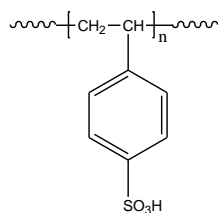


**Sample Name: Poly (4-styrene sulfonic acid)**

**Sample #: P42124-SSO3H**

**Structure:**

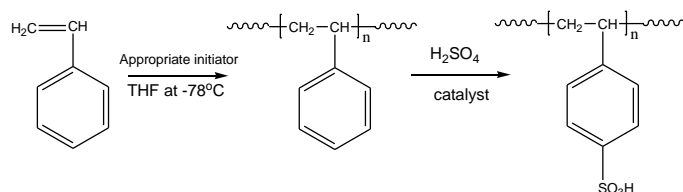


**Composition:**

$M_n \times 10^3$	PDI
90.0	1.03
C; H; S	42.04; 4.77; 13.94
Appearance: Brown Color	

**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.

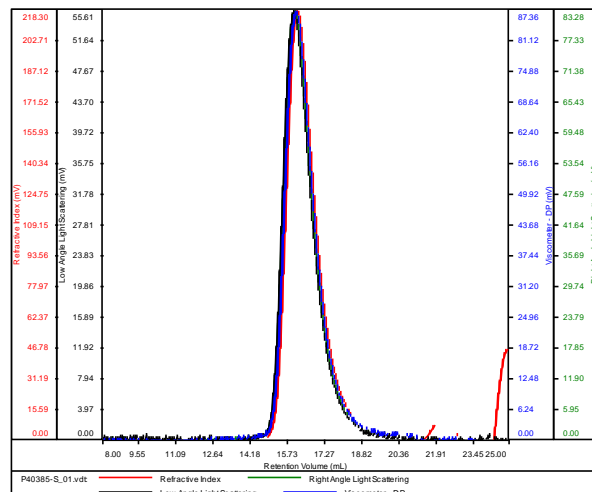
**Solubility:**

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:**

**P40385-S**

Conc (mg/mL)	11.8857
dn/dc (mL/g)	0.1650
Method	PS80k_December-2016-0004.vcm
Solvent	DMF w/0.023M LiBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
P40385-S_01.vdt	50,932	52,483	50,438	1.030	0.1185