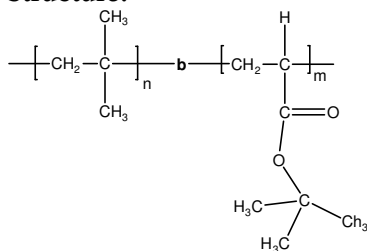


Sample Name: Poly(isobutylene-b-tert.butylacrylate)

Sample #: P9245-IBtBuA

Structure:



Composition:

$M_n \times 10^3$ Ib-b-tBuA	$M_w/M_n$ (PDI)
5.0-b-5.6	1.28
$T_g$ for Ib block: $-64^\circ\text{C}$	$T_g$ for tBuA block: $8^\circ\text{C}$

Synthesis Procedure:

Poly(isobutylene-b- tert.butylacrylate) is prepared by cationic polymerization of isobutylene to obtained functionalized poly isobutylene . This end group converted to anionic species followed by living anionic polymerization of tert.butylacrylate in the presence of LiCl as additive.

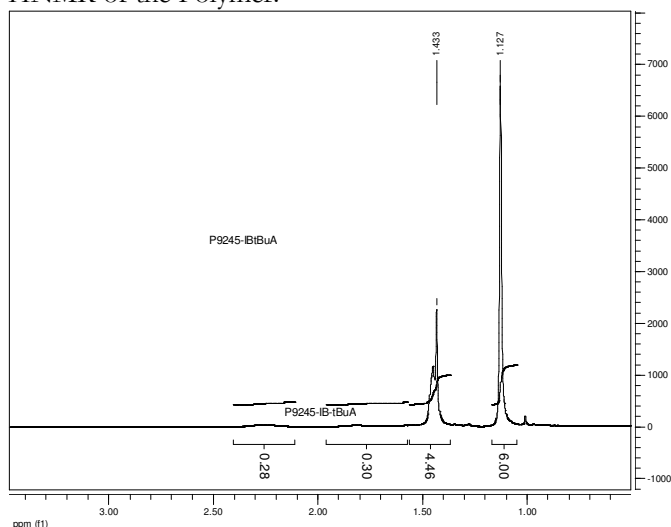
**Characterization:**An aliquot of the poly(isobutylene) block was terminated before addition of methyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the isobutylene protons at 1.1 ppm with the peak area of tert.butyl acrylate protons at 1.4 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 ( $T_g$ ).

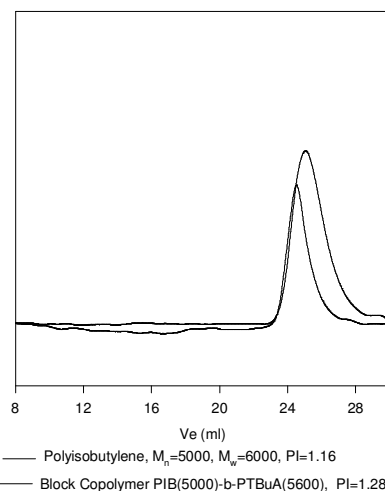
**Solubility:** Poly(isobutylene-b-tert.butyl acrylate) is soluble in THF, toluene and hexane.

$^1\text{H-NMR}$  of the Polymer:

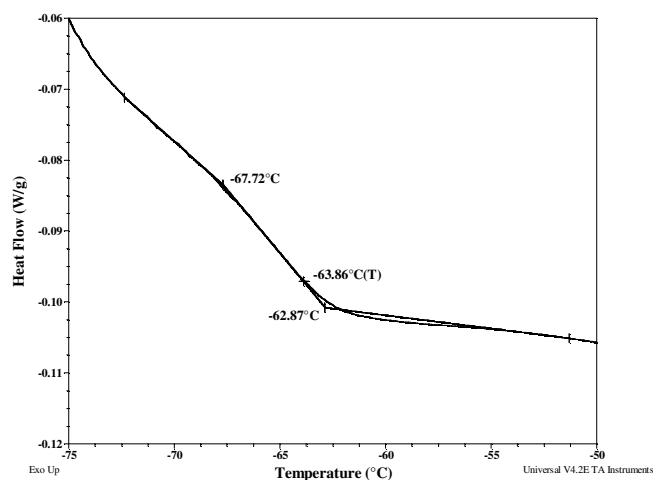


SEC profile of the block copolymer

P9245-IBtBuA



DSC thermogram for Ib block:



DSC thermogram for tBuA block:

