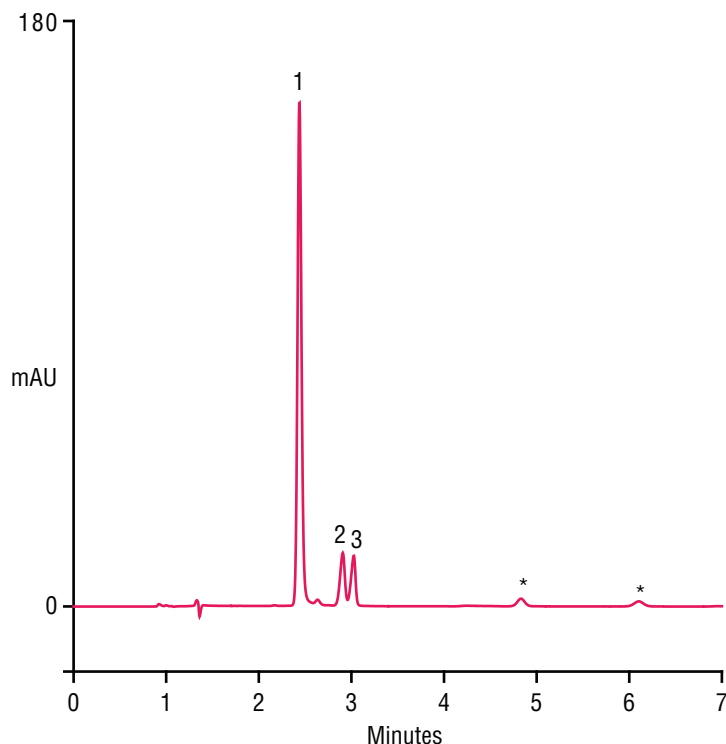


Separation of Acetaldehyde, Lactic Acid, and Acetic Acid on a Thermo Scientific™ Acclaim™ Mixed-Mode WAX-1 Column



Column: Thermo Scientific™ Acclaim™ Mixed-Mode WAX-1, 3 μm
Dimensions: 3.0 × 150 mm
LC System: Thermo Scientific™ Dionex™ UltiMate™ 3000
Mobile Phase: 39.1 g acetonitrile, 950 g water, 2.30 g NH₄H₂PO₄ (20 mmol), 0.660 g (NH₄)₂HPO₄ (5.0 mmol), 0.044 g Na₄P₂O₇•10H₂O (0.1 mmol)
Flow Rate: 0.64 mL/min
Temperature: 30 °C
Injection: 6 μL
Detection: UV at 210 nm

Peaks: 1. Acetaldehyde
2. Lactic acid
3. Acetic acid
* Impurities in lactic acid

200 μg/mL each in phosphate buffer

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The Acclaim Mixed-Mode WAX-1 column provides a multimode separation mechanism including reversed-phase, anion-exchange, cation-exclusion, and HILIC interactions. Consequently, selectivity can be adjusted either independently or concurrently by changing ionic strength, pH, and organic solvent content in the mobile phase. Shown here is the separation of acetaldehyde and lactic acid. The oxidation product of acetaldehyde is also present in the sample. Experiments demonstrated that this mixture could not be separated on a reversed-phase column. The Acclaim Mixed-Mode WAX-1 column allows control over two retention mechanisms, leading to the development of a simple isocratic separation method.