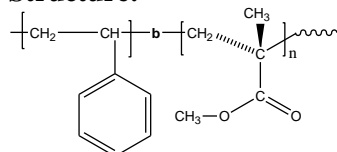


Sample Name: Poly (styrene-*b*-methyl methacrylate)

Sample #: P10076D-SMMAiso

Structure:

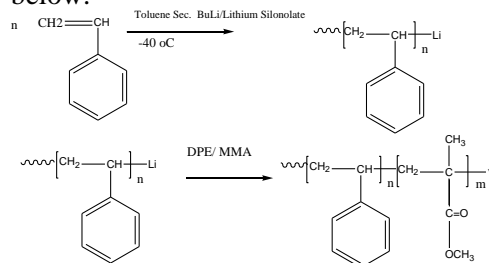


Composition:

Mn x 10 ³ S- <i>b</i> -MMA	PDI
26.0- <i>b</i> -5.0	1.4
T _g for PS block: 81 °C	T _g for PMMA block: 52 °C
Iso contents of PMMA	>95%

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:



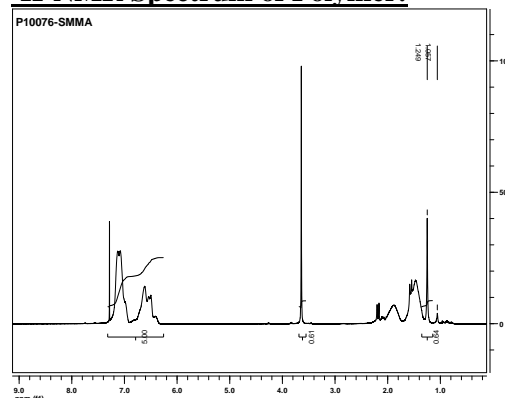
Characterization:

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 ¹H-NMR spectroscopy by comparing the peak area of the poly(methyl methacrylate) protons (eg. –OCH₃ at 3.6ppm) with the of aromatic protons of polystyrene at 6.3-7.2 ppm. Copolymer PDI is determined by SEC.

Solubility:

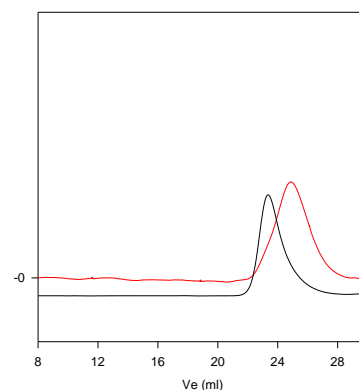
Poly(styrene-*b*-methyl methacrylate) is soluble in THF, toluene, dioxane and CHCl₃. This polymer readily precipitates from methanol, ethanol, hexanes and water.

¹H-NMR Spectrum of Polymer:



SEC profile of the Sample:

P10076D-MMAisoS or SMMAiso



Size exclusion chromatograph of polymer:

PMMA- first block : M_n=5000, M_w=9,000, M_w/M_n=1.8

PMMA-*b*-S: 5,000-*b*-26,000 Mw/Mn 1.4

Thermograms for the sample

