



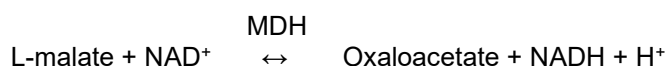
ENZYMATIC TEST KIT FOR THE DETERMINATION OF L-MALIC ACID IN GRAPE JUICE AND WINE FOR DISCRETE ANALYSERS

PRODUCT

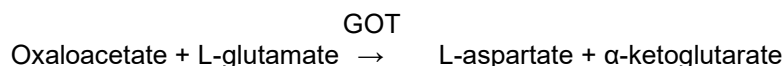
Product no.4B160, for *in vitro* use only.

PRINCIPLE OF MEASUREMENT

L-malic acid is found in grape juice and wine and is determined enzymatically according to the following equations:



L-malic acid is oxidised by nicotinamide adenine dinucleotide (NAD) to oxaloacetate using L-malate dehydrogenase (MDH) enzyme as a catalyst. The equilibrium does not favour formation of oxaloacetate and so oxaloacetate is removed by a trapping enzyme. The amount of NADH formed is measured at 340 nm and is stoichiometrically related to the amount of L-malate consumed. In this method, glutamate oxaloacetate transaminase (GOT) is used as the trapping enzyme. In the presence of L-glutamate, the oxaloacetate is irreversibly converted to L-aspartate.



CONTENTS

The kit includes the following reagents:

MA R1	Buffer	19.5mL x 2
MA R2	NAD ⁺	5.5mL x 2
MA R3	GOT/MDH	5.5mL x 2

Reagents are stable refrigerated at 4°C until the 'best before' date printed on the batch label of the kit.
DO NOT FREEZE. Failure to store reagents at the recommended temperature will reduce their shelf life.

If decanting reagents into instrument-specific bottles, then please regularly rinse the bottles with distilled water and dry before adding fresh reagents. Failure to do this may reduce reagent shelf life due to a build-up of waste product.

SAFETY

- Please read the Safety Data Sheets (SDS) before use;
- Take the necessary precautions for the use of laboratory reagents;
- The reagents contain sodium azide as preservative. DO NOT swallow. Avoid contact with skin and mucous membranes.

PROCEDURE

Reagent Definition

Reagent	MA R1	MA R2	MA R3
Stable on board (days)	1	1	1
Alarm limit (mL)	1.0mL	0.7mL	0.7mL
Vial volume	20mL	20mL	20mL
Syringe speed	Normal	Normal	Normal

Test Definition

Test type	Photometric
Full name	L-Malic acid
Result unit	g/l
Number of decimals	2
Acceptance	Manual
Dilution 1+	0
Sample type	Wine, Must, Juice

Calibration Parameters

For best results daily calibration is recommended

Calibration type	Linear
Repeat time (d)	1
Points/Calibrator	Duplicate
Acceptance	Manual
Curve direction	Ascending
Type of calibrators	Separate

Test Flow

Calibrator	Conc. (g/l)	Dil. Ratio 1+
MA 0.00	0.000	0.0
MA 0.10	0.100	0.0
MA 0.50	0.500	0.0
MA 1.00	1.000	0.0
MA 1.50	1.500	0.0
MA 3.00	3.000	0.0

Reagent	Reagent	Incubation	Sample	Incubation	Blank	Reagent	Incubation	End point
Reagent	Reagent	Time (sec.)	Volume (µl)	Time (sec.)	Resp. min	Reagent	Time (sec.)	Wave. (nm)
MA R1	MA R2	60	2	60	*	MA R3	300	340
Volume (µl)	Volume (µl)		Disp. with		Resp. max	Volume (µl)		Side wave.
75	20		Water		*	20		NONE
Disp. with	Disp. with		Volume (µl)			Disp. with		
Water	Water		50			Water		
Volume (µl)	Volume (µl)		Wash reagent			Volume (µl)		
43	30		NONE			10		
Wash reagent	Wash reagent					Wash reagent		Meas. type
NONE	NONE					NONE		NORMAL

REFERENCES

1. OIV, 2018, Compendium of international methods of wine and must analysis. *International Organisation of Vine and Wine*, Vol 1: Paris, France, pp. OIV-MA-AS313-11.

AUSTRALIAN-MADE

This test kit was made with pride in a lab down-under.