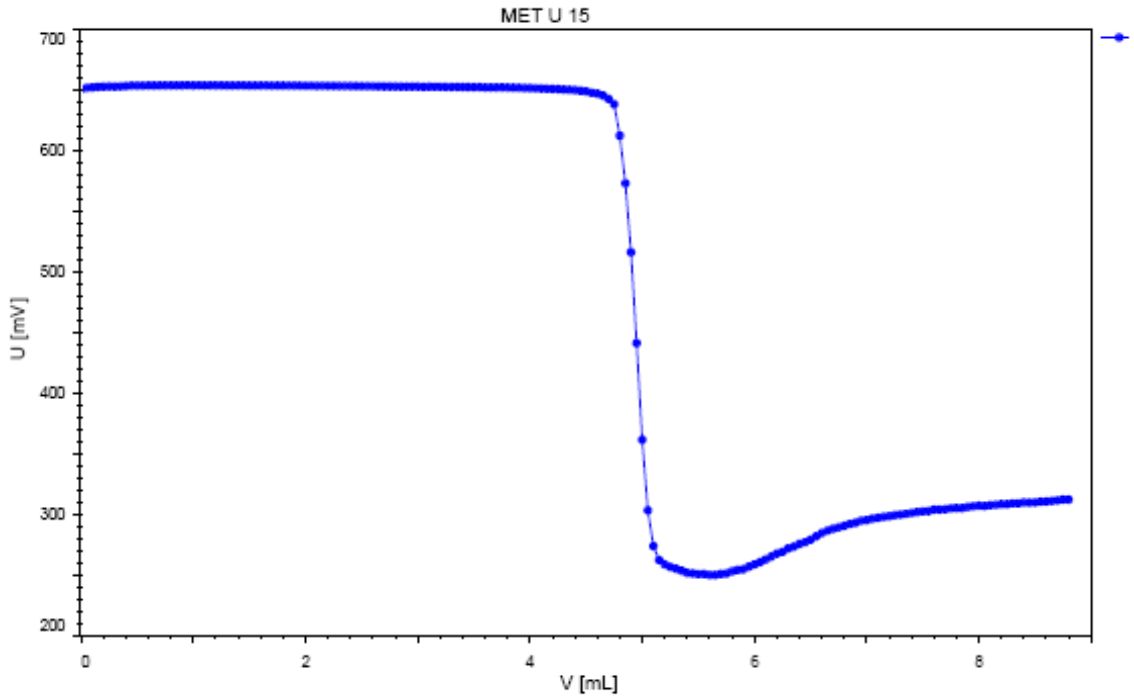
Titration Application Note T–83

Photometric titration of chondroitin sulfate sodium according to Ph. Eur. and USP



This Application Note details the photometric determination of chondroitin sulfate sodium with 1-hexadecylpyridinium chloride by using the Optrode (660 nm). The titration complies with the requirements of Ph. Eur. and USP.

Metrohm

Method description

Sample

Chondroitin sulfate sodium

Sample preparation

No sample preparation is required

Configuration

907 Titrando	2.907.0010
800 Dosino. 3 ×	2.800.0010
Dosing unit 5 mL	6.3032.150
Dosing unit 10 mL	6.3032.210
Dosing unit 50 mL	6.3032.250
802 Rod Stirrer	2.802.0020
815 Robotic USB SP	2.815.0110
Sample beaker 250 mL	6.1432.320
Optrode (660 nm)	6.1115.000
Ecotrode plus	6.0262.100
Electrode cable	6.2104.020

Solutions

Titrant 1-Hexadecylpyridinium chloride (also called cetylpyridinium chloride, CPC)	CAS 123-03-5 Dissolve approx. 280 mg CPC in dist. water and make up to 250 mL with dist. water.
Chondroitin-4-sulfate sodium salt	CAS 39455-18-0
Monobasic potassium phosphate	CAS 7778-77-0
Dibasic potassium phosphate	CAS 7758-11-4
Polysorbat 80	CAS 90055-65-6
Phosphoric acid	CAS 7664-38-2
Potassium hydroxide	CAS 1310-58-3
Diluent pH = 7	Dissolve approx. 297 mg KH_2PO_4, 492 mg K_2HPO_4, and 250 mg Polysorbat 80 in dist. water and make up to 1 L. Adjust with potassium hydroxide or phosphoric acid to a pH of 7.0 ± 0.2.

Analysis

Add x mL of sample solution in the titration vessel, add 30 mL of dist. water and 50 mL diluent solution. Titrate with CPC in MET mode using the Optrode (660 nm).

Parameters

Titration mode	MET U
Signal drift	50 mV/min
Min. waiting time	0 s
Max. waiting time	26 s
Volume increment	0.05 mL
Breakpoint evaluation	
EP criterion	0.3
Slope	0.9
Smoothing factor	5
Window	off

Evaluation

For the evaluation of the titration result refer to the corresponding monograph of the USP or Ph. Eur.

Metrohm