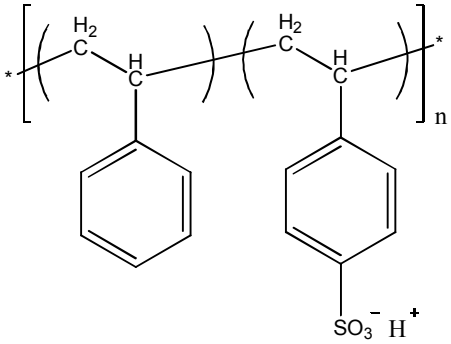
Sample Name: Ionomer of Poly(styrene-co-4-styrene sulfonic acid)

Sample #: P3006-1-SSO3H

Structure:

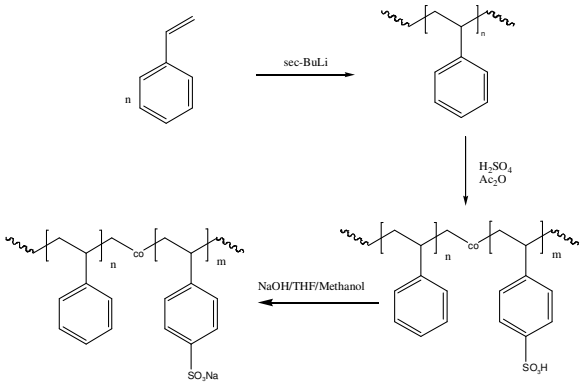


Composition:

Mn x 10^3 (g/mol)	M_w/M_n	Sulfonated polystyrene ($-SO_3H$)
13.3	1.04	28 mol%

Synthesis Procedure:

Poly(styrene-co-4-styrene sulfonic acid) is synthesized by partially sulfonation of monodispersed polystyrene and the reaction scheme is shown below.



Characterization:

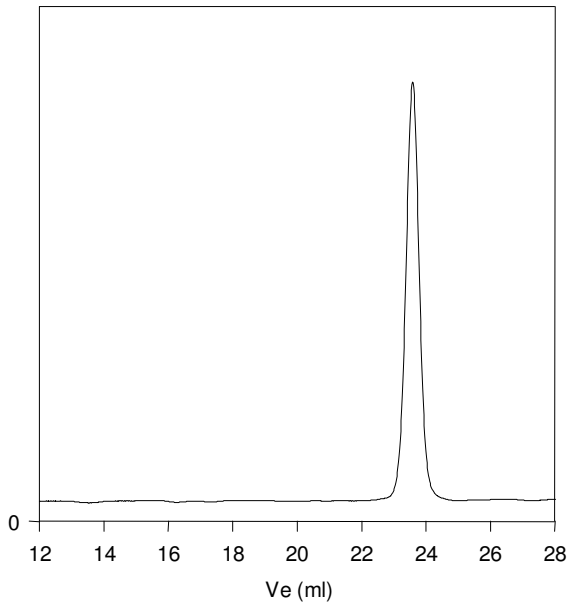
The molecular weight and polydispersity index (PDI) of parent polymer are obtained by size exclusion chromatography. The degree of sulfonation is determined by element analysis or titration.

Solubility:

Poly(styrene–*co*–4-styrene sulfonic acid) is soluble in DMF, chloroform, dichloroethane, and alcohols (depending on its chemical composition). The polymer precipitates from hexane.

SEC elugram:

Polystyrene precursor for P3006-1-SSO3H



Poly(SSO3H) ionomer:

M_n=13300 M_w=13800, PDI=1.04

Sulfonation Degree: 28.0 mol%