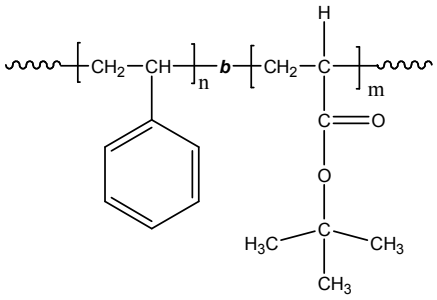
Sample Name: Poly(styrene-b- tert.butylacrylate)

Sample #: P5966-StBuA

Structure:



Composition:

Mn x 10^3 S-b-tBuA	PDI
160.0-b-225.0	1.25

***Synthesis Procedure*:**

Poly(styrene-b-tert.acrylate) is prepared by living anionic polymerization in THF at –78 °C using sec.BuLi initiator adduct with α-methyl styrene in the presence of LiCl. tert.butyl acrylate (tBuA) monomer was added after dilution in THF. For further details please see our published articles.[1-4]

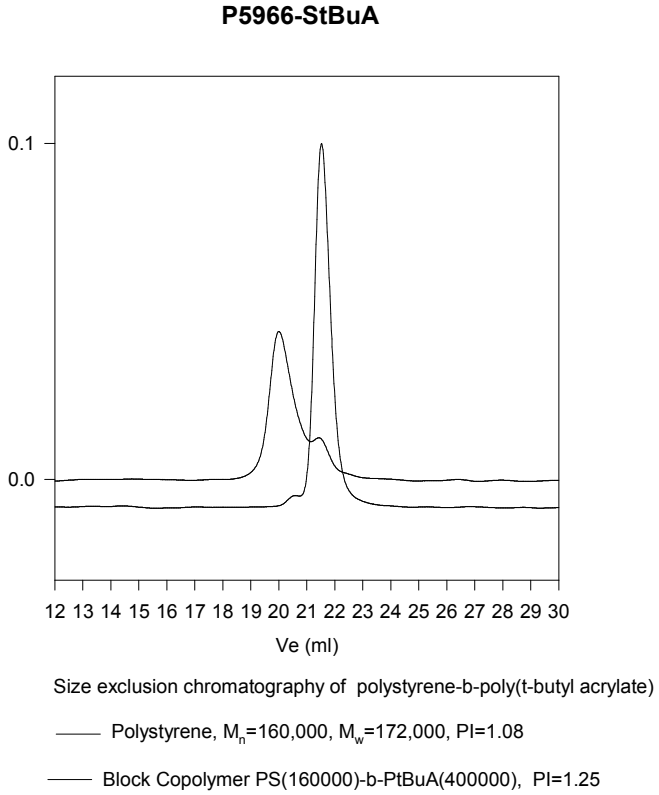
Characterization:

An aliquot of the anionic polystyrene block was terminated before addition of tBuA 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 Copolymer Mw/Mn is determined by SEC.

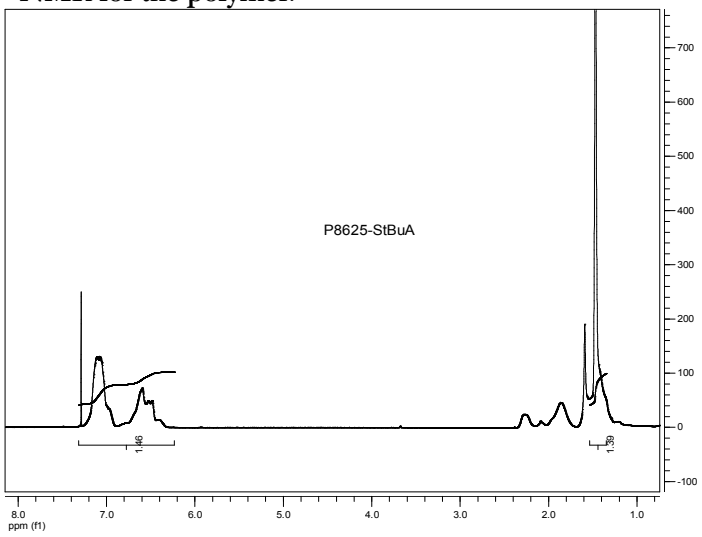
Solubility:

Poly(styrene-b-tert.butylacrylate) is soluble in THF, toluene, dioxane and $CHCl_3$. This polymer readily precipitates from methanol, ethanol, hexanes and water.

SEC for the sample :



^{H}NMR for the polymer:



References for further information:

1. S. K. Varshney, R. Fayt, Ph. Teyssie, and J.P. Hautekeer US Patent 5,264,527 (1993)
2. Ph. Teyssie, R. Fayt, **S. K. Varshney**, and C. Jacobs Eur. Pat. Appl., Jan 16, 1991 *Eur.Pat.408420*
   Patent Assignees- Atochem S.A France. CA. Vol 114, 26, 247998." Star Block Copolymers based on Acrylates and Methacrylates and their Manufacture process".
3. Ph.Teyssie, R. Fayt, and **S. K. Varshney**, *Eur. Pat. Appl. Dec. 12, 1990. Eur. Pat.402204*
   Patent Assignees-Norsolor S.A. France. CA Vol 114, 20, 186314."Catalyst for the the Anionic Living Polymerization (Meth)acrylates".

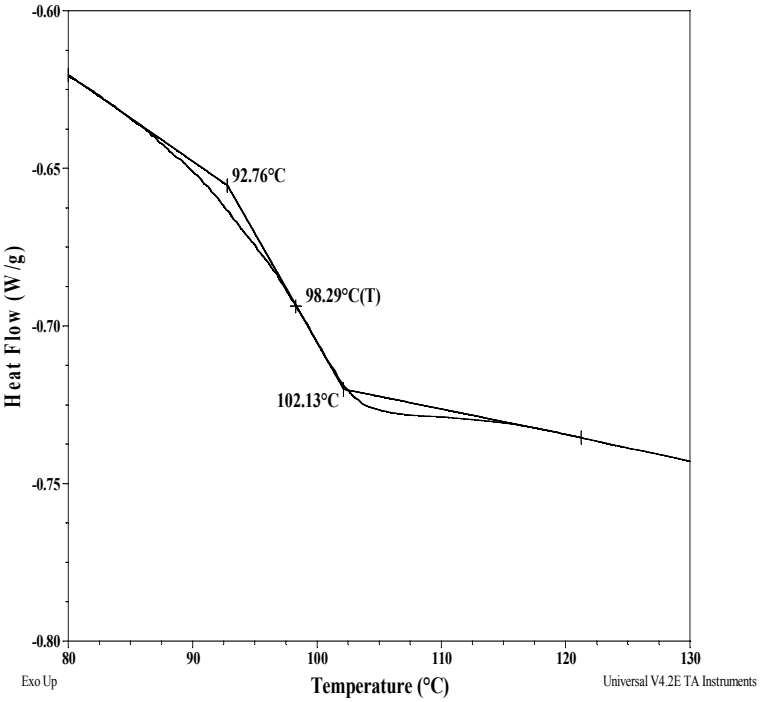
Thermal analysis of sample P5966 StBuA

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 PS block	98°C
T_g for tBuA block	41°C

Thermogram of PS block:



Thermogram for tBuA block