

## Potentiometric determination of Silver in Silver or alloys



# Application

## Use

Potentiometric determination of silver in silver or alloys. After dissolving in concentrated nitric acid the sample is titrated with NaCl (or KBr) or HCl using a silver combination electrode.

## Appliances

Titration: TL 6000/7000/7750

- Basic device
- Magnetic stirrer TM 235
- 20 exchange unit WA 20, with brown glass bottle for titrant complete

## Electrodes

- Silver combination electrode Ag Cl 62 or AgCl 62 RG
- Electrolyte KNO<sub>3</sub> 2 mol/l, L 2114 (only for AgCl 62)
- Electrode cable L 1 A

## Reagents

- Titrant: NaCl, KCl or HCl 0. Mol/l
- Titer: possible with AgNO<sub>3</sub> titrant solution 0.1 mol/l
- Other reagent is nitric acid 65 %

## Description

### Determination of the exact concentration of the titration (option)

Ready to use titrant solutions are recommended. Also possible is the use of ampules. The titrant solution can be standardised using 10 ml or 15 ml volumes of AgNO<sub>3</sub> 0.1 mol/l titrant.

For a standard titration pipette 10 - 20 ml of the Ag- standard in a 150 ml beaker, add appr. 80 ml dest water and 1 ml HNO<sub>3</sub> (not necessary for HCl titrant) . Place the electrode and burette tip in the sample and start the method. The titration should stop at the equivalence point. The titration consumption (EQ) should be between 10 - 20 ml.

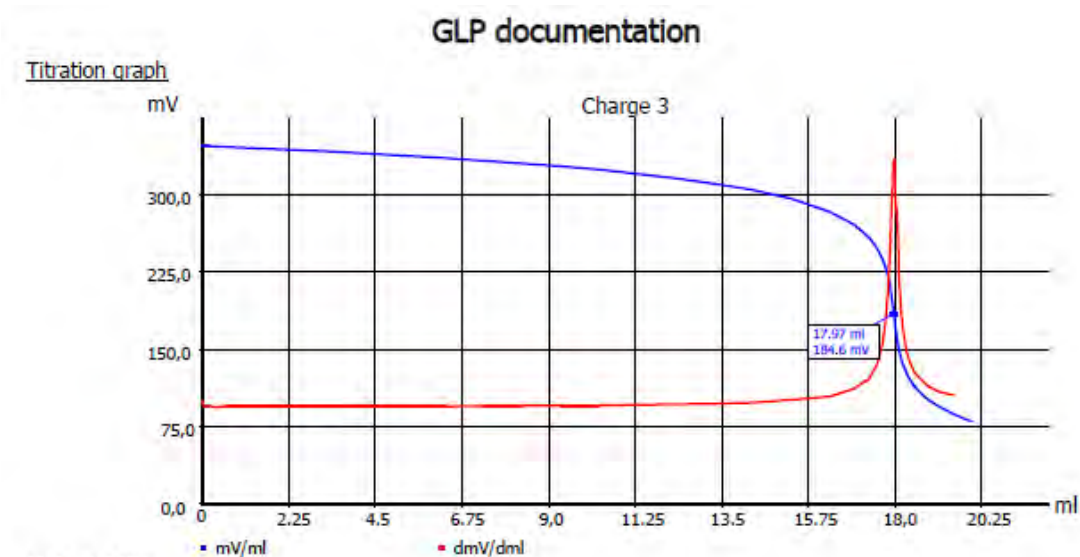
### Titration of the sample

Connect the Ag type electrode with the electrode cable at the electrode plug of the TL alpha plus. Do not forget to open the refilling hole of the electrode (only AgCl 62).

Weigh between 180 – 200 mg of the silver sample in a 250 ml glass beaker and add 30 ml of the nitric acid.. Heat up the sample with a burner or a heater to dissolve the silver. Dilute the dissolved sample with appr. 100 dest. water. Place the electrode and burette tip in the sample and press the "START" key. The titration stops at the equivalence point.

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Result example:



Method data

Method name:	Silber in %	Titration duration:	4 m 34 s
End date:	12.10.12	End time:	16:51:53

Titration data

Sample ID:	Charge 3	Weight:	0.2018 g
Start mV:	348.0 mV	End mV:	79.9 mV

EQ:	17.966 ml / 184.6 mV	Silber:	96.03 %
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Calculation formula

Silber:	$(EQ1-B) \cdot T \cdot M \cdot F1 / (W \cdot F2)$
Mol (M):	107.86800

Blank value (B):	0.0000 ml	Titre (T):	0.10000000
Factor 1 (F1):	0.1000	Weight (W):	man
Factor 2 (F2):	1.0000	Statistics:	Off

Device information

Device: TitroLine 7000  
 Serial number: 10003645  
 Software version: 1230k

Silber\_in\_%\_12\_10\_12-16\_47\_19.pdf

# Application

## Method

The method parameter are very similar to the default method "chloride in %". Only the name and molecular weight have to be changed.

### Method data overall view

Method name:	Silber in %	Created at:	10/01/12 16:02:55
Method type:	Automatic titration	Last modification:	10/02/12 18:38:47
Measured value:	mV	Damping settings:	None
Titration mode:	Dynamic	Documentation:	GLP
Dynamic:	Steep		
Measuring speed / drift:	User-defined:	minimum holding time:	04 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 %	Filling speed:	30 s
Maximum dosing volume:	20.00 ml		

### Unit values

Unit size:	20ml
Unit ID:	10039005
Reagent:	HCl 0.1 mol/L
Batch ID:	no Charge
Concentration [mol/l]:	0.10010
Determined at:	12/05/11 19:18:45
Expire date:	08/18/12
Opened/compounded:	09/10/11
Test according ISO 8655:	05/10/11
Last modification:	09/13/12 14:39:31

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**Notes**

If you have any questions on the application, you can feel free to contact us..

优莱博技术（北京）有限公司

地址：北京市朝阳区酒仙桥东路1号院M8号楼C厅3层301室

☎Tel. : 4008092068    📠Fax : 4008092068-112

✉E-Mail : info@julabo.cn

🌐Web: www.julabo.cn