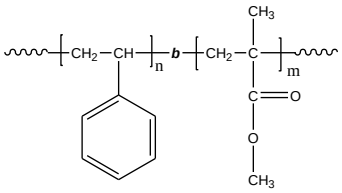
Sample Name: **Poly(styrene-b-methyl methacrylate)** ***(polymethylmethacrylate rich in syndiotactic contents > 78%)***

Sample #: **P9912PP-SMMA**

Structure:



Composition:

Mn x 10^3 S-b-MMA	PDI
537.0-b-265.0	1.05

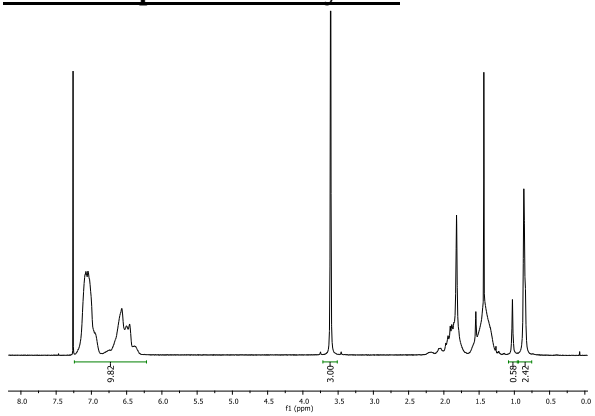
T_g for PS block: 106°C	T_g for PMMA block: 131°C
Syndio:Hetero:Iso	81:19:0

Synthesis Procedure:
Poly(styrene-b-methyl methacrylate) is prepared by living anionic polymerization in THF at –78 oC 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 ^{1}H-NMR spectroscopy by comparing the peak area of the poly(methyl methacrylate) protons (eg. –OCH_3 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 $CHCl_3$. This polymer readily precipitates from methanol, ethanol, hexanes and water.

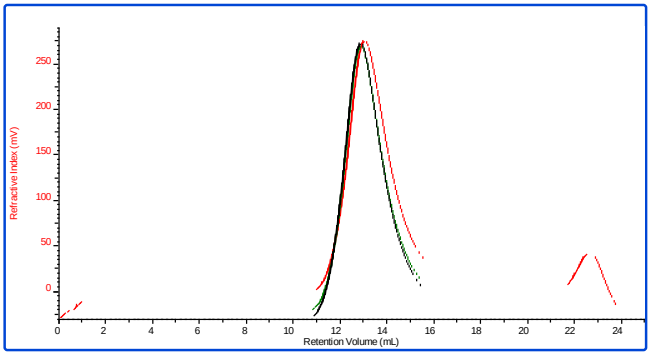
^{1}H-NMR Spectrum of Polymer:



SEC elugram of the Sample:

P9912P

dn/dc	0.1310
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	PSS column-PMMA60K-Jan3-2019-0004.vcm



Sample	Mn	Mw	Mp	Mw/Mn
P9912P_1_2019-06-11	802,196	845,547	819,385	1.054

Thermogram for the sample