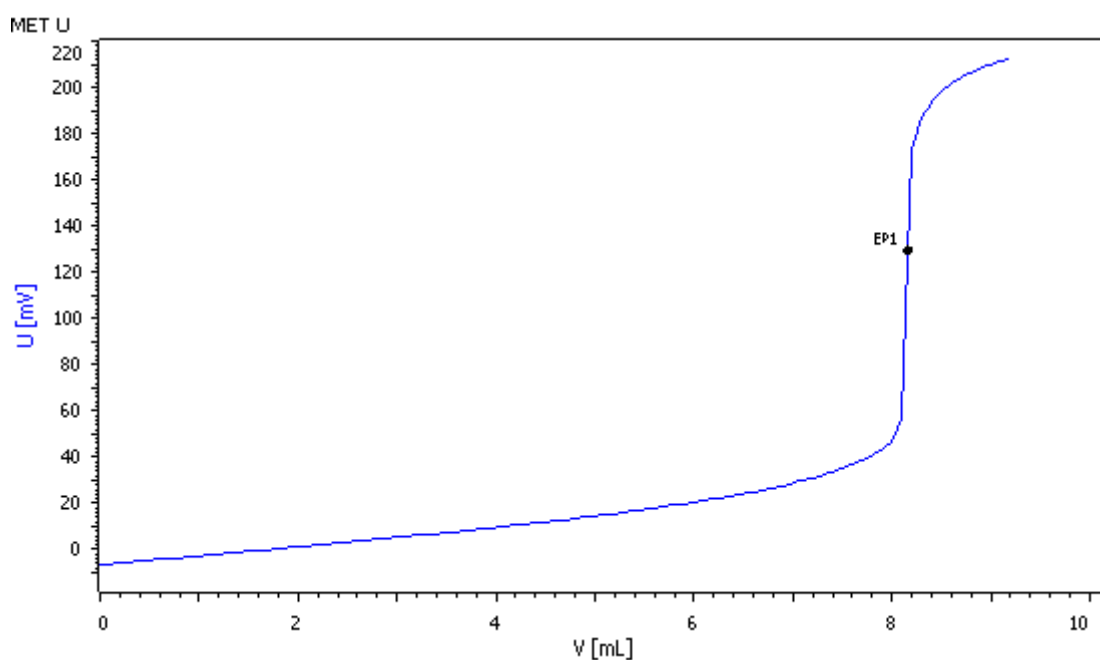


Fully automated determination of aluminum in aqueous solution



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

Method description

Sample

Aqueous aluminum solution

EP recognition	greatest
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Sample preparation

No sample preparation necessary

Results

Mean in g/L	RSD in %
1.004 (n=7)	0.47

Configuration

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

Remarks

The total amount of aluminum in the titration beaker should not exceed 15 mg (overload of ion-selective electrode).

Solutions

Titrant	$c(\text{CuSO}_4) = 0.1 \text{ mol/L}$ in H_2O If possible this solution should be bought from a supplier
EDTA solution	$c(\text{Na}_2\text{EDTA}) = 0.1 \text{ mol/L}$ 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 total amount of aluminum in the titration beaker should not exceed 15 mg (overload of ion-selective electrode). Add 50 mL distilled water to the sample solution in a titration beaker. Buffer solution (5 mL), and an excess of EDTA solution (e.g., 10 mL) are added. The excess of EDTA is back-titrated with $c(\text{CuSO}_4) = 0.1 \text{ mol/L}$ in H_2O past the first equivalence point.

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

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