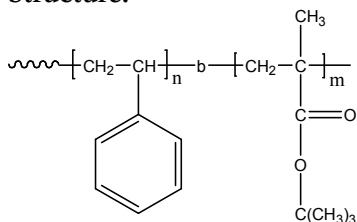


Sample Name: Poly(styrene-b-t-butyl methacrylate)

Sample #: P10038-StBuMA

Structure:



Composition:

$M_n \times 10^3$ S-b-tBuMA	Mw/Mn (PDI)
8.0-b-82.0	1.3

Glass transition temperature at a glance

T_g for PS block	Not distinct
T_g for tBuMA block	122°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 $^1\text{H-NMR}$ 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.

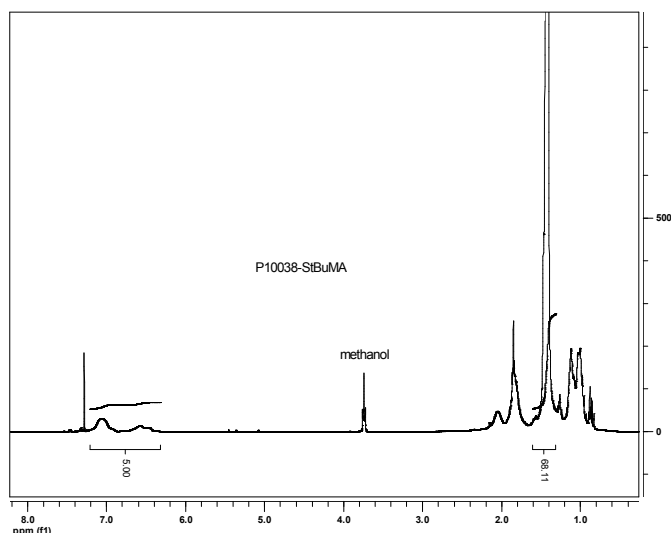
Thermal analysis

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).

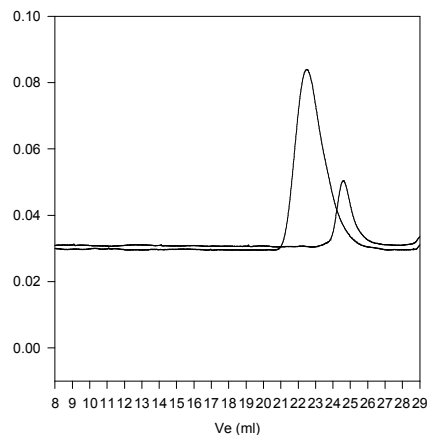
Solubility:

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

^1H NMR spectrum of the sample



SEC profile of the block copolymer P10025-StBuMA



Size exclusion chromatography of polystyrene-b-poly(t-butyl methacrylate)

— Polystyrene, $M_n=8000$, $M_w=9200$, $PI=1.15$
— Block Copolymer PS(8000)-b-PtBuMA(22500), $PI=1.5$

Thermogram for tBuMA block

