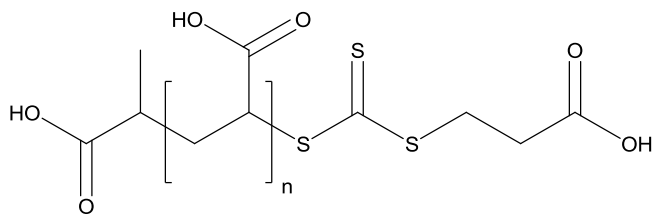


**Sample Name:** Poly(Acrylic acid)

**Sample #:** P14581-AA (RAFT)

**Structure:**

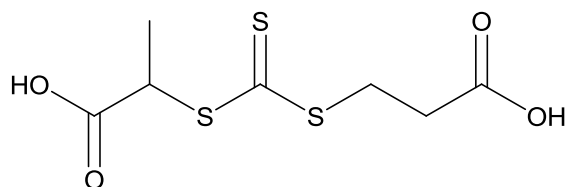


**Composition:**

Mn x 10 <sup>3</sup>	Mw/Mn (PDI)
62.0	5.7

**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:

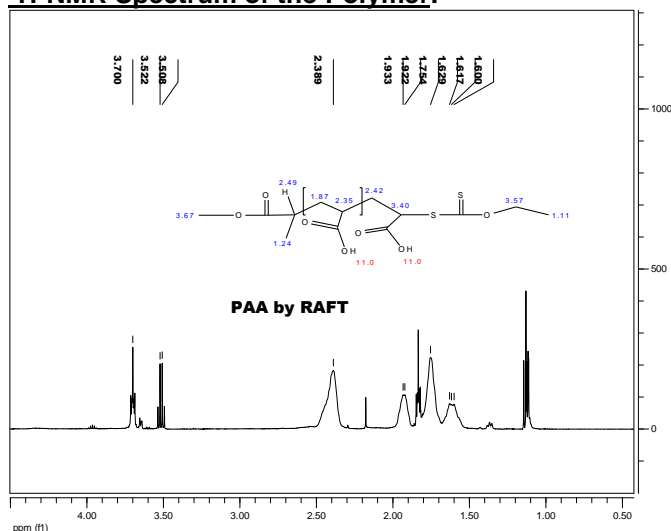


**Characterization:**

Polyacrylic acid was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI) using water containing 0.1M NaNO<sub>3</sub> and 0.01M NaH<sub>2</sub>PO<sub>4</sub> 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

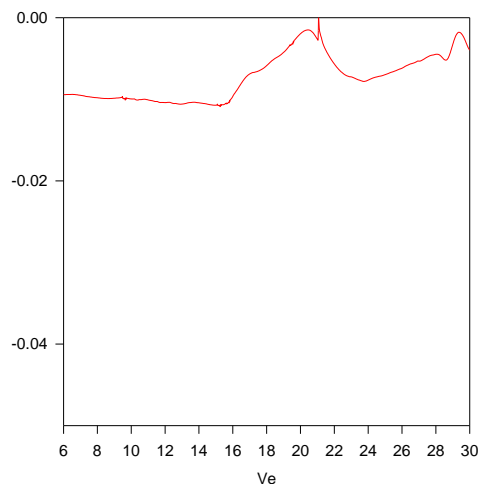
**Solubility:** Polymer is soluble in water.

**<sup>1</sup>H-NMR Spectrum of the Polymer:**



**SEC of Sample of the polymer:**

**P14581-nBuA P14580-AA in ester form to determine molecular weight**



Size Exclusion Chromatography of Poly-n-butyl acrylate:

M<sub>n</sub>=110,000, M<sub>w</sub>= 627,000, PI=5.7

Polyacrylic acid: M<sub>n</sub>=62,000 M<sub>w</sub>/M<sub>n</sub>=5.7