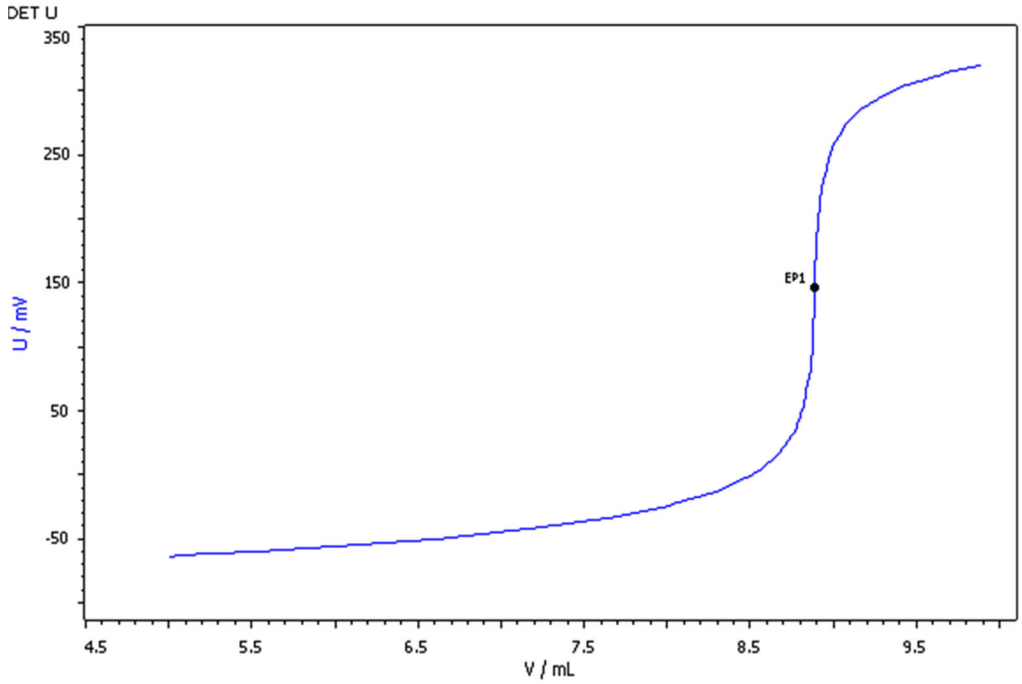
Titration Application Note T-191

Determination of the silver in silver jewelry alloys according to EN ISO 11427 and GB/T 17832



The knowledge of the exact silver content of silver allows used for jewelry is very important to ensure the quality of jewelry. Therefore, the determination procedure is regulated internationally and nationally.

A common approach is the titration with potassium bromide after an acidic digestion of the silver using a silver electrode for indication.

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Method description

Sample

Fine silver

Sample preparation

300–500 mg silver is weighed to the nearest 0.01 mg into a beaker glass. 5 mL w(HNO_3) = 33% is added and the beaker glass is covered. The sample is heated to dissolve the silver. After cooling down to room temperature 100 mL of deionized water are added.

Configuration

905 Titrando	2.905.0010
801 Magnetic stirrer	2.801.0040
800 Dosino	2.800.0010
Ag Titrode with silver bromide coating	6.0430.100Br
Electrode Cable 1 m / F	6.2104.020
50 mL Dosing unit	6.3032.250

Solutions

Titrant	c(KBr) = 0.1 mol/L 11.901 g dried KBr is weighed in a 1 L volumetric flask and dissolved in dist. water and the flask is filled up to the mark with dist. water.
Nitric acid	w(HNO_3) = 33% (w/w)

Analysis

The prepared sample solution is titrated with c(KBr) = 0.1 mol/L until after the equivalence point using a silver bromide coated Ag Titrode for the indication.

Parameters

Titration mode	DET U
Stirring rate	8
Pause	10 s
Signal drift	20 mV/min
Min. waiting time	0 s
Max. waiting time	34 s
Meas. point density	4
Min. increment	10 µL
Stop EP	1
Volume after EP	1 mL
EP criterion	10
EP recognition	greatest

Results

Ag content / (‰), (n = 4)	s(rel) / %
1000.2	0.03

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