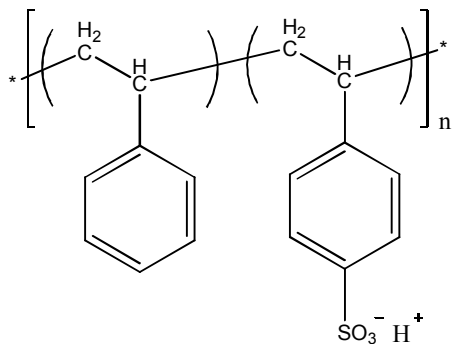


**Sample Name: Ionomer of
Poly(styrene-co-4-styrene sulfonic acid)**

Sample #: P3006-2-SSO3H

Structure:

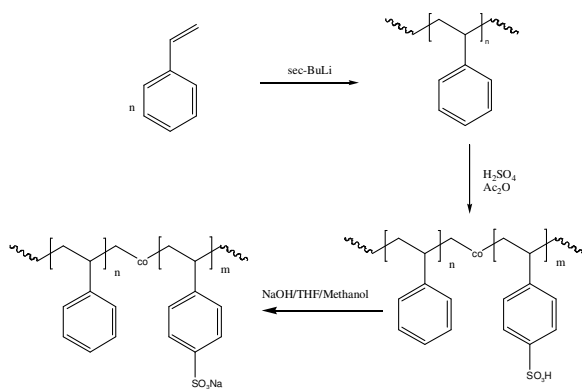


Composition:

| Mn x 10 ³ (g/mol) | M _w /M _n | Sulfonated polystyrene (-SO ₃ H) |
|------------------------------|--------------------------------|---|
| 12.5 | 1.04 | 18.4 mol% |

Synthesis Procedure:

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



Characterization:

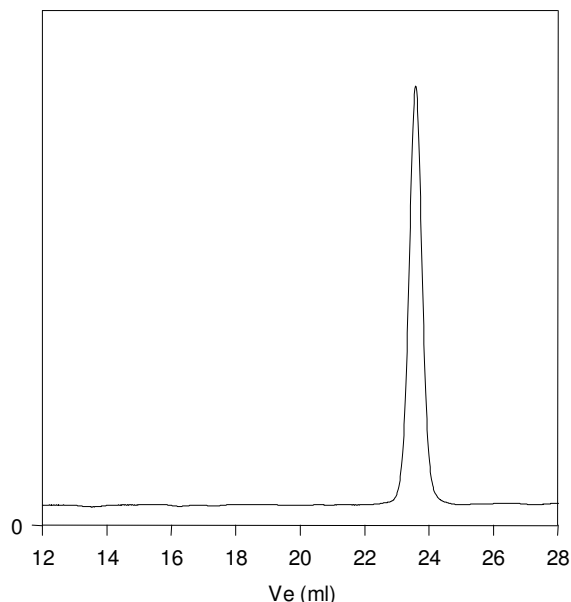
The molecular weight and polydispersity index (PDI) of parent polymer are obtained by size exclusion chromatography. The degree of sulfonation is determined by element analysis or titration.

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 P3006-2-SSO3H



Poly(SSO₃H) ionomer:

M_n=12500 M_w=13000, PDI=1.04

Sulfonation Degree: 18.4 mol%