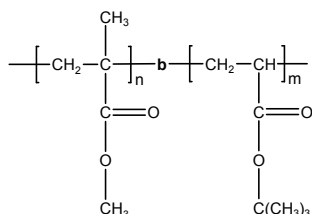


Sample Name: Poly(methyl methacrylate-b-t-butyl acrylate)

Sample #: P6357-MMA**t**BuA

Structure:



Composition:

Mn x 10 ³ PMMA-b-PtBuA	PDI
27.0-29.5	1.20

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.

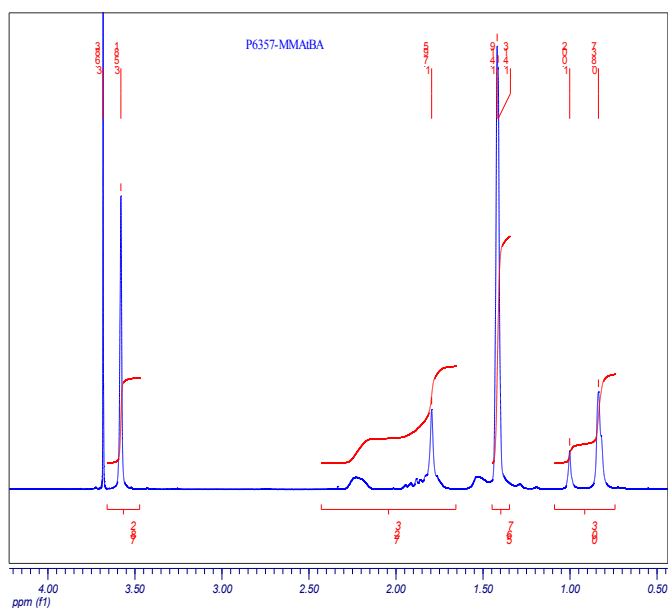
Characterization:

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 ¹H-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.

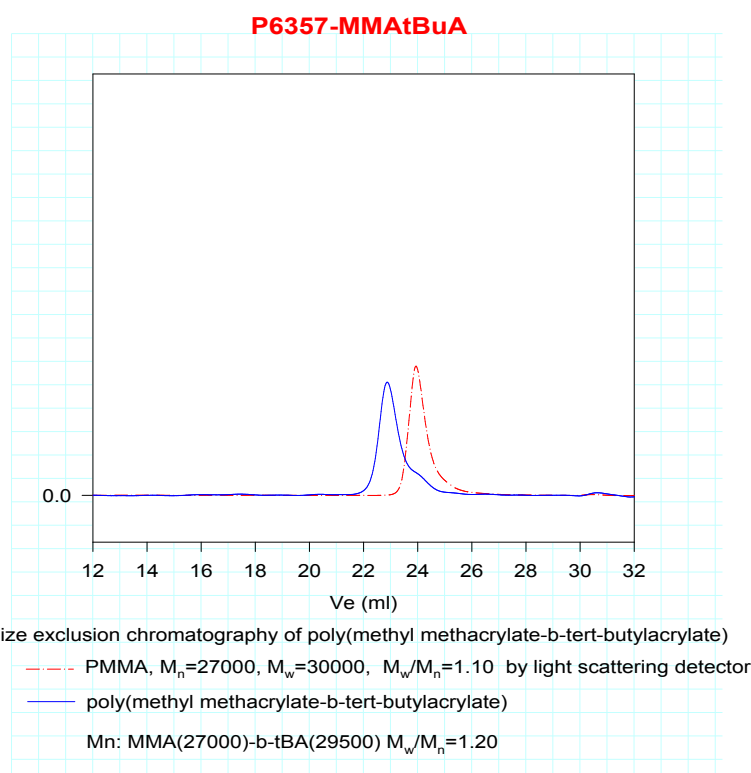
Solubility:

Poly(methyl methacrylate-b-t-butyl methacrylate) is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

¹H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:



Thermal analysis of sample P6357-MMA_tBuA

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	109°C
T_g for tBuA block	35°C

Thermogram for tBuA block

Thermogram of MMA block:

