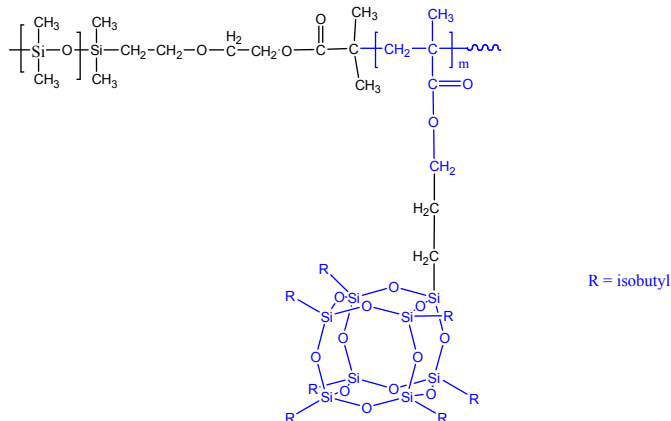## Sample Name:
**Poly(dimethylsiloxane-b-POSSisobutylmethacrylate)**

POSSisoButylMA: 3-(3,5,7,9,11,13,15-heptaisobutylpentacyclo[9.5.1.1$_{3,9}$.1$_{5,15}$.1$_{7,13}$]octasiloxan-1-yl)propylmethacrylate

Sample #: *P14013-DMSPOSSisoBuMA*

**Structure:**



R = isobutyl

**Composition:**

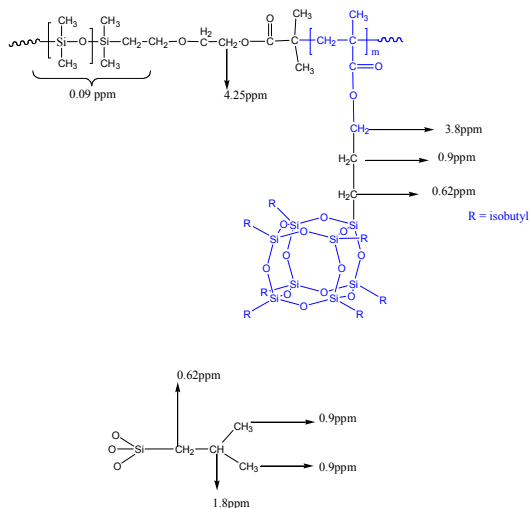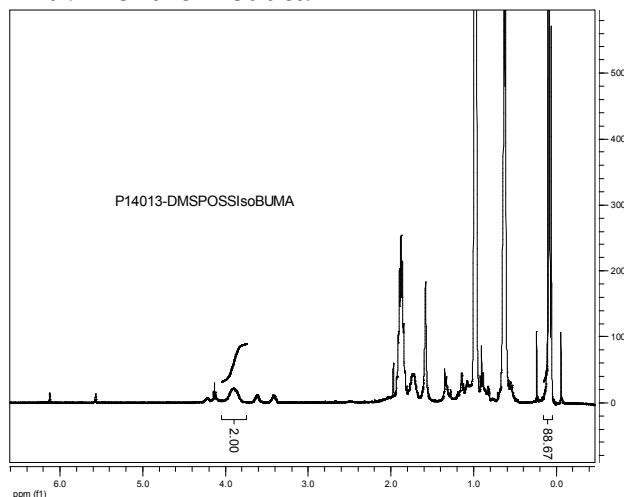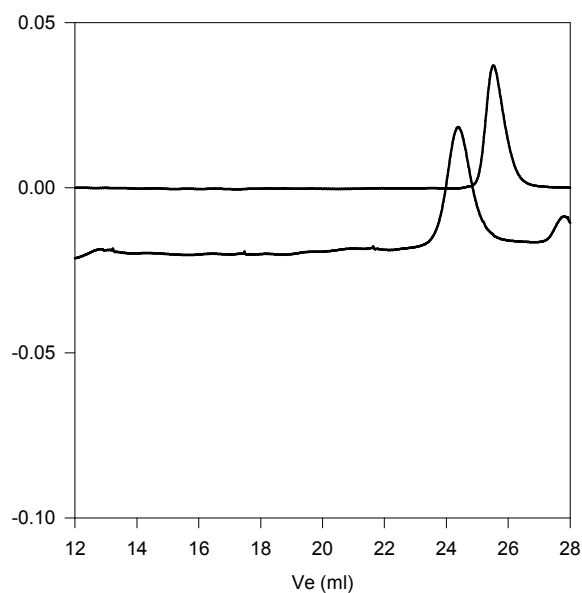| Mn x 10$^3$ PDMS-b-POSSisoBuMA | PDI |
|---|---|
| 5.0-b-4.5 | 1.13 |

**Synthesis Procedure:**

Polymer is synthesized by controlled radical polymerization process.

**Purification of the polymer:**

The obtained polymer dissolved in CHCl$_3$/toluene and pass through the column packed with silica. The polymer was recovered by precipitation in cold ether/ethanol mixture.

**Solubility:**

Polymer is soluble in CHCl$_3$, THF and toluene. The polymer precipitated out from hexane.

**Chemical Shifts:**



R = isobutyl

### HNMR of the Product:



P14013-DMSPOSSIsoBUMA

### SEC of the block copolymer:

**P14013-DMSPOSSisoBuMA**



Ve (ml)

—— Poly(DMS): M$_n$=5000, M$_w$=6300, M$_w$/M$_n$=1.05

—— Block Copolymer PDMS(5000)-b-POSSisoBuMA(4,500),M$_w$/M$_n$=1.13

## Thermal analysis of the *P14013-DMSPOSSisoBuMA*

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 ($T_g$).
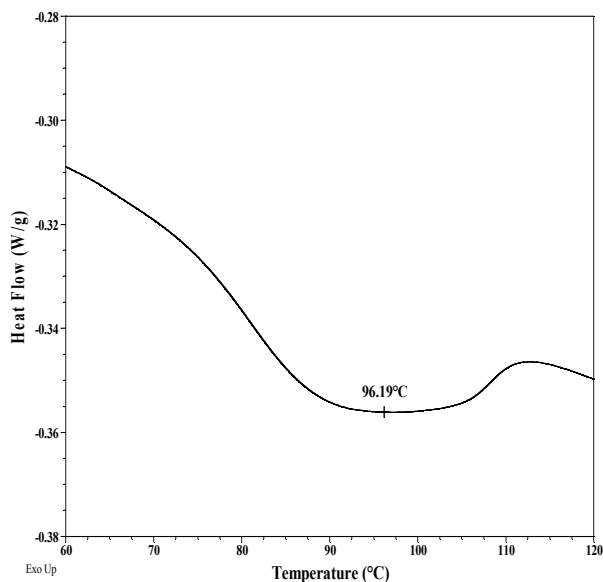
### Melting and crystallization curve for the sample

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.

### Thermal analysis results at a glance:

| Sample | $T_m$ (°C) | $T_c$ (°C) | $T_g$ (°C) |
|---|---|---|---|
| DMS block | Not distinct | | |
| POSSMA block | 96 | 53 | - |

### Crystallization curves POSSisoBuMA block:



### Melting curves for POSSBuMA: