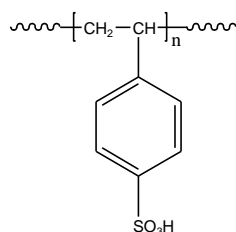


Sample Name: Poly(4-styrene sulfonic acid)

Sample #: P42078-SSO3H (dialysed)

Structure:



Composition:

$M_n \times 10^3$	PDI
2,700.0	1.10
C: H: S	40.0: 5.4: 15.3
Degree of sulfonation Elemental analysis and by titration	>95%

Synthesis Procedure:

Poly (styrene sulfonic acid) is obtained from the sulfonation of polystyrene. Polystyrene was obtained by anionic living polymerization.

Characterization:

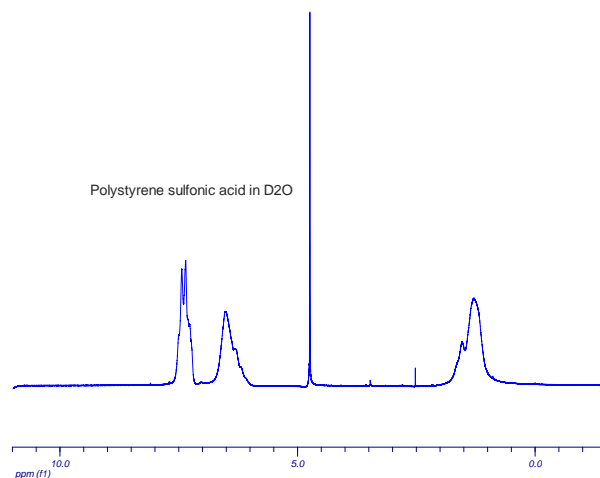
Size exclusion chromatography (SEC) was carried out on a Varian liquid chromatograph equipped with a refractive detector. For the precursor polystyrene, two columns from Supelco (G4000-2000 HXL) were used with THF as the eluent. The columns were calibrated with monodisperse polystyrene standards. The molecular weight and the polydispersity indice were calculated. For polystyrene sulfonic acid, a column from Supelco (G5000 PWXL) was used with 0.1 $NaNO_3$ /water as the eluent.

The degree of sulfonation was determined by acid/base titration and by elemental analysis.

Solubility:

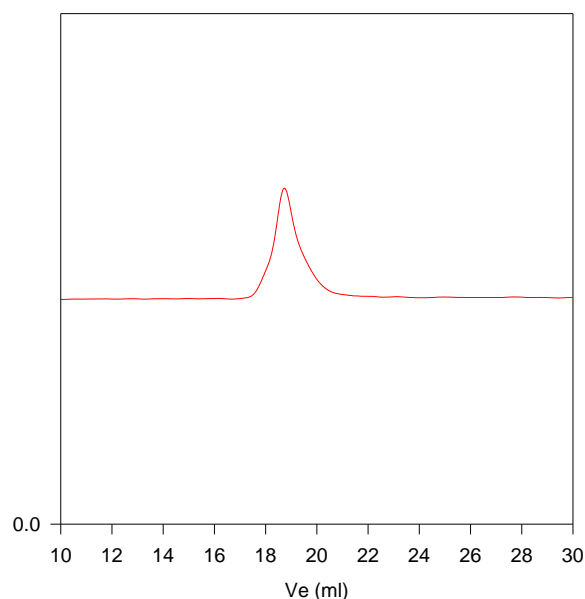
Poly (styrene sulfonic acid) is soluble in methanol and water.

HNMR Spectrum of the Polymer:



SEC of Homopolymer:

**P7606-SSO3H/Na
Precursor polystyrene**



Size exclusion chromatograph of polystyrene:

$M_n=1600,000$, $M_w=1790,000$ PI=1.11

After Sulfonation: (sulfonation over 90%) M_n : 2700,000

After Sodium Salt: M_n 3100,000