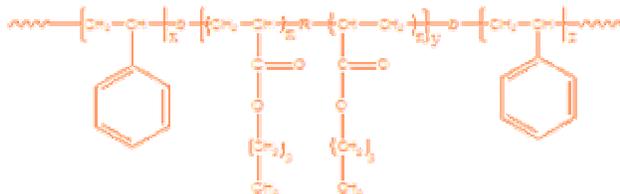


Sample Name:

Poly(Styrene -b-n-butyl acrylate-b-Styrene)

Sample #: P2975-SnBuAS

Structure:

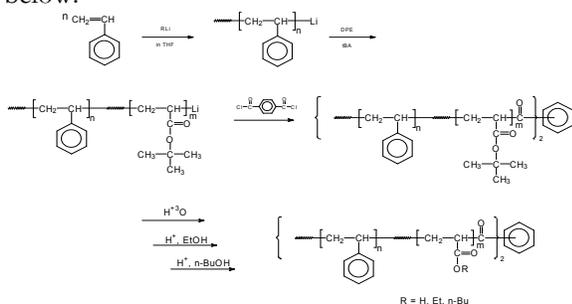


Composition:

Mn x 10 ³	PDI
2.8-b-80.0-b-2.8	2.0
T _g for nBuA block	-46°C
T _g for PS block	83°C

Synthesis Procedure:

The copolymer was prepared by a coupling reaction of poly(styrene-*t*-butylacrylate) anion with bis-acid chloride at -30°C [Ref. *S. K. Varshney et al., Macromolecules, 32, 235, 1999*]. The acid block was obtained by a hydrolysis reaction, and the other ester (ethyl, *n*-butyl) blocks were prepared by a transesterification. The scheme of the reaction is illustrated below:



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

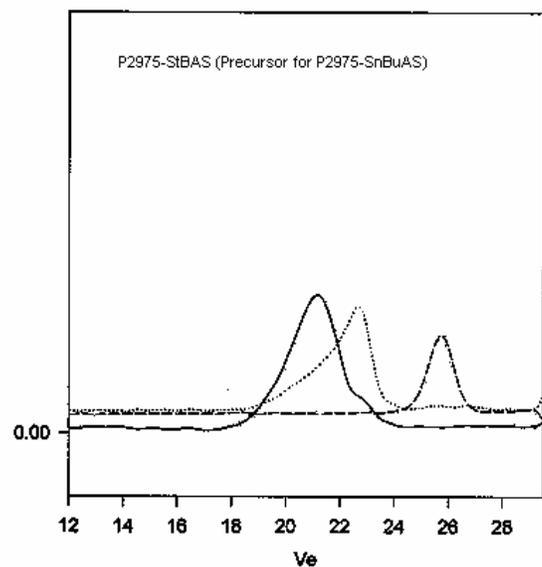
Thermal analysis:

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:

Polymer is soluble in THF, toluene and CHCl₃. It precipitates from methanol, ethanol, water and hexanes (depending on the compositions).

SEC of Sample:



Size Exclusion Chromatography of:

- P2975-St, the first PS block, M_n=2800, PI=1.15
 - P2975-StBuA, the diblock PS(2800)-b-PtBA(40000), PI=1.6
 - P2975-SnBuAS, the triblock PS(2800)-b-PtBuA(80000)-b-PS(2800), PI=2.0
- After transesterification of *tert*-butylacrylate to *n*-butylacrylate
PS(2800)-b-PnBuA(80000)-b-Ps(2800) PI: 2.0

DSC thermogram for nBuA block:

