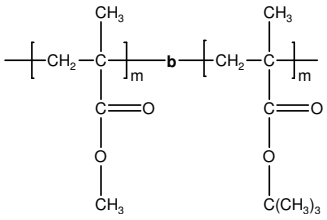
Sample Name: Poly(methyl methacrylate-b-t-butyl methacrylate)

Sample #: P8422-MMAtBuMA

Structure:



Composition:

Mn x 10^3 PMMA-b-PtBuMA	PDI
6.7-b-1.3	1.17

Synthesis Procedure:

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

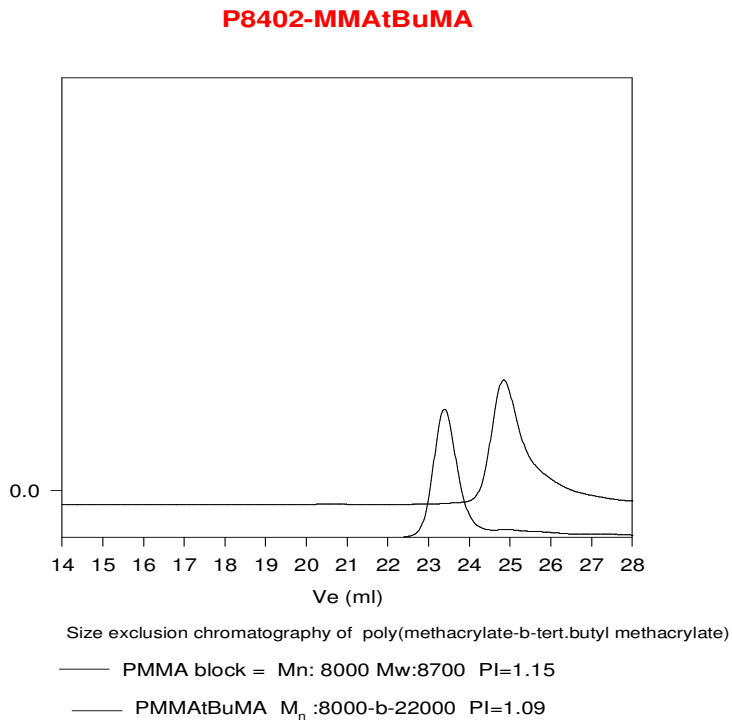
Characterization:

An aliquot of the anionic poly(methyl methacrylate) block was terminated before addition of t-butyl 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 t-butyl methacrylate protons at about 1.43 ppm with the peak area of the methyl methacrylate protons at about 3.6 ppm. Copolymer PDI is determined by SEC.

Solubility:

Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF, $CHCl_3$, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

SEC of the block copolymer:



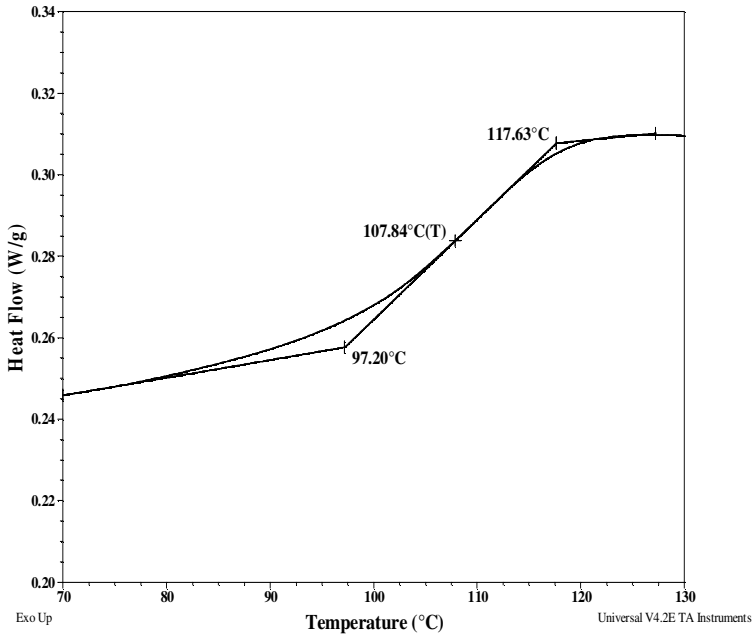
Thermal analysis of sample P8422-MMAtBuMA

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	108°C
T_g for tBuA block	33°C

Thermogram of MMA block:



Thermogram for tBuA block