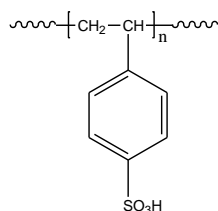


Sample Name: Poly (4-styrene sulfonic acid)

Sample #: P42132-SSO3H (dialyzed form)

Structure:

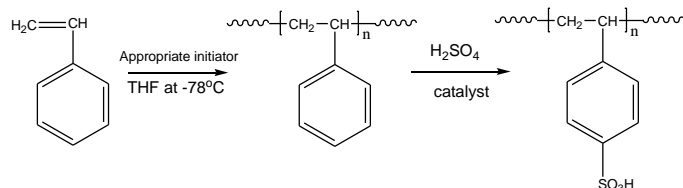


Composition:

Mn x 10 ³	PDI
2.0	1.28
C; H; S	42.04; 4.77; 13.94

Synthesis Procedure:

Poly(4-styrene sulfonic acid) was obtained by sulfonation of polystyrene. Polystyrene was obtained by anionic living polymerization. The molar weight distribution of the obtained product [poly(styrene sulfonic acid)] remains the same as of the precursor polymer [polystyrene]. ¹H-NMR and FT-IR spectroscopies of the final product show that the sulfonation is predominately at para-position of PS phenyl group. The reaction scheme is illustrated below:



Characterization:

The molecular weight and polydispersity index (PDI) of poly(4-styrene sulfonic acid) were obtained by size exclusion chromatography (SEC) of polystyrene precursor. The degree of sulfonation is determined by acid/base titration and by elemental analysis.

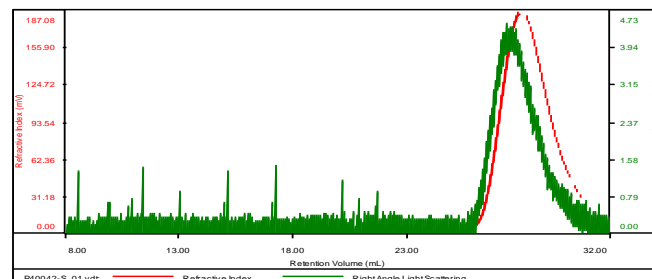
Solubility:

Poly (4-styrene sulfonic acid) is soluble in methanol, water and precipitated out from the hexane, THF, toluene.

SEC of PS homopolymer used for the sulfonation:

Sample ID: P40042-S

Concentration (mg/mL)	8.3465
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-30JUNE2016-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
P40042-S_01.vdt	1,170	1,367	1.168	0.0390	1,280