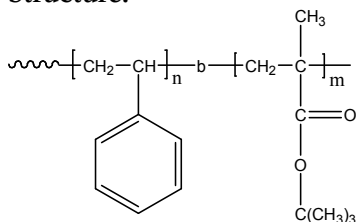


Sample Name: Poly(styrene-b-t-butyl methacrylate)

Sample #: P10037-StBuMA

Structure:



Composition:

Mn x 10 ³ S-b-tBuMA	Mw/Mn (PDI)
7.0-b-98.0	1.5

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 ¹H-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.

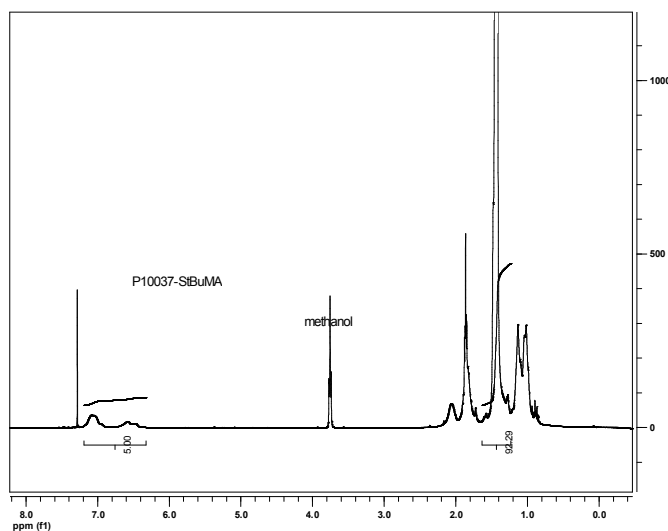
Thermal analysis

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).

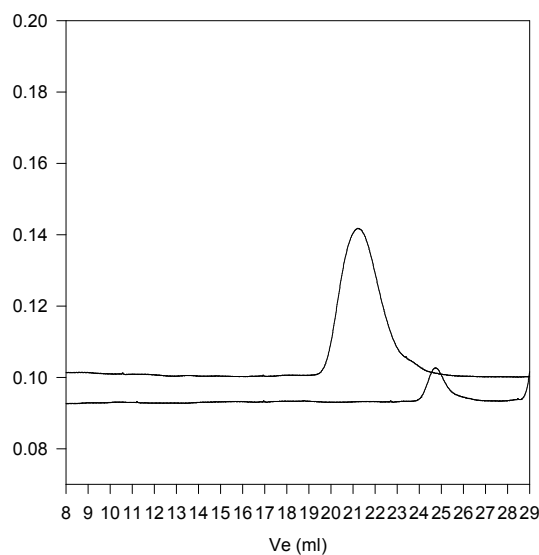
Solubility:

Poly(styrene-b-t-butyl methacrylate) is soluble in THF, dioxane, CHCl₃.

¹H NMR spectrum of the sample



P10037-StBuMA



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

— Polystyrene, M_n=7000, M_w=8000, PI=1.15
— Block Copolymer PS(7000)-b-PtBuMA(98,000), PI=1.5

Thermogram for tBuMA block

