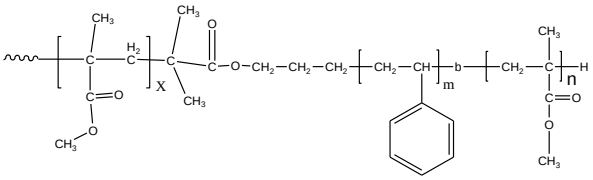
Sample Name:

Poly(Methylmethacrylate –b-Styrene-b-methyl methacrylate) Triblock copolymer
(Anionic process) PMMA : Syndiotactic rich

Sample #: P18287C-MMASMMA

Structure:

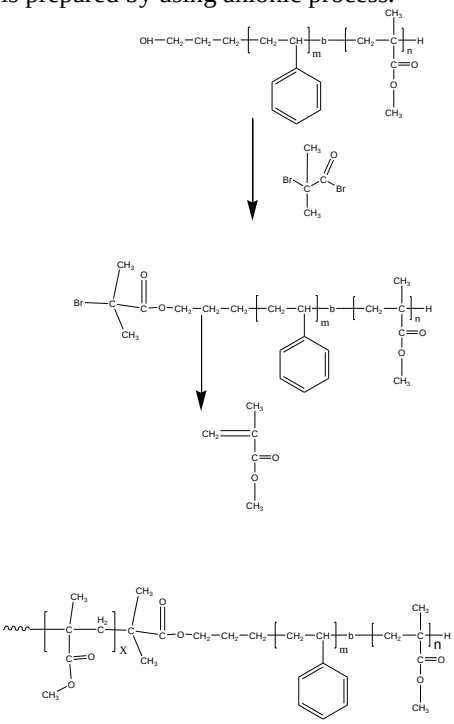


Composition:

Mn × 10^3 MMA-S-b-MMA)	PDI
58.0-b-13.5-b-10.5	1.6
Microstructure of PMMA block	S:H:I contents 78:10:2
T_g for PS block: 100oC	T_g for MMA block: 120 ^oC

Synthesis Procedure:

Br end fuctionalized Poly(styrene-b-methylmethacrylate) is prepared by using anionic process.



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

Thermal analysis:

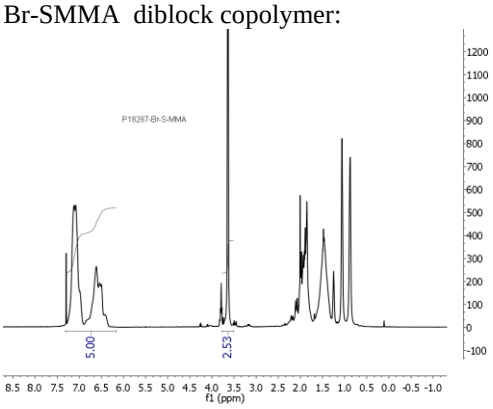
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10^{o}C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

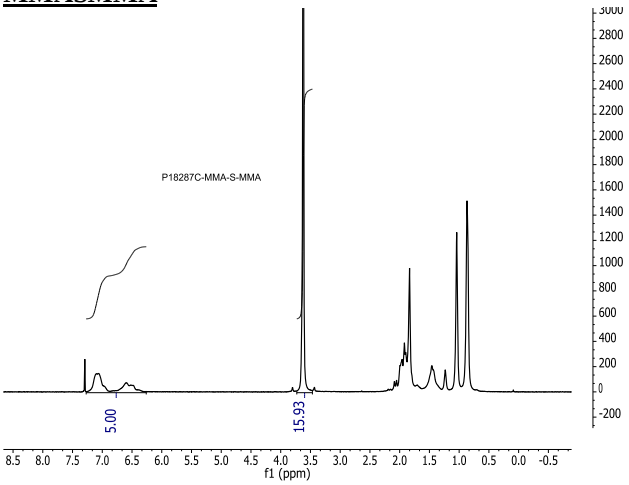
Polymer is soluble in THF, toluene and $CHCl_3$. It precipitates from methanol, ethanol, water and hexanes.

NMR of the initiator:

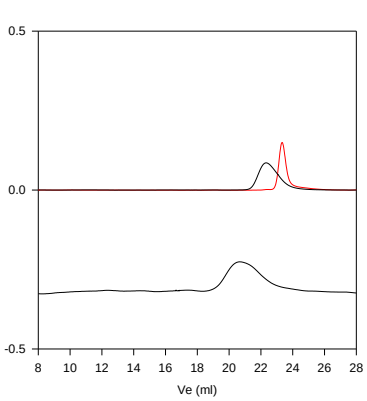
Br-SMMA diblock copolymer:



MMASMMA



SEC of Sample:



Size exclusion chromatograph ofthe polymer:
Br-SMMA: Mn 13,500-b-10,500 Mw/Mn :1.18

MMA-S-MMA : 58,000-b-13,500-b-10,500 Mw/Mn 1.6

Reference:

1. Zhengji Song, Carole Pelletier, Yinghua, Qi, Jasim Ahmed, Sunil K. Varshney, M. A. Jafar Mazumder, Synthesis and thermal properties of triblock copolymers of methyl methacrylate using combination of anionic and controlled radical polymerization: Poly(methyl methacrylate) center block bearing different microstructures e-polymer 2012, 067.

2. S.K. Varshney, P. Kesani, N. Agarwal, J. Xin. Zhang, and M. Rafailovich. Synthesis of ABA type thermoplastic elastomers based on Polyacrylates, Macromolecules,1999, 32,235.