Determination of Free and Total SO_2 in Wine and fruit juice according to European regulations

Application

USE

This application note descripe the titration procedure with iodine solution.

APPLIANCES

- Titrator: TL 7000 or TL 7750 M1
- Basic device
- Magnetic stirrer TM 235
- 20 mL Exchange unit WA 20, with amber glass bottle for the titrant, complete
- Option: autosampler TW alpha plus 24 or TW 7400 + 2 x TITRONIC universal

ELECTRODES

- Electrode: Pt 1200 with L1NN or Pt 1400 with autosampler
- Electrode cable: L 1 NN

REAGENTS

- Solvent: water dest.
  Standardisation: Na2S2O3
  Titrant: Iodine sol. (I2) 0.025 m or 0.01 m
- other reagents H2SO4 10 %, NaOH 4 mol/l, KI-solution 5 % and EDTA-Na2

DESCRIPTION

Preparation of Iodine Solution

We recommend ready to use agents. The Iodine solutions are also available in ampoules.

Application

A) Determination of the free SO_2

Pipette 50 ml of the sample in a 100 or 150 ml glass beaker (room temperature -> 20 °C), add 3 ml H_2SO_4 10 % + 30 mg EDTA-Na_2, 10 ml KI solution and titrate immediately with the iodine solution.

B) Determination of total SO_2

Add 8 ml 4 m NaOH to the titrated sample A and wait 5 minutes. Add then 10 ml H2SO4 while stirring and titrate immediately with the iodine solution.
Better results could be reached if 20 ml NaOH are added again to the titrated sample and a reaction time of 5 minutes is given. After the addition of H_2SO_4 the titration is started again. Take the summary of both titrations of the total SO2 titration to calculate the result.

Electrode handling

The dead stop electrode can be stored dry after use.

LITERATURE

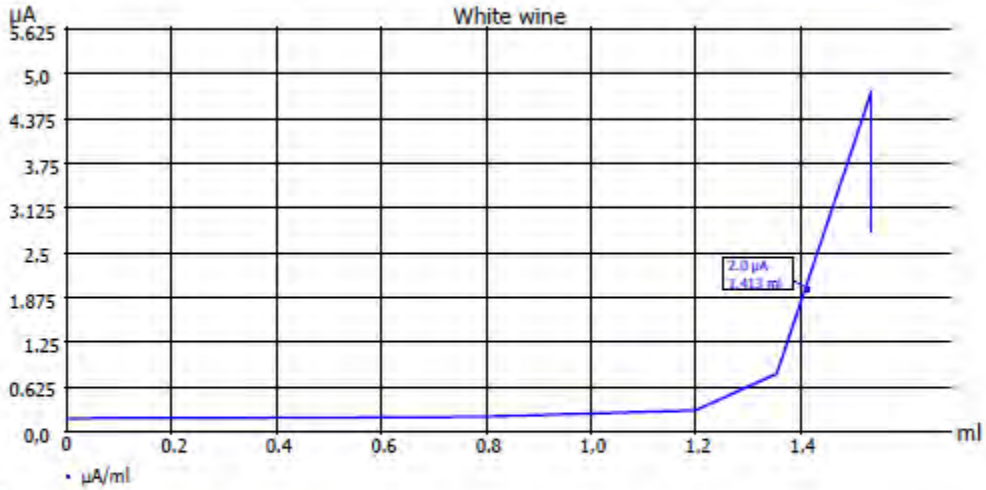
Amtsblatt der Europäischen Gemeinschaft.
Dr. Alfred Schmitt Aktuelle Weinanalytik Verlag Heller Chemie- und Verwaltungsvorschriften mbH;

Application

Titration Method: SO2 free, page 1

GLP documentation

Titration graph



Method data

Method name:	SO2 in wine	Titration duration:	9 s
End date:	22.02.13	End time:	10:24:18

Titration data

Sample ID:	White wine	Pattern:	25.000 ml
Start µA:	0.192 µA	End µA:	2.793 µA
EP:	1.413 ml/ 2.0 µA	SO2:	1.8 mg/l

Calculation formula

SO2:	(EP-B)*T*M*F1/(V*F2)	Mol (M):	32.00000
Blank value (B):	0.0000 ml	Titre (T):	1.00000000 (m)
Factor 1 (F1):	1.0000	Pattern (V):	25.000 ml (m)
Factor 2 (F2):	1.0000	Statistics:	Off

Application

Titration Method: SO2 free, page 1

Method data overall view

Method name:	SO2 in wine	Created at:	02/22/13 10:18:41
Method type:	Automatic titration	Last modification:	02/22/13 10:20:53
Measured value:	µA		
Titration mode:	d-stop	Documentation:	GLP
Linear steps:	0.040 ml		
Measuring speed / drift:	1 s		
Initial waiting time:	0 s		
Titration direction:	Increase		
Pretitration:	Off		
Endpoint:	2.0 µA	delta endpoint:	1.0 µA
		Endpoint delay:	5 s
Polarization voltage:	100 mV		

Dosing parameter

Dosing speed:	60.00 %	Filling speed:	30 s
Maximum dosing volume:	20.00 ml		

Unit values

Unit size:	50ml
Unit ID:	10045002
Reagent:	Iodid/Iodat
Batch ID:	no entry
Concentration [mol/l]:	1.00000
Determined at:	08/31/12 23:19:38
Expire date:	09/29/12
Opened/compounded:	08/29/12
Test according ISO 8655:	06/01/12
Last modification:	11/22/12 15:47:54

Application

NOTES

If you are using an autosampler then the addition of H_2SO4 and KI have to be done with a piston burette such as TITRONIC universal direct before the titration of the SO_2.

If you should have any questions concerning application, please contact the Application Department of SI Analytics; tel.: **+ 49 6131 66 5062 or 5118**

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