

## 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.

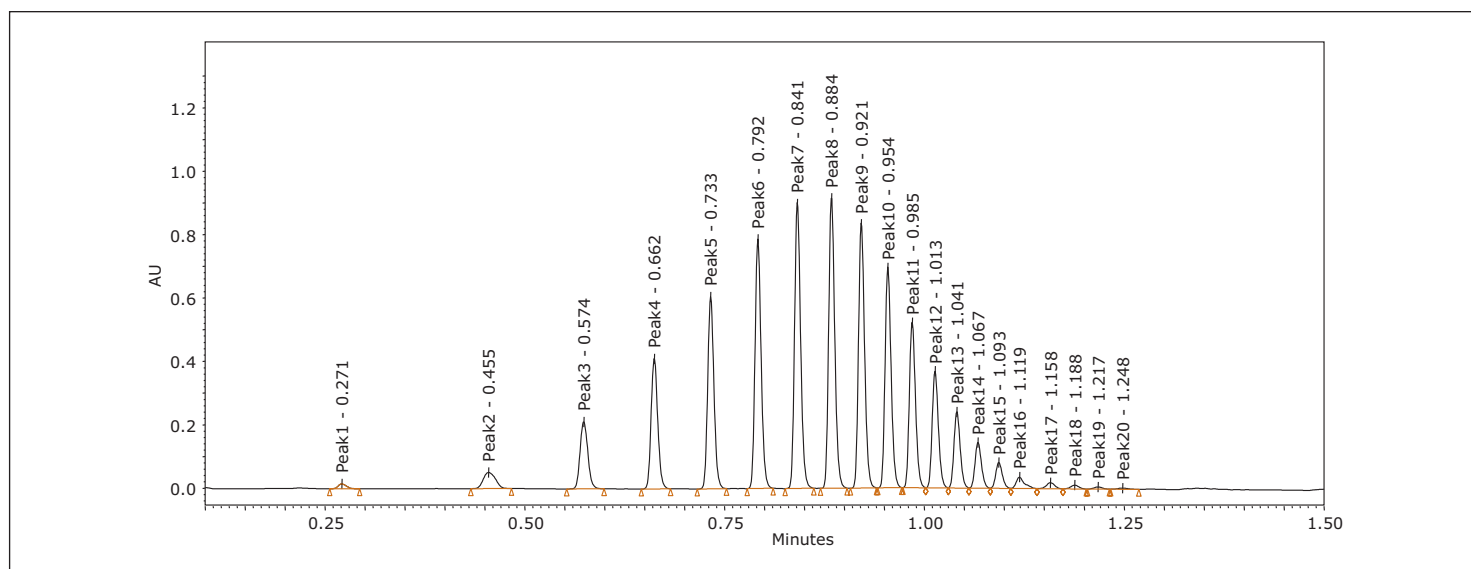
## METHOD CONDITIONS

System: ACQUITY UPC<sup>2</sup>™  
 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<sup>2</sup> BEH 2.1 x 50 mm, 1.7 μm  
 Mobile phase A: CO<sub>2</sub>  
 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

## CONCLUSIONS

UltraPerformance Convergence™ Chromatography (UPC<sup>2</sup>™) 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 UPC<sup>2</sup> more amenable to thermally labile compounds. Compared with normal phase HPLC, there is a significant reduction in the consumption of toxic solvents.

Flow rate: 2.0 mL/min  
 UPC<sup>2</sup> 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



Triton X-100 standard.

Click on the [underlined blue text](#) for details on the products used in this application.

# Waters

THE SCIENCE OF WHAT'S POSSIBLE.™

Waters is a registered trademark of Waters Corporation. ACQUITY UPC<sup>2</sup>, UltraPerformance Convergence, UPC<sup>2</sup>, Empower, and The Science of What's Possible are trademarks of Waters Corporation. All other trademarks are the property of their respective owners.

©2012 Waters Corporation. Produced in the U.S.A.  
November 2012 720004500EN AG-PDF

**Waters Corporation**  
34 Maple Street  
Milford, MA 01757 U.S.A.  
T: 1 508 478 2000  
F: 1 508 872 1990  
[www.waters.com](http://www.waters.com)

