Sulphur dioxide - Sulphides

Function: Differential Pulse Voltammetry (DPV/a)

Start Potential (mV)	**-300**
End Potential (mV)	**-900**
Current range	**1,024 μA**
Scan Speed (mV/s)	**20**
Number of cycles	**3**
Delay before sweep (s)	**5**
Purge and stir time (s)	**300**
Stirring speed (rpm)	**300**
Drop Size (a.u.)	**60**

Concentrated standard solution (1 g/l) of sulphur dioxide

Dissolve 1.9688 g of anhidrous Na_2SO_3 in 1 l of distilled and boiled water, in volumetric flask. Prepare the solution at the moment of the use. ($MM_{Na2SO3} = 126.04$ $MM_{SO2} = 64$)

Supporting electrolyte
1 M Acetate buffer, pH 4.6

Dissolve 82 g of CH_3COONa (or 136 g of $CH_3COONa \cdot 3H_2O$) in 800 ml of distilled water. Add 57.5 ml of glacial CH_3COOH. Adjust pH and bring to the mark in a 1 l volumetric flask

Procedure

Deaerate 10 ml of supporting electrolyte and add from 1 to 5 ml of sample.

Working standard solution (100 mg/l)

Dilute 1+9 the concentrated standard solution with distilled and boiled water. Prepare the solution at the moment of the analysis

Warnings

- Store acidic samples in hermetically sealed bottles without bubble air inside. Analyse these samples as soon as possible
- If sulphides are present (>0.2 mg/l), start the scanning from –400, -450 mV.
- Dilute concentrated samples using boiled distilled water.

Analytical report

Analysis: wine Barbera
Sample Concentration = 164 mg/l
Method: 5 additions

a = 169.2 nA*l/mg   b = 27.81 µA
C_x = 164 mg/l   r² = .9989

AMEL 433

Volumes Table

Solvent Volume	2.6 (ml)
Supporting Sol.	10 (ml)
Sample Volume	0.5 (ml)
Standard Conc.	100 (mg/l)

Heights Table

#	Peak Pot.	Height
0	-597	1.100 µA
1	-594	1.612 µA
2	-592.5	2.185 µA
3	-592.5	2.684 µA
4	-589.5	3.119 µA
5	-588.6	3.643 µA

Regression Data

#	Add.Conc.	Height x dilution	
0	0 mg/l	28.83 µA	y = ax + b
1	100 "	43.86 µA	a = 169.2 nA*l/mg
2	200 "	61.62 µA	b = 27.81 µA
3	300 "	78.38 µA	r²= .9989
4	400 "	94.22 µA	
5	500 "	113.7 µA	