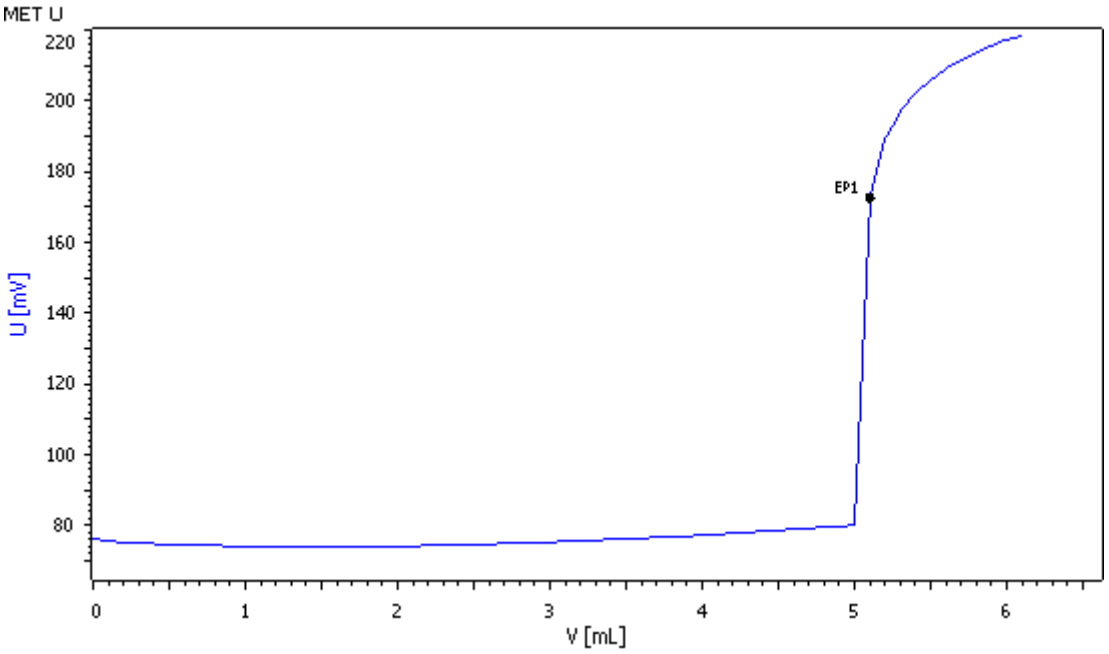
Titration Application Note T-105

Fully automated determination of bismuth(III) in aqueous solution



This Application Note describes the fully automated complexometric determination of bismuth(III) in aqueous solutions with a copper ion-selective electrode and the MATi 07 system.

Metrohm

Method description

Sample

Aqueous bismuth(III) solution

Sample preparation

No sample preparation is necessary

Configuration

MATi 07	
Ion-selective electrode, Cu	6.0502.140
LL ISE Reference	6.0750.100

Solutions

Titrant	$c(CuSO_4)$ = 0.1 mol/L in H_2O If possible, this solution should be bought from a supplier
EDTA solution	$c(Na_2EDTA)$ = 0.1 mol/L in H_2O If possible, this solution should be bought from a supplier
Acetate buffer	123 g Sodium acetate and 86 mL glacial acetic acid are dissolved in distilled water and filled up to 1 L

Analysis

The sample solution is diluted with approximately 50 mL distilled water in a titration beaker. Then, add 5 mL buffer solution and an excess (e.g., 10.0 mL) of EDTA solution. The excess of EDTA is then back-titrated with titrant $c(CuSO_4)$ = 0.1 mol/L in H_2O.

Parameters

Mode	MET U
Pause	30 s
Stirrer speed	8
Volume. increment	100 µL
Signal drift	50 mV/min
Max. waiting time	26 s
Stop EP	1
EP criterion	5 mV
EP recognition	greatest

Results

Mean in g/L	RSD in %
20.48 (n = 7)	1.44