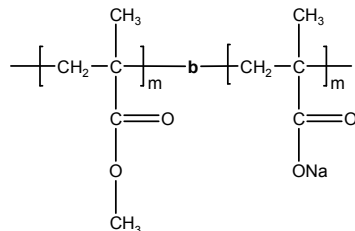


Sample Name: Poly(methyl methacrylate-b-Sodium methacrylate)

Sample #: P8435B-MMAMANA

Structure:

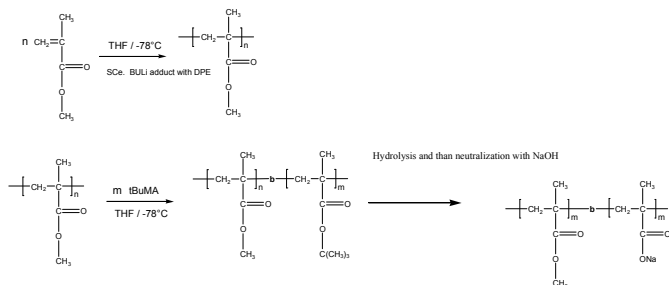


Composition:

Mn x 10 ³ PMMA-b-PMANa	PDI
8.5-b-6.5	1.10

Synthesis Procedure:

Poly(methyl methacrylate -b- t-butyl methacrylate) is prepared by living anionic polymerization by sequence addition of methyl methacrylate followed by addition of t-butyl methacrylate or vice versa. **In this case MMA was added first than tBuMA monomer** The obtained polymer was hydrolysed in dioxane and then neutralized with NaOH in methanol or ethanol. The product was recovered and dried under vacuum at 50 oC for 48h. The scheme of the reaction is illustrated below:



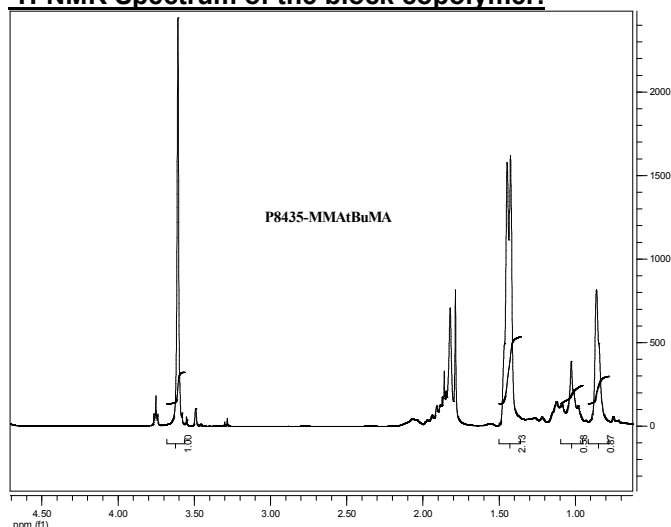
Characterization:

An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of t-butyl 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 ¹H-NMR spectroscopy by comparing the peak area of the t-butyl methacrylate protons at about 1.43 ppm with the peak area of the methyl methacrylate protons at about 3.6 ppm. Copolymer PDI is determined by SEC.

Solubility:

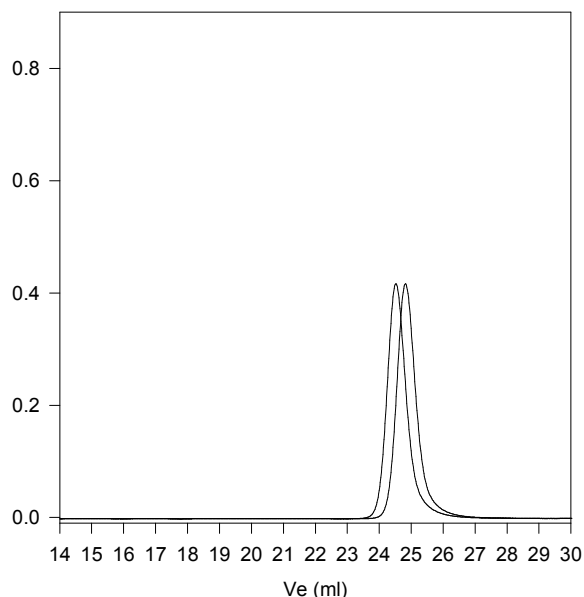
Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

¹H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P8435-MMAtBuMA



Size exclusion chromatography of poly(methacrylate-b-tert.butyl methacrylate)

— PMMA block = Mn: 8000 Mw:8700 PI=1.09

— PMMA-b-tBuMA Mn:8000-b-8500 PI=1.10

After Hydrolysis: PMMA-b-MAA: Mn: 8000-b-5100

After Neutralization: PMMA-b-MANa: Mn: 8000-b-6500
Mw/Mn 1.10