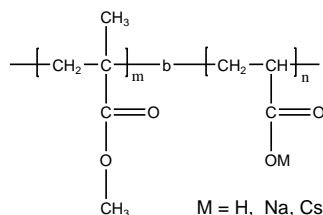


Sample Name: Poly(methyl methacrylate-b-acrylic acid)

Sample #: P7516A-MMAAA

Structure:

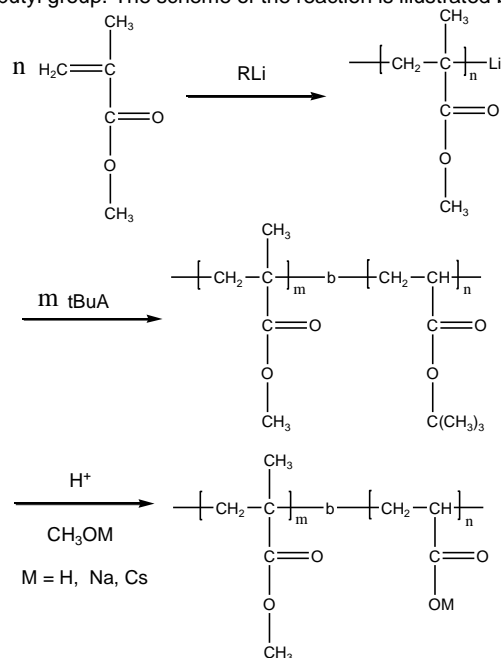


Composition:

Mn x 10 ³ PMMA-b-PAA	PDI
41.0-b-10.0	1.20

Synthesis Procedure:

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



Characterization:

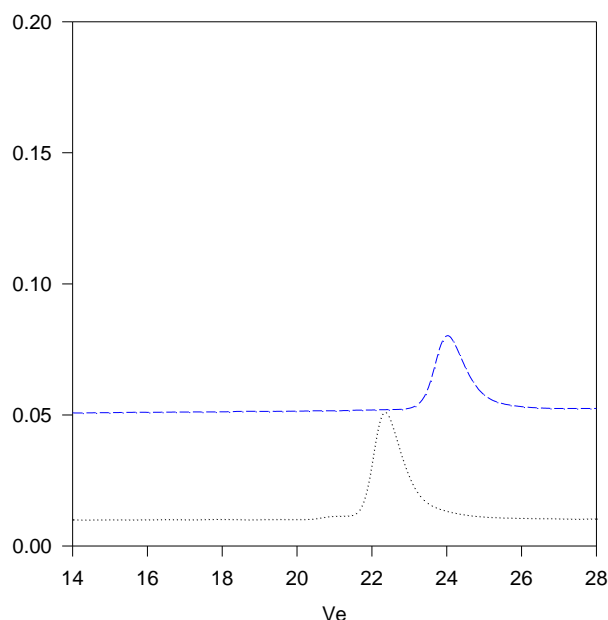
An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy 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(methyl methacrylate -b- acrylic acid) is soluble in Methanol depending on the compositions. It is precipitated out from ether and hexane.

SEC of the block copolymer:

P7516-MMAAtBuA Precursor for P7516A-MMAAA



Size Exclusion Chromatography :

- Poly tert.butylacrylate, M_n=18000 Mw: 20800 M_w/M_n=1.16
- Block Copolymer PMMA(41000)-tBuA(18000), M_w/M_n=1.20
- After Hydrolysis of tert. butyl ester: PMMA-b-AA: 41000-b-10000

NMR of the block copolymer:

