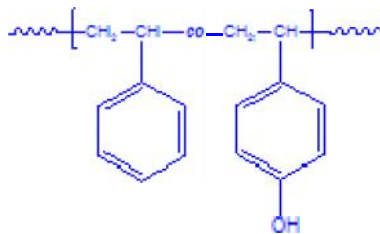


## Sample Name:

Random Copolymer poly(styrene-co-4-hydroxy styrene)

Sample #: P10381- S4OHSran

## Structure:



## Composition:

P4OHS (mol%) : 10%

Mn x 10 <sup>3</sup> PS-co-P4OHS	PDI
9.8	1.16
T <sub>g</sub> for random polymer	103°C

## Synthesis Procedure:

Random Copolymer Poly(styrene-co-4-hydroxystyrene) is prepared by radical polymerization of styrene and 4-acetoxy styrene followed by hydrolysis of acetoxy group to OH.

## 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 <sup>1</sup>H-NMR spectroscopy by comparing the peak area the aromatic protons of styrene at about 7.05 ppm with the protons of 4-hydroxy styrene at about 3.8 ppm.

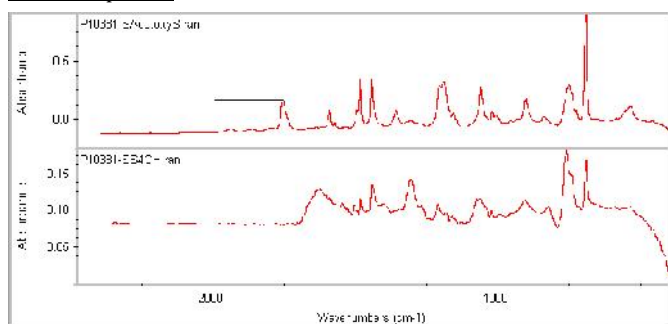
## Thermal analysis:

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>).

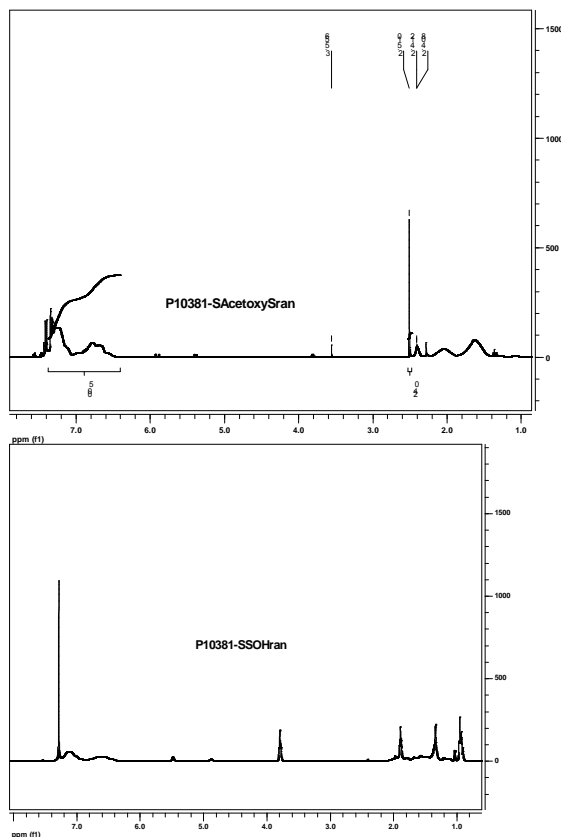
## Solubility:

Random Copolymer Poly(styrene-co-4 Hydroxy styrene) is soluble in THF, DMF,

## FTIR of the product:

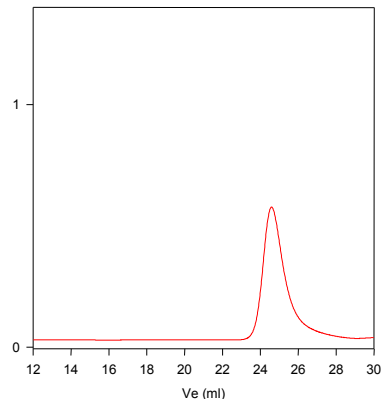


## <sup>1</sup>H NMR spectrum of the random polymer



## SEC for the polymer

P10381-S4OHSran



Size exclusion chromatograph of copolymer of Poly(styrene-co-4-hydroxy styrene)random copolymer

M<sub>n</sub>=10,500, M<sub>w</sub>=12,200, PI=1.18

After Hydrolysis of 4 acetoxy group:

Mn 9800 Mw/Mn : 1.16 (Poly 4-hydroxy styrene)= 10%)

## DSC thermogram for the sample

