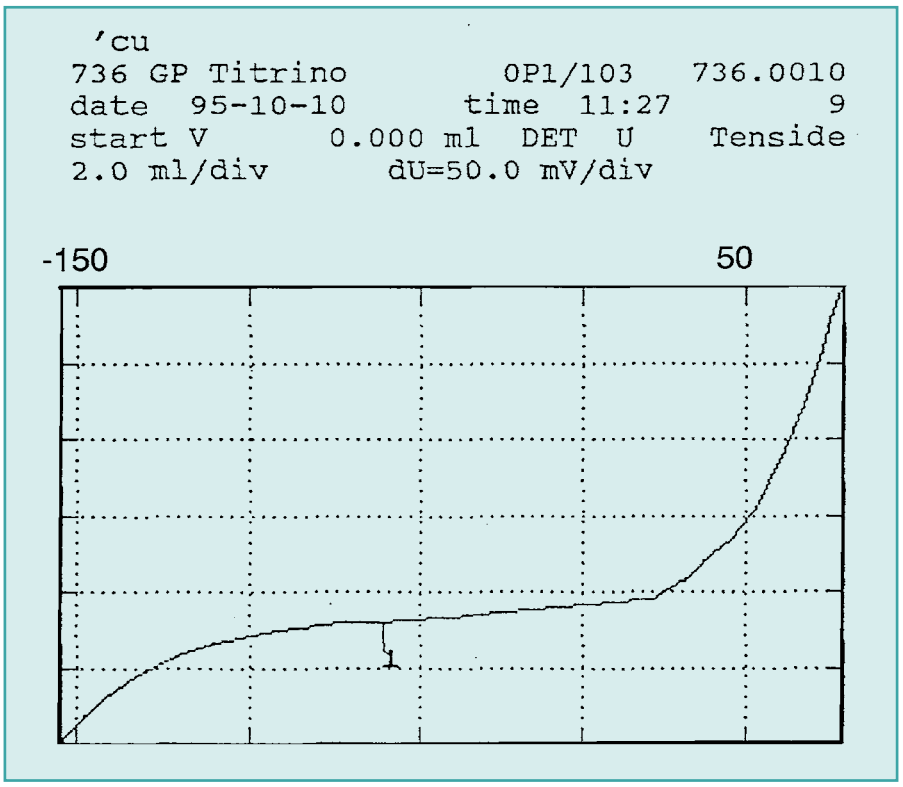
NIO electrode for the titrimetric determination of non-ionic surfactants and pharmaceutical agents

Titration of non-ionic surfactants

Handling and cleaning of the new NIO electrode is easy, thanks to its design. Its tetra phenyl borate-sensitive membrane is mounted on a robust support made of a novel material.

The NIO sensor material was developed in close cooperation with Th. Goldschmidt AG in Essen, Germany. We thank Mr. Reiner Schulz of this company's Central Analytical Department for the data and figures concerning the titration of pharmaceutical agents.

You will find more detailed information about the titration of non-ionic surfactants in the Metrohm Application Bulletin no. 230 or in the Application File of the 736 GP Titrino. The titration curve shows the determination of poly oxy ethylene-(10)-fatty alcohol.



Titration curve for the determination of poly oxy ethylene-(10)-fatty alcohol with the NIO electrode

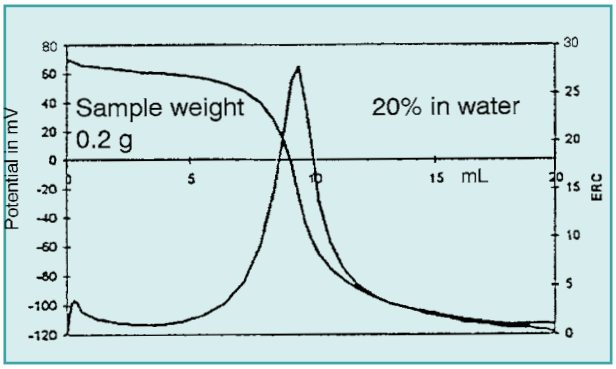
Titrimetric determination of pharmaceutical agents

Originally, the NIO electrode was developed for the potentiometric indication of non-ionic surfactant titrations. However, it can also be used in all those cases where sodium tetra phenyl borate is used as the titrant for precipitation titrations. The following list, which is bound to grow, gives an overview of the pharmaceutical agents that can be titrated with the NIO electrode:

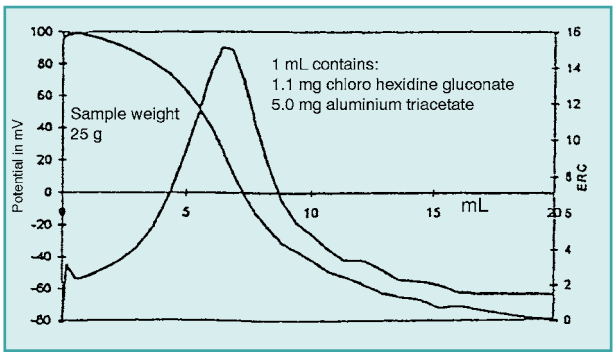
Ambroxol
Bromo hexine hydrochloride
Chloro hexidine / chloro hexidine digluconate and dihydrochloride
Chloro phenoxamine
Chloroquine

8-Chloro theophylline
dihydramine
Clobutinol
Clotrimazole
Hexetidine
Lidocain
Metoclopramide
Papaverine
Propafenone

The figures show the titration curves for the determination of chloro hexidine digluconate.



Titration curve (with 1st derivative) for the determination of chloro hexidine digluconate in the raw material



Titration curve (with 1st derivative) for the determination of chloro hexidine digluconate in a pharyngeal spray

Ordering information

6.0507.010	NIO electrode
6.2104.020	Connection cable with instrument plug F, L = 1 m
6.2104.050	Connection cable with instrument plug E (DIN 19262), L = 1 m

Recommended reference electrode (bridge electrolyte: c(NaCl) = 3 mol/L)

6.0726.100	Ag/AgCl reference electrode with sleeve diaphragm and bridge electrolyte (double junction)
6.2106.020	Connection cable for reference electrode, 2 x plug B, L = 1 m

Chemical resistance

The NIO electrode is not resistant against solvents because its membrane contains PVC. However, short exposure to methanol during cleaning or rinsing is not harmful. During prolonged exposure, the methanol content should not exceed 5%.

Dimensions, materials

Shaft diameter	12 mm
Length from lower edge of electrode head	123 mm
Length of active part	50 mm
Shaft material	Poly phenylene oxide (PPO)
Sensor material	PVC membrane
Plug-in head	Metrohm type G
SGJ sleeve	SGJ 14/15

Additional technical specifications

Temperature range	0 ... +40 °C
pH range	1 ... 12
Membrane resistance	< 50 kOhm

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