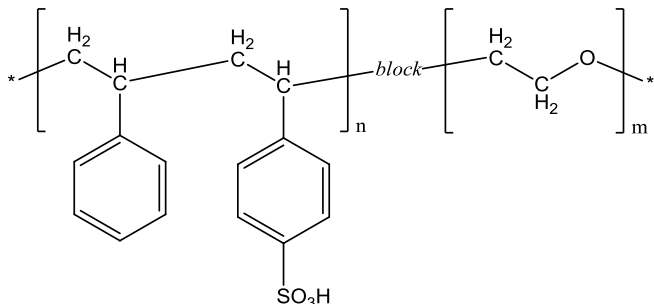


Sample Name:

Poly(styrene sulfonic acid-*b*-ethylene oxide)

Sample #: **P5082B-SSAEO**

Structure:



Composition:

Mn x 10 ³ SSA-b-EO	M _w /M _n	Degree of sulfonation:
323.0-b-48.0	1.07	89%

Synthesis Procedure:

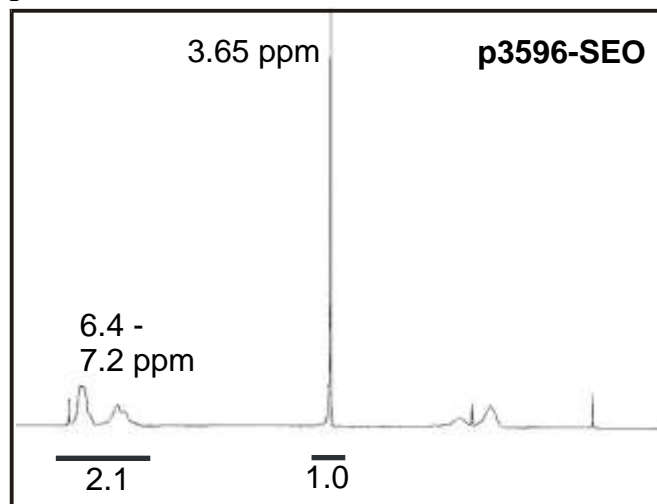
Poly(styrene sulfonic acid-*b*-ethylene oxide) diblock copolymer was prepared by sulfonation of poly(styrene-*b*-ethylene oxide), which was synthesized by living anionic polymerization method.

Characterization:

The molecular weight of the poly(styrene sulfonic acid-*b*-ethylene oxide) diblock copolymer was calculated using molecular weight of poly(styrene-*b*-ethylene oxide) determined by size exclusion chromatography (SEC).

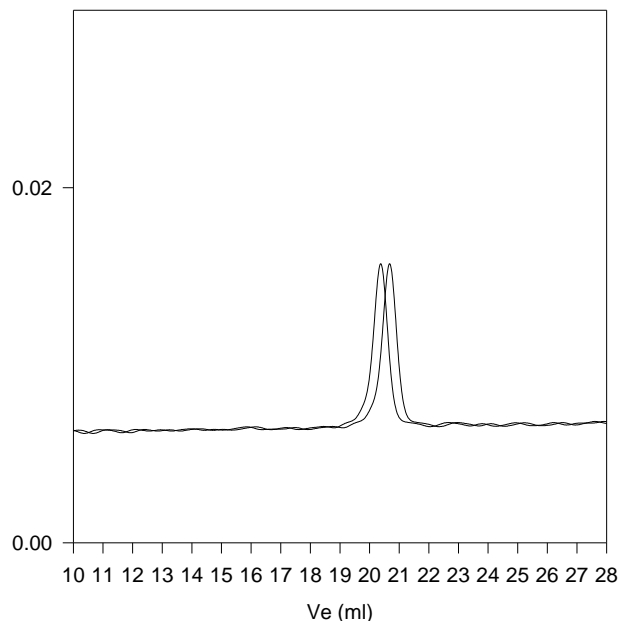
The ratio between blocks in the diblock copolymer was calculated from ¹H-NMR by comparing peak area of the phenyl polystyrene protons at 6.4–7.2 ppm and the ethylene oxide protons at 3.65 ppm.

¹H NMR spectrum of poly(styrene-*b*-ethylene oxide) precursor:



SEC of polystyrene (first block) and poly(styrene-*b*-ethylene oxide) diblock copolymer:

P5082B-SSAEO
Precursor P3596-SEO



Size exclusion chromatography of poly(styrene-*b*-ethylene oxide)

— polystyrene, M_n=190,000 M_w=205,000, PI=1.08

— Block Copolymer PS(190,000)-b-PEO(48000), PI=1.07
Composition from H NMR
degree of sulfonation: 89% After sulfonation:
Mn: 323000-b-48000 Mw/Mn 1.07