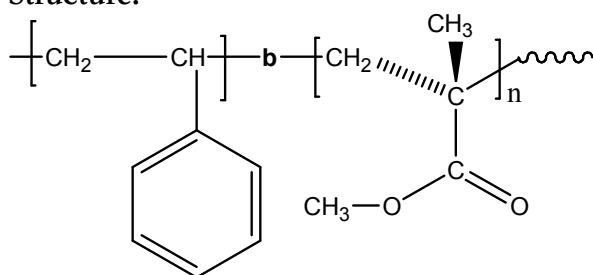


Sample Name: Poly(styrene-b-methyl methacrylate)  
(PMMA iso rich contents >90%)

**Sample #:** P8805-SMMAiso

**Structure:**

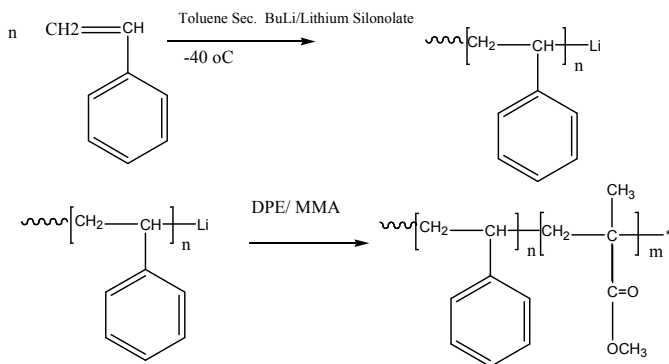


**Composition:**

Mn x 10 <sup>3</sup> S-b-MMA	PDI
60.0-b-85.0	1.4
T <sub>g</sub> for PS block:	T <sub>g</sub> for PMMA block:

### Synthesis Procedure:

Poly(styrene-b-methyl methacrylate) is prepared by living anionic polymerization with sequence addition of styrene followed by methyl methacrylate (MMA) in presence of dimethyl siloxy lithium salt as an additive. The scheme of the reaction is illustrated below:



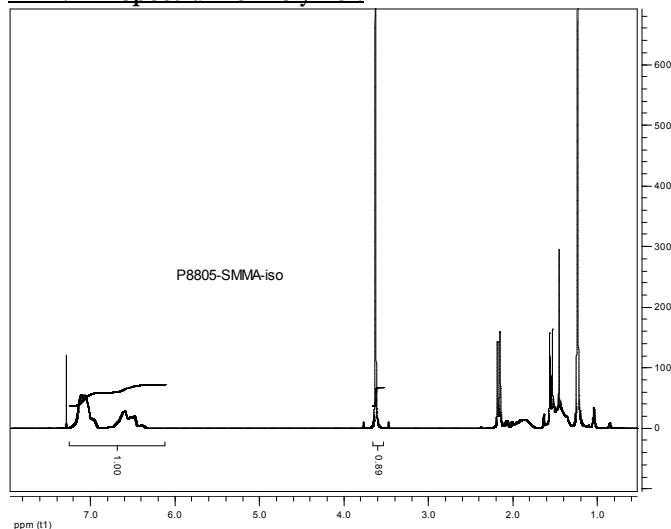
### Characterization:

An aliquot of the anionic polystyrene block was terminated before addition of MMA and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the poly(methyl methacrylate) protons (eg. -OCH<sub>3</sub> at 3.6ppm) with the of aromatic protons of polystyrene at 6.3-7.2 ppm. Copolymer PDI is determined by SEC.

### Solubility:

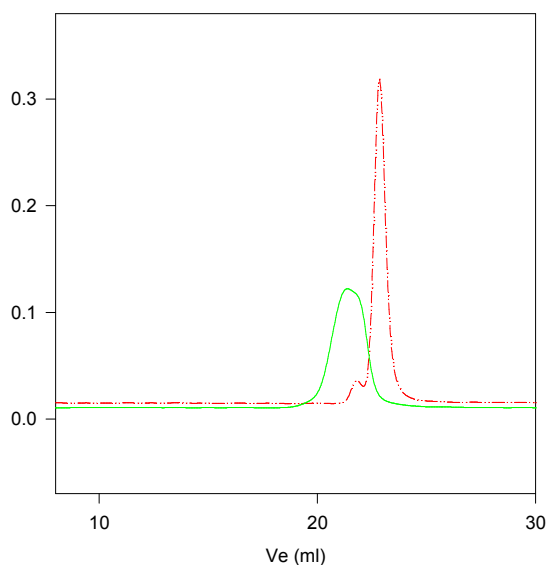
Poly(styrene-b-methyl methacrylate) is soluble in THF, toluene, dioxane and CHCl<sub>3</sub>. This polymer readily precipitates from methanol, ethanol, hexanes and water.

### <sup>1</sup>H-NMR Spectrum of Polymer:



### SEC of Sample

**P8805-SMMAiso**



Size Exclusion chromatography of poly (styrene-b-isotactic methyl methacrylate):

- Polystyrene, M<sub>n</sub>=60,000, M<sub>w</sub>=63,000, PI=1.05
- Block Copolymer PS(60,000)-b-PMMAiso( 85,000), PI=1.4  
iso contents of PMMA block>90%