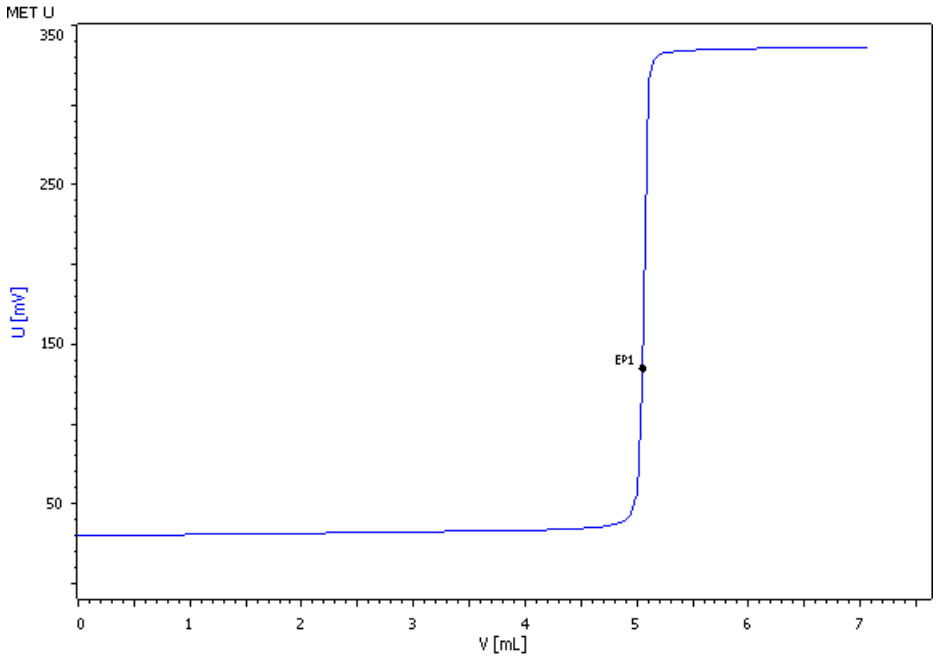
Titration Application Note T–142

Barium analysis by automated photometric titration



Barium can be determined in alkaline media by direct titration with EDTA. Phthalein purple is used as indicator; the equivalence point is determined with the Optrode at a wavelength of 574 nm.

Metrohm

Method description

Sample

Aqueous solution of barium (0.05 mol/L)

Sample preparation

No sample preparation is required.

Configuration

907 Titrando	2.907.0020
815 Robotic USB Sample Processor XL	2.815.0020
786 Swing head	2.786.0040
Swing arm	6.1462.070
Titration head	6.1458.010
Sample rack 28 x 200 mL	6.2041.830
800 Dosino, 3 x	2.800.0010
802 Stirrer	2.802.0020
5 mL Dosing unit	6.3032.150
10 mL Dosing unit	6.3032.210
50 mL Dosing unit	6.3032.250
Disposable PP sample beaker, 200 mL, 1000 pieces	6.1459.310
Optrode	6.1115.000

Solutions

EDTA solution	$c(Na_2EDTA) = 0.1$ mol/L If possible this solution should be bought from a supplier.
Phthalein purple	50 mg phthalein purple is dissolved in 40 mL deion. water and 1 mL $w(NH_3)$ = 25% is added. The solution is afterwards filled up with deion. water to 50 mL.

Analysis

5-15 mL sample solution is pipetted into a 200 mL plastic beaker and 90 mL deion. water is added. After the addition of 5 mL $w(NH_3)$ = 25% and 0.5 mL phthalein purple indicator solution the barium is titrated with $c(Na_2EDTA) = 0.1$ mol/L until after the endpoint.

Parameters

Mode	MET U
Pause	30 s
Stirring rate	8
Signal drift	20 mV/min
Min. waiting time	0 s
Max. waiting time	38 s
Volume increment	0.05 mL
EP criterion	15 mV
EP recognition	Greatest
Stop volume	10 mL

Results

Mean result (n = 6)

Ba content / (g/L)	6.943
s(rel) / %	0.52