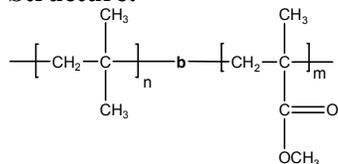


Sample Name:  
**Poly (Isobutylene-b-methyl methacrylate)**

Sample #: **P40452-IbMMA**

Structure:

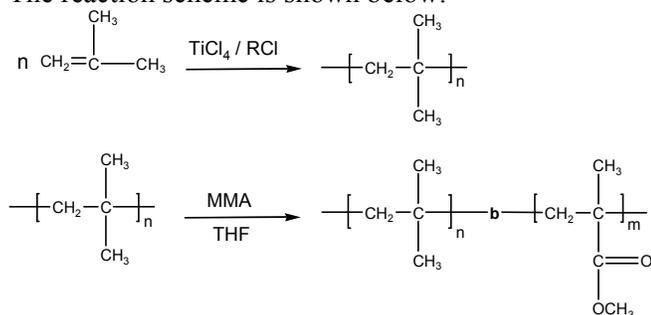


Composition:

$M_n \times 10^3$ Ib-b-MMA	Mw/Mn (PDI)
8.0-b-161.0	2.9

Synthesis Procedure:

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



Characterization:

An aliquot of the poly(isobutylene) 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 isobutylene protons at 1.1 ppm with the peak area of methyl methacrylate protons at 3.6 ppm. 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>).

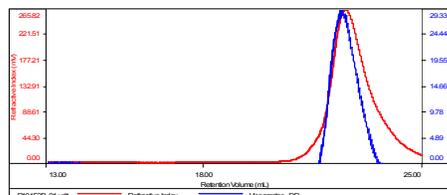
Solubility:

Poly(isobutylene-b-methyl methacrylate) is soluble in THF, toluene and hexane.

**SEC profile of the first block**

P40452-IB

Concentration (mg/mL)	5.0284
Sample dilute (mL/g)	0.1200
Method File	FS80K-F4s207-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF

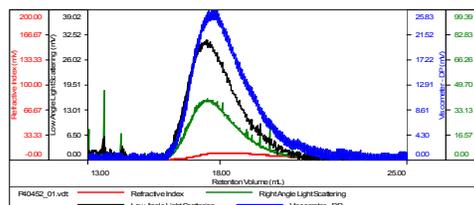


Sample	Mh (Da)	Mw (Da)	Mw/Mh	IV (dL/g)	Mp (Da)
P40452B_01.vct	7,940	9,212	1,160	0,1297	8,221

**SEC profile of the block copolymer**

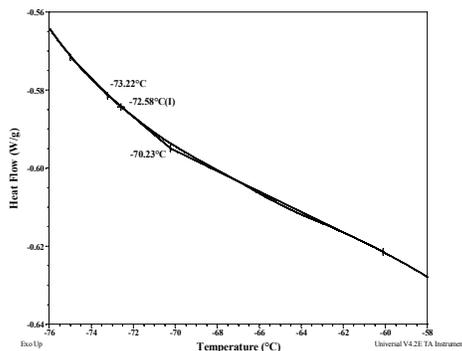
P40452-IB-MMA

Concentration (mg/mL)	0.5500
Sample dilute (mL/g)	0.0800
Method File	FS80K-F4s207-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF



Sample	Mh (Da)	Mw (Da)	Mw/Mh	IV (dL/g)	Mp (Da)
P40452_01.vct	169,576	508,370	2,998	2,7379	638,920

**DSC thermogram for Ib block:**



**DSC thermogram for MMA block:**

