Application Note AN-T-055

Determination of Lauryl Sulfate

Fast and reliable determination by turbidimetric titration

Due to its price and wide availability, the anionic surfactant sodium lauryl sulfate (SLS; SDS) can be found in many detergents as an active ingredient e.g., in cleaning or cosmetic products. SLS is mainly added to these products to act as an emulsifier or as a fat solvent. The fact that it dissolves fats very well may lead to dry skin and hair, and thus to skin irritation. To avoid this, regulations in many countries have restricted its concentration in readyto-use products to a range between 0.05–2.5% SLS.

To control the concentration of SLS in different products, a titration is carried out with TEGO® trant A100. This cationic surfactant was designed especially for the titration of anionic surfactants, and precipitates uniformly with them.

The turbidimetric titration monitors the degree of turbidity using the Optrode. The evaluation is done automatically by means of a software, leading to reliable and reproducible results.

SAMPLE AND SAMPLE PREPARATION

The analysis is demonstrated on hand soap containing SLS. No sample preparation is required.

EXPERIMENTAL

The analysis is carried out fully automatically on a Titrando system consisting of a 905 Titrando and an Optrode (Figure 1).
The sample is transferred into a sample beaker and buffer (pH = 3) is added. The obtained solution is filled up with deionized water to a total volume of approximately 60 mL and titrated with standardized TEGO® trant A100 until after the second break point.

Figure 1. Titrando system consisting of a 905 Titrando, an Optrode, and tiamo for data processing.

RESULTS

Reproducible titration curves (see Figure 2) are obtained for all analyses. For calculation purposes, the second break point was used because this point correlates to the stage in titration where no more precipitation is formed. With the automated analysis described here, a SLS content of 26.7 mmol/100 g (SD(rel) = 1.2%, n = 3) is obtained for the tested hand soap.

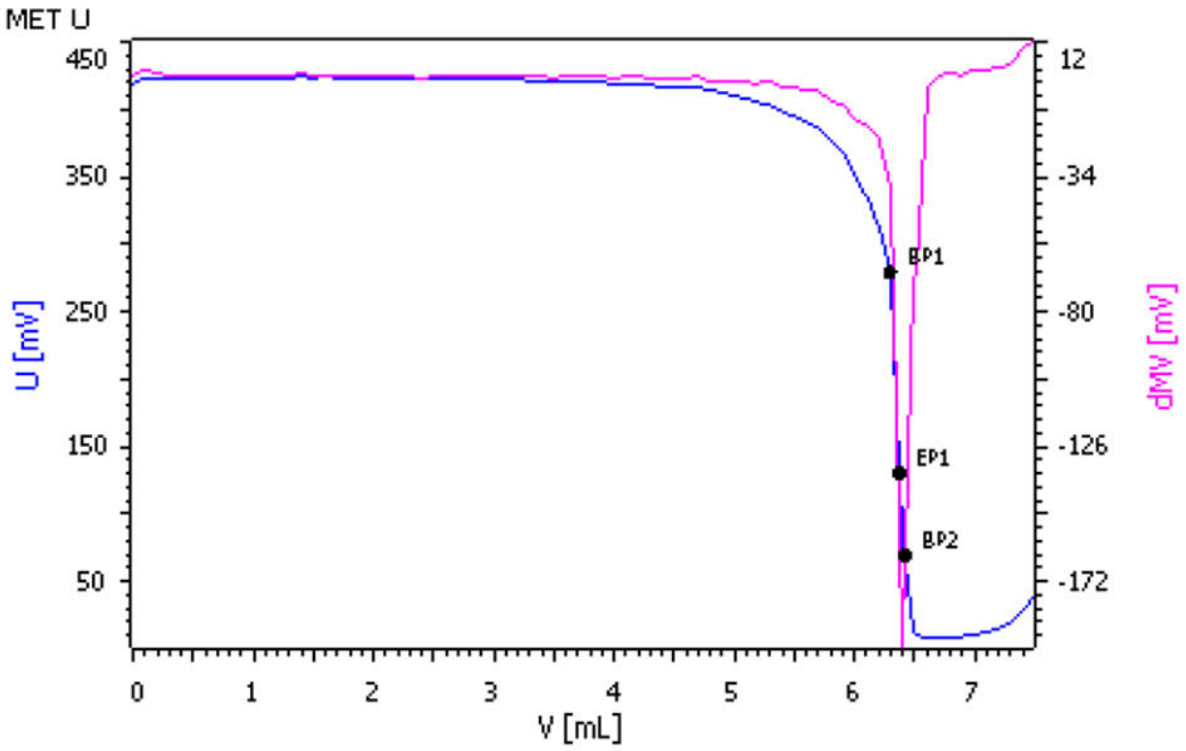


Figure 2. Titration curve of the determination of SLS with TEGO® trant A100. The titration curve shows the EP as well as BP1 and BP2. BP2 is used for the calculation.

CONCLUSION

The described system has the capability to objectively determine the change in turbidity. This leads to more precise and more reproducible results compared to manual titration. With its glass shaft, the Optrode is insensitive to solvents and can also be used at different wavelengths for other applications.

Internal reference: AW TI CH1-1248-082018

CONTACT

瑞士万通中国
北京市海淀区上地路1号院
1号楼7702
100085 北京

marketing@metrohm.com.cn

CONFIGURATION

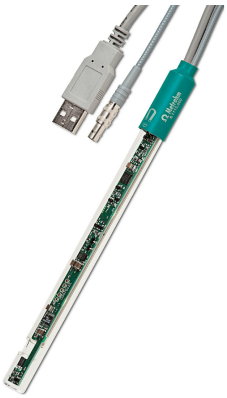
OMNIS Advanced Titrator

新型、模式位分析 OMNIS Titrator 滴定,于独立行或作 OMNIS 滴定系的核心元件行,用于使用 OMNIS Sample Robot 行点和等当点滴定(一/)。由于采用 3S 瓶配器技,理化学品从未像在一安全。可以使用量模和量管元自由配置滴定,并在需要展一台螺旋拌器。在需要可以通相的件功能可平行滴定升 OMNIS Advanced Titrator。

- 通算机或本地网控制
- 可以其他用或助溶液外接最多四个滴定模或加液模
- 螺旋拌器的接方式
- 可提供不同大小的量管:5、10、20 或 50 mL
- 采用 3S 技的瓶配器:安全理化学品,自生商的原始数据

量模式和件:

- 点定滴定:"Basic" 功能可
- 点和等当点滴定(一/):"Advanced" 功能可
- 点和等当点滴定(一/),包括平行滴定:"Professional" 功能可



Optrode

有 8 可用波的光度滴定用光学感器。可以通件控制(tiamo 2.5 及以上版本)或通磁来行波切。玻璃鞘溶完全耐受,并且易于清。省空的感器用于,例如:

- 按照 USP 或 EP 的非水溶性滴定
- 基端基的定
- TAN/TBN 根据 ASTM D974
- 硫酸定
- 混凝土中的 Fe、Al、Ca
- 水硬度
- 根据 USP 的硫酸骨素

感器不合通量色度(比色法)来定度。