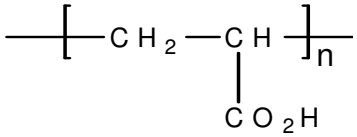
Sample Name:

Poly(acrylic acid) (by RAFT polymerization)

Sample #: **P14707-AA**

Structure:



Composition:

M_n x 10^3 (g/mol)	PDI
26.0	1.12

Synthesis:

Polyacrylic acid was prepared by RAFT polymerization.

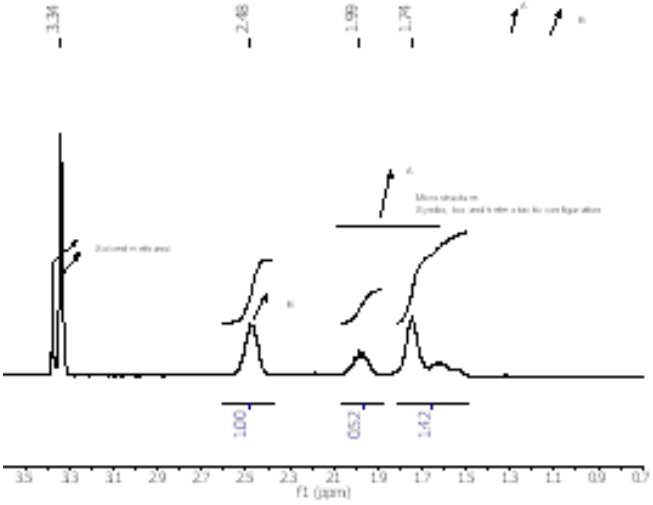
Solubility:

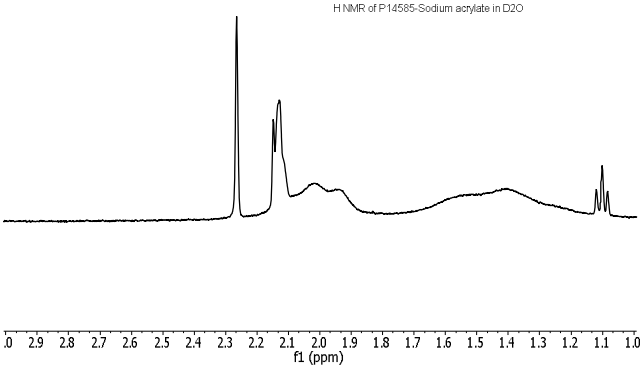
Polyacrylic acid is soluble in water.

Characterization:

The molecular weight and polydispersity index (PDI) were obtained by size exclusion chromatography (SEC). To determine the molecular weight of polyacrylic acid, it was converted to its n-butyl ester form and characterized 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. THF was used as an eluent.

^{1}H NMR of the Polyacrylic acid in CD_3OD:



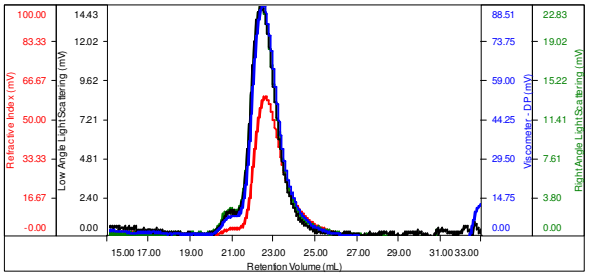


SEC:

To determine the molecular weight of PAA, it was converted to to poly(*n*-butyl acrylate) (PnBuA). SEC was done using H_2O as an eluent in presence of aqueous buffer solution (NaHCO3 0.05 M, NaNO3 0.1 M, triethanolamine 0.02).

Sample ID: P14707-nBuA

Concentration (mg/mL)	2.7478
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-March13-2014-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P14707-nBuA_01.vdt	47,150	52,603	56,474	1.116	0.9485

References:

1. Ph. Teyssie, Ph. Bayard, R. Jerome, **S. K. Varshney**, and J. S. Wang, *35th IUPAC Interna-tional Union of Pure & Applied Chemistry Interna-tional 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 Polymeri-zation: 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.