

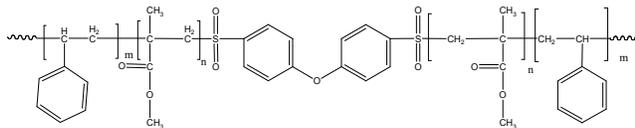
Sample Name:

Poly(Styrene-b-methyl methacrylate-b-Styrene)

(radical process) PMMA : atactic rich

Sample #: P10056F2-SMMAS

Structure:



Composition:

Mn × 10 ³ (S-b-MMA-S)	PDI
3.6-b-118.0-b-3.6	1.38
Microstructure of PMMA block	S:H:I contents 55:37:8
T _g for PS block: Not distinct	T _g for MMA block: 110 °C

Synthesis Procedure:

Poly(styrene-b-methylmethacrylate-b-styrene) is prepared by controlled 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.

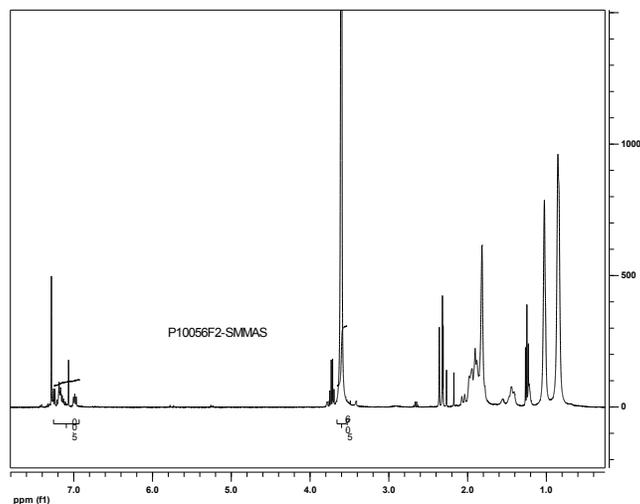
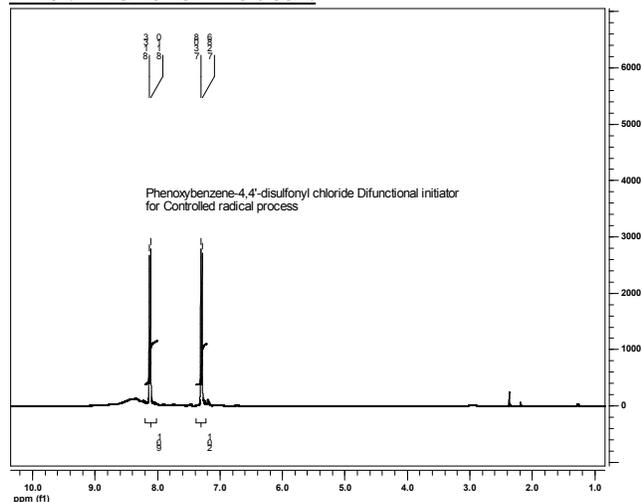
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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:

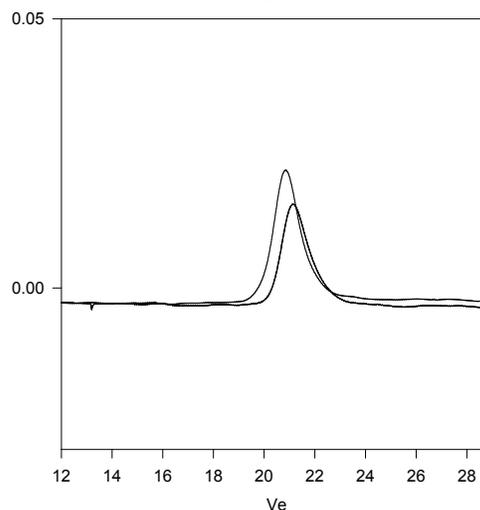
Polymer is soluble in THF, toluene and CHCl₃. It precipitates from methanol, ethanol, water and hexanes.

HNMR of the initiator:



SEC of Sample:

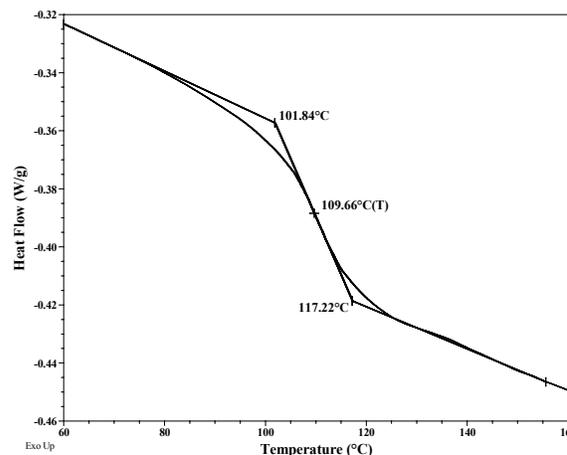
P10056F2-SMMAS



Size Exclusion Chromatography of:

- PMMA center block, M_n=118,000, PI=1.3
- SMMAS, the triblock PS(3,600)-b-PMMA(118,000)-b-PS(3,600), PI=1.38

DSC thermogram for MMA block:



Reference:

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.