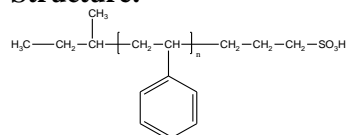


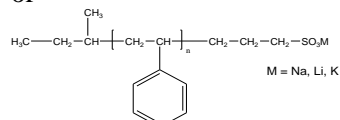
Sample Name:  
**Sulfonic Acid Terminated Polystyrene**

Sample #: **P1787-SSO3H**

**Structure:**



or



**Composition:**

$\text{Mn} \times 10^3$	PDI
318.7	1.09
$T_g$ (°C)	68

**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:**

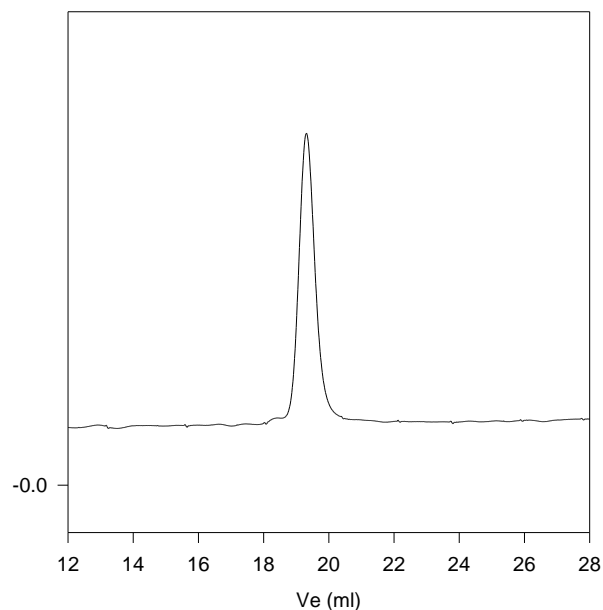
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature ( $T_g$ ) has been considered.

**Solubility:**

Polymer is soluble in DMF, THF, toluene and  $\text{CHCl}_3$ . It precipitates from cold methanol, ethanol, water and hexanes.

**SEC of Sample:**

**P1787-StSO3H**



$M_n=318700$   $M_w=347300$   $PI=1.09$

**DSC thermogram for the polymer:**

