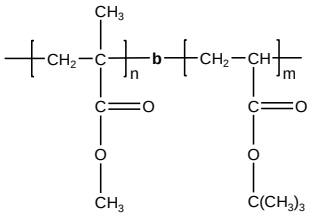
Sample Name: Poly(methyl methacrylate-b-t-butyl acrylate)

Sample #: P8253-MMAtBuA

Structure:



Composition:

Mn x 10^3 PMMA-b-PtBuA	PDI
12.0-b-3.5	1.10

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.

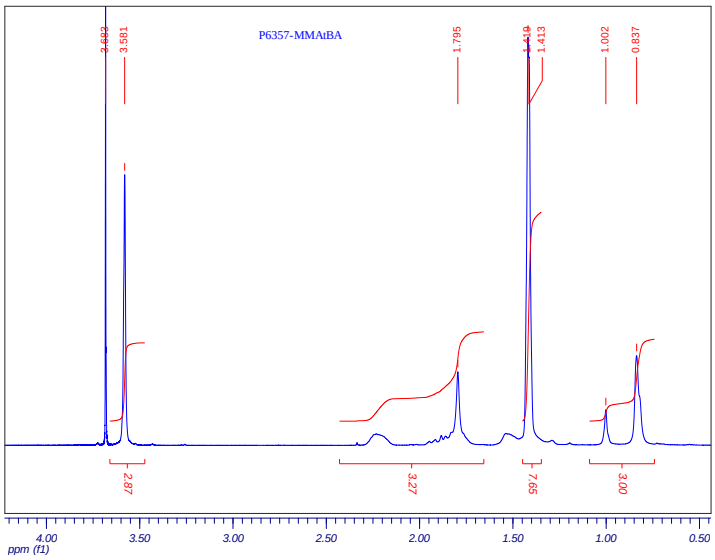
Characterization:

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}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:

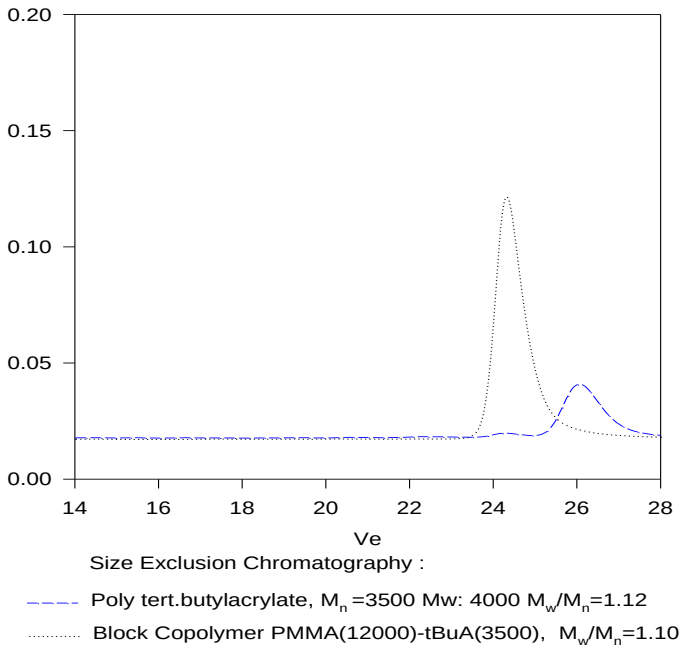
Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF, $CHCl_3$, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

^{1}H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P8253-MMAtBuA



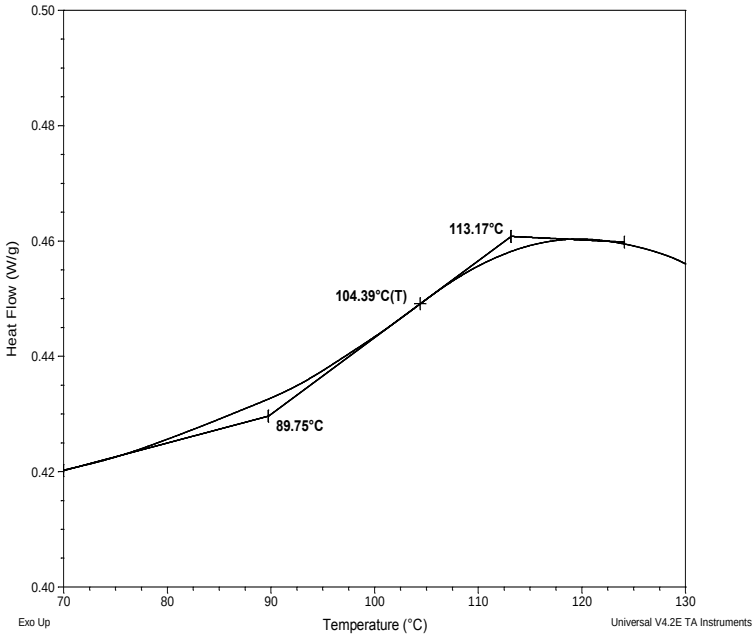
Thermal analysis of sample P8253-MMAtBuA

Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min.The inflection glass transition temperature (T_g) has been considered.

Glass transition temperature at a glance

MMA block	**104°C**
t-BuA block	**09°C**

Thermogram for MMA block



Thermogram for tBuA block