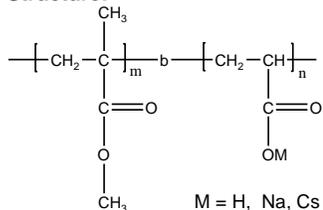


Sample Name: Poly( methyl methacrylate-b-Sodium acrylate)

Sample #: P8347- MMAANa

Structure:

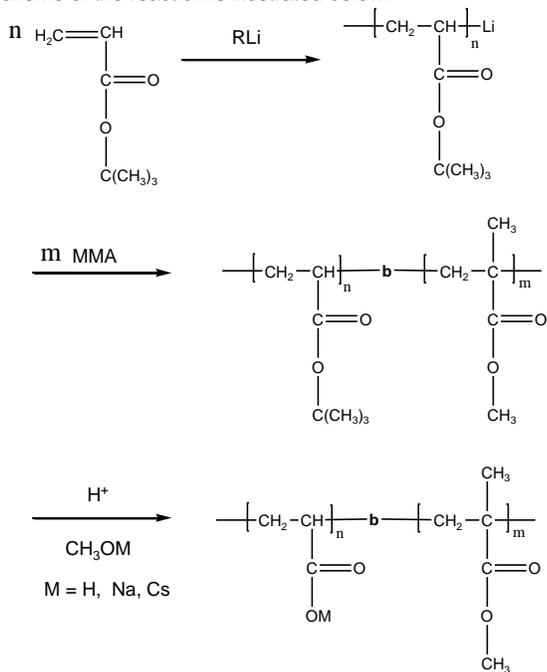


Composition:

Mn x 10 <sup>3</sup> PMMA-ANa	PDI
6.0-b-11.0	1.12

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:

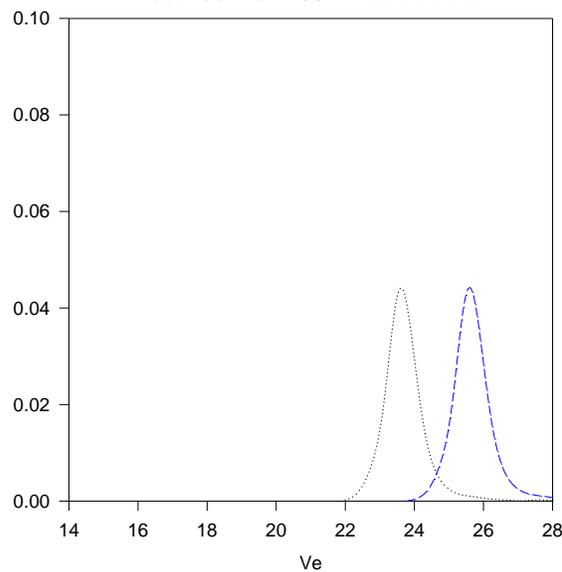
An aliquot of the anionic poly(t-butyl acrylic acid) block was terminated before addition of methyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR 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:

P8347-MMAAtBuA  
Precursor for P8347-MMAANA



Size Exclusion Chromatography :

--- Poly methylmethacrylate, M<sub>n</sub>=6000 M<sub>w</sub>: 6500 M<sub>w</sub>/M<sub>n</sub>=1.08

..... Block Copolymer PMMA(6500)-tBuA(15000), M<sub>w</sub>/M<sub>n</sub>=1.12

after Hydrolysis of tert.butyl ester: PMMA-b-AA:Mn: 6500-b-8500

After Neutralization of acid with NaOH: PMMA-b-PAA : 6500-b-11000 M<sub>w</sub>/M<sub>n</sub> 1.12

