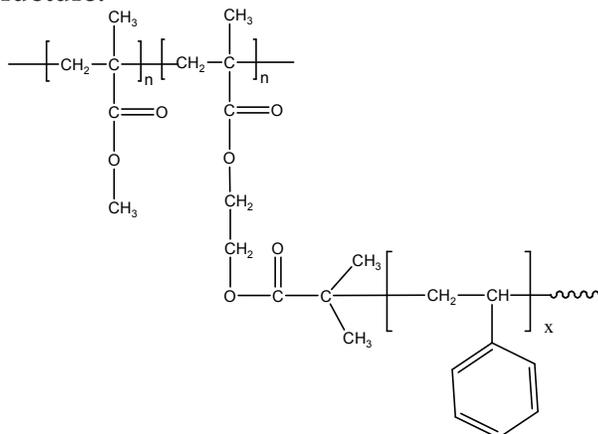


### Sample Name:

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

Sample #: P13049-MMAIBEMA-G-S

### Structure:



### Composition:

Mn × 10 <sup>3</sup> MMA-b-IBEMA-G-S	PDI
5.5-b-2.5-g-8.0	1.45
Number of grafts ≈ 9	Molecular weight of Polystyrene branch ≈ 900
T <sub>g</sub> for the polymer	90 oC

### Synthesis Procedure:

Poly(Methylmethacrylate-b-2-bromoisobutyryl ethylmethacrylate) block copolymer is synthesized by living anionic polymerization with sequential addition of methyl methacrylate and 2-(bromoisobutyryl) ethylmethacrylate. Proprietary procedure is under publication. The grafting of polystyrene was carried out 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 <sup>1</sup>H-NMR spectroscopy in CdCl<sub>2</sub> 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.

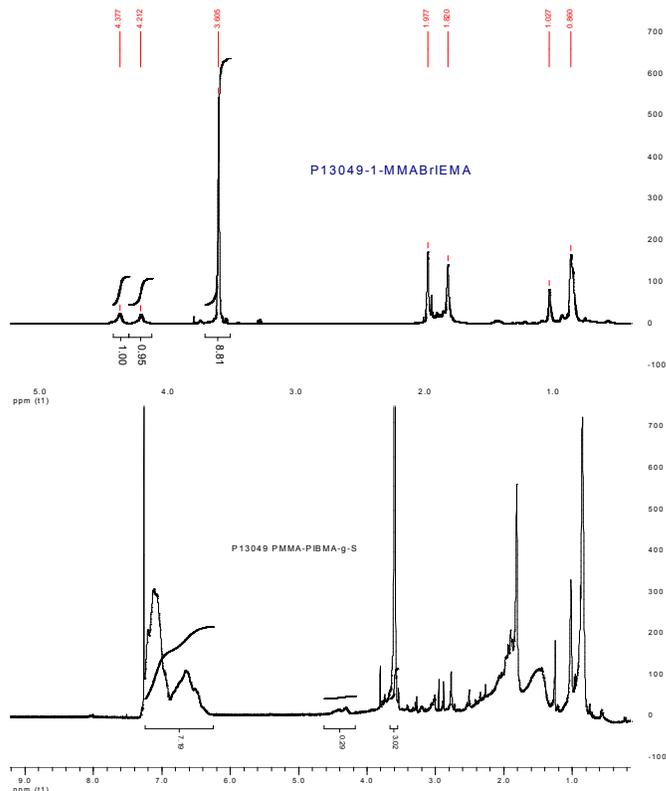
### Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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<sub>g</sub>).

### Solubility:

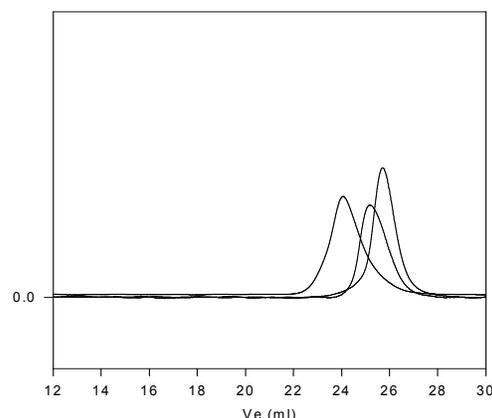
Polymer is soluble in THF and CHCl<sub>3</sub>.

### <sup>1</sup>H-NMR Spectrum of the block copolymer :



### SEC of the block copolymer:

P13049-MMAIBEMA -G-S



Size exclusion chromatography:

— Poly(methyl methacrylate), M<sub>n</sub>=5500, M<sub>w</sub>=6000, PI=1.09

— Block Copolymer PMMA(5500)-b-PBriEMA(2500), PI=1.20

Grat Polystyrene Mn : 8000 Mw/Mn 1.45 # of Grafts branch about =9  
Mn of each branch: 900  
composition from H NMR

### DSC thermogram for the polymer:

