genzyme
Diagnostics

Malate Dehydrogenase
Catalogue No. MADE-70-1521

Origin: Microbial

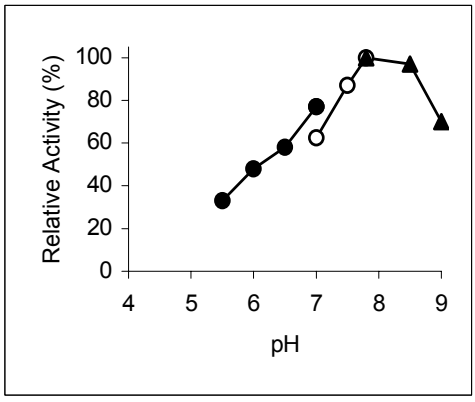
Specifications:

Appearance:	Freeze dried powder
Activity:	≥ 100 U/mg powder at 25°C
Contaminants:	≤ 0.003% by activity Glutamate oxaloacetic transaminase

Characteristics:

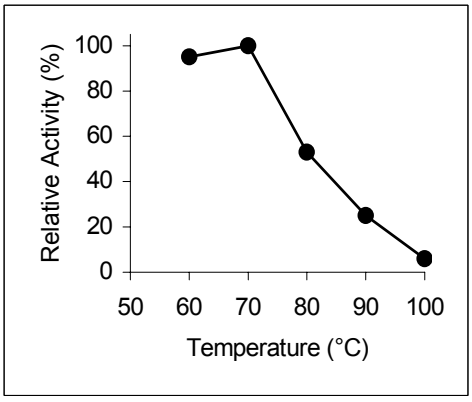
Molecular Weight:	35kDa (SDS-PAGE)	
Isoelectric point:	4.8	
K_m value:	Oxaloacetate 5.6×10^{-5} M NADH 6.6×10^{-6} M	
Optimum pH:	7.8	See Fig. 1
Optimum temp.:	70°C	See Fig. 2
pH stability:	8.0-9.0 (70°C, 30 min.)	See Fig. 3
Thermal stability:	Below 80°C (pH 8.5, 30 min.)	See Fig. 4
Effect of chemicals:		See Table 1
Lyophilised stability	18 months desiccated at 5 °C or below	

Fig. 1. pH Optimum



◆ : 0.1M MES
○ : 0.1M MES
▲ : 0.1M Tris

Fig. 2 Temperature Optimum

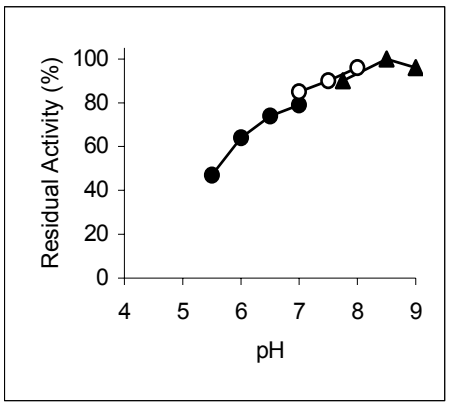


0.1M Tris, pH 7.8

genzyme Diagnostics

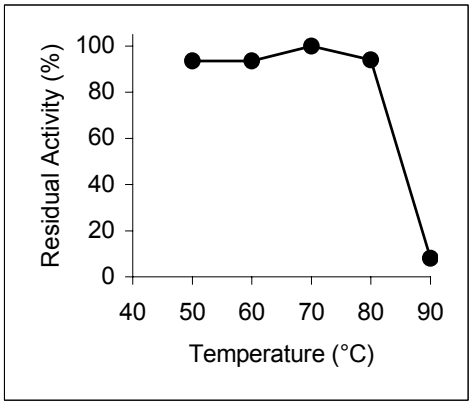
Malate Dehydrogenase (Catalogue No. 1521)

Fig. 3. pH Stability



70°C, 30 min.
◆ : 0.05M MES
○ : 0.05M TES
▲ : 0.05M Tris

Fig. 4 Thermal Stability



pH 8.5, 30 min., 0.05M Tris

Table 1. The effect of chemicals on Malate Dehydrogenase

Chemical	Concentration (mM)	Relative Activity (%)
None	-	100
$MnCl_2$	1.0	97
$MgCl_2$	1.0	95
$ZnCl_2$	1.0	57
$CuCl_2$	1.0	88
EDTA	1.0	89
PCMB	1.0	92
MIA	1.0	92
NaN_3	1.0	92

EDTA, Ethylenediaminetetraacetate; PCMB, p-Chloromercuribenzoate;
MIA, Monoiodoacetate

genzyme
Diagnostics

Malate Dehydrogenase
(Catalogue No. 1521)

Assay Principle:

Malate Dehydrogenase catalyses the following reaction:

Oxaloacetic Acid + NADH + H+ $\xrightarrow{\text{Malate Dehydrogenase}}$ **L-Malic acid + NAD+**

The disappearance of NADH can be measured spectrophotometrically at 340nm.

Unit Definition:

One unit of activity is defined as the amount of enzyme that will catalyse the oxidation of 1.0 micromole of NADH per minute at 25ºC under standard assay method conditions.

(*See Analytical Method for full details)*

International
50 Gibson Drive
Kings Hill, West Malling
Kent, ME19 4AF, UK
Phone: +44 (0) 1732 220022
Fax: +44 (0) 1732 220024/5

The Americas
31 New York Avenue
Framingham, MA
01701-9322
Phone: 800 332 1042
Fax: 800 762 6311