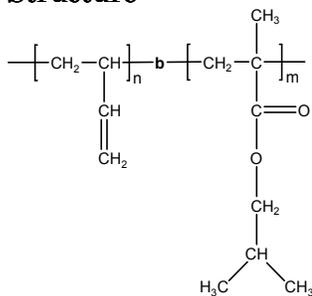


Sample Name: Poly(1,2-butadiene-b-i-butyl methacrylate)

Sample #: P2340-BdiBuMA

Structure:

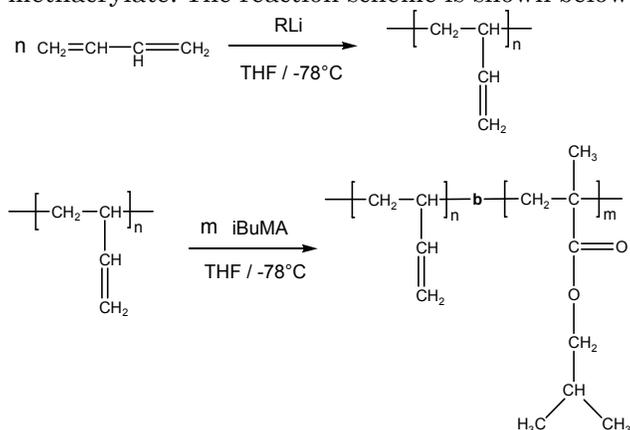


Composition:

$M_n \times 10^3$ Bd-b-iBuMA	$M_w/M_n$ (PDI)
62-b-900	1.5
$T_g$ for Bd block: $-18$ °C	$T_g$ for Bd block: $117$ °C

Synthesis Procedure:

Poly(1,2-butadiene-b-i-butyl methacrylate) is prepared by living anionic polymerization with sequence addition of butadiene followed by isobutyl methacrylate. The reaction scheme is shown below:



Characterization:

An aliquot of the anionic poly(butadiene) block was terminated before addition of i-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from  $^1H$ -NMR spectroscopy by comparing the peak area of the vinylic butadiene protons with the isobutyl 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 ( $T_g$ ).

Solubility:

Poly(butadiene-b-i-butyl methacrylate) is soluble in THF,  $CHCl_3$ , toluene, dioxane.

$^1H$  NMR spectrum of the sample

