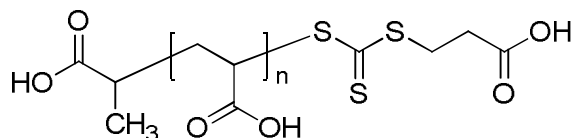


Sample Name: Poly(acrylic acid)
(prepared by RAFT process)

Sample #: P14588B-AA

Structure:

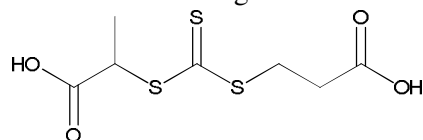


Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n
222.0	1.46

Synthesis Procedure:

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



To get the molecular weight, the obtained poly(acrylic acid) was converted to its sodium salt.

Characterization:

The molecular weight and polydispersity index (M_w/M_n) were obtained by size exclusion chromatography (SEC) using THF as an eluent. For the analysis purposes, the poly(acrylic acid) was converted to its n-butyl ester to calculate the molecular weight of the polymer. SEC analysis was performed 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.

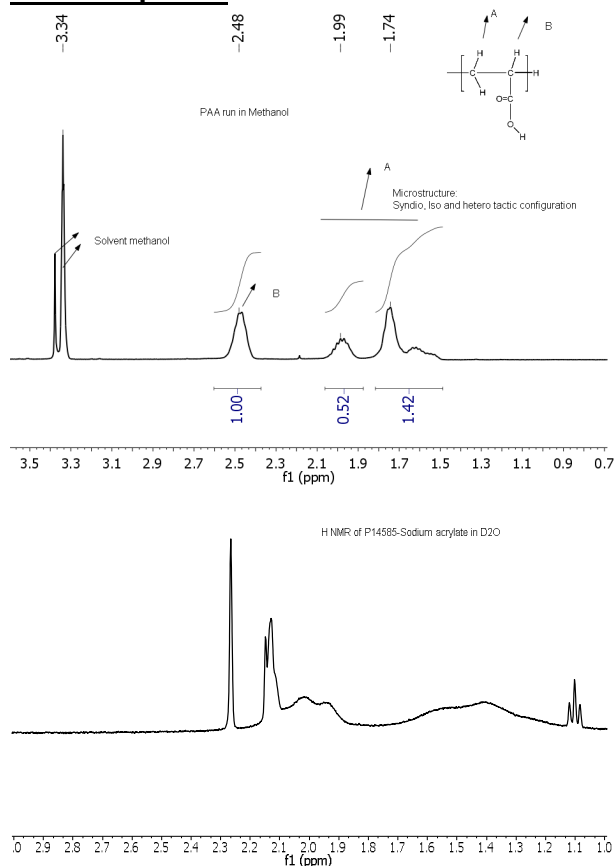
References:

- 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. Fontanille and

A. Guyot Ed., NATO ASI Series C 215,101 (1987), CA Vol. 108, 12, 094992.

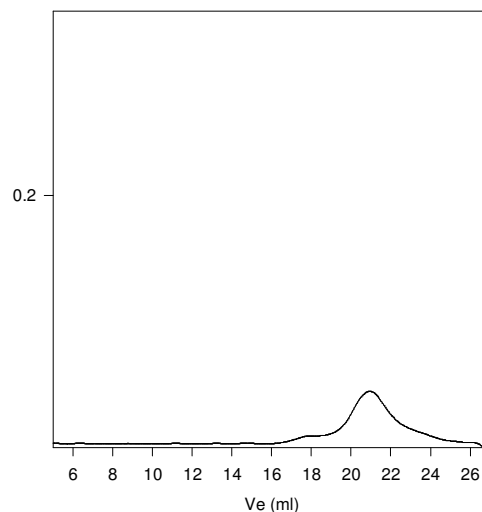
- 4) Ph. Teyssie, R. Fayt, C. Jacobs, R. Jerome, L. Leemans, and **S. K. Varshney** *Am. Chem. Soc., Polym. Prepr.* 1988, 28, 2, 52-53

^1H NMR spectra:



SEC elugram:

P14588B-AA (SEC In water at 60 oC)



Size Exclusion Chromatography of the polymer:
PAA: M_n 222,000 M_w 324,000 M_w/M_n 1.46