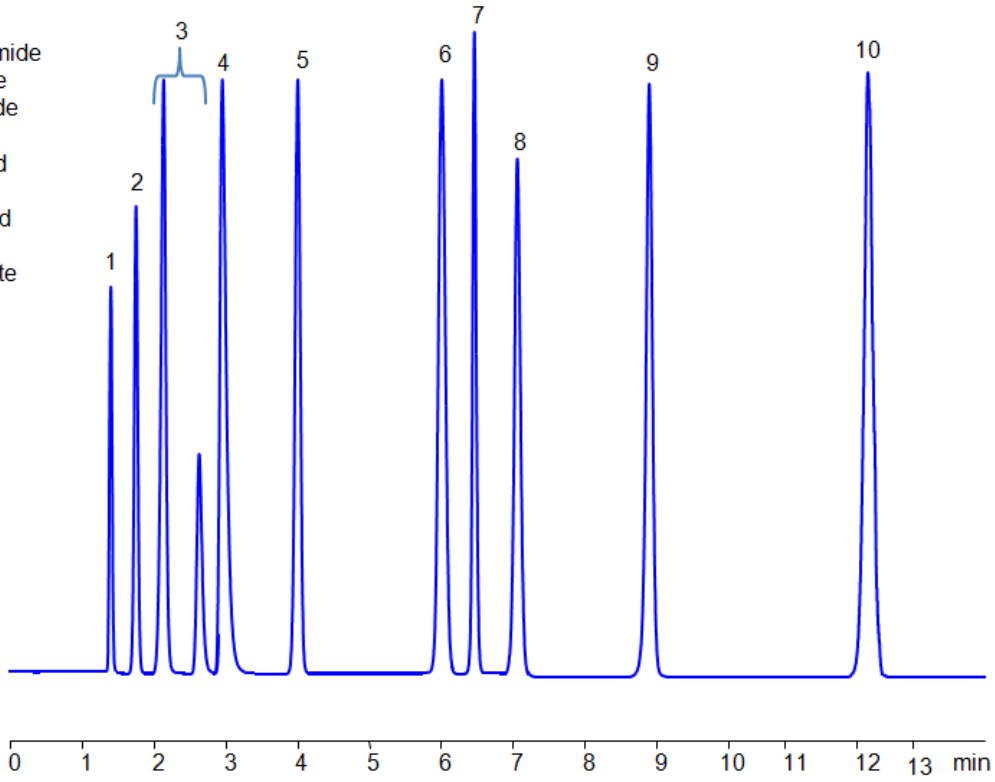
HPLC Method for Separation of Hydrophobic, Cationic and Anionic Surfactants on Newcrom BH Column

https://sielc.com/hplc-separation-surfactants2

Chromatogram

1. Sodium
2. 1-Ethylpyridinium Bromide
3. Benzalkonium chloride
4. Cetylpyridinium chloride
5. Chloride
6. 1-Pentanesulfonic acid
7. Lauric acid
8. p- Toluenesulfonic acid
9. 1-Octanesulfonic acid
10. Sodium dodecyl sulfate



Column:	Newcrom BH
Column size:	4.6 × 150 mm, 5 µm, 100A
Column part number:	NBH-46.150.0510
Mobile phase:	Gradient MeCN – 40-80%, 10 min, hold 3 min
Buffer:	Ammonium formate pH 3.0 – 40 mM
Flow rate:	1.0 mL/min
Detection:	ELSD, 50C

Description

· Separation type: Liquid Chromatography Mixed-mode · HPLC Method for Separation of Hydrophobic, Cationic and Anionic Surfactants

Surfactants, also known as surface-active agents, are compounds that lower the surface tension (or interfacial tension) between two liquids or between a liquid and a solid. Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents, or dispersants.

They are often classified according to the charge of the polar head group:

Anionic Surfactants: These surfactants have a negative charge on their polar head group. Common examples include soap, sodium laureth sulfate, and sodium lauryl sulfate. They are commonly used in detergents and shampoos due to their ability to emulsify oils and hold dirt in suspension, so it can be rinsed away.

Cationic Surfactants: These surfactants have a positive charge on their polar head group. Examples include cetyltrimethylammonium bromide (CTAB) and benzalkonium chloride. These are often used as antiseptics and can also be found in hair conditioners because they reduce static cling.

Nonionic Surfactants: These surfactants have no charge on their polar head group. Examples include alcohol ethoxylates, nonylphenol ethoxylates, and polysorbates. Nonionic surfactants are often used in laundry and dishwasher detergents.

Method Parameters

Mobile Phase	Gradient MeCN -40-80%, 10 min
Buffer	Ammonium formate pH 3.0 – 40 mM
Flow Rate	1.0 ml/min
Detection	ELSD, 50C
Class of Compounds	Surfactants
Analyzing Compounds	Benzalkonium chloride,Cetylpyridinium Chloride,1-Pentanesulfonic acid,Dodecanoic acid (Lauric acid),p-Toluenesulfonic Acid (PTSA),1-Octanesulfonic acid,Sodium dodecyl sulfate,1-Ethylpyridinium bromide

HPLC Column Used

Newcrom BH, 4.6 x 150 mm, 5 µm, 100 A, dual ended

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