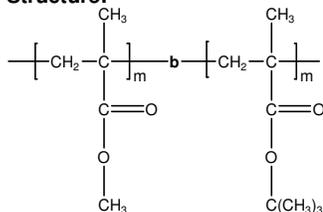


**Sample Name:** Poly(methyl methacrylate-b-t-butyl methacrylate)

**Sample #:** P6006-MMA**t**BuMA

**Structure:**

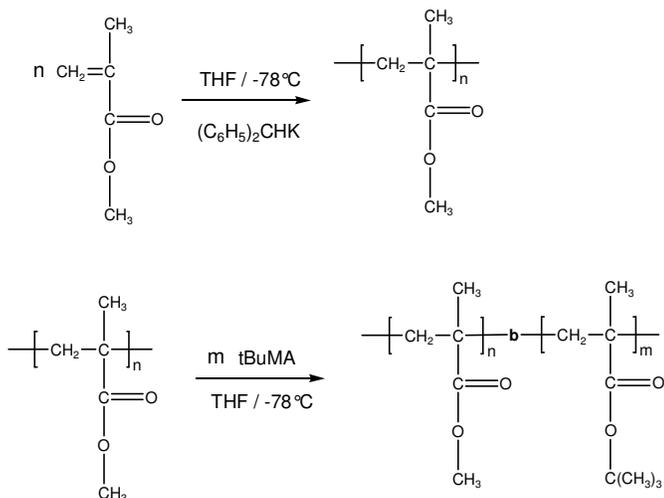


**Composition:**

$M_n \times 10^3$ PMMA-b-PtBuMA (k)	PDI
66.5-b-83.0	1.12

**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:



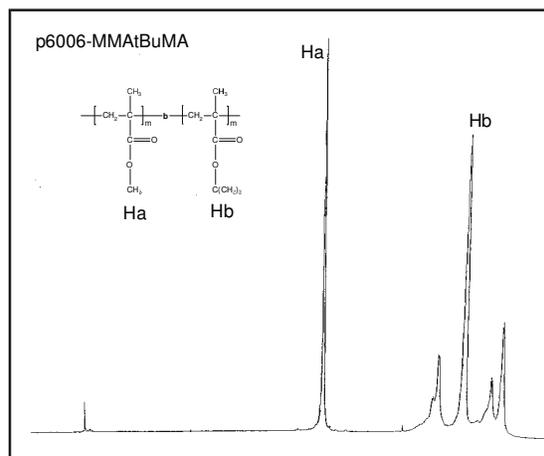
**Characterization:**

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  $^1\text{H-NMR}$  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.

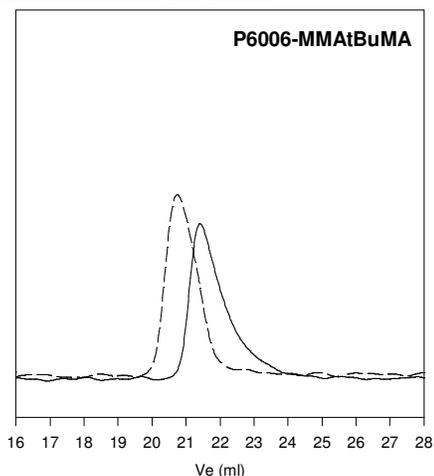
**Solubility:**

Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF,  $\text{CHCl}_3$ , toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

**$^1\text{H-NMR}$  Spectrum of the block copolymer:**



**SEC of the block copolymer:**



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

- Poly methyl methacrylate,  $M_n=66500$ ,  $M_w=74500$ ,  $PI=1.09$
- - - Block Copolymer: PMMA(66500)-b-PtBuMA(83000),  $PI=1.12$