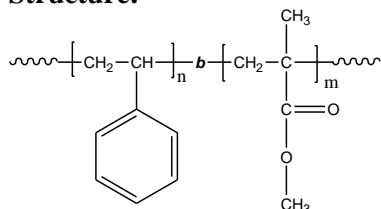


Sample Name: Poly(styrene-*b*-methyl methacrylate)
(*polymethylmethacrylate rich in syndiotactic contents*
> 78%)

Sample #: P9915P-SMMA

Structure:



Composition:

Mn x 10 ³ S-b-MMA	PDI
251.0-b-614.5	1.06

T _g for PS block: 107 °C	T _g for PMMA block: 131 °C
Syndio:Hetero:Iso	82:18:0

Synthesis Procedure:

Poly(styrene-*b*-methyl methacrylate) is prepared by living anionic polymerization in THF at -78 °C using sec.BuLi initiator in the presence of LiCl. Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding methylmethacrylate (MMA) monomer. For further details please see our published articles.1-5

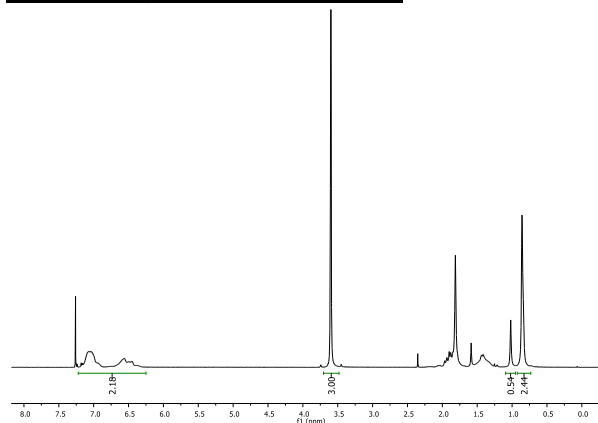
Characterization:

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. The molecular weight and polydispersity of copolymer are determined by SEC. Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

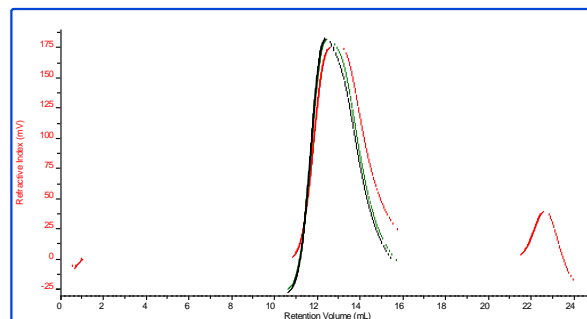
Poly(styrene-*b*-methyl methacrylate) is soluble in THF, toluene, dioxane and CHCl₃. This polymer readily precipitates from methanol, ethanol, hexanes and water.

¹H-NMR Spectrum of Polymer:



SEC elugram of the Sample:
P9915P

dn/dc	0.0940
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	PSS column-PMMA60K-Jan3-2019-0004.vcm



Sample	Mn	Mw	Mp	Mw/Mn
P9915P_1_2019-06-11	865,629	916,581	925,864	1.059

Thermogram for the sample:

