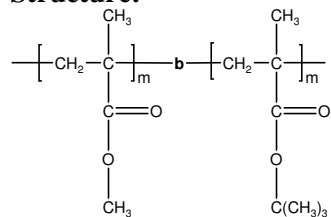


Sample Name: Poly(methyl methacrylate-*b*-*t*-butyl methacrylate)

Sample #: P1200-MMAtBuMA

Structure:

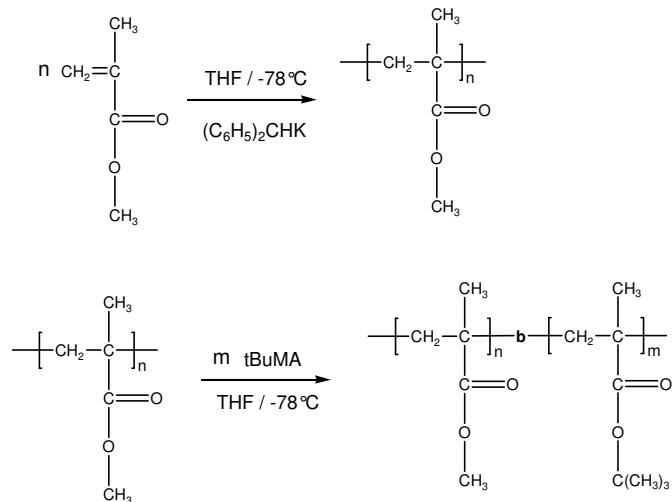


Composition:

Mn x 10 ³	PDI
PMMA- <i>b</i> -PtBuMA (k)	
7.2- <i>b</i> -10.2	1.08

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. The scheme of the reaction is illustrated below:



Characterization:

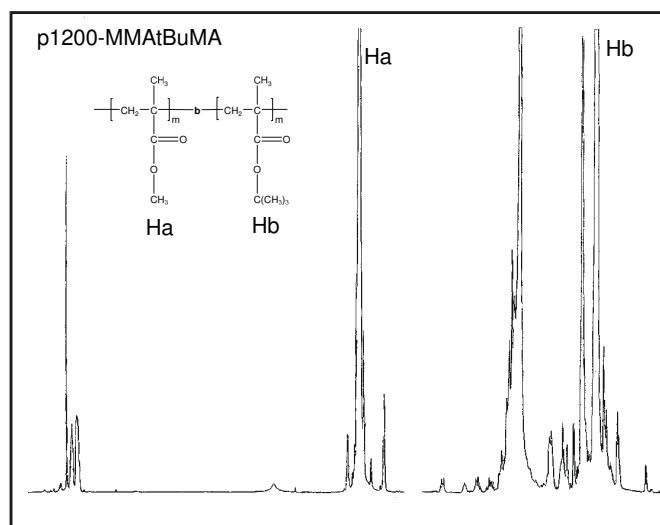
An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of *t*-butyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy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

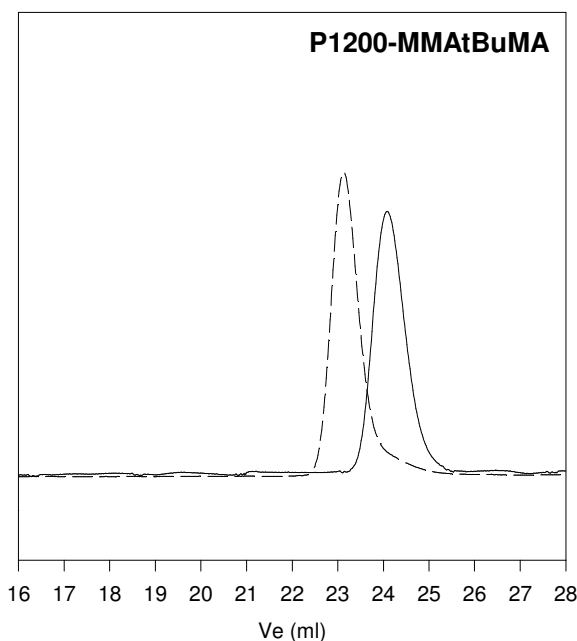
Solubility:

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 elugram of the block copolymer:



Size exclusion chromatography of poly(methyl methacrylate-*b*-*t*-butyl methacrylate)

— Poly methyl methacrylate, M_n=7200, M_w=7600, PI=1.06

- - - Block Copolymer: PMMA(7200)-*b*-PtBuMA(10200), PI=1.08