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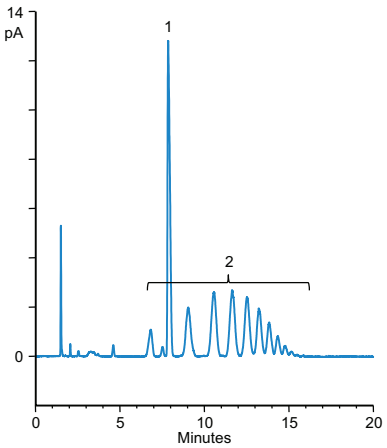
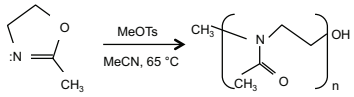
Poly-2-methyl-2-oxazoline using Acclaim C30





Column:	Thermo Scientific™ Acclaim™ C30
Dimensions:	3 µm, 3 × 150 mm
LC System:	Thermo Scientific™ Dionex™ UltiMate™ 3000
Mobile Phases:	A: Acetonitrile B: Water C: 0.1 M ammonium acetate, pH 5.2

Gradient Times:	-6.0	0.0	1.0	18.0	20.0
A:	2	2	2	20	20
B:	18	18	18	0	0
C:	80	80	80	80	80
Inverse gradient:	-6.0	0.0	2.5	19.5	20.0
A:	20	20	20	2	2
B:	0	0	0	18	18
C:	80	80	80	80	80

Flow Rate:	0.50 mL/min
Temperature:	30 °C
Injection Volume:	1.0 µL
Detector:	Thermo Scientific™ Dionex™ Corona™ *ultra* Charged Aerosol Detector
Sample:	Crude polymer, est. M.W. 900; approx. 1% in water
Peaks:	1. Toluene sulfonate 2. Poly-2-methyl-2-oxazoline

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Cationic polymerization of 2-alkyl-2-oxazoline monomers can be initiated by an alkylating agent. The resulting polymers are hydrophilic, neutral, and have reactive terminal groups. The polymers tend to have a relatively narrow molecular weight distribution. In this example, polymerization of 2-methyl-2-oxazoline was initiated with methyl p-toluenesulfonate at a 10:1 mole ratio. The Acclaim C30 column combines tolerance of highly aqueous mobile phases with strong hydrophobic retention that makes it useful for characterizing this polymer. The Corona ultra charged aerosol detector is also well suited to the task of polymer characterization. While CAD is a mass-sensitive detector, the response factor is dependent on mobile phase composition. To provide a uniform mass response, post-column makeup flow is added using an inverted, offset gradient profile.