ²⁺ , IAA	
Optimum pH	: 7.5	(Figure 1)
Optimum Temperature	: 50°C	(Figure 2)
pH Stability	: pH 5.8–10.5 (25°C, 20 hr)	(Figure 3)
Thermal Stability	: Below 50°C (pH 7.5, 15 min)	(Figure 4)
Effect of Various Chemicals	: (Table 1)	

Table 1. Effect of Various Chemicals on Malate Dehydrogenase

The enzyme solution 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	107
CaCl ₂	2	102	Hydroxylamine	2	105
MgSO ₄	2	108	EDTA	5	108
ZnSO ₄	2	103	NaF	20	104
NiCl ₂	2	104	NaN ₃	20	109
CoCl ₂	2	100	Borate	50	99
MnCl ₂	2	100	Proclin-300	0.045% (v/v)	105
FeCl ₃	2	102	SDS	0.05% (w/v)	99
CuSO ₄	2	104	Na-Cholate	0.1% (w/v)	105
AgNO ₃	2	82	Tween-20	0.1% (v/v)	103
HgSO ₄	2	1	Triton X-100	0.1% (v/v)	106

Table 1(Continued)

Chemical	Conc. (mM)	Residual activity (%)
NEM	2	98
IAA	2	3

Chemical	Conc. (mM)	Residual activity (%)
Span-20	0.1% (v/v)	103
Brij-35	0.1% (w/v)	102

Fig.1. pH-Activity

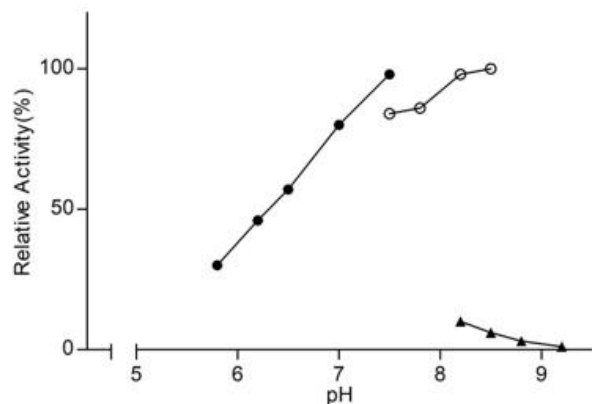


Fig.2. Temperature Activity

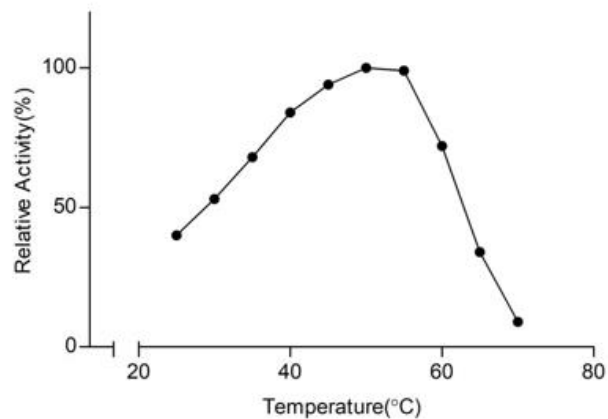


Fig.3. pH-Stability

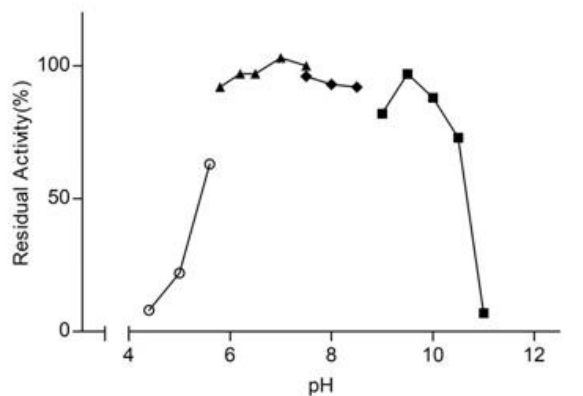


Fig.4. Thermal Stability

