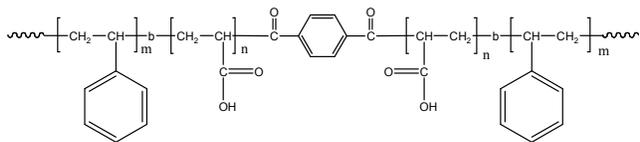


### Sample Name:

Poly(Styrene-*b*-acrylic acid-*b*-Styrene)

Sample #: P2984-SAAS

Structure:

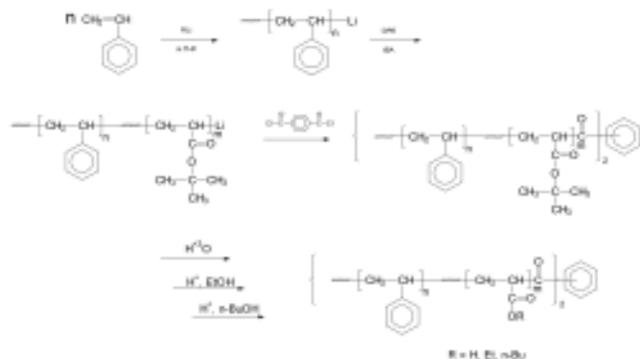


### Composition:

Mn x 10 <sup>3</sup> (S-b-AA-b-S)	PDI
1.0-b-50.0-b-1.0	1.08
T <sub>g</sub> for PS block:	Not distinct
T <sub>g</sub> for AA block:	102°C

### Synthesis Procedure:

Poly(styrene-*b*-tert. butylacrylate-*b*-styrene) is prepared by living anionic polymerization. The details are available in the cited reference. 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:

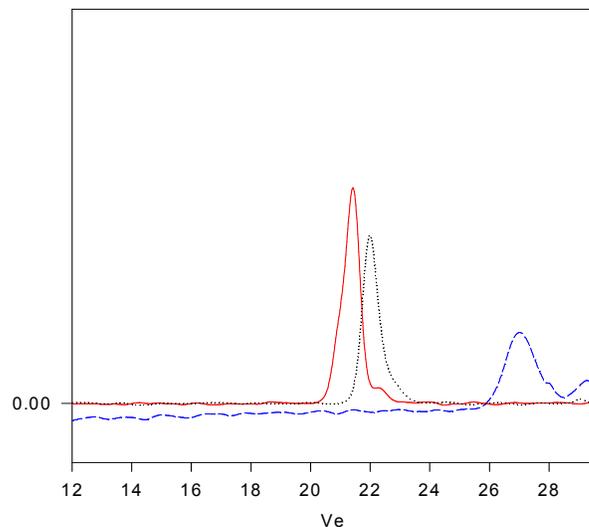
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T<sub>g</sub>).

### Solubility:

Polymer is soluble in THF, toluene and CHCl<sub>3</sub>. It precipitates from methanol, ethanol, water and hexanes (depending on the compositions).

### SEC of the polymer:

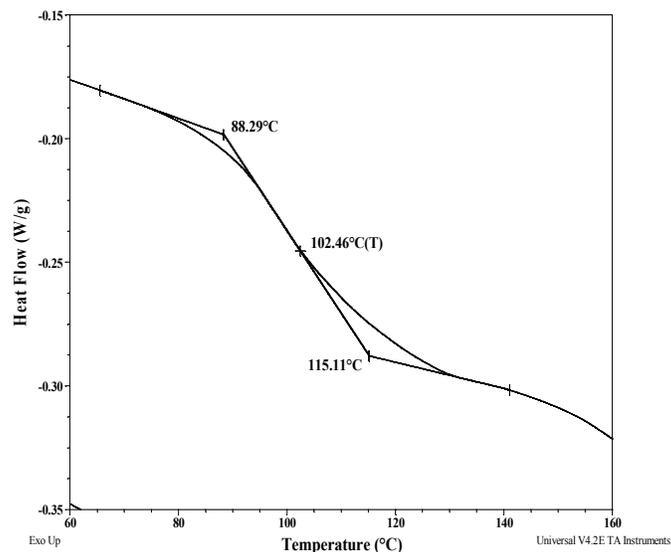
P2984-StBAS (precursor for P2984-SAAS)



Size Exclusion Chromatography of:

- ..... P2984-St, the first PS block, M<sub>n</sub>=1000, PI=1.08
- P2984-StBuA, the diblock PS(1000)-b-PtBA(44000), PI=1.17
- P2984-StBAS, the triblock PS(1000)-b-PtBuA(88000)-b-PS(1000), PI=1.08  
After hydrolysis of tert.butylacrylate  
PS(1000)-b-AA(50000)-b-Ps(1000) PI: 1.08

### DSC thermograms for the sample:



### Reference:

S.K. Varshney, P. Kesani, N. Agarwal, J. Xin. Zhang, and M. Rafailovich. Synthesis of ABA type thermoplastic elastomers based on Polyacrylates, *Macromolecules*, 1999, 32,235.