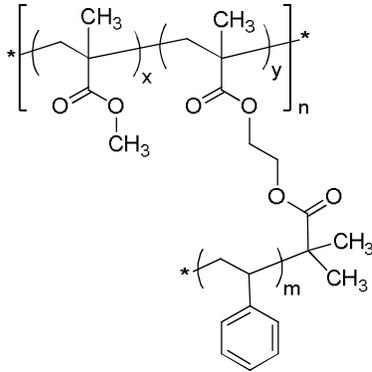


**Sample Name:** Poly(methyl methacrylate-*co*-[isobutyrylethyl methacrylate-*graft*-polystyrene])

**Sample #:** P13070-MMAIBEMARan-g-S

**Structure:**



**Composition:**

MMA- <i>co</i> -BrIBEMA (starting random copolymer, lot # P13068-8)		
$M_n \times 10^3$ (g/mol)	BrIBEMA content	$M_w/M_n$
34.7	77 mol%	broad

MMA- <i>co</i> -(IBEMA- <i>g</i> -S)	
$M_n \times 10^3$ (g/mol)	$M_w/M_n$
8.0- <i>co</i> -18.6- <i>g</i> -18.4	4.0

$T_g$ of MMA- <i>co</i> -(IBEMA- <i>g</i> -S):	85°C
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**Synthesis procedure:**

Poly(methyl methacrylate-*co*-2-bromoisobutyryl ethyl methacrylate) random copolymer was synthesized by living anionic polymerization, followed by grafting polystyrene on IBEMA units by controlled radical polymerization.

**Characterization:**

The molecular weight and polydispersity index of the polymer were determined by size exclusion chromatography (SEC) using THF (containing triethyl amine) as an eluent.

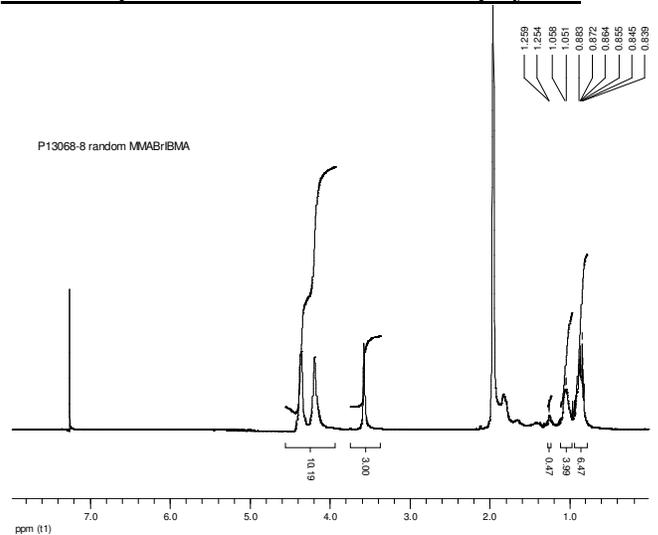
**Thermal analysis:**

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature ( $T_g$ ) of the polymer was measured at a scan rate of 10°C/min shortly after creating thermal history of the sample.

**Solubility:**

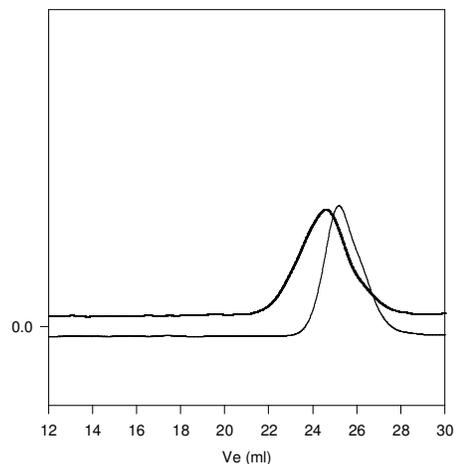
The polymer is soluble in THF, chloroform.

**$^1\text{H}$  NMR spectrum of MMA-BrIBEMA copolymer:**



**SEC elugram of MMA-BrIBEMA (random copolymer) and MMAIBEMARan-g-S (graft copolymer) in THF:**

P13070\_MMAIBEMARan-g-S



Size exclusion chromatography:

— Random Copolymer (PMMA-*co*-(BrIBEMA-*g*-S)),  
Mn of MMA-BrIBEMA(77mol%): 34,700; PDI=5.3  
Total Mn (after PS grafting): 45,000; PDI=4.0

**DSC thermogram of the polymer:**

