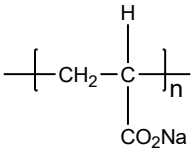
Sample Name:
Poly(acrylic acid) sodium salt (by RAFT process)

Sample #: **P18122A-ANa**

Structure:



Composition:

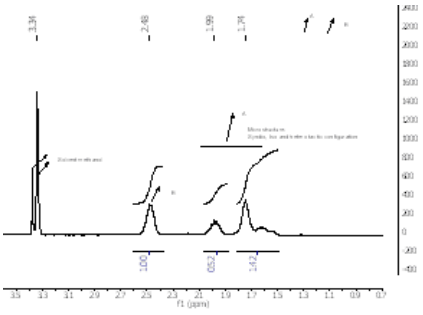
Mn x 10^3	PDI
658.0	1.28

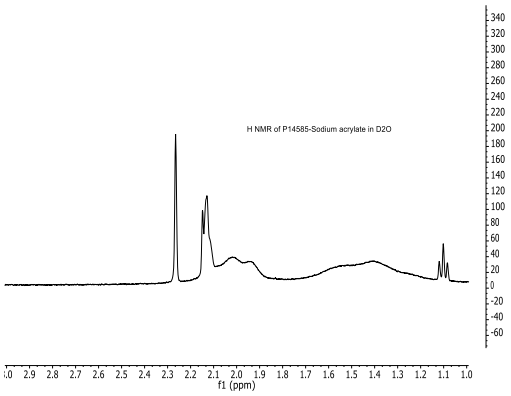
Synthesis Procedure:
Poly(acrylic acid) was synthesized by RAFT process and then converted to its sodium salt.

Characterization:
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF.For the analysis purposes of its molecular weights poly acrylic acid was converted to its n-butyl ester and characterized in THF on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with dual detectors model 270 from Viscotek Co.

Solubility:
Poly(acrylic acid) sodium salt is soluble in water.

^{1}H NMR of the Poly acrylic acid run in CD_3OD:



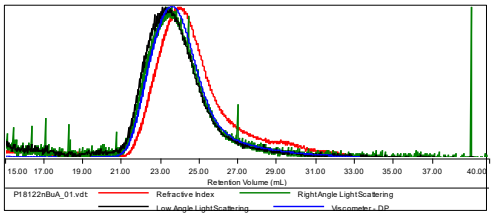


SEC was carried out to convert PAA into Poly n-Butylacrylate to determine molecular weight of the poly acrylic acid

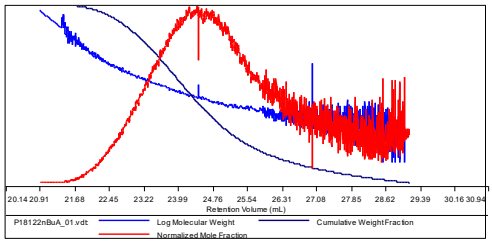
SEC elugram of the polymer:

Sample ID: P18122-nBuA

Concentration (mg/mL)	2.8441
Sample dn/dc (mL/g)	0.0640
Method File	PS80K-Sep26-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18122nBuA_01.vdt	896,732	1.152 e 6	1.432 e 6	1.285	3.1504



Poly acrylic acid Mn based on above characterization: Mn 504,000 Mw/Mn 1.28

Its sodium salt form: Mn: 658,000 Mw: 842,000 Mw/Mn =1.28
SEC analysis in H2O using an aqueous buffer (NaHCO3 0.05 M, NaNO3 0.1 M, triethanolamine 0.02

References:

1. Ph. Teyssie, Ph. Bayard, R. Jerome, **S. K. Varshney**, and J. S. Wang, *35th IUPAC International Union of Pure & Applied Chemistry International Symposium on Macromolecules" 1994, 67.*

2. R. Fayt, R. Forte, C. Jacobs, R. Jerome, T. Ouhadi, Ph. Teyssie and **S. K. Varshney,** *Macromolecules, 1987, 20, 1442-1444.*

3. Jerome, R. Forte, **S. K. Varshney**, R. Fayt, and Ph. Teyssie, "The Anionic Polymerization of Alkylacrylates:A Challenge" in the Recent Advances in Mechanistic and Synthetic Aspects of Polymerization: M. Fontanaille and A. Guyot Ed., NATO ASI Series *C 215,101 (1987), CA Vol. 108, 12, 094992.*

4. Ph. Teyssie, R. Fayt, C. Jacobs, R. Jerome, L. Leemans, and **S. K. Varshney** *Am. Chem. Soc.,Polym. Prepr. 1988, 28, 2, 52-53*