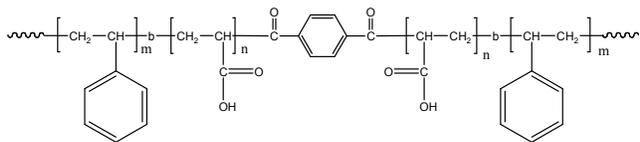


Sample Name:

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

Sample #: P2990-SAAS

Structure:

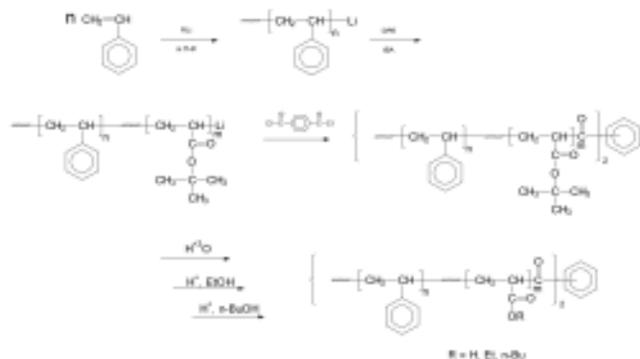


Composition:

Mn x 10 ³ (S-b-AA-b-S)	PDI
1.3-b-50.0-b-1.3	1.10
T _g for PS block:	Not distinct
T _g for AA block:	121°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:

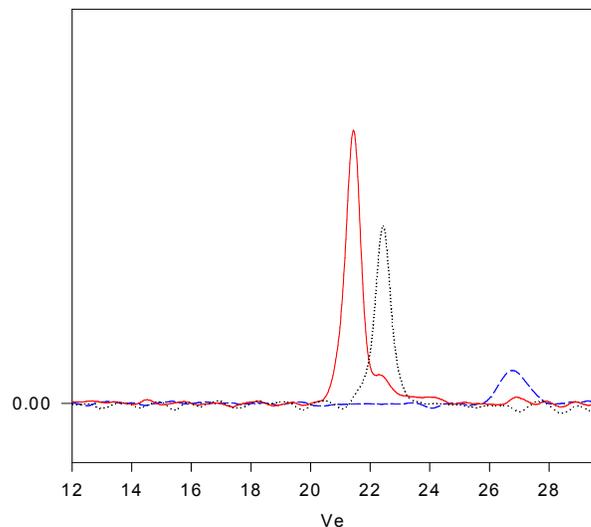
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

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

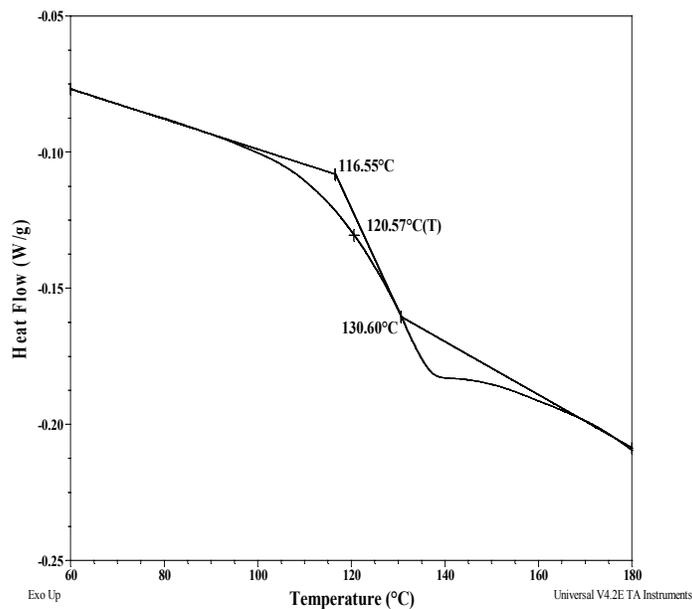
SEC of Sample:

P2990-StBAS (precursor for P2990-SAAS)



Size Exclusion Chromatography of:
..... P2990-St, the first PS block, M_n=1300, PI=1.10
- - - - P2990-StBuA, the diblock PSt(1300)-b-PtBA(44000), PI=1.06
— P2990-StBAS, the triblock PS(1300)-b-PtBuA(88000)-b-PS(1300), PI=1.10
After hydrolysis of tert.butylacrylate
PS(1300)-b-AA(49500)-b-Ps(1300) PI: 1.10

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.