

ENZYMES

Malate Dehydrogenase

ORIGIN Microbial

CAT# MADE-70-1521

EC# 1.1.1.37

► SPECIFICATIONS

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

► ASSAY PRINCIPLE

Malate Dehydrogenase (MDH) catalyses the following reaction:



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 25°C under standard assay method conditions.

► APPLICATION

Useful for the enzymatic determination of L-malate and glutamate oxaloacetate transaminase.

► CHARACTERISTICS

Molecular Weight:	35kDa (SDS-PAGE)
Isoelectric Point:	4.8
K_m values:	Oxaloacetate 5.6 x 10 ⁻⁵ M NADH 6.6 x 10 ⁻⁶ M
Optimum pH (Fig. 1):	7.8
Optimum Temperature (Fig. 2):	70°C
pH Stability (Fig. 3):	8.0 to 9.0 (70°C for 30 minutes)
Thermal Stability (Fig. 4):	Stable at 80°C and below (pH 8.5 for 30 minutes)

FIGURE 1: OPTIMUM pH

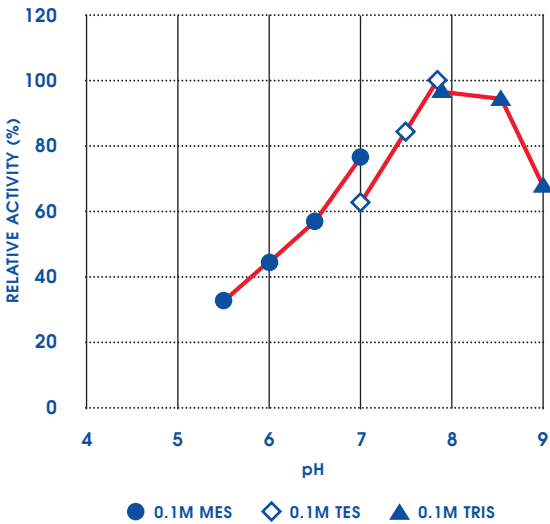


FIGURE 2: OPTIMUM TEMPERATURE

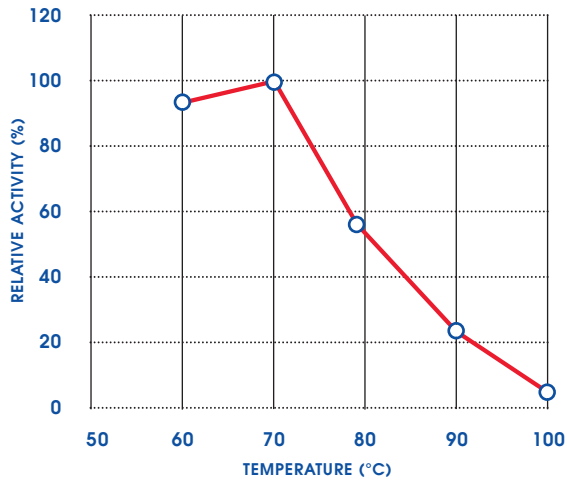


FIGURE 3: pH STABILITY (70°C FOR 30 MINS.)

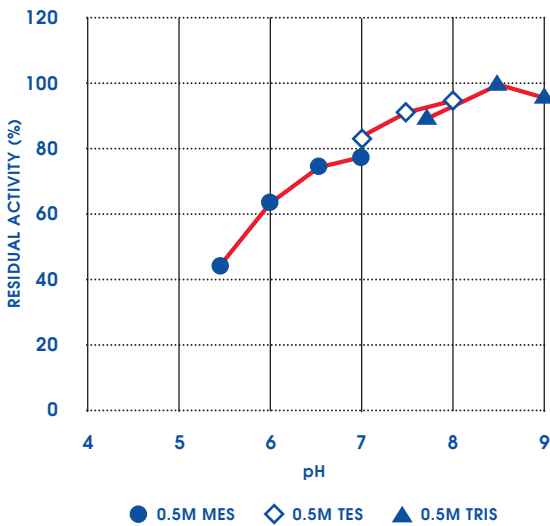


FIGURE 4: THERMAL STABILITY (pH 8.5 FOR 30 MINS.)

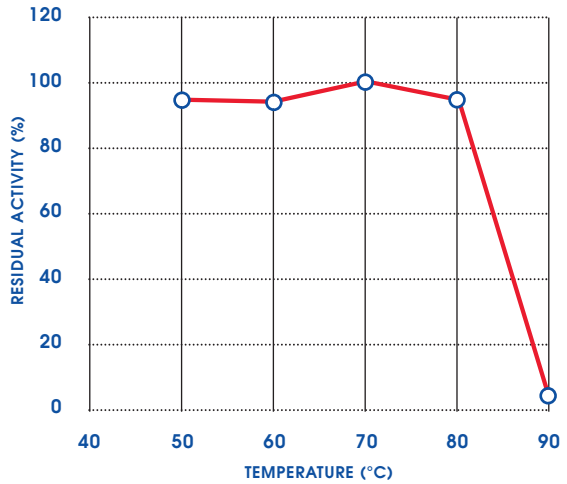


TABLE 1: THE EFFECT OF CHEMICALS ON MALATE DEHYDROGENASE

CHEMICAL	CONCENTRATION	RELATIVE ACTIVITY (%)	CHEMICAL	CONCENTRATION	RELATIVE ACTIVITY (%)
None	—	100	EDTA	1.0 mM	89
MnCl ₂	1.0 mM	97	PCMB	1.0 mM	92
MgCl ₂	1.0 mM	95	MIA	1.0 mM	92
ZnCl ₂	1.0 mM	57	NaN ₃	1.0 mM	92
CuCl ₂	1.0 mM	88			

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

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