

Application Note

Analysis of Triton X-100 using UltraPerformance Convergence Chromatography

Waters Corporation



This is an Application Brief and does not contain a detailed
Experimental section.

Abstract

This application brief demonstrates analysis of Triton X-100 Using UltraPerformance Convergence Chromatography.

Benefits

Provides a rapid, high efficiency separation for Triton X-100.

Introduction

Non-ionic surfactants such as Triton X-100 are used in cosmetics, industrial materials, and many other products. Their composition has to be monitored because the differences in ethoxy chain length affect the viscosity, solubility, polarity, and other characteristics of the mixture.

They are typically analyzed by HPLC, SFC, and GC. Analysis by GC and HPLC can be very time-consuming, and HPLC may require derivatization for non-UV absorbing surfactants. In some cases, baseline separation for oligomers is still not achieved.

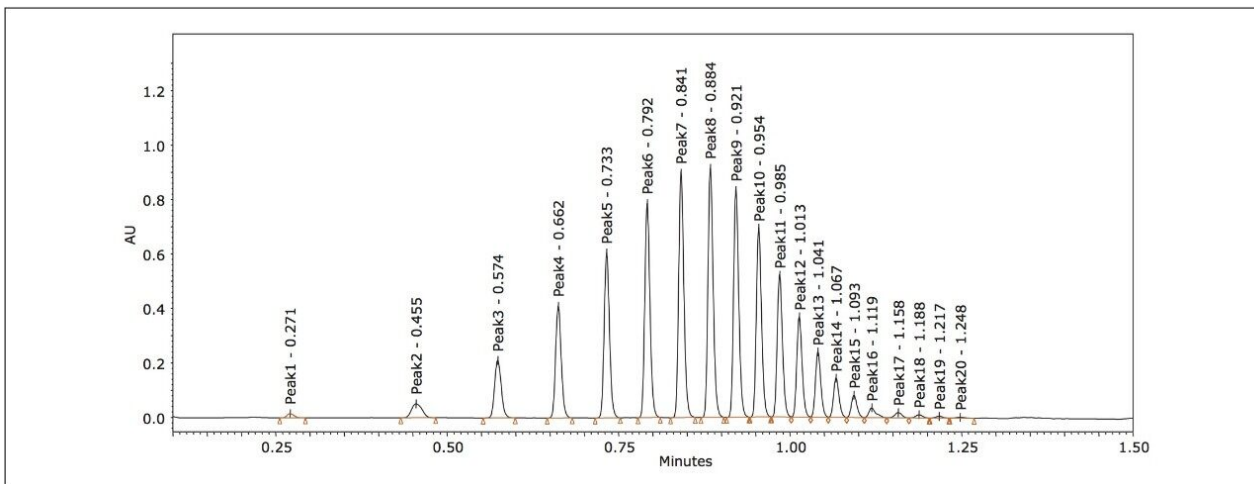
Experimental

Method Conditions

System:	ACQUITY UPC ²
Detection:	Photodiode Array (PDA) PDA 3D Channel PDA, 210 to 400 nm; PDA 2D Channel 222 nm at 4.8 nm resolution (compensated 380 to 480 nm)

Column:	ACQUITY UPC ² BEH 2.1 x 50 mm, 1.7 μm
Mobile phase A:	CO ₂
Mobile phase B:	Methanol
Wash solvents:	70:30 methanol/isopropanol
Separation mode:	Gradient starting at 2% B to 35% over 1.25 min, back to 2% B in 5 s
Flow rate:	2.0 mL/min
UPC ² Manager:	1500 psi
Column temp.;	40 °C
Injection volume:	1.0 μL
Run time:	2 min
Sample:	10 mg/mL Triton X-100 in isopropanol
Software:	Empower 3

Results and Discussion



Triton X-100 standard.

Conclusion

UltraPerformance Convergence Chromatography (UPC²) provides a rapid, high efficiency separation for Triton X-100. Excellent resolution for approximately 20 oligomers is achieved in two minutes using lower temperature than in GC or traditional SFC, making UPC² more amenable to thermally labile compounds. Compared with normal phase HPLC, there is a significant reduction in the consumption of toxic solvents.

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[ACQUITY UPC2 System <https://www.waters.com/134658367>](https://www.waters.com/134658367)

[ACQUITY UPLC PDA Detector <https://www.waters.com/514225>](https://www.waters.com/514225)

[Empower 3 Chromatography Data Software <https://www.waters.com/10190669>](https://www.waters.com/10190669)

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