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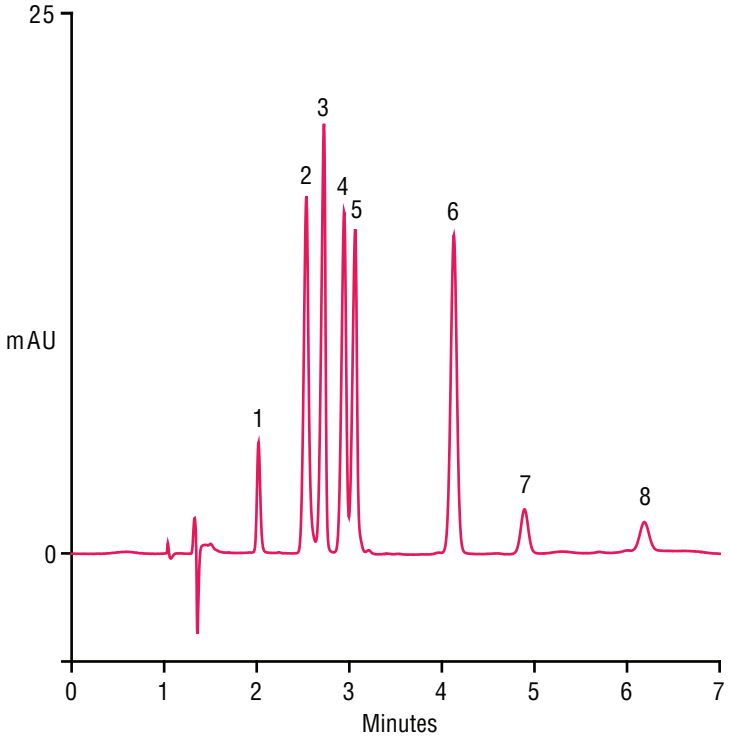
Separation of Glyceric, Glycolic, Lactic, Acetic, and Levulinic Acids on a Thermo Scientific™ Acclaim™ Mixed-Mode WAX-1 Column



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 $NH_4H_2PO_4$ (20 mmol), 0.660 g $(NH_4)_2HPO_4$ (5.0 mmol), 0.044 g $Na4P_2O_7•10H_2O$ (0.1 mmol)
Flow Rate:	0.64 mL/min
Temperature:	30 °C
Injection:	6 µL
Detection :	UV at 210 nm (Baseline substraction of water blank)
Peaks:	1. Impurity in levulinic acid 2. Glyceric acid 3. Glycolic acid 4. Lactic acid 5. Acetic acid 6. Levulinic acid 7. Impurity 1 in lactic acid 8. Impurity 2 in lactic acid (200 µg/mL each acid in phosphate buffer)

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This group of very hydrophilic acids are difficult to separate using a reversed-phase column. But on the Acclaim Mixed-Mode WAX-1 column, this task become quite easy. The desirable selectivity results from its unique column chemistry which combines both reversed-phase and anion-exchange properties on the same column. The separation can be optimized by adjusting mobile phase solvent content and/or buffer concentration. In this separation, 5% acetonitrile in the mobile phase keeps the overall run time short and influences the resolution of critical pairs.