

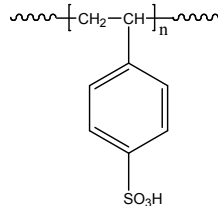
Sample Name:

**Poly(4-styrene sulfonic acid)
Or Poly(styrene sulfonic acid)**

Sample #: **P8946-USSO3H**

undialysed form

Structure:

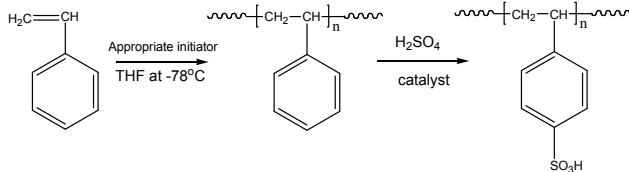


Composition:

$M_n \times 10^3$	PDI
26.5	1.03

Synthesis Procedure:

Poly(styrene sulfonic acid) is obtained from the sulfonation of polystyrene. Polystyrene was obtained by anionic living polymerization. The molecular distribution of the obtained polystyrene sulfonic acid remains same as of the parent polymer. Furthermore the HNMR and FTIR spectroscopy of the polymer shows the sulfonation is predominately at par position of phenyl group. The reaction scheme is illustrated below:



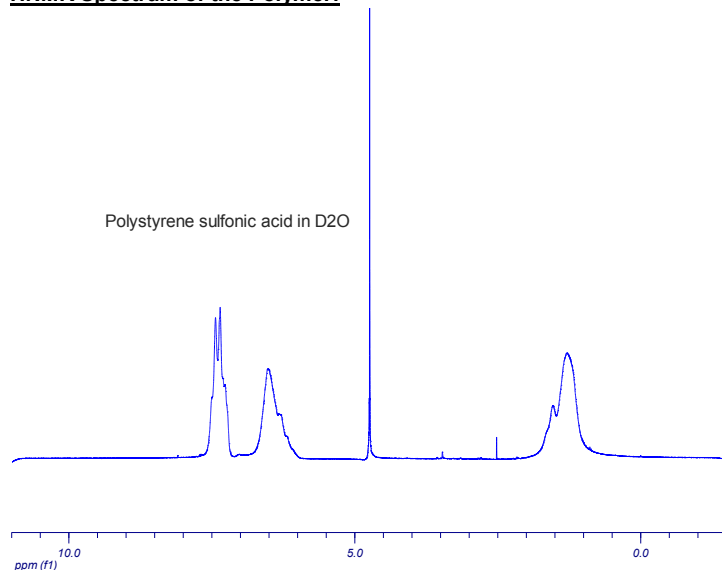
Characterization:

The molecular weight and polydispersity index (PDI) of poly(styrene sulfonic acid) are obtained by size exclusion chromatography. The degree of sulfonation is determined by acid/base titration and by elemental analysis.

Solubility:

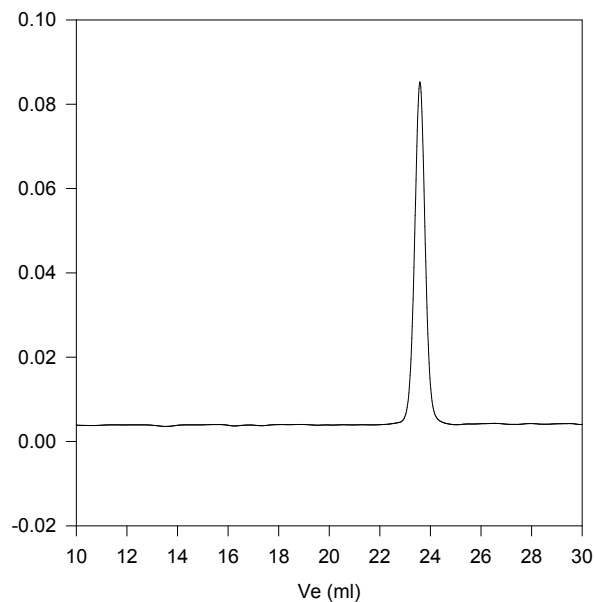
Poly(styrene sulfonic acid) is soluble in methanol, water and precipitated out from the hexane, THF, toluene.

HNMR Spectrum of the Polymer:



SEC of Homopolymer:

P8946-SSO₃H



Size exclusion chromatograph of poly(styrene sulfonic acid):

$M_n=26500$, $M_w=27300$ PI=1.03 degree of sulfonation: >95%