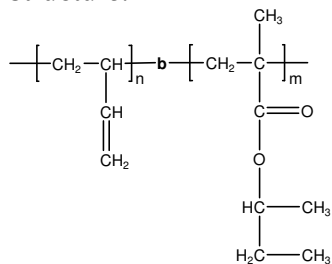


Sample Name: Poly(1,2-butadiene-b-s-butyl methacrylate)

Sample #: P2376-BdsBuMA

Structure:

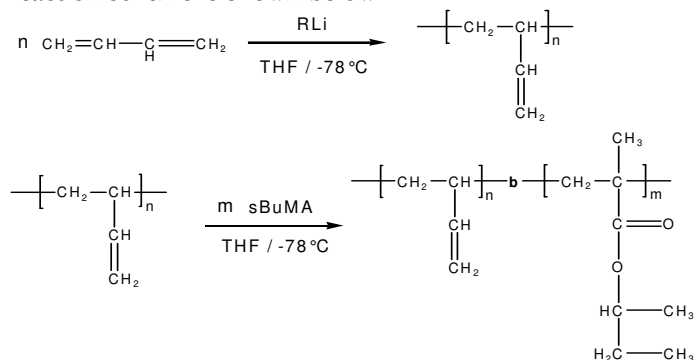


Composition:

Mn x 10 ³ Bd-b-sBuMA	Mw/Mn (PDI)
73.0-b-313.0	1.13
T _g for Bd block: -11°C	T _g for sBuMA block: 74°C

Synthesis Procedure:

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



Characterization:

An aliquot of the anionic poly(butadiene) block was terminated before addition of s-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 at about 5.4 ppm with the sec butyl protons at block copolymer PDI is determined by SEC.

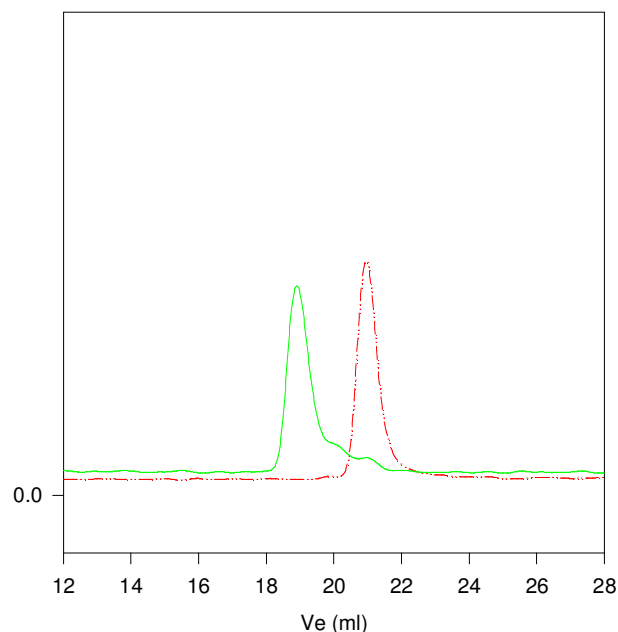
Thermal analysis:

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-sec Butyl methacrylate) is soluble in THF, CHCl₃, toluene, dioxane. The polymer can be precipitate out in ethanol, methanol.

**SEC profile of the block copolymer
P2376-Bd SBuMA**

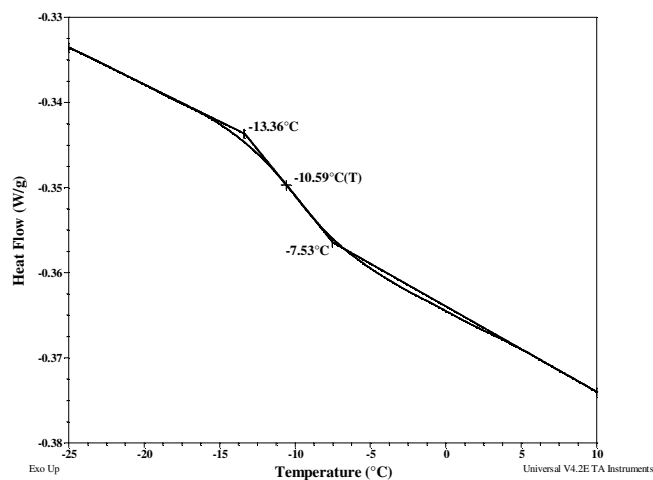


SEC profile of the polymer:

--- Polybutadiene block, M_n=71000, M_w=74000, PI=1.04

— Diblock Copolymer PBd(71000)-b-PsBuMA(273000), PI=1.13
Final molecular weight from Light scattering

DSC thermogram for Bd block:



DSC thermogram for sBuMA block:

