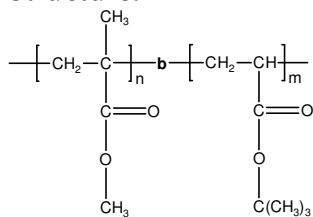


**Sample Name:** Poly(methyl methacrylate-b-t-butyl acrylate)

**Sample #:** P4981-MMA-tBuA

**Structure:**



**Composition:**

$M_n \times 10^3$ PMMA-b-PtBuMA	PDI
38.0-b-50.0	1.2

**Synthesis Procedure:**

Poly(methyl methacrylate-b-t-butyl acrylate) is prepared by living anionic polymerization with sequence addition of methyl methacrylate followed by addition of t-butyl acrylate or vice versa.

**Characterization:**

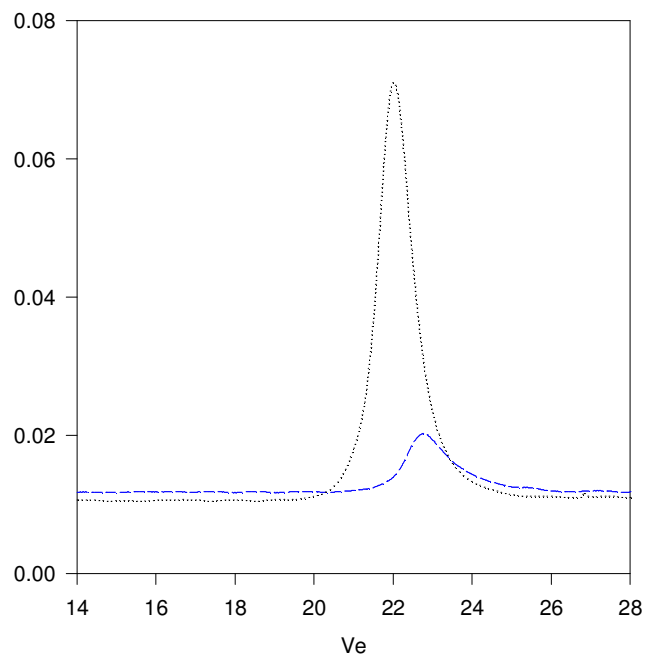
An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the t-butyl methacrylate protons at 1.43 ppm with the peak area of the methyl methacrylate protons at 3.6 ppm. Copolymer PDI is determined by SEC.

**Solubility:**

Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF,  $\text{CHCl}_3$ , toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

**SEC of the block copolymer:**

**P4981-tBuAMMA**



Size Exclusion Chromatography :

--- Poly tert-butylacrylate,  $M_n=50000$   $M_w/M_n=1.20$

..... Block Copolymer PtBuA(50000)-MMA(38,000),  $M_w/M_n=1.2$

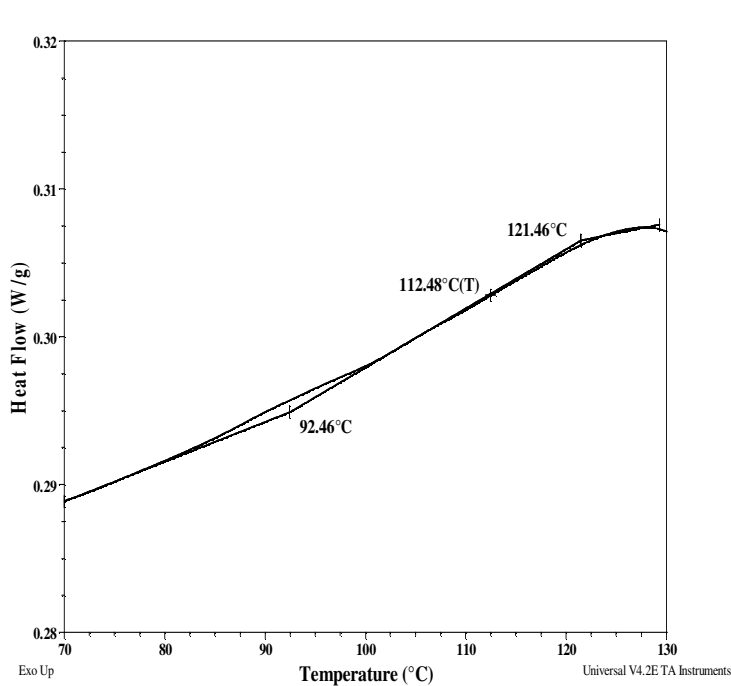
Thermal analysis of sample P4981-MMAAtBuA

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 ( $T_g$ ).

Glass transition temperature at a glance

$T_g$ for MMA block	112°C
$T_g$ for tBuA block	41°C

Thermogram of MMA block:



Thermogram for tBuA block

