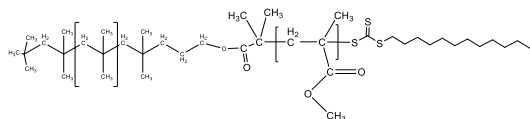Sample Name: **Poly(isobutylene)-b-poly(methyl methacrylate)**

Sample #: **P42365A-IbMMA**

Structure:
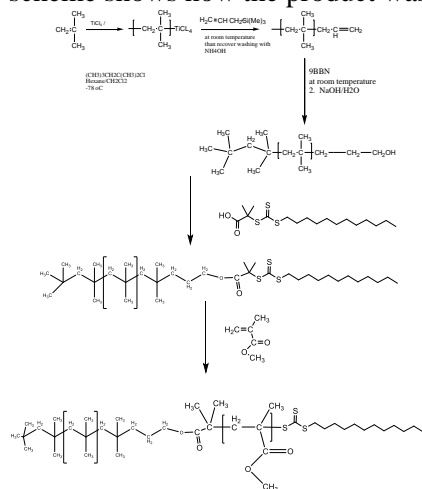

Composition:

Mn × 10³ Ib-b-MMA	Mw/Mn (PDI)
8.5-b-79.0	1.44

Synthesis Procedure:
The polymer was synthesized by Cationic and RAFT polymerization process. The following reaction scheme shows how the product was prepared:

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}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.
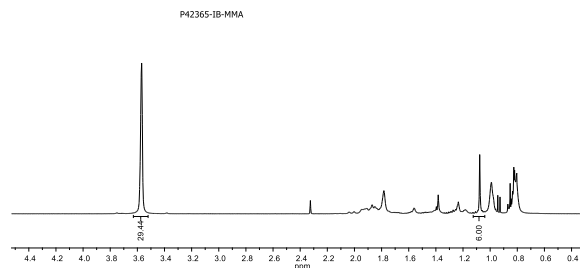
Thermal analysis:
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).
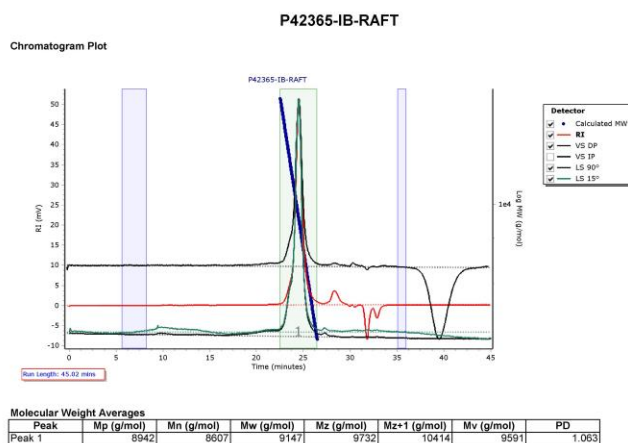
Solubility:
Poly(isobutylene-b-methyl methacrylate) is soluble in THF, toluene and hexane.

H NMR spectrm of the Sample:

SEC profile of the PIB-RAFT macroinitiator:

Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	8942	8607	9147	9732	10414	9591	1.063

SEC elugram of the Block copolymer:

Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	142040	87178	125468	168917	215490	162647	1.439