Separation of Alkyl Quaternary Amines Using Acclaim Surfactant Plus with Conductivity Detection
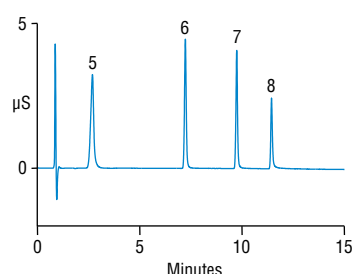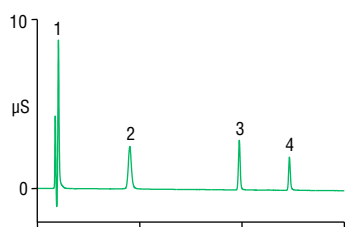
Column:	Thermo Scientific™ Acclaim™ Surfactant Plus, 3.0 µm			
Dimension:	3.0 × 150 mm			
System:	Thermo Scientific™ Dionex™ ICS-3000™ IC system			
Mobile phases:	A: Acetonitrile			
	B: 100 mM Formic acid			
	C: Water			
Gradient times:	-12	0	12	20
%A:	5	5	40	40
%B:	5	5	5	5
%C:	90	90	55	55
Flow rate:	0.500 mL/min			
Injection:	5 µL			
Temperature:	25 °C			
Detection:	Conductivity with blank subtraction			
Suppressor:	Thermo Scientific™ Dionex™ CSRS™ 300, 2 mm (external water 1.0 mL/min, current = 8 mA)			
Peaks:	1. Tetrabutylammonium			
	2. Tetrapentylammonium			
	3. Tetrahexylammonium			
	4. Tetraheptylammonium			
	5. Decyl-trimethylammonium			
	6. Dodecyl-trimethylammonium			
	7. Tetradecyl-trimethylammonium			
	8. Hexadecyl-trimethylammonium			

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Cationic surfactants are difficult to analyze on silica-based HPLC columns because they tend to elute as very broad, asymmetrical peaks due to their undesired ionic interactions with the surface silanol groups. The Acclaim Surfactant Plus column is designed specifically for surfactant analysis. It provides ideal selectivity for separating different surfactant types with a single injection, low column bleed, excellent stability, and shorter analysis time. Particularly, it is designed to give excellent peak shapes for cationic surfactants. This column is compatible with various detection modes, including UV, charged aerosol, mass spectrometry, and as shown here, suppressed conductivity. Many cationic surfactants may be separated on the Acclaim Surfactant Plus and detected by suppressed conductivity detection with excellent selectivity and sensitivity.