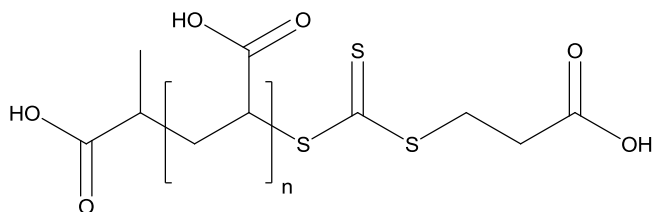


Sample Name: Poly(Acrylic acid)

Sample #: P14580-AA (RAFT)

Structure:

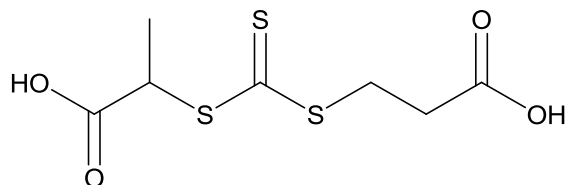


Composition:

Mn x 10 ³	Mw/Mn (PDI)
39.0	4.2

Synthesis Procedure:

Poly(acrylic acid) is synthesized by RAFT polymerization of acrylic acid using 2,2'-azobis isobutyrate (CAS 2589-57-3) as initiator and xanthate as chain transfer agent:

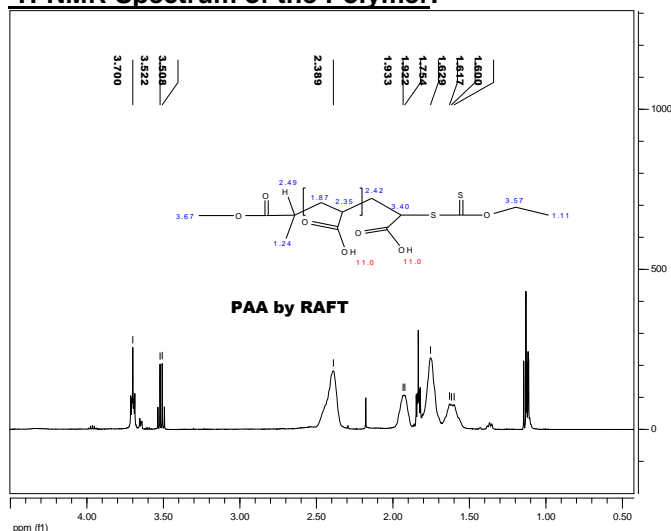


Characterization:

Polyacrylic acid was 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 molecular weight can also be verified after converting poly acrylic acid to poly n-butyl acrylate by transesterification process and analyzing the polymers by SEC in organic phase

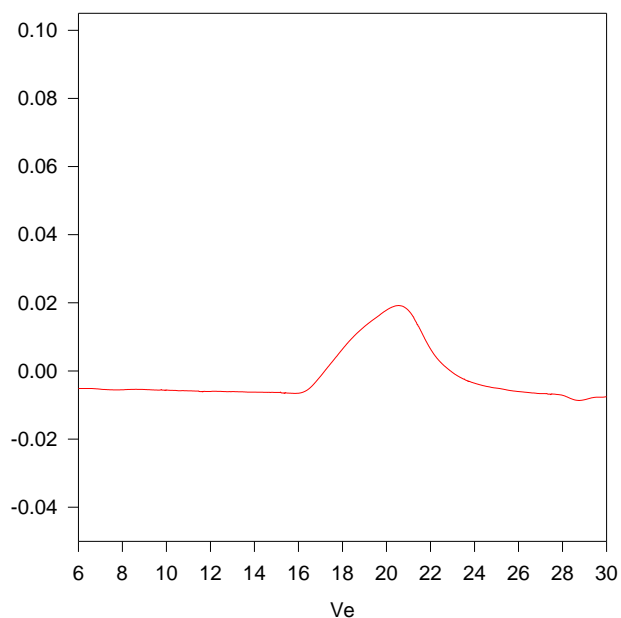
Solubility: Polymer is soluble in water.

¹H-NMR Spectrum of the Polymer:



SEC of Sample of the polymer:

P14580-nBuA P14580-AA in ester form to determine molecular weight



Size Exclusion Chromatography of Poly-n-butyl acrylate:

M_n=70,000, M_w= 294,000, PI=4.2

Polyacrylic acid: M_n=39,000 M_w/M_n=4.2