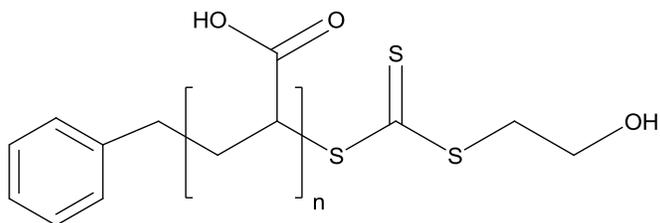


Sample Name: Poly(Acrylic acid)

Sample #: P10680A-AA (RAFT)

Structure:

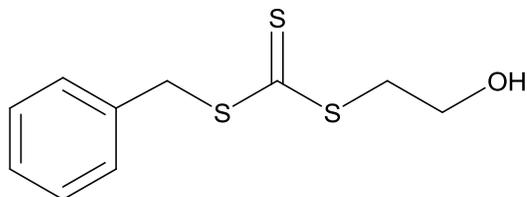


Composition:

Mn x 10 ³	Mw/Mn (PDI)
5.0	1.2

Synthesis Procedure:

Poly(acrylic acid) is synthesized by RAFT polymerization of acrylic acid using 4,4'-azo(4-cyanopentanoic acid) as initiator and xanthate as chain transfer agent:



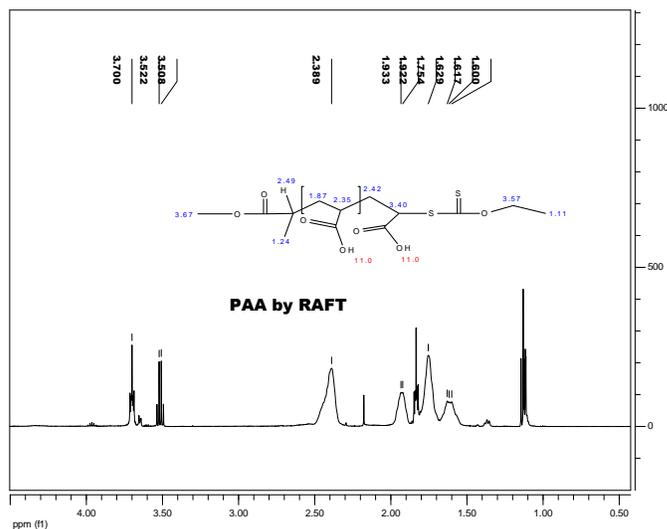
Characterization:

Polyacrylic acid and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI) using water containing 0.1M NaNO₃ and 0.01M NaH₂PO₄ and 4 Vol% acetonitrile as eluent. The polymer architecture was also verified by ¹H-NMR spectroscopy by comparing the peak area of the terminal moieties bearing xanthate unit. The molecular weight can also be varied by HNMR and by SEC the distribution of the polymer calculated using poly acrylic acid standards polymers.

Solubility:

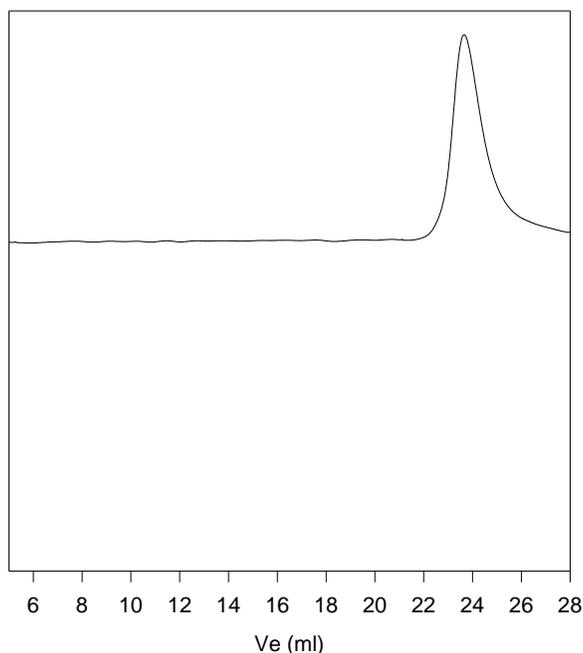
Polymer is soluble in water.

¹H-NMR Spectrum of the Polymer:



SEC of Sample of the polymer:

P10680A (in ester form)



Size Exclusion Chromatography of the polymer:

Ester form (PnBuA) M_n = 9,000, Mw/Mn = 1.2

PAA: Mn 5,000 Mw/Mn 1.2