VINTESSENTIAL® TEST KITS
Manufactured by Winechek Pty Ltd
1/22 Hightech Place Lilydale, Vic 3140
support@winechek.com
ABN 93604651845
www.winechek.com
Winechek
PRECISION BASED EXPERTISE

ENZYMATIC TEST KIT FOR THE DETERMINATION OF D-GLUCOSE & D-FRUCTOSE IN GRAPE JUICE AND WINE

FOR DISCRETE ANALYSERS

PRODUCT
Product no.4B140, for *in vitro* use only.

PRINCIPLE OF MEASUREMENT
Glucose and fructose are the main sugars found in grape juice and wine and are determined enzymatically according to the following equations:

$$\begin{array}{lcl} & \overset{HK}{} & \\ \text{Glucose + ATP} & \rightarrow & \text{Glucose-6-phosphate + ADP} \\ \text{Fructose + ATP} & \rightarrow & \text{Fructose-6-phosphate + ADP} \end{array}$$

Glucose and fructose react with adenosine triphosphate (ATP) in the presence of the enzyme hexokinase (HK) to form glucose-6-phosphate (G6P) and fructose-6-phosphate (F6P).

$$\text{G6P + NADP}^{+} \xrightarrow{\text{G6PDH}} \text{Gluconate-6-phosphate + NADPH + H}^{+}$$

G6P is oxidised by nicotinamide adenine dinucleotide phosphate (NADP) to gluconate 6-phosphate using glucose-6-phosphate dehydrogenase (G6PDH) enzyme as a catalyst. The amount of NADPH formed is measured at 340nm and is stoichiometrically related to the amount of glucose consumed.

$$\text{Fructose-6-phosphate} \xleftrightarrow{\text{PGI}} \text{Glucose-6-phosphate}$$

Next, the enzyme phosphoglucose isomerase (PGI) is added to convert the F6P to G6P. The G6P now formed reacts with NADP and the NADPH determined is stoichiometrically related to the amount of fructose in the sample.

CONTENTS
The kit includes the following reagents:

GF R1	Buffer	19.5mL x 2
GF R2	G6PDH/HK	10.5mL x 2
GF R3	PGI	10.5mL x 2

Reagents are stable refrigerated at 4ºC until the 'best before' date printed on the batch label.
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.

Issued 10/12/2024

VINTESSENTIAL® TEST KITS
Manufactured by Winechek Pty Ltd
1/22 Hightech Place Lilydale, Vic 3140
support@winechek.com
ABN 93604651845
www.winechek.com
Winechek
PRECISION BASED EXPERTISE

PROCEDURE

Reagent Definition

Reagent	GF R1	GF R2	GF R3
Stable on board (days)	1	1	1
Alarm limit (mL)	1.0mL	0.9mL	0.9mL
Vial volume	20mL	20mL	20mL
Syringe speed	Normal	Normal	Normal

Test Definition

Test type	Photometric
Full name	Glu & Fru
Result unit	g/l
Number of decimals	2
Acceptance	Manual
Dilution 1+	9.0
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

Calibrator	Conc. (g/l)	Dil. Ratio 1+
GF 0.00	0.000	9.0
GF 0.50	0.500	9.0
GF 2.50	2.500	9.0
GF 5.00	5.000	9.0
GF 10.00	10.000	9.0
GF 20.00	20.000	9.0

Test Flow

Reagent	Sample	Incubation	Blank	Reagent 2	Reagent 3	Incubation	End point
Reagent	Volume (µl)	Time (sec.)	Resp. min	Reagent	Reagent	Time (sec.)	Wavelength(nm)
GF R1	4	180	*	GF R2	GF R3	300	340
Volume (µl)	Disp. with		Resp. max	Volume (µl)	Volume (µl)		Side wave.
75	Water		*	40	40		NONE
Disp. With	Volume (µl)			Disp. with	Disp. with		
Water	20			Water	Water		
Volume (µl)	Wash reagent			Volume (µl)	Volume (µl)		
47	NONE			10	14		
Wash reagent				Wash reagent	Wash reagent		Meas. Type
NONE				NONE	NONE		NORMAL

AUSTRALIAN-MADE

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

Issued 10/12/2024