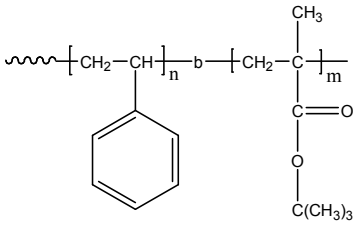
Sample Name: Poly(styrene-b-t-butyl methacrylate)

Sample #: P3752A-StBuMA

Structure:



Composition:

Mn x 10^3 S-b-tBuMA	Mw/Mn (PDI)
2.5-b-25.0	1.12

Glass transition temperature at a glance

T_g for PS block	Not distinct
T_g for tBuMA block	113°C

Synthesis Procedure:

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

Characterization:

An aliquot of the polystyrene 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 styrene protons at 6.3-7.2 ppm with the peak area of t-butyl methacrylate protons at 1.43 ppm. Block copolymer PDI is determined by SEC.

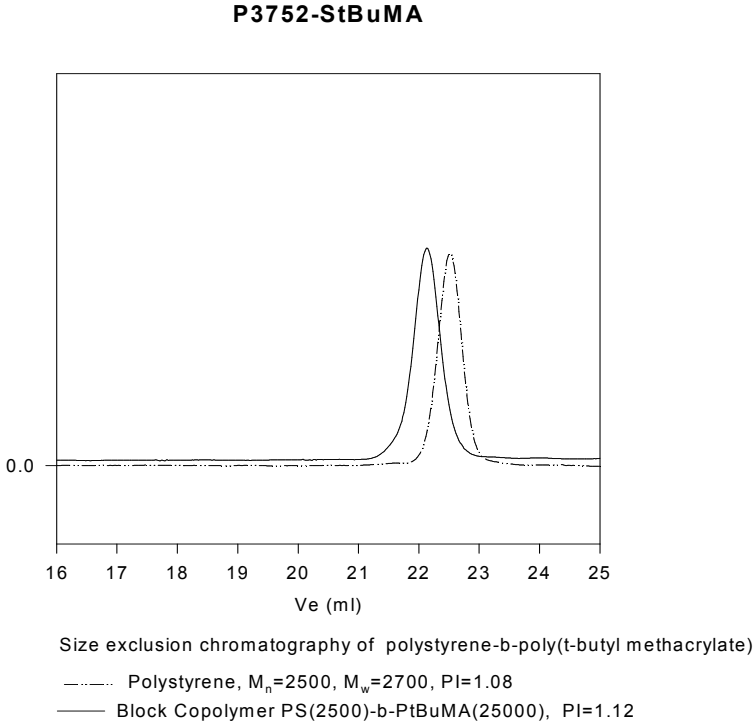
Thermal analysis

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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).

Solubility:

Poly(styrene-b-t-butyl methacrylate) is soluble in THF, dioxane, $CHCl_3$.

SEC profile of the block copolymer



Thermogram for tBuMA block