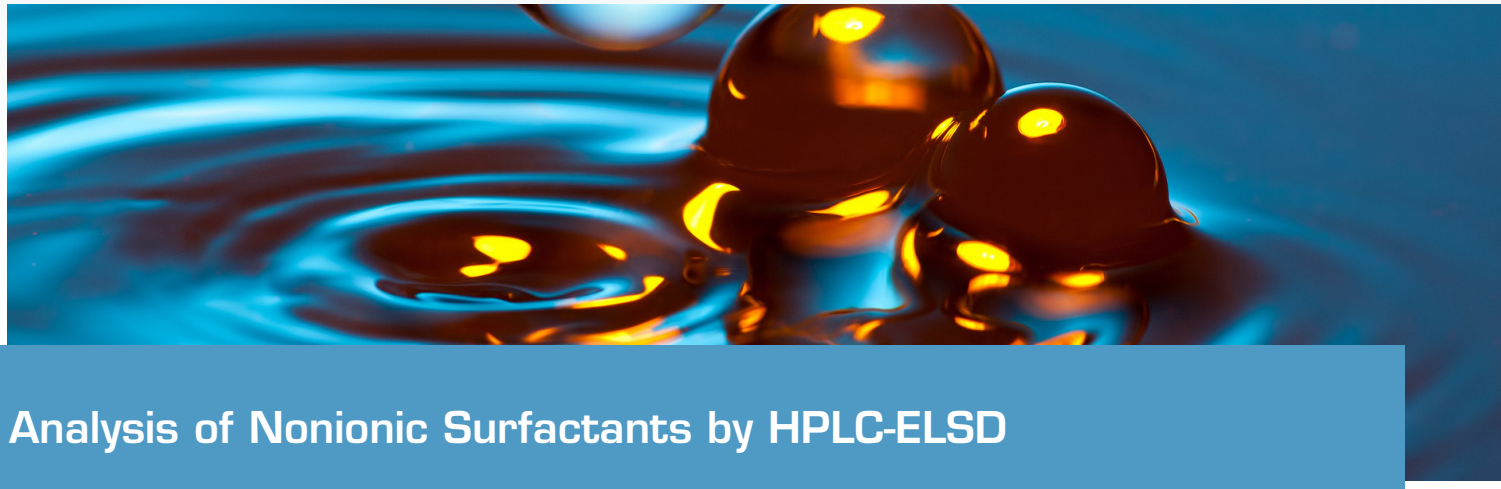
Application Note



Analysis of Nonionic Surfactants by HPLC-ELSD

Introduction

Surfactants are well known as a main constituent of commercial detergent and is widely used in various industrial and pharmaceutical fields due to various capabilities such as washing performance, moisture absorbency, osmosis, solubility, dispersibility, lubricity, antistatic ability, bactericidal property and anti-rust property. Nonionic surfactants have hydrophilic groups which are not ionized even when dissolved in water. Since it is hardly affected by water hardness and electrolytes, it can be used together with all other surfactants. Considering its nature, the usage of nonionic surfactants have increased dramatically and its affect on the environment has been pointed out. Since 2003, nonionic surfactants have been the test item for Water Quality Control Standards. This time, Triton X-100 and Polyethylene Glycol 400 as nonionic surfactant samples were measured and analyzed using an ELSD detector with Silica NH2 column in HILIC mode.

Keywords : Nonionic surfactants, Triton X-100, PEG400, HILIC, Silica NH2 column, ELSD

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Experimental Equipment:

Pump:	PU-2089
Autosampler:	AS-2057
Column oven:	CO-2060
Detector:	ELS-2040

Conditions:

Column:	Finepak SIL NH2-5 (4.6 mmID x 250 mmL)
Eluent A:	Acetonitrile
Eluent B:	Acetonitrile/0.1% Acetic acid (90/10)
Gradient condition:	Triton X-100; ,(A/B), 0 min (90/10) 16 min (2/98) ,26 min (2/98) ,26.1 min (90/10) 1 cycle; 40 min,PEG400; (A/B) (50/50)
Flow rate:	1.0 mL/min
Column temp.:	30ºC
ELSD condition:	Nebulizer temp.; 30ºC, Evaporator temp.; 60ºC, Gas flow rate; 1.6 SLM
Injection volume:	10 µL
Standard sample:	Triton X-100, PEG400 30 mg/mL each in Acetonitrile

Results and Discussion

Figure 1 and figure 2 show the chromatograms of Triton X-100 and PEG400, respectively.

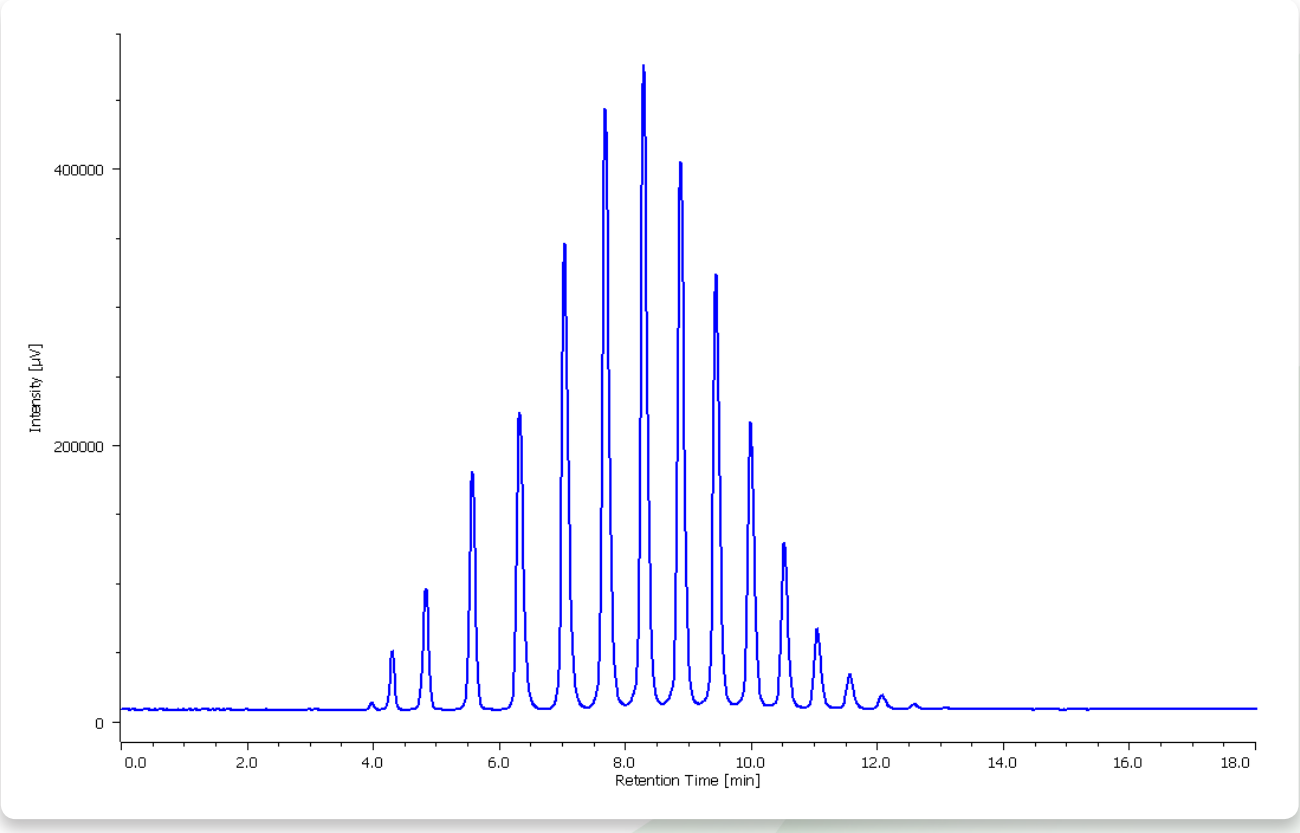

Figure 1 Chromatogram of Triton X-100.

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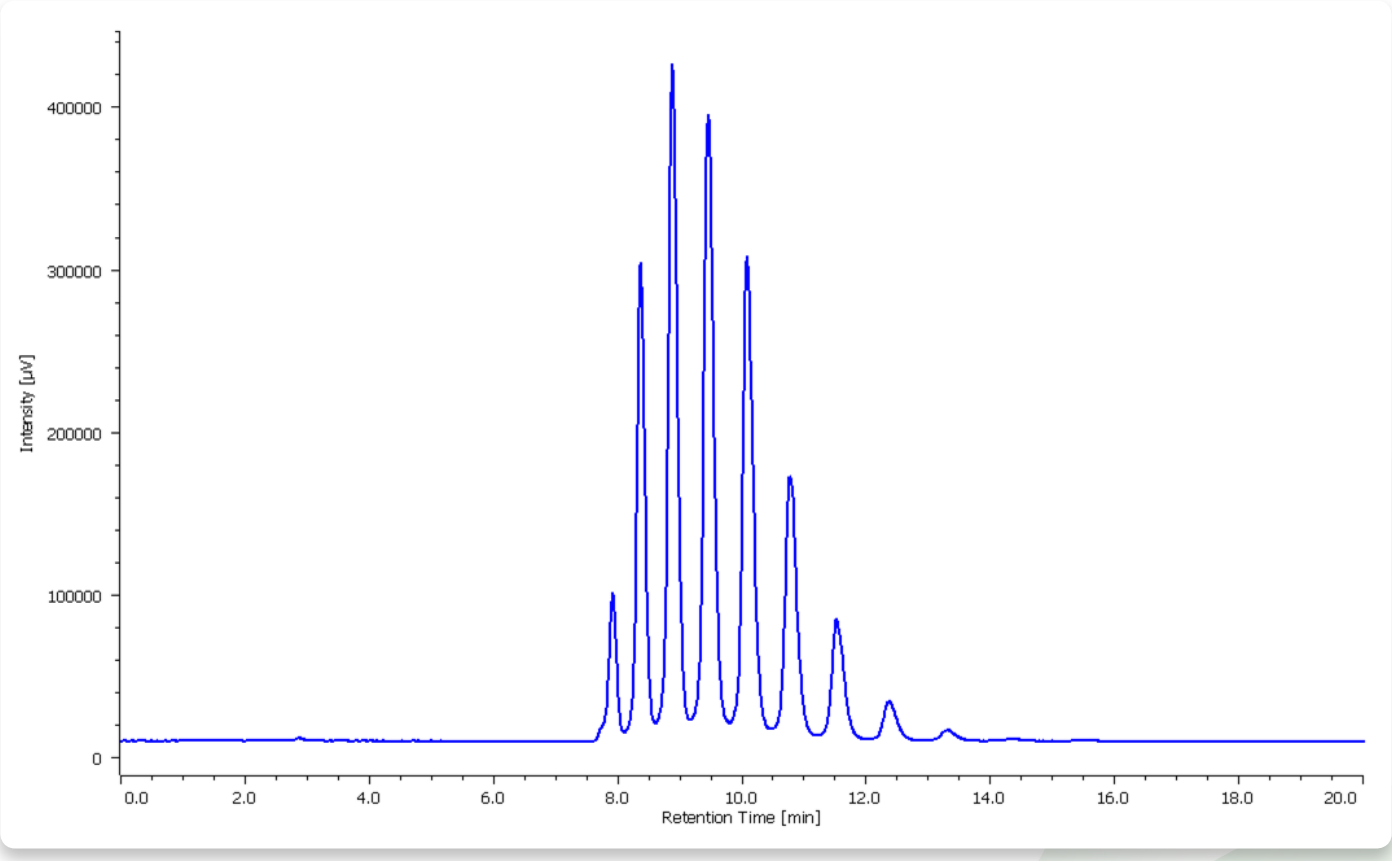

Figure 2 Chromatogram of PEG400.

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