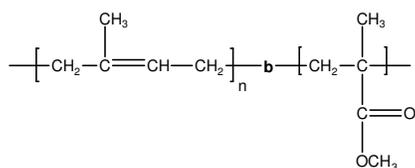


**Sample Name:** Poly(1,4-isoprene-b-methyl methacrylate)

**Sample #:** P260-IpMMA

**Structure:**

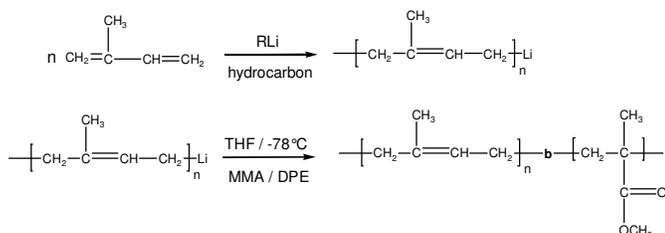


**Composition:**

Mn x 10 <sup>3</sup> Ip-b-MMA	Mw/Mn (PDI)
8.5-b-36.4	1.05
T <sub>g</sub> for Ip block: -65°C	T <sub>g</sub> for MMA block: 129°C

**Synthesis Procedure:**

Poly(1,4-isoprene-b-methyl methacrylate) is prepared by living anionic polymerization with sequence addition of isoprene followed by methyl methacrylate. The reaction scheme is shown below:



**Characterization:**

An aliquot of the anionic poly(1,4-isoprene) block was terminated before addition of methyl methacrylate 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 vinylic isoprene proton at about 5.1 ppm with methyl methacrylate protons at 3.6 ppm. Block copolymer PDI is determined by SEC.

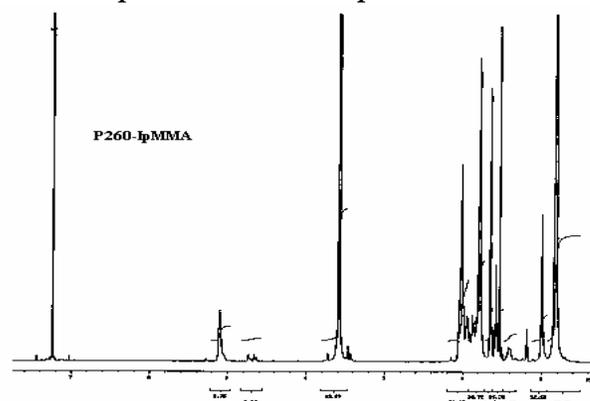
**Thermal Analysis:**

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T<sub>g</sub>) of the sample has been considered.

**Solubility:**

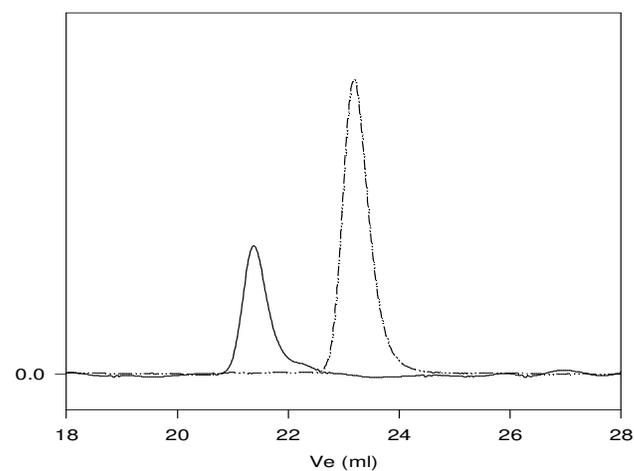
Poly(1,4-isoprene-b-methyl methacrylate) is soluble in THF, chloroform and toluene.

**<sup>1</sup>H NMR spectrum of the sample**



**SEC profile of the block copolymer**

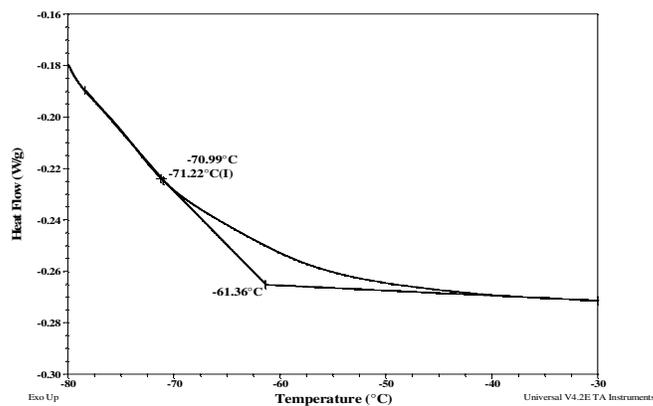
**P260-IpMMA**



— Polyisoprene, M<sub>n</sub>=8500, M<sub>w</sub>=8900, PI=1.04

— Block Copolymer PIP(8500)-b-PMMA(36400), PI=1.08

**DSC thermogram for Ip block:**



**Thermogram for MMA block:**

