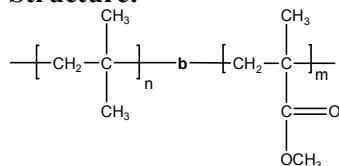


Sample Name:

Poly (Isobutylene-b-methyl methacrylate)

Sample #: **P40452-IbMMA**

Structure:

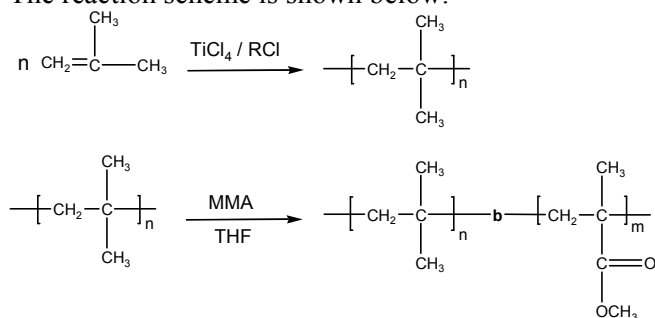


Composition:

$\text{Mn} \times 10^3$ 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 $^1\text{H-NMR}$ 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 $10^\circ\text{C}/\text{min}$. 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).

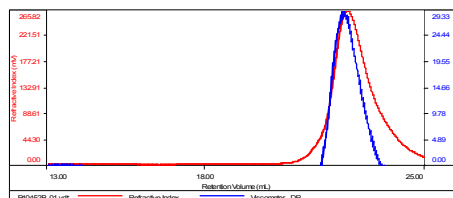
Solubility:

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

SEC profile of the first block

P40452-IB

Concentration (mg/mL)	0.0394
Sample dilute (mL/g)	0.120
Method File	F580K-Fet2017-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF

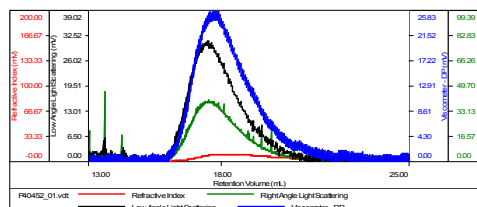


Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
P40452B_01.vdt	7,940	9,212	1.160	0.1297	8,221

SEC profile of the block copolymer

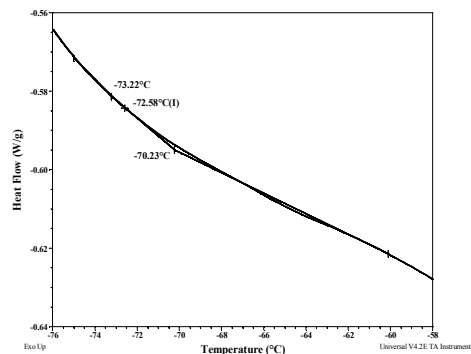
P40452-IB-MMA

Concentration (mg/mL)	0.0520
Sample dilute (mL/g)	0.080
Method File	F580K-Fet2017-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF



Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
P40452_01.vdt	169,576	508,370	2.998	2.7379	638,920

DSC thermogram for Ib block:



DSC thermogram for MMA block:

