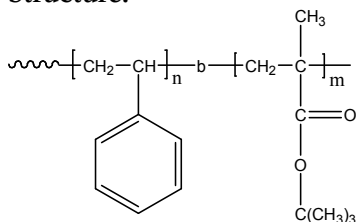


Sample Name: Poly(styrene-b-t-butyl methacrylate)

Sample #: P1860-StBuMA

Structure:



Composition:

Mn x 10 ³ S-b-tBuMA	Mw/Mn (PDI)
21.2-b-8.7	1.06

Glass transition temperature at a glance

T _g for PS block	107°C
T _g for tBuMA block	Not distinct

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

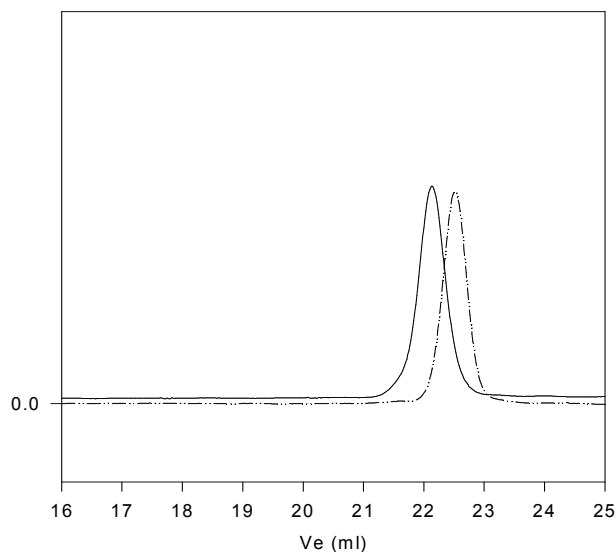
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

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

SEC profile of the block copolymer

P1860-StBuMA



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

----- Polystyrene, M_n=21200, M_w=22000, PI=1.04

—— Block Copolymer PS(21200)-b-PtBuMA(8700), PI=1.06

Thermogram for PS block

