

**Determination of Iodine
number**

Application

Use

The method describes the procedure for the determination of the iodine number with the use of a catalyst. The application is suitable for fats, fatty acids, oils and different organic solvents.

Appliances

- Titrator: TL 6000/7000 (TL 6000/7000 M1/50) consists of
- Basic device
- Magnetic stirrer TM 235
- 50 mL exchange unit WA 50, with amber glass bottle for titrant complete

Electrodes

- Electrode: Pt 62 or Pt 61, or Pt 62 RG with cable L 1 A

Reagents

- Titration agent: Sodium thiosulphate solution ($Na_2S_2O_3$) 0.1 mol/L
- Reaction solution: Iodine monochloride 0.1 mol/L in glacial acetic acid
- Solvent: Glacial acetic acid, dist. water
- Catalyst solution: Magnesium acetate solution 3 %
- Other reagents: Potassium iodine solution 10 %

Description

Preparation of Sodium thiosulfate solution 0.1 mol/L

The 0.1 mol/L titrant are prepared from ampules. Ready to use titrants are also available and recommended. The solution should be stored in a dark place/bottle.

Preparation of the Iodine monochloride reaction solution

16.2 g iodine monochloride is dissolved in glacial acetic acid, and filled up to 1 liter with it.

Preparation of the potassium iodine solution

25 g KI are dissolved in dist. water filled up to 250 ml. It is recommended to prepare the solution freshly before use.

Preparation of the Magnesium acetate solution

45 g Magnesium acetate are dissolved in glacial acetic acid and filled up to 1 liter with it.

Application

Titration

The sample weight depends to the expected iodine number (please refer to the table).

Iodine no. g/100g	smpl. amount [g]
< 5 g	3
from 5 to 20	1
from 20 to 50	0.5
from 50 to 100	0.25
from 100 to 150	0.15
>150	0.1

Transfer the sample (weigh exactly to 0.0001 g) in an Erlenmeyer volumetric flask with stopper (if possible take a 200 ml one). Add 20 ml glacial acetic acid, 25.00 ml reaction solution and 10 ml catalyst solution. Close the Erlenmeyer flask with a stopper, shake/mix the solution for some seconds and let the sample stay in darkness for 5 minutes. Add 15 ml of the KI-solution and 50 ml dist water. Place the electrode and burette tip in the sample and start the method (stirr very well). Carry out a blank titration without the sample in the same matter.

Electrode handling

If not in use, the electrolyte should be stored in the electrolyte solution. For further details, please refer to the electrode's operating instructions.

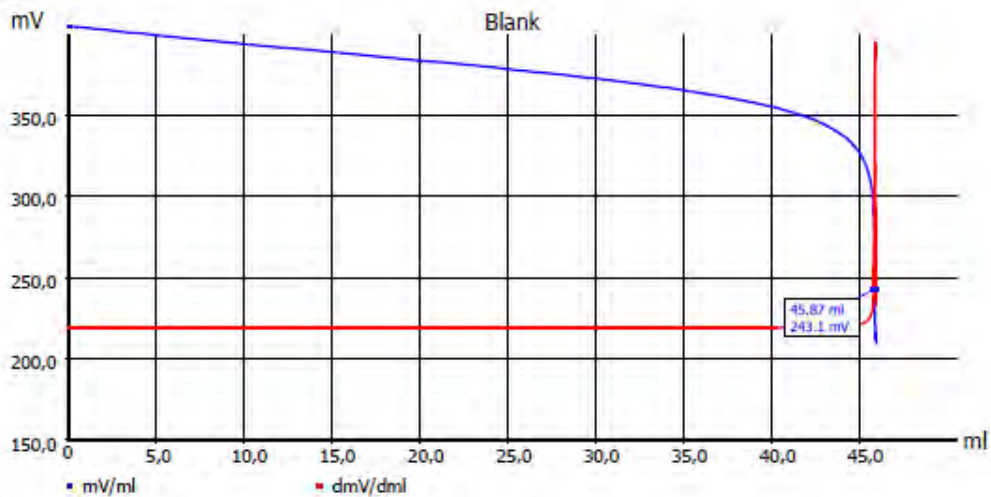
Application

Methods

Blank value (page 1):

GLP documentation

Titration graph



Method data

Method name:	Iodine Blank	Titration duration:	4 m 30 s
End date:	08.05.13	End time:	14:34:57

Titration data

Sample ID:	Blank	Weight:	1.00000 g
Start mV:	405.0 mV	End mV:	209.1 mV
EQ:	45.874 ml / 243.1 mV	Blank:	45.87 ml

Calculation formula

Blank: EQ1 -> M01

Statistics: Off

Statistics: Off

Application

Blank value (page 2):

