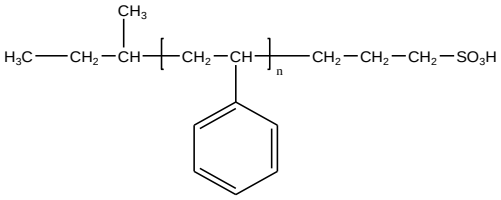
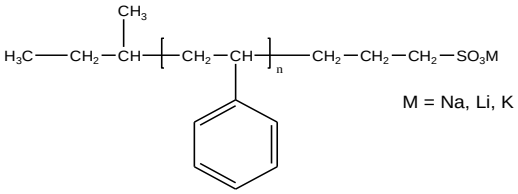
Sample Name:
Sulfonic Acid Sodium Salt Terminated Polystyrene
Sample #: **P2255-SSO3Na**

Structure:



or



Composition:

Mn x 10^3	PDI
1.3	1.11
T_g (^oC)	76

Synthesis Procedure:

Sulfonic acid functionalized polystyrene was prepared by living anionic polymerization of styrene followed by termination with dried propansultone. Salts of this polymer were prepared by neutralization with the base solution.

Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. The molecular weights and the polydispersity index for the precursor (pick-out before propansultone addition) polymer were calculated. The functionality of polymer was verified by proton NMR for a low molecular weight and by acid base titration for high molecular weights polymer.

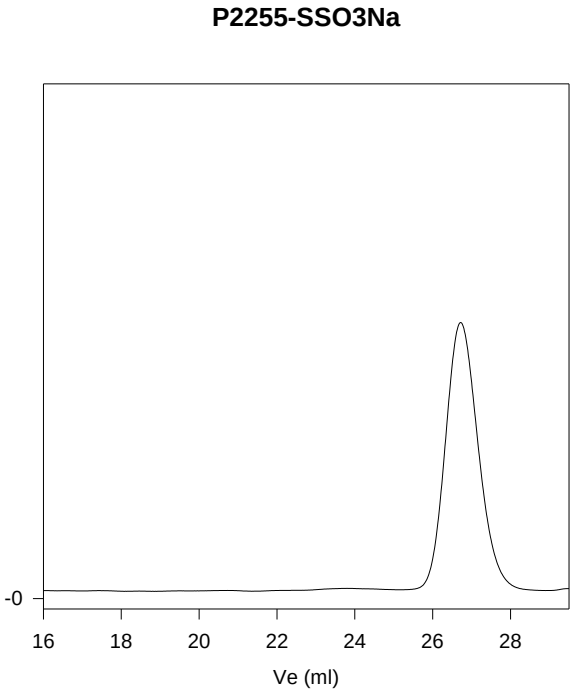
Thermal analysis:

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10^oC/min.The inflection glass transition temperature (T_g) has been considered.

Solubility:

Polymer is soluble in DMF, THF, toluene and $CHCl_3$. It precipitates from cold methanol, ethanol, water and hexanes.

SEC of Sample:



Size exclusion chromatograph of Poly styrene before termination with propanesultone:
Mn 1300(DP:12) Mw: 1450 PI: 1.11

DSC thermogram for the polymer: