

FREE SULPHITE (FSO₂)

Colorimetric Method
RX MONZA
FOOD AND WINE

INTENDED USE

For the quantitative determination of Free Sulphite in food and wine. This product is suitable for use on the RX **monza** analyser.

FOR THE ANALYSIS OF FOOD AND WINE. Not for diagnostic procedures.

Cat. No.

FH 10040	R1.	Acid Diluent	2 x 100 ml
	R2.	Conc. Chromogen	1 x 20 ml
	R3.	Starter	1 x 20 ml
	R4.	Oxidant	1 x 5 ml
		CAL BLANK.	1 x 1 ml
		CALa.	2 x 32 mg
		CALb.	2 x 40 ml

PRINCIPLE

Under acidic conditions, "free sulphur dioxide" reacts with p-fuchsin and formaldehyde to produce a chromophore of magenta colour which is measured at 578nm. The interference of the polyphenols and the colour of the wines is eliminated by measuring of the Sample Blank.

SAMPLE

Use clear liquid samples for the assay. Turbid samples should be filtered prior to assay.

SAFETY PRECAUTIONS AND WARNINGS

For the analysis of food and wine. Not for diagnostic procedures. Do not pipette by mouth. Exercise the normal precautions required for handling laboratory reagents.

Health and Safety data sheets are available on request.

Please dispose of all biological and chemical materials according to local guidelines.

The reagents must be used only for the purpose intended by suitably qualified laboratory personnel, under appropriate laboratory conditions.

STABILITY AND PREPARATION OF REAGENTS

Sample Blank Buffer (SB Buffer)

10 ml Acid Diluent (R1) + 1 ml Conc. Chromogen (R2) + 1 ml Starter (R3) + 0.1 ml Oxidant (R4). Stable for 15 days at +15 to +25°C protected from direct light.

Chromogen

10 ml Acid Diluent (R1) + 1 ml Conc. Chromogen (R2) + 1 ml Starter. Stable for 15 days at +15 to +25°C protected from direct light

CAL BLANK (S0)

Contents ready for use. Stable up to the expiry date when stored at +2 to +8°C.

CALa

Stable up to the expiry date specified when stored at +2 to +8°C.

CALb

Stable up to the expiry date specified when stored at +2 to +8°C.

CAL Calibrator (S1)

Tap the lid of CALa several times to ensure that all powder is transferred from the lid and bung to the glass bottom of the vial. Carefully remove the lid and bung from CALa, ensuring that no powder is lost in the process. Transfer 1ml of CALb to CALa using a micropipette and use the pipette tip to carefully mix the contents of the vial. Transfer the solution from CALa back into the CALb bottle, using the same pipette tip. Repeat this process two additional times to ensure that all powder has been completely dissolved and all solution transferred back into the CALb bottle. Seal the CALb lid tightly and gently swirl by hand for approximately 20 seconds to mix. This solution has a sulphite concentration of 406.6 mg/L and is stable for 24 hours at +15 to +25°C when stored tightly sealed. To prepare the working concentration calibrator, 1 ml CAL should be diluted using 4 ml dH₂O (Sulphite Concentration = 81.32 mg/L)

Sulphite in solution is not stable and will decrease in concentration over time. For greatest accuracy, the calibrator should be prepared immediately prior to use on day of analysis.

MATERIALS PROVIDED

Acid Diluent
Conc. Chromogen
Starter
Oxidant
CAL BLANK
CALa
CALb

MATERIALS REQUIRED BUT NOT PROVIDED

Deionised water
Sulphite Calibrator Set (Cat no. TS4052)

RX MONZA PROCEDURE

Select an open channel in the Run Test screen, enter the assay parameters exactly as they appear on page 2 and save. Select Run and carry out a water blank as instructed.

Pipette into a cuvette:

	S0*	S0	S1*	S1	Sample*	Sample
CAL. BLANK	20 µl	20 µl	-	-	-	-
Standard	-	-	20 µl	20 µl	-	-
Sample	-	-	-	-	20 µl	20 µl
SB Buffer	800 µl	-	800 µl	-	800 µl	-
Chromogen	-	800 µl	-	800 µl	-	800 µl

Mix, incubate for 10 minutes at +15 to +25°C.

Insert the cuvette into the RX **monza** flowcell holder and press Read.

*Blank

CALIBRATION FOR RX MONZA

A 2 point linear calibration is recommended with change in reagent lot or as indicated by quality control procedures. Use CAL BLANK and CAL supplied with kit. Refer to page 2 for details to be entered for calibration on a RX monza analyser.

CALIBRATOR CONCENTRATION

CAL BLANK	S0	0 mg/L
CAL (Dil 1 in 5)	S1	81.32 mg/L

MANUAL PROCEDURE

Wavelength:	578 nm
Cuvette:	1 cm path length
Temperature:	+15 to +25°C
Measurements:	against water (increasing absorbance)

Pipette into 1 ml Cuvettes

	S0*	S0	S1*	S1	Sample*	Sample
CAL. BLANK	25 µl	25 µl	-	-	-	-
Standard	-	-	25 µl	25 µl	-	-
Sample	-	-	-	-	25 µl	25 µl
SB Buffer	1000 µl	-	1000 µl	-	1000 µl	-
Chromogen	-	1000 µl	-	1000 µl	-	1000 µl

Mix, incubate for 10 minutes at +15 to +25°C.

Measure absorbance (Abs)

*Blank

CALCULATION USING A STANDARD

$$\Delta A_{\text{sample}} = \text{Sample Abs} - \text{Sample* Abs}$$

$$\Delta A_{\text{standard}} = \text{S1 Abs} - \text{S1* Abs}$$

$$\text{Concentration of FSO}_2 = \text{standard (mg/L)} \times \frac{\Delta A_{\text{sample}}}{\Delta A_{\text{standard}}}$$

Monza Parameters			Monza Calibration		
Report Name	Delay Time	Cuvette	Date & Time	Curve Type	Repl
FSO2	2sec	10mm CUVETTE		linear	2
Assay Mode	Read Time	Ref Low	Standard	Conc.	ΔA/min
I-PT-S BLANK	1 sec		S0	0	
			S1	81.32	
Pri Wavelen	Unit	Ref High	S2		
578 nm	mg/L		S3		
			S4		
Sec Wavelen	Format	Min Lin Lim	S5		
none	###.#	3.100	S6		
			S7		
Temperature	Replicates	Max Lin Lim	S8		
25°C	1	80.0	S9		
			S10		
			S11		
%Linearity	Asp Volume	Slope a	± Repl Lim	± Fact Dev%	Curve Fit Lim
		1			
Min RX Abs	Samp volume	Intercept b	Curve Fit-R		
	20.0 µl	0.000			
Max RX Abs	R1 volume	Assay Name2			
	800.0 µl				
Min Rgt Abs	R2 Volume	Report Name2			
Max Rgt Abs	R3 Volume				
C1 Mean	C2 Mean	C3 Mean			
C1 2SD	C2 2SD	C3 2SD			

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