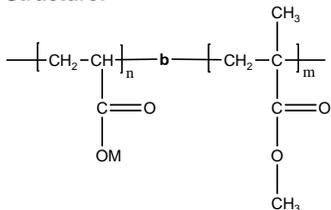


Sample Name: Poly(acrylic acid -b- methyl methacrylate)

Sample #: P8349A- AAMMA

Structure:

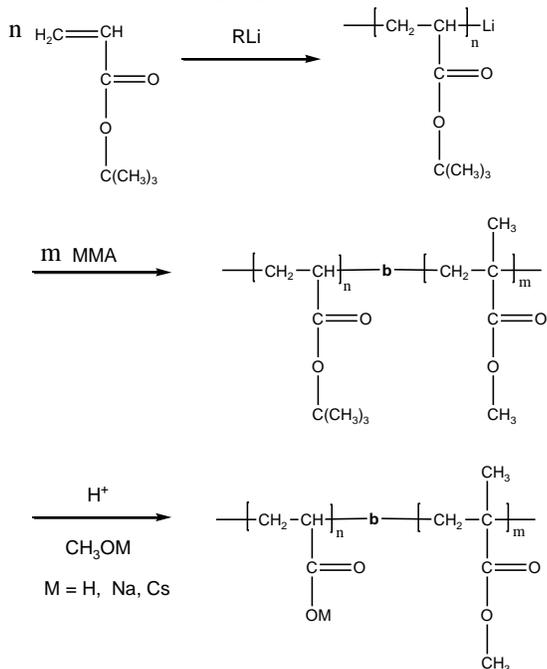


Composition:

Mn x 10 <sup>3</sup> PAA-MMA	PDI
5.0-b-5.5	1.15

Synthesis Procedure:

Poly(acrylic acid-b-methyl methacrylate) is prepared by living anionic polymerization with sequence addition of t-butyl acrylate followed by methyl methacrylate and hydrolysis of the t-butyl group. The scheme of the reaction is illustrated below:



Characterization:

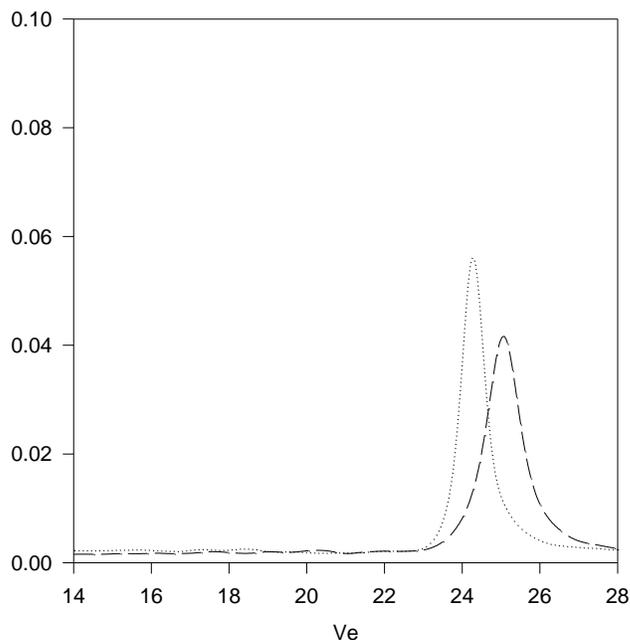
An aliquot of the anionic poly(t-butyl acrylic acid) block was terminated before addition of methyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the t-butyl methacrylate protons at 1.43 ppm with the peak area of the methyl methacrylate protons at 3.6 ppm. Copolymer PDI is determined by SEC.

Solubility:

Poly(acrylic acid-b-methyl methacrylate) is soluble in THF and its salt can be solubilize in DMF and in water depending on the compositions.

EC of the block copolymer:

**P8349-MMAAtBuA**  
**Precursor for P8349A-MMAAA**



Size Exclusion Chromatography :

- Poly tert.butylacrylate, M<sub>n</sub> = 8500 Mw: 10000 M<sub>w</sub>/M<sub>n</sub> = 1.18
- ..... Block Copolymer PtBuA(8500)-MMA(5500), M<sub>w</sub>/M<sub>n</sub> = 1.15 after Hydrolysis of tert.butyl ester: PAA-b-PMMA: 5000-b-5500