Method data overall view

Method name:	Iodine Blank	Created at:	05/08/13 13:31:57
Method type:	Automatic titration	Last modification:	05/08/13 14:15:22
Measured value:	mV	Damping settings:	None
Titration mode:	Dynamic	Documentation:	GLP
Dynamic:	Average		
Measuring speed / drift:	User-defined:	minimum holding time:	03 s
		maximum holding time:	15 s
		Measuring time:	03 s
		Drift:	10 mV/min
Initial waiting time:	0 s		
Titration direction:	Decrease		
Pretitration:	Off		
End value:	Off		
EQ:	On (1)		
Slope value:	Steep	Value:	700

Dosing parameter

Dosing speed:	100.00 %	Filling speed:	30 s
Maximum dosing volume:	50.00 ml		

Unit values

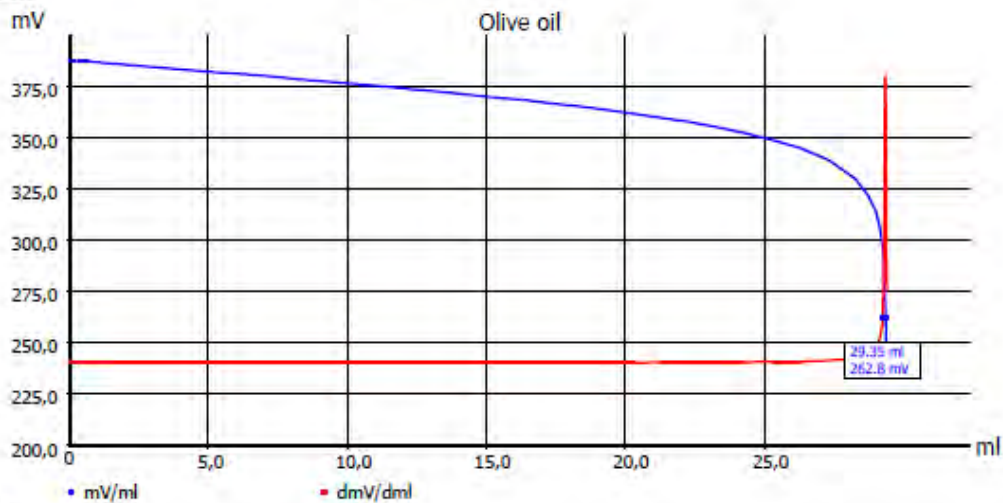
Unit size:	50ml
Unit ID:	10045135
Reagent:	Natriumthiosulfat
Batch ID:	no entry
Concentration [mol/l]:	0.10000
Determined at:	03/28/13 17:23:03
Expire date:	--
Opened/compounded:	--
Test according ISO 8655:	03/14/13
Last modification:	03/28/13 10:23:23

Application

sample titration (page 1):

GLP documentation

Titration graph



Method data

Method name:	Iodine Number	Titration duration:	3 m 10 s
End date:	08.05.13	End time:	15:16:40

Titration data

Sample ID:	Olive oil	Weight:	0.25540 g
Start mV:	387.7 mV	End mV:	232.3 mV

EQ:	29.348 ml / 262.8 mV	Iodine Number:	82.14
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Calculation formula

Iodine Number:	$(B-EQ1)*T*M*F1/(W*F2)$	Mol (M):	12.69000
Blank value (B):	45.8800 ml (M01)	Titre (T):	0.10000000 (a)
Factor 1 (F1):	1.0000	Weight (W):	0.25540 g (m)
Factor 2 (F2):	1.0000	Statistics:	Off

Application

sample titration (page 2):

Method data overall view

Method name:	Iodine Number	Created at:	05/08/13 13:33:02
Method type:	Automatic titration	Last modification:	05/08/13 15:01:16
Measured value:	mV	Damping settings:	None
Titration mode:	Dynamic	Documentation:	GLP
Dynamic:	Average		

Measuring speed / drift:	User-defined:	minimum holding time:	03 s
		maximum holding time:	15 s
		Measuring time:	03 s
		Drift:	10 mV/min
Initial waiting time:	0 s		
Titration direction:	Decrease		
Pretitration:	Off		
End value:	Off		
EQ:	On (1)		
Slope value:	User-defined	Value:	350

Dosing parameter

Dosing speed:	100.00 %	Filling speed:	30 s
Maximum dosing volume:	50.00 ml		

Unit values

Unit size:	50ml
Unit ID:	10045135
Reagent:	Natriumthiosulfat
Batch ID:	no entry
Concentration [mol/l]:	0.10000
Determined at:	03/28/13 17:23:03
Expire date:	--
Opened/compounded:	--
Test according ISO 8655:	03/14/13
Last modification:	03/28/13 10:23:23

Hints

If you have any questions concerning the application, you are welcome to contact us.

Literature

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