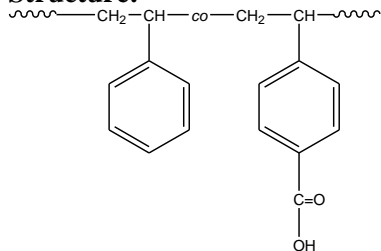


Sample Name: Random Copolymer Poly(styrene-co-vinyl benzoic acid)

Sample #: P7134-SVBArAn

Structure:



Composition:

PS (mol%) : 85

Mn x 10 ³ PS-co-VBA	PDI
14.4	1.18
T _g for random polymer	117°C

Synthesis Procedure:

The copolymer was prepared by TEMPO mediated copolymerization of styrene(St) and t-butyl vinylbenzoate, followed by a hydrolysis of t-butyl ester.

Characterization:

The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area the aromatic protons of styrene at about 6.66-7.05 ppm with the protons of t-butyl ester at about 0.8-2.5 ppm that deducts the contribution of the styrene back bone protons.

Thermal analysis:

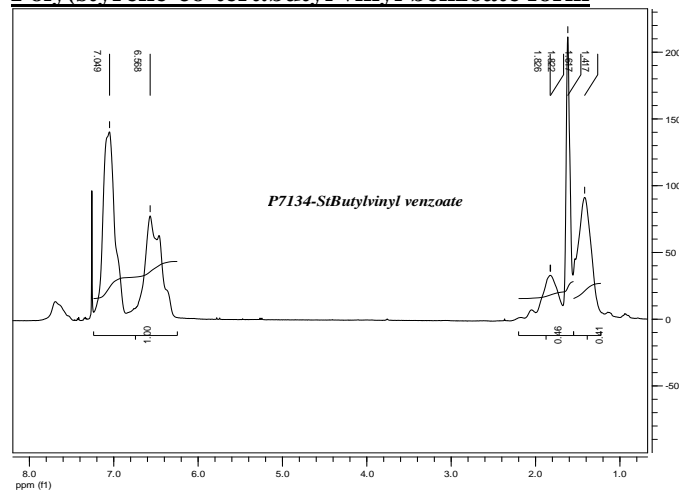
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

Random Copolymer poly(styrene-co-t-butyl vinylbenzoate) is soluble in THF, DMF and precipitated out from hexane ethers.

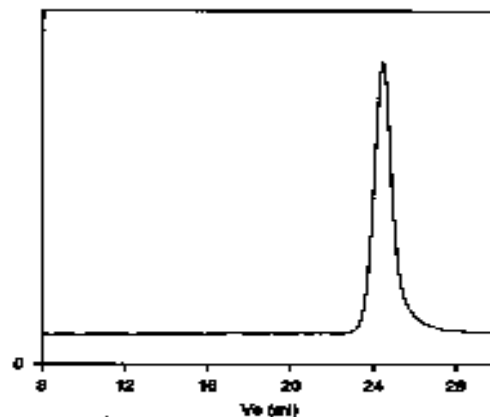
¹H-NMR Spectrum of the copolymer:

Poly(styrene-co-tert.butyl vinyl benzoate form



SEC of the random copolymer:

**SEC of the random copolymer Poly(S-co-tBuVB):
P7134-1-S1BuVBrAn**



Size exclusion chromatograph of random copolymer: poly(S-co-tBuVB):
M_n=15500, M_w=18400, M_w/M_n=1.19
M_n=14400, M_w=17100, M_w/M_n=1.19
Polystyrene content: 85%mol by NMR

DSC thermogram for the sample

