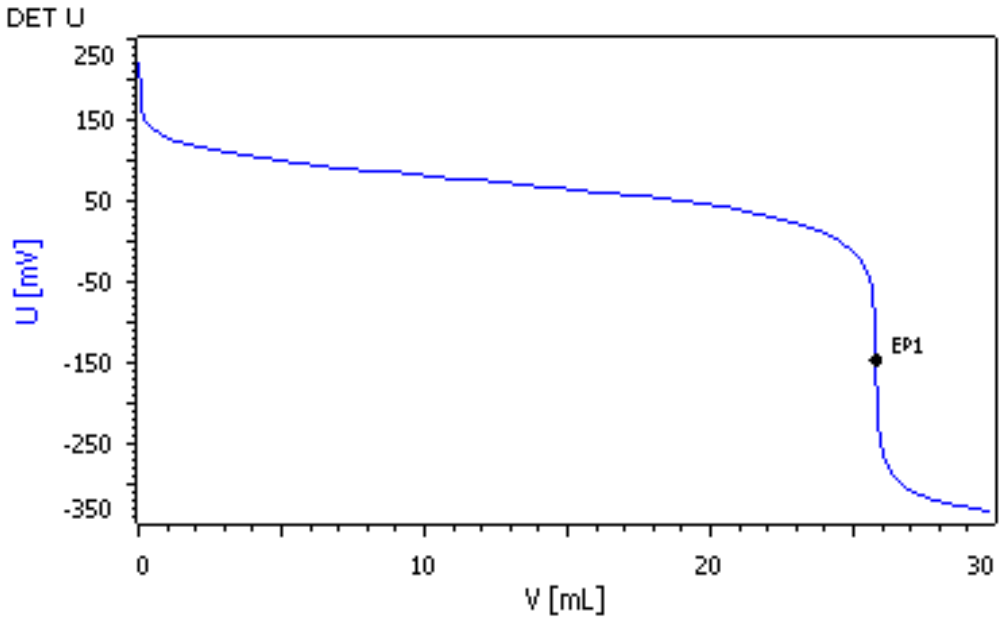
Titration Application Note T-160

Determination of the acid number in acrylic acid



Acrylic acid dimerizes spontaneously. Determining the dimer content is, therefore, a key part of the quality control for acrylic acid. One quality control parameter for the dimerization is the acid number. This Application Note describes its determination by automated, potentiometric titration.

Metrohm

Method description

Sample

Acrylic acid

Sample preparation

No sample preparation is required.

Configuration

905 Titrando	2.905.0010
800 Dosino, 2x	2.800.0010
814 USB Sample Processor (1T/2P)	2.814.0020
Dosing unit 50 mL, 2x	6.3032.250
802 Rod stirrer	2.802.0020
Stirring propeller	6.1909.050
Sample rack, 16 x 150 mL	6.2041.320
Titration head, 6x NS 14 and 3x NS 9 openings	6.1458.010
Sample beakers, glass, 16 x 150 mL	-
Solvotrode easyClean, LiCl sat. in EtOH	6.0229.020

Solutions

Titrant	c(KOH) = 0.1 mol/L in ethanol, if possible this solution should be bought from a supplier.
Solvent mixture	Toluene / ethanol, Φ(toluene) = 66.6% (v/v)

Analysis

Approx. 0.2 mL acrylic acid is pipetted into the titration vessels and placed on the rack. Once the series is started, 50 mL solvent mixture is automatically added. Then, the solution is titrated with c(KOH) = 0.1 mol/L in ethanol until the equivalent point.

A blank is determined the same way the sample, just without acrylic acid.

Parameters

Mode	DET U
Signal drift	20 mV/min
Stirrer speed	8
Max. waiting time	38 s
Meas. point density	4
Min. increment	50 µL
Max. increment	off
EP criterion	5
EP recognition	all

Results

Content / (mg KOH / g) (n = 5)	s(rel) / %
830.1	0.12