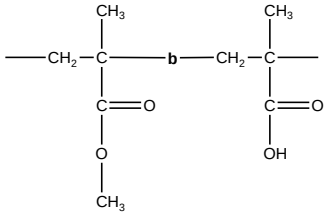
Sample Name: **Poly(methyl methacrylate-b- methacrylic acid)**

Sample #: **P8435A-MMAMAA**

Structure:

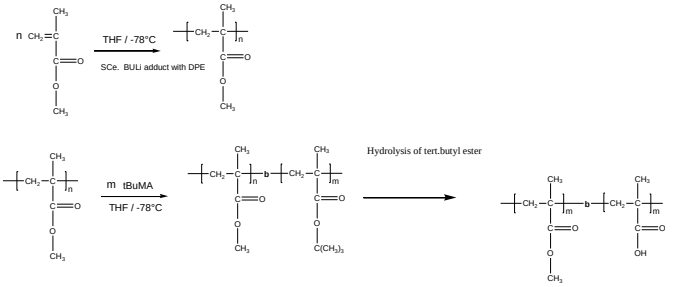


Composition:

Mn x 10^3 PMMA-b-PMAA	PDI
8.0-b-5.1	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. The product was recovered and dried under vacuum at 50 oC for 48h. The scheme of the reaction is illustrated below:



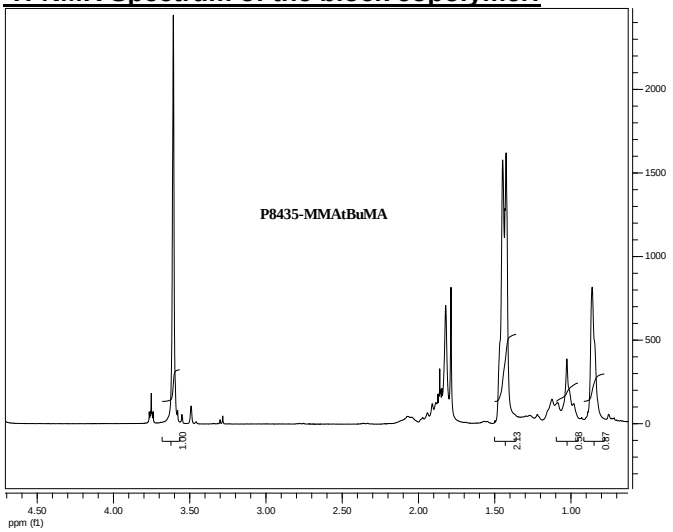
Characterization:

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 ^{1}H-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:

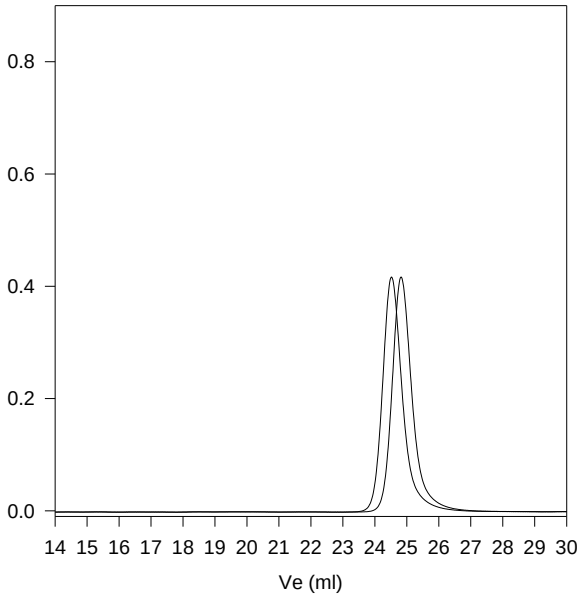
Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF, $CHCl_3$, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

^{1}H-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

—— PMMAtBuMA M_n :8000-b-8500 PI=1.10

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