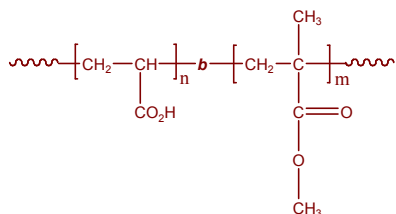


Sample Name: Poly(acrylic acid-b-methyl methacrylate)

Sample #: P2384-AAMMA

Structure:

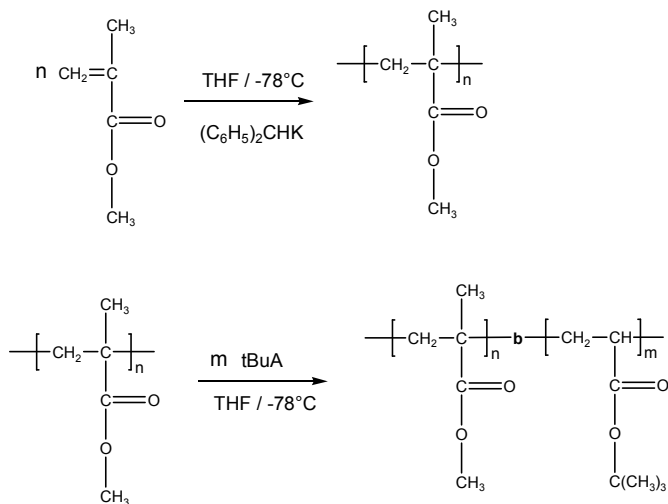


Composition:

Mn x 10 ³ PAA-b-PMMA (k)	PDI
11.5-4.5	1.12

Synthesis Procedure:

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



Polyacrylic acid is converted by acid-hydrolysis of poly(t-butyl acrylate).

Characterization:

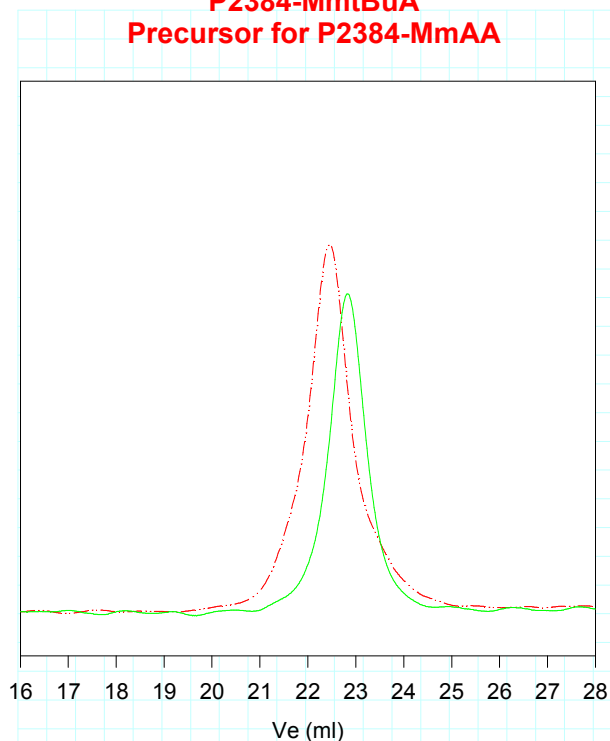
An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy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

SEC of the block copolymer:

P2384-MmtBuA
Precursor for P2384-MmAA



Size exclusion chromatography of:
Poly(Methyl Methacrylate-b-t-butyl acrylate)
Precursor for Poly (Acrylic Acid-b-Methyl Methacrylate)

— Poly(t-Butyl acrylate): M_n=20200, M_w=22700, PI=1.12

- - - Block Copolymer: PMMA(4500)-b-PtBuA(20200), PI=1.12
After hydrolysis (acid form): PMMA(4500)-b-PAA(11500)