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TEST KIT FOR THE DETERMINATION OF TOTAL SULFUR DIOXIDE

PRODUCT

Product no. 4A200, **for 30 tests**.

CONTENTS

The kit includes the following reagents:

Reagent No.	Reagent	Preparation	Quantity	Stability
1	Buffer	Ready to use	45 mL	Stable
2	Chromogen	Ready to use	2.9 mL	Stable
3	Standard	Ready to use	3.3 mL	6 months

Standard concentration is 200 mg/L.

SAFETY

- Please read the Safety Data Sheets (SDS) before use
- Take the necessary precautions for the use of laboratory reagents

PROCEDURE

Operating Parameters

Wavelength	340 nm
Cuvettes	**Semi-micro** with 1cm path length
Temperature	20 – 25°C
Final volume in cuvette	1.48 mL
Zero	against air with no cuvette in light path

STANDARD

The Standard can be used directly as supplied. Please note that the Standard in this assay is used as a calibration factor (for calculation purposes only) and will not give a mg/L result. Expected A1 Standard absorbance is approximately 0.1, expected A2 Standard absorbance is approximately 0.8 – 0.9.

SAMPLE PREPARATION

DO NOT decolourise with either PVPP or activated charcoal, as both fining agents have been demonstrated to remove sulfite from the sample. Turbid samples may be filtered or centrifuged.

DO NOT dilute white wines, red wines, ciders or spirits unless the final A_2 absorbance reading is greater than 1.5 absorbance units, or the sample contains more than 200 mg/L of total SO_2. If dilution is needed, the best results are achieved with the least dilution possible, for example dilute 1 in 2 with distilled water.

It is recommended to run a sample with known total SO_2 concentration (such as a cask wine previously tested) as a control with each assay.

SAMPLE ANALYSIS

a. Pipette the following volumes of reagents into the cuvettes:

Reagent	Blank assay	Standard assay	Sample assays
1. Buffer	1.35 mL (1350 µL)	1.35 mL (1350 µL)	1.35 mL (1350 µL)
Sample or Standard		0.045 mL (45 µL)	0.045 mL (45 µL)
Distilled water	0.045mL (45 µL)		

b. Mix well by gentle inversion and read absorbances, A_1, after 3 minutes.

c. Pipette the following reagent into the cuvettes:

2. Chromogen	0.085 mL (85 µL)	0.085 mL (85 µL)	0.085 mL (85 µL)

d. Mix well by gentle inversion and read absorbances, A_2, at **10 minutes**.

CALCULATIONS

1. Calculate the net absorbance for the blank assay:

   Blank absorbance, A_{RB} = A2 – (A1 x 1395/1480)

2. Calculate the corrected absorbance for the standard assay:

   Standard absorbance, A_{STD} = A2 – (A1 x 1395/1480)
   Corrected absorbance, $C_{standard} = A_{STD} - A_{RB}$

3. Calculated the corrected absorbance for the samples:

   Sample absorbance, A_{SAMPLE} = A2 – (A1 x 1395/1480)
   Corrected absorbance, $C_{sample} = A_{SAMPLE} - A_{RB}$

4. Since the concentration of the standard is 200 mg/L, calculate the total sulfur dioxide content of the samples as follows:

   $$\text{Total } SO_2 \text{ (mg/L)} = \frac{C_{sample}}{C_{standard}} \times 200 \text{ mg/L} \times \text{dilution factor}$$

A calculation spreadsheet is available for download at:
http://www.vintessential.com.au/certification/calculation-worksheets/