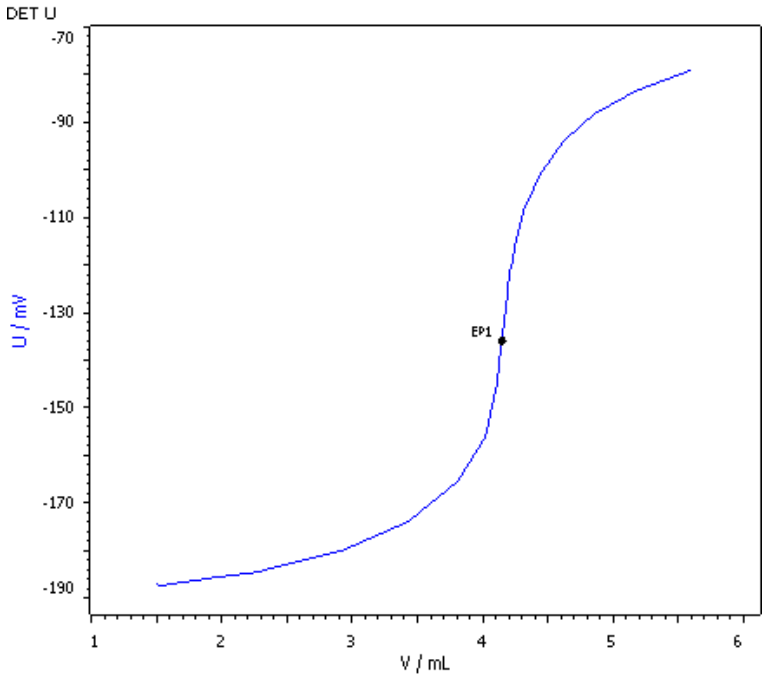
Titration Application Note T–138

Determination of inorganic sulfate in a secondary alkyl sulfonate according to DIN EN 14880



Inorganic sulfate in a secondary alkyl sulfonate raw material is determined according to DIN EN 14880 using the Pb-ISE for indication.

Metrohm

Method description

Sample

Secondary alkyl sulfonate raw material, purity approx. 60%

Sample preparation

Approx. 1.4 g sample is weighed accurately into a 100 mL volumetric flask. The sample is then dissolved in deion. H_2O. To prevent foam formation, 15 mL isopropanol is added to the solution and the flask is filled up to the mark with deion. H_2O.

Configuration

907 Titrando	2.907.0020
801 Magnetic stirrer	2.801.0040
800 Dosino, 3×	2.800.0010
50 mL Dosing unit	6.3032.250
20 mL Dosing unit	6.3032.220
5 mL Dosing unit	6.3032.150
Ion-selective electrode Pb	6.0502.170
LL ISE Reference	6.0750.100

Solutions

Titrant	$c(Pb(NO_3)_2)$ = 0.01 mol/L Approx. 3.31 g $Pb(NO_3)_2$ is weighed into a 1 L volumetric flask and dissolved in deion. H_2O. The flask is then filled up to the mark with deion. H_2O.
Solvent	Isopropanol
Nitric acid	$c(HNO_3)$ = 1 mol/L

Analysis

10 mL sample solution is pipetted into a titration beaker. After the addition of 50 mL isopropanol and 0.5 mL $c(HNO_3)$ = 1 mol/L, the solution is titrated with $c(Pb(NO_3)_2)$ = 0.01 mol/L until after the first equivalence point.

Parameters

Mode	DET U
Stirring rate	8
Start volume	1.5 mL
Pause	30 s
Signal drift	20 mV/min
Max. waiting time	38 s
Meas. point density	2
Min. increment	10 µL
Dosing rate	2 mL/min
EP criterion	5
EP recognition	greatest

Results

Content of sulfate as sodium sulfate in %

$w(Na_2SO_4)$ / %	s(rel), n = 5
4.32	0.35%