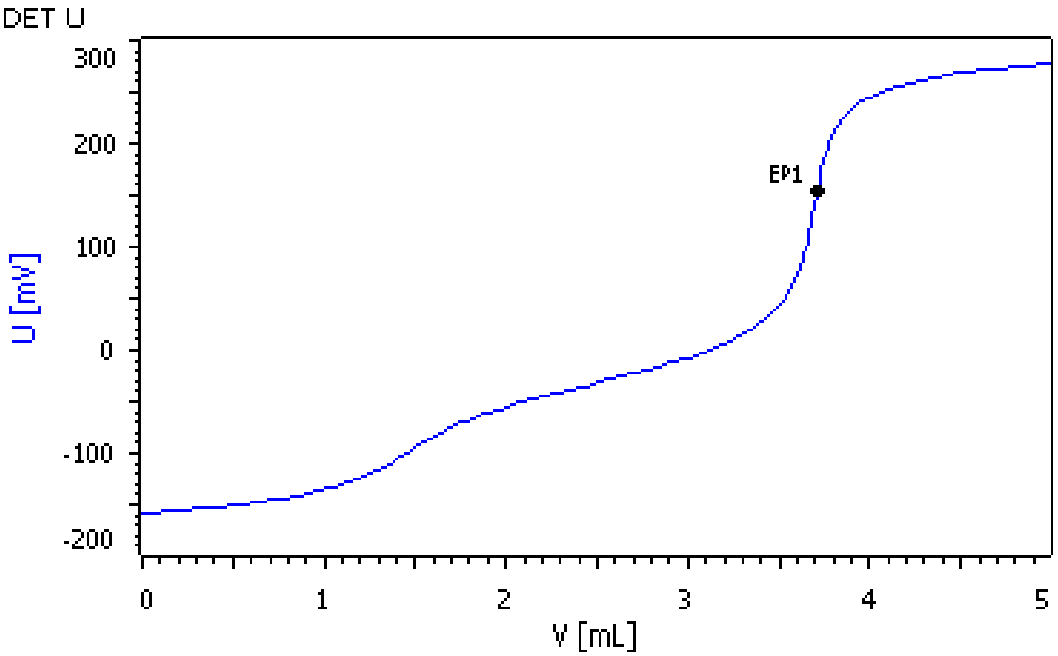
Titration Application Note T-159

Basicity and CPR in polyols according to ISO 14899



The basicity and the CPR (controlled polymerization rate) are very important parameters for the quality of polyols used in polyurethane production. The knowledge of these values is crucial to prevent gelation during handling in the production. In this Application Note their determination by automated, potentiometric titration according to ISO 14899 is described.

Metrohm

Method description

Sample

Polyether polyols

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	6.3032.250
Dosing unit 5 mL	6.3032.120
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(HCl) = 0.01 mol/L, if possible this solution should be bought from a supplier.

Analysis

Approx. 1.0 g polyol is pipetted into the titration vessel and placed on the rack. Just before the titration 75 mL methanol is automatically added to the sample. Then, the solution is titrated with c(HCl) = 0.01 mol/L until after the equivalence point.

A blank is determined the same way as the sample, just without polyol.

Parameters

Mode	DET U
Signal drift	50 mV/min
Stirrer speed	8
Max. waiting time	26 s
Meas. point density	4
Min. increment	10 µL
Max. increment	off
EP criterion	5
EP recognition	all

Results

Basicity / (µg KOH / g) (n = 5)	CPR / mol	s(rel) / %
4487.9	2399.5	0.19