

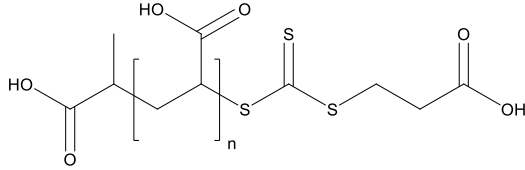
Sample Name: Poly(Acrylic acid)

SEC of Sample of the polymer:

Sample ID: P14685-nBuA

Sample #: P14685-AA (RAFT)

Structure:

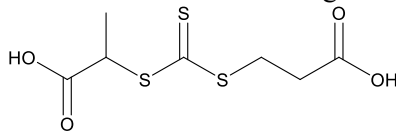


Composition:

Mn x 10 ³	Mw x 10 ³	Mw/Mn (PDI)
70.0	90.0	1.24

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:

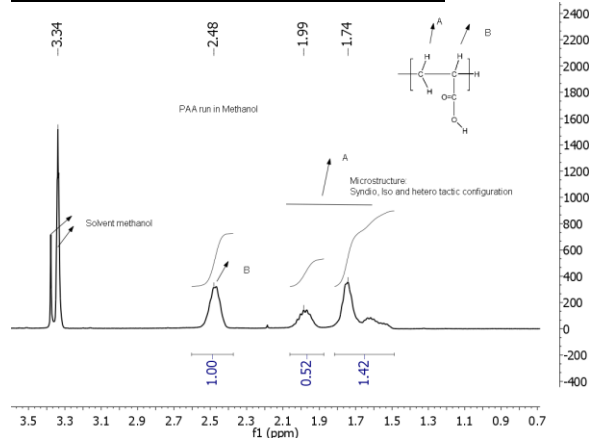


Characterization:

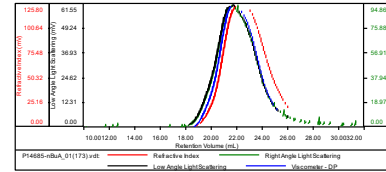
Polyacrylic acid and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI) using water containing 0.1M NaNO₃ and 0.01M NaH₂PO₄ and 4 Vol% acetonitrile as eluent. The molecular weigh can also be verified after converting poly acrylic acid to poly n-butyl acrylate by transesterification process and analyzing the polymers by SEC in organic phase

Solubility: Polymer is soluble in water.

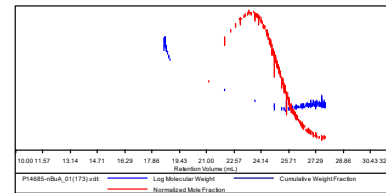
¹H-NMR Spectrum of the Polymer:



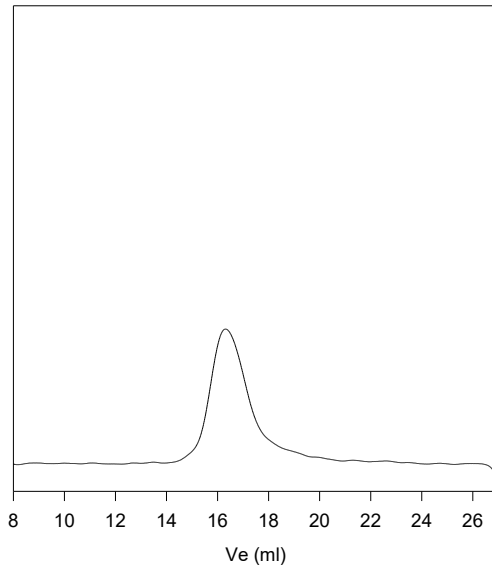
Concentration (mg/mL)	46.2319
Sample dilu'd (mL/g)	0.0640
Method File	PSS0K-Feb20-2014-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P14685-nBuA_01(173).vbl	124,855	151,607	159,726	1.214	0.4909



P14685-AA (SEC In water at 60 oC)



Size Exclusion Chromatography of the polymer:
PAA: Mn 70,000 Mw: 90,000 Mw/Mn 1.24

SEC was carried out to convert PAA into Poly n-Butylacrylate to determine molecular weight of the poly acrylic acid