

**Determination of Free and  
Total SO<sub>2</sub> in Wine and fruit  
juice according to European  
regulations**

# Application

## USE

This application note describe 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: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>
- Titrant: Iodine sol. (I<sub>2</sub>) 0.025 m or 0.01 m
- other reagents: H<sub>2</sub>SO<sub>4</sub> 10 %, NaOH 4 mol/l, KI-solution 5 % and EDTA-Na<sub>2</sub>

## 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<sub>2</sub>

Pipette 50 ml of the sample in a 100 or 150 ml glass beaker (room temperature -> 20 °C), add 3 ml H<sub>2</sub>SO<sub>4</sub> 10 % + 30 mg EDTA-Na<sub>2</sub>, 10 ml KI solution and titrate immediately with the iodine solution.

### B) Determination of total SO<sub>2</sub>

Add 8 ml 4 m NaOH to the titrated sample A and wait 5 minutes. Add then 10 ml H<sub>2</sub>SO<sub>4</sub> 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<sub>2</sub>SO<sub>4</sub> the titration is started again. Take the summary of both titrations of the total SO<sub>2</sub> titration to calculate the result.

### Electrode handling

The dead stop electrode can be stored dry after use.

## LITERATURE

Amtsblatt der Europäischen Gemeinschaft.

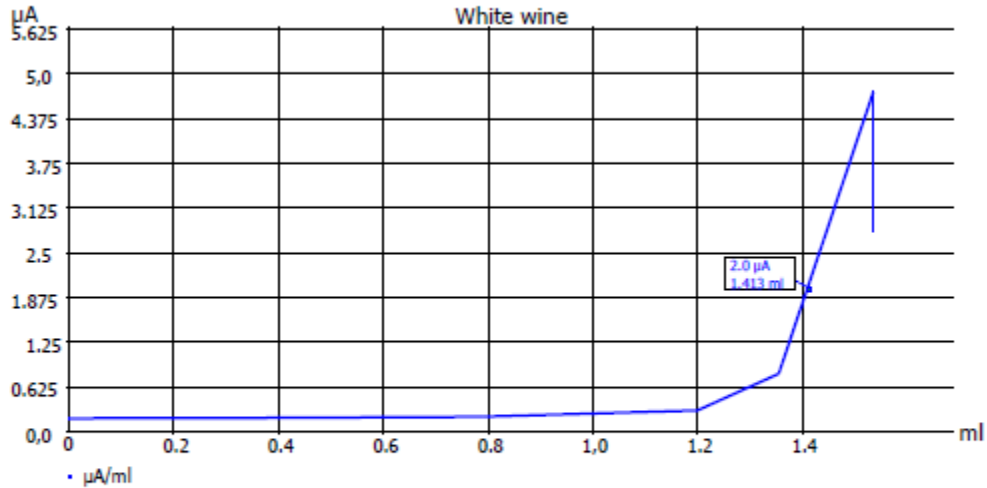
Dr. Alfred Schmitt Aktuelle Weinanalytik Verlag Heller Chemie- und Verwaltungsvorschriften mbH;

## 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:	$\mu\text{A}$		
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 $\mu\text{A}$	delta endpoint:	1.0 $\mu\text{A}$
		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<sub>2</sub>SO<sub>4</sub> and KI have to be done with a piston burette such as TITRONIC universal direct before the titration of the SO<sub>2</sub>.

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

SI Analytics GmbH  
Hattenbergstr. 10  
55122 Mainz  
Germany

Phone: +49 (0) 6131 / 66 – 5062  
+49 (0) 6131 / 66 – 5118  
Fax: +49 (0) 6131 / 66 – 5001  
E-Mail: [titration@si-analytics.com](mailto:titration@si-analytics.com)  
Homepage: [www.si-analytics.com](http://www.si-analytics.com)