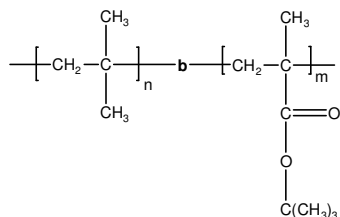


**Sample Name:** Poly(isobutylene-b-t-butyl methacrylate)

**Sample #:** P1897-IbtBuMA

**Structure:**

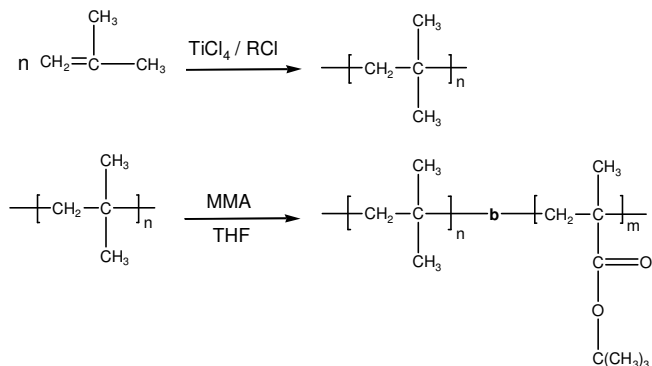


**Composition:**

Mn x 10 <sup>3</sup> Ib-b-tBuMA	Mw/Mn (PDI)
5.2-b-36.5	1.14
T <sub>g</sub> for Ib block: -69°C	T <sub>g</sub> for tBuMA block: 112°C

**Synthesis Procedure:**

Poly(isobutylene-b-t-butyl methacrylate) is prepared by cationic polymerization of isobutylene followed by living anionic polymerization of t-butyl methacrylate. The reaction scheme is shown below:



**Characterization:**

An aliquot of the poly(isobutylene) block was terminated before addition of t-butyl 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 isobutylene protons with the peak area of 4-vinyl pyridine protons. Block copolymer PDI is determined by SEC.

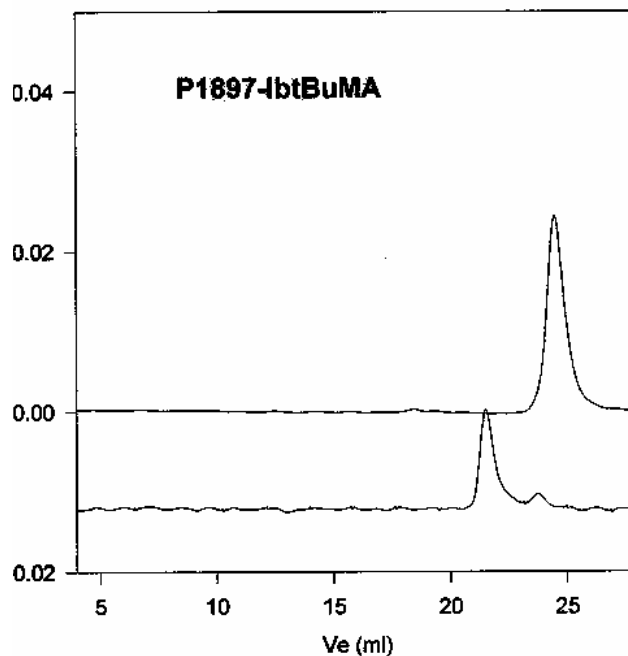
**Thermal analysis:**

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<sub>g</sub>).

**Solubility:**

Poly(1,4-isoprene-b-4-vinyl pyridine) is soluble in THF, toluene, hexane, pentane and cyclohexane.

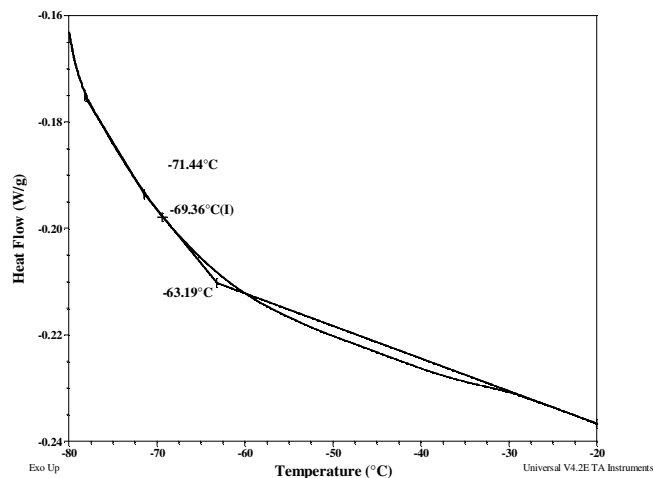
**SEC profile of the block copolymer:**



— Polyisobutylene, M<sub>n</sub>=5200, M<sub>w</sub>=6200, PI=1.18

— Block Copolymer PIB(5200)-b-PtBuMA(36500), PI=1.

**DSC thermograms for Ib block:**



**DSC thermograms for tBuMA block:**

