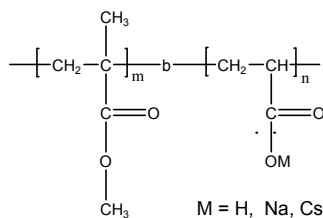


Sample Name: Poly(methyl methacrylate-b-acrylic acid)

Sample #: P6357A-MMAAA

Structure:

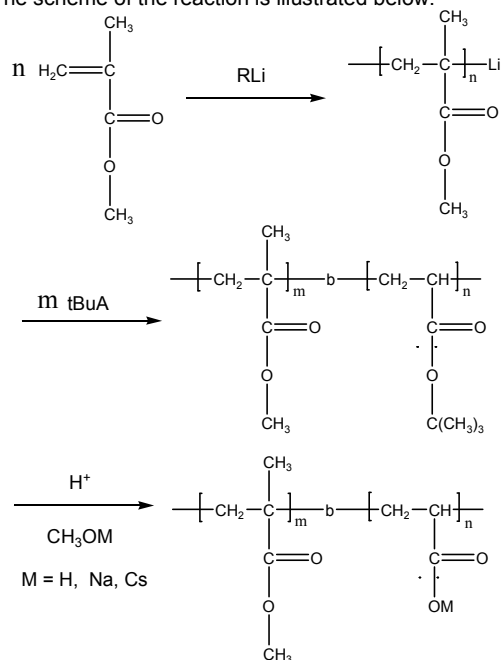


Composition:

Mn x 10 ³ PMMA-b-PAA	PDI
27.0-b-16.5	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 and hydrolysis of the t-butyl group. The scheme of the reaction is illustrated below:



Characterization:

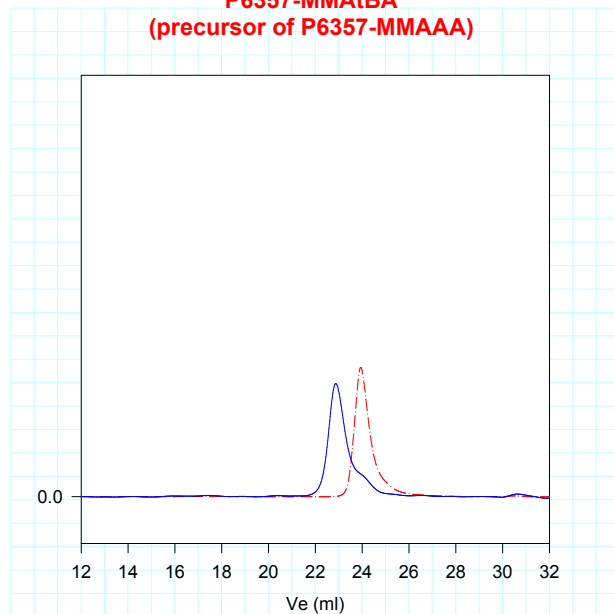
An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy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

P6357-MMAAtBA
(precursor of P6357-MMAAA)



Size exclusion chromatography of poly(methyl methacrylate-b-tert-butylacrylate)

--- PMMA, M_n=27000, M_w=30000, M_w/M_n=1.10 by light scattering detector

— poly(methyl methacrylate-b-tert-butylacrylate)

Mn: MMA(27000)-b-tBA(29000) M_w/M_n=1.20

After hydrolysis: MMA(27000)-b-AA(16500)

NMR of the block copolymer:

