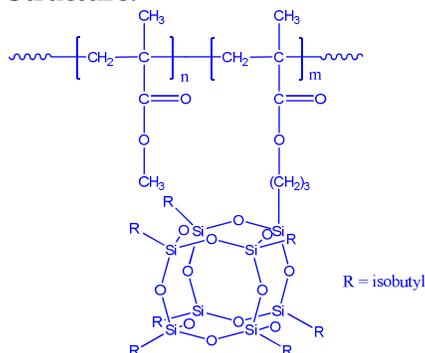


### Sample Name:

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

Sample #: P9695-MMAPOSSMA

### Structure:



### Composition:

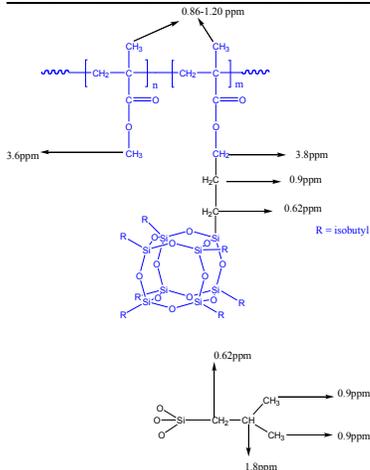
Mn × 10 <sup>3</sup> MMA-b-POSSMA	PDI
8.0-b-28.0	1.06

**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.

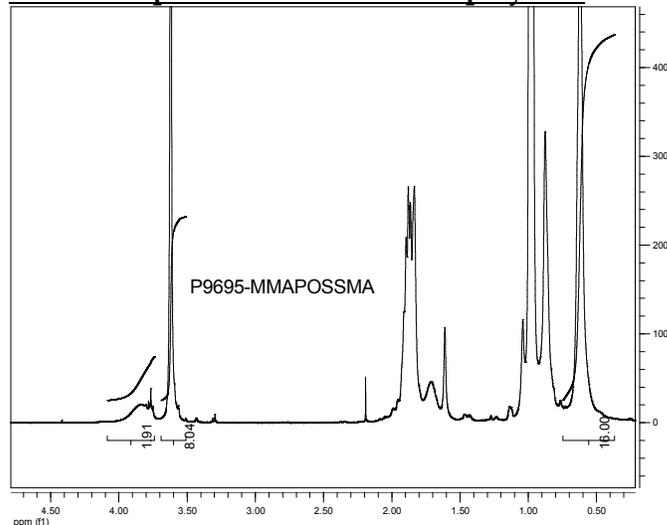
**Characterization:** Polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from HNMR.

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

### Chemical Shifts of the Products:

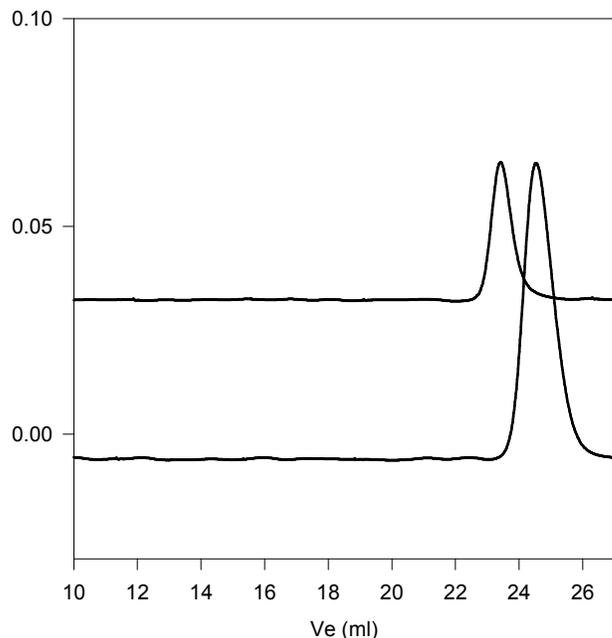


### <sup>1</sup>H-NMR Spectrum of the block copolymer:



### SEC of the block copolymer:

#### P9695-MMAPOSSMA



— Poly(methyl methacrylate): M<sub>n</sub>=8000, M<sub>w</sub>=8800, M<sub>w</sub>/M<sub>n</sub>=1.10  
— Block Copolymer MMA(8000)-b-POSSMA(28000), M<sub>w</sub>/M<sub>n</sub>=1.06

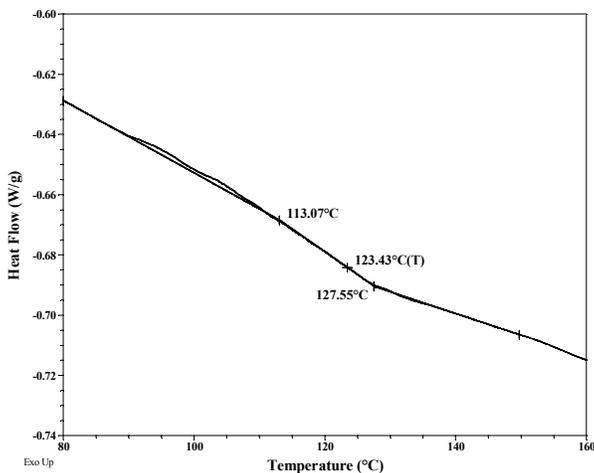
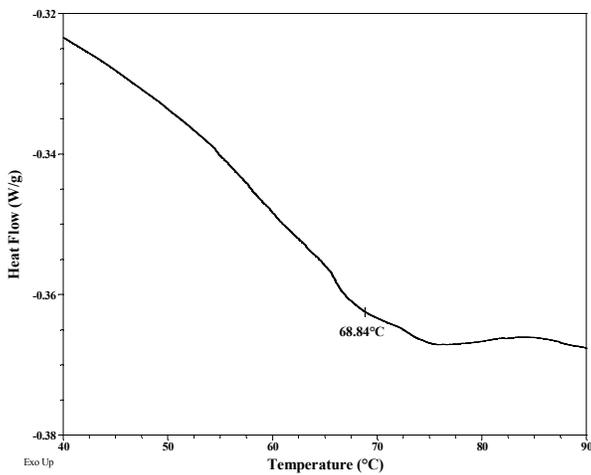
## Thermal analysis of the P9695- MMAPOSSMA

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	89 & 208	85	-

### Melting curves for POSSMA:

