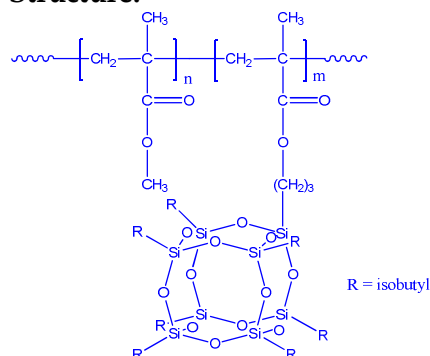


**Sample Name:**

Poly( methyl methacrylate-b-isobutyl-POSS methacrylate)

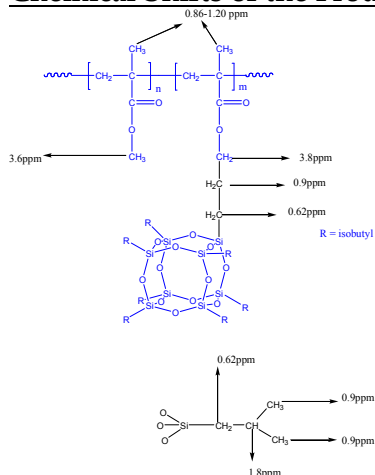
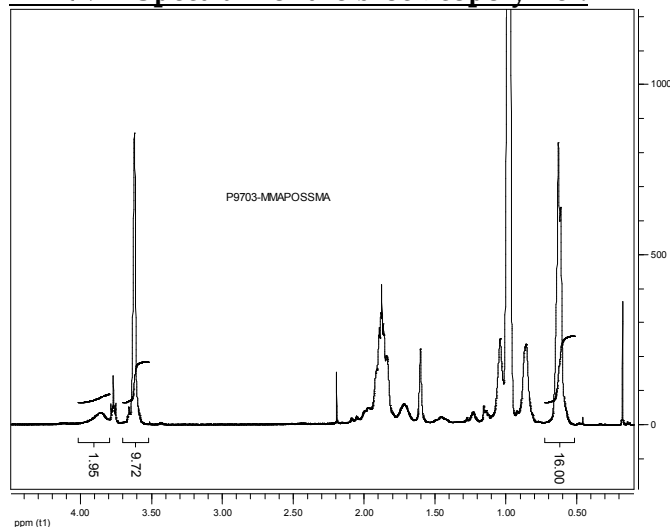
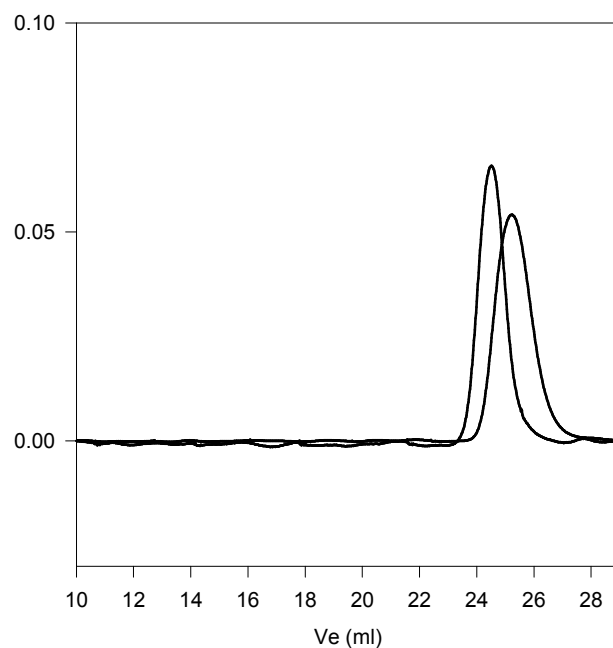
**Sample #:** P9703-MMAPOSSMA**Structure:****Composition:**

Mn × 10 <sup>3</sup> MMA-b-POSSMA	PDI
6.5-b-19.5	1.13

**Synthesis Procedure:** Poly(Methyl methacrylate-b-isobutyl-POSS methacrylate) Block copolymer is synthesized by living anionic polymerization with sequence addition of methyl methacrylate followed by addition of POSS methacrylate monomer. The obtained polymer was precipitation in methanol.

**Characterization:** Polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from HNMR.

**Solubility:** Polymer is soluble in THF, toluene. It is precipitated into methanol.

**Chemical Shifts of the Products:****<sup>1</sup>H-NMR Spectrum of the block copolymer:****SEC of the block copolymer:****P9703-MMAPOSSMA**

— Poly(methyl methacrylate):  $M_n=6500$ ,  $M_w=7700$ ,  $M_w/M_n=1.18$

— Block Copolymer MMA(6500)-b-POSSMA(19500),  $M_w/M_n=1.13$

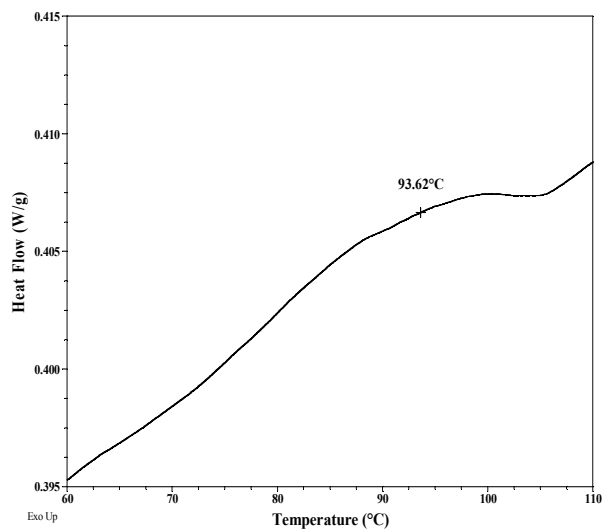
### Thermal analysis of the P9703- MMAPOSSMA

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 ( $T_g$ ).

### Melting and crystallization curve for the sample

The melting temperature ( $T_m$ ) was taken as the maximum of the endothermic peak where as the crystallization temperature ( $T_c$ ) was considered as the minimum of the exothermic peak.

### Crystallization curves POSSMA block:



### Thermal analysis results at a glance:

Sample	$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
MMA block	-	-	Not distinct
POSSMA block	99 & 231	94	-

### Melting curves for POSMMA:

