

**Application**

**TitroLine alpha *plus***

**Test procedere for  
Silver combination electrodes**

**SCHOTT**  
Instruments

## USE

Procedere for testing silver combination electrodes such as Ag 6280, AgCl 6280, AgCl 62 Pt, AgCl 65, Ag 65, Ag 6180, AgCl 6180.

## APPLIANCES

TitroLine alpha plus; TL 10 plus, TL 20 plus, TL 50 plus  
magnetic stirrer TM 135,  
Suitable printer with centronics port  
balance (4 or 5 decimals)

## ELEKTRODES

Electrode:	Ag 6280, AgCl 6280, AgCl 62 Pt, AgCl 65, Ag 65, Ag 6180, AgCl 6180 with cable K1A or L1A
Elektrolyte:	KNO <sub>3</sub> 2 mol/l, L 211 4

## CHEMICALS

Solventl:	dest. water
Titration agent:	AgNO 0.1 mol/l
Other reagents	Nitric acid $\delta = 1.40$ g/ml 1/1 diluted, NaCl as a standard titrimetric substance from Merck

## DESCRIPTION

### Preparation of the titration solution

The AgHO<sub>3</sub> solution is usually made from an ampoule. Also ready to use titrants are available. Lower levels of the AgNO<sub>3</sub> titrant is obtained from the parent solution by way of dilution.

## Test procedere

Weigh in on a analytical balance between 80 - 110 mg of dried NaCl (120 °C, 3 hours) in a 150 ml beaker. This NaCl should be suprapur from Merck. This is a certified standard! Add 80 ml of dest. water, 2 ml of HNO<sub>3</sub> and stir on the magnetic stirrer till the NaCl crystals are dissolved (speed level 3). Open the refilling hole of the Ag-electrode, place the electrode and the burette tip into beaker and start the method. The titration stops at the inflection/equivalence (EQ) point. The curve should be similar as the example in the enclosed pdf-file.

Normally the initial mV-values are between – 100 and + 50 mV. The initial mV-values could be so much different because

- of the amount of the weight in NaCl and
- of the type of the Ag-electrode (with or without an AgCl coating)

Other test criteria:

- The mV-value of the inflection point (EQ) should be about 100 – 150 mV higher than the initial mV-value
- The curve should be smooth at the shown example curve and not noisy.

## Electrode handling

The Ag - Electrode should be coated with a fine AgCl layer prior to its first use. To do so, immerse the electrode for a maximum of 1 min into a mixture of HCl 1 mol/l and some drops of concentrated HNO<sub>3</sub>. For best results the Ag electrode should first be cleaned with an abrasive.

The AgCl electrodes are already coated prior from the manufacture with a thin AgCl layer. This electrodes are recommended. The best electrode is the **AgCl 62 Pt** or for autosamplers the **AgCl 65**. This electrodes have a platinum junction which is more suitable better than a ceramic junction. The platinum junction can not so easy blocked with AgCl or Ag<sub>2</sub>S or any other substances. This is normally the only malfunction of a Ag electrode.

## NOTES

If you should have further questions with respect to the application, please contact the Application Department of Schott-Instruments; tel.: **+ 49 6131 66 5062/5118**

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