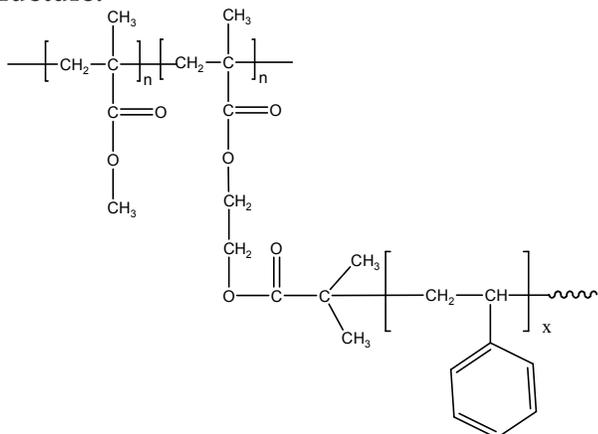


Sample Name:

Poly(methylmethacrylate-b-(isobutryl)ethylmethacrylate) grafted with polystyrene

Sample #: P13061-MMAIBEMA-G-S

Structure:



Composition:

$M_n \times 10^3$	PDI
MMA-b-IBEMA-G-S	
3.4-b-1.3-g-2.8	1.39
Number of grafts \cong 5	Molecular weight of Polystyrene branch \cong 560
T_g for the polymer	75

Synthesis Procedure:

Poly(Methylmethacrylate-b-2-bromoisobutyryl ethylmethacrylate) block copolymer is synthesized by controlled radical polymerization with Poly(methylmethacrylate)-CTA macroinitiator. Proprietary procedure is under publication. Polystyrene graft was done by controlled radical process.

Characterization:

SEC analysis of the obtained block copolymer in THF was carried out in presence of triethyl amine as eluent. The final block copolymer composition was confirmed by $^1\text{H-NMR}$ spectroscopy in CdCl_2 by comparing the peak area of the methyl ester protons at 3.6 ppm against ethyl methacrylate at 4.2-4.17 ppm. Block copolymer PDI was determined by SEC.

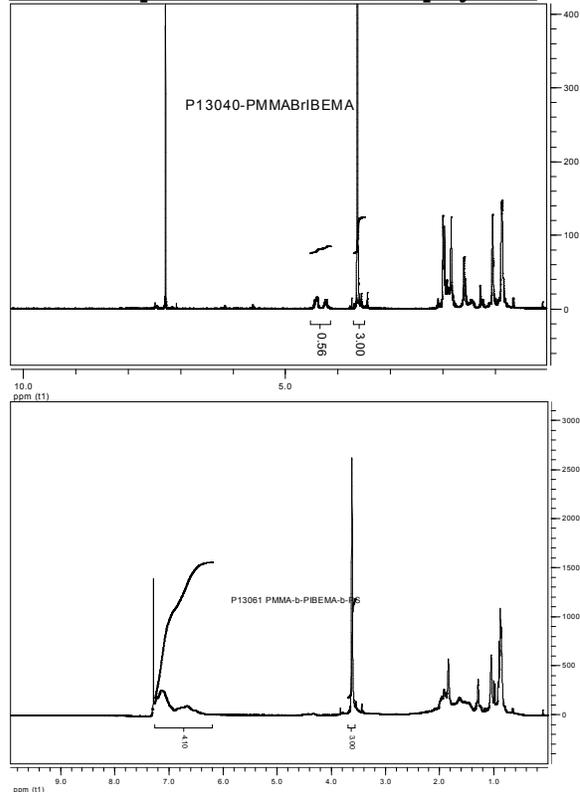
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of $10^\circ\text{C}/\text{min}$. 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:

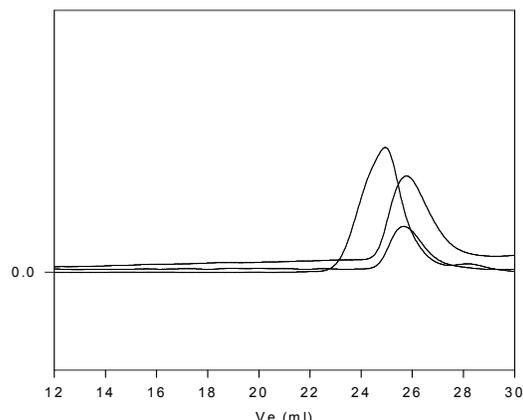
The polymer is soluble in THF and CHCl_3 .

$^1\text{H-NMR}$ Spectrum of the block copolymer :



SEC of the block copolymer:

P 13061-MMAIBEMA -G-St



Size exclusion chromatography:

- Poly(methyl methacrylate), $M_n=3400$, $M_w=5100$, $PI=1.50$
- Block Copolymer PMMA(3400)-b-PBriEMA(1300), $PI=1.35$
- Graft Poly-styrene M_n : 2800 M_w/M_n 1.39 of Grafts branch about = 5
- M_n of each branch: 560
- composition from $^1\text{H-NMR}$

DSC thermogram for the polymer:

