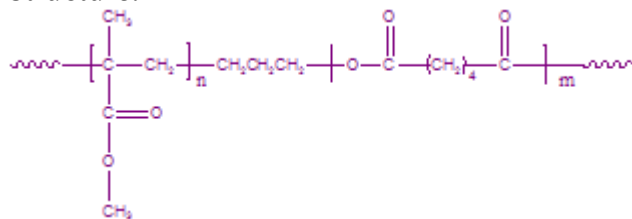


**Sample Name:**

Poly(methyl methacrylate-b- adipic anhydride)

**Sample #: P4099- MMAAnh****Structure:****Composition:**

|                                      |   |
|--------------------------------------|---|
| Mn x 10 <sup>3</sup><br>MMA-b-AAAnhy | PDI   |
| 3.0-b-2.5                            | -   |
| MMA block: Not distinct              | AAAnhydride block:<br>T <sub>c</sub> and T <sub>m</sub> : 136 and 151°C |

**Synthesis Procedure:**

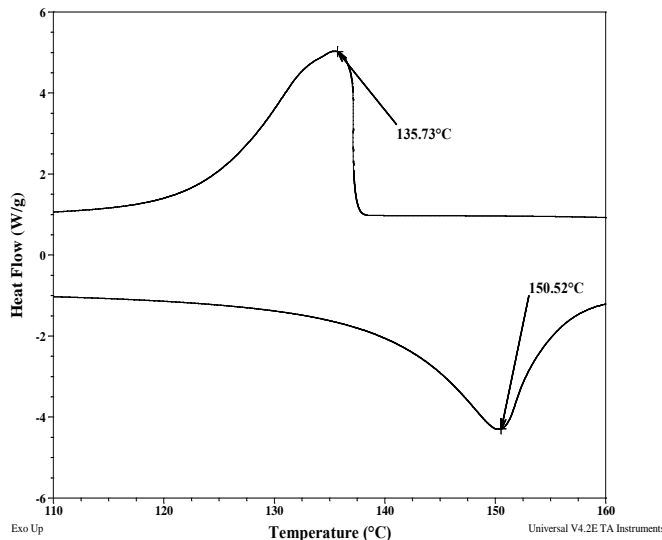
Poly(methyl methacrylate -b- adipic anhydride) is prepared by living anionic polymerization of methyl methacrylate and coordination polymerization of adipic anhydride.

**Characterization:**

An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of adipic anhydride and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the methyl methacrylate protons with the adipic anhydride protons.

**Solubility:**

Poly(methyl methacrylate -b-adipic anhydride) is soluble in CHCl<sub>3</sub>, DMF and precipitated out from cold ethanol, diethyl ether.

**Melting & crystallization curve for AAAnhydride block:**

## Thermal analysis of the sample# P4099-MMAAA<sub>nh</sub>

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 ( $T_g$ ).

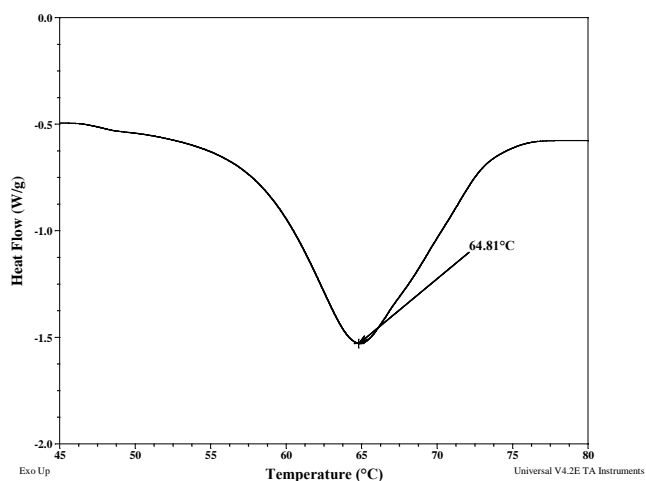
### Melting and crystallization curve for the sample

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.

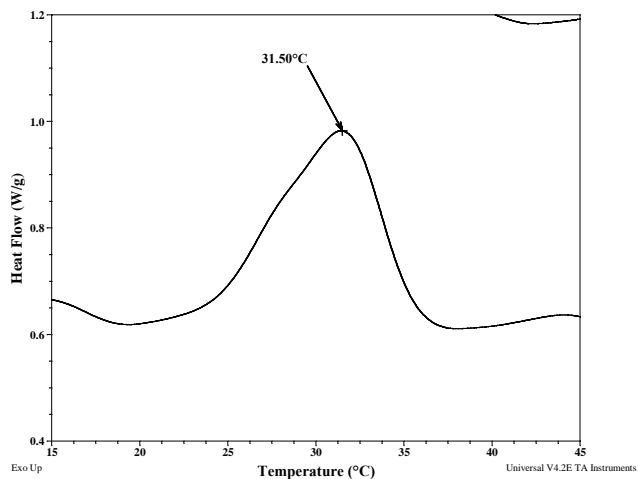
### Typical thermal analysis results at a glance

| Sample           | $T_m$ (°C) | $T_c$ (°C) | $T_g$ (°C) |
|------------------|------------|------------|------------|
| DMS              | -41        | -62        | -127 (lit) |
| AA <sub>nh</sub> | 65         | 32         | 22         |

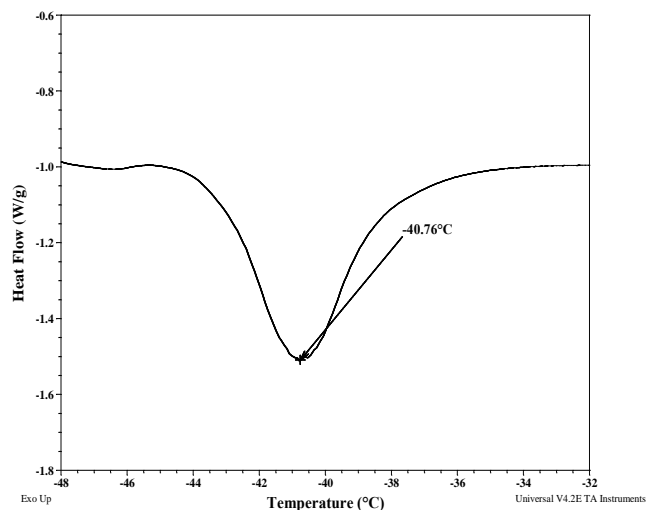
### Melting curve for AA<sub>nh</sub> block:



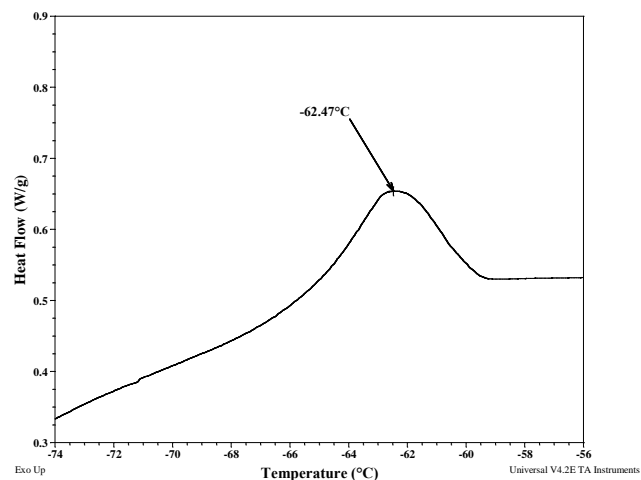
### Crystallization curve for AA<sub>nh</sub> block:



### Melting curve for DMS block:



### Crystallization curve for DMS block:



### DSC thermogram for AA<sub>nh</sub>hydride block:

