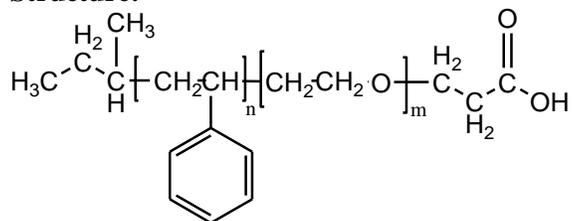


Sample Name: Carboxylic acid end functionalized Poly(styrene-b-ethylene oxide)

Sample #: P43056-SEOCOOH

Structure:



Composition:

Mn x 10 ³ S-b-EO	9.5-b-18.0
PDI	1.09
COOH functionality by HNMR/titration	> 95 %

Synthesis Procedure:

COOH end functionalized Poly(styrene-b-ethylene glycol) was synthesized by living anionic polymerization of styrene and ethylene oxide monomer, followed by the conversion of hydroxyl end group into COOH.

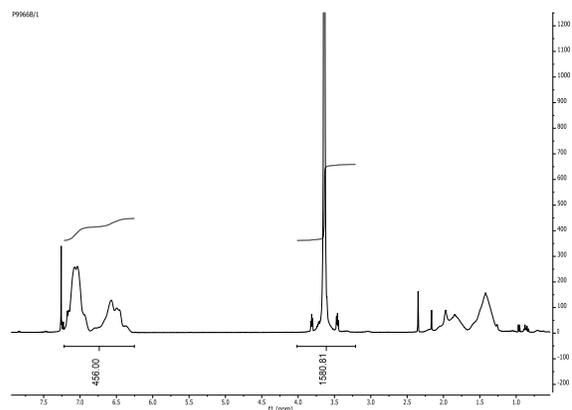
Solubility:

Functionalized poly(styrene-ethylene oxide) is soluble in CHCl₃, THF, and precipitated out from hexane or cold diethyl ether.

Characterization:

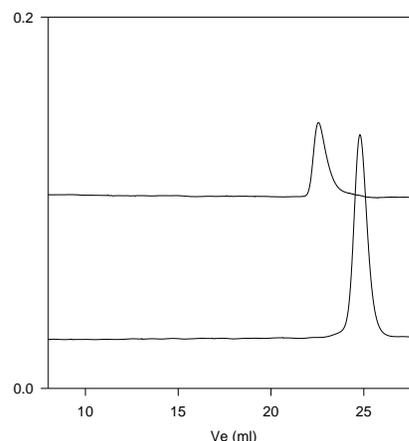
The diblock polymer was first analyzed by size exclusion and chromatography (SEC) and ¹H-NMR to obtain the composition molecular weight and polydispersity index (PDI). The functionality of the resulted polymer was confirmed by ¹H-NMR spectroscopy using CH₂ group adjacent to COOH.

¹H-NMR spectrum of diblock SEO:



SEC elugram of the diblock polymer:

SEO Diblock Polymer



Size Exclusion Chromatography:
 — Polystyrene, M_n=9,500, M_w=9,900, PI=1.05
 — Block Copolymer Polystyrene-b-Poly(ethylene oxide)
 Mw: PS(9,500)-b-PEO(18,000), PI=1.09

FTIR spectrum of functionalized polymer: Ps-Eo-tBuA terminated and after hydrolysis of tert BuA terminal unit to COOH:

