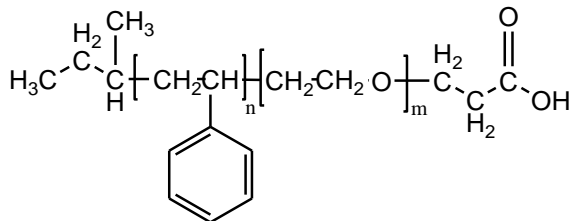


**Sample Name:** Carboxylic acid end functionalized Poly(styrene-b-ethylene oxide)

**Sample #:** P43056-SEOCOOH

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup> 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.

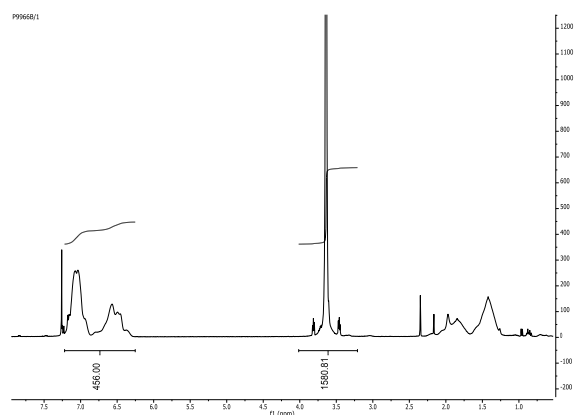
**Solubility:**

Functionalized poly(styrene-ethylene oxide) is soluble in CHCl<sub>3</sub>, THF, and precipitated out from hexane or cold diethyl ether.

**Characterization:**

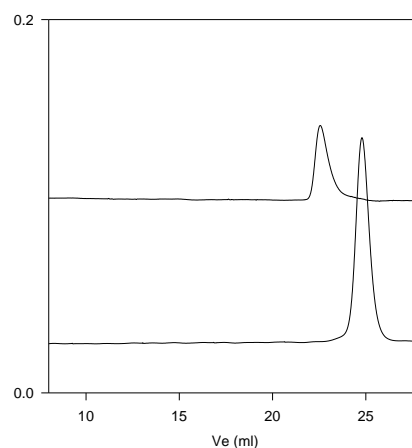
The diblock polymer was first analyzed by size exclusion and chromatography (SEC) and <sup>1</sup>H-NMR to obtain the composition molecular weight and polydispersity index (PDI). The functionality of the resulted polymer was confirmed by <sup>1</sup>H-NMR spectroscopy using CH<sub>2</sub> group adjacent to COOH.

**<sup>1</sup>H-NMR spectrum of diblock SEO:**



**SEC elugram of the diblock polymer:**

SEO Diblock Polymer



Size Exclusion Chromatography:

— Polystyrene, M<sub>n</sub>=9,500, M<sub>w</sub>=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:**

