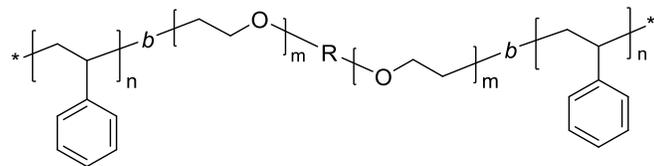


Product Name:

Polystyrene-*b*-poly(ethylene oxide)-*b*-polystyrene, triblock copolymer

Product # P42668-SEOS

Structure:

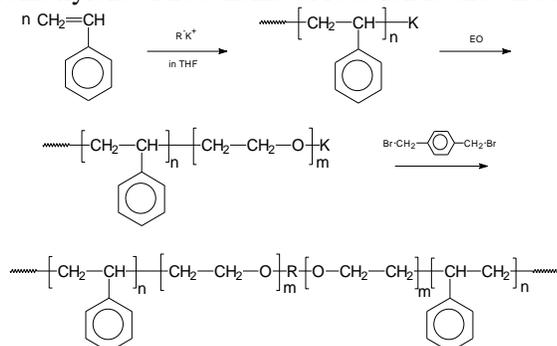


Composition:

$M_n \times 10^3$ (g/mol) [S- <i>b</i> -EO- <i>b</i> -S]	M_w/M_n
9- <i>b</i> -20- <i>b</i> -9	1.13

Synthesis Procedure:

Detail synthesis has been reported in ref.[1]. The triblock copolymer was prepared by coupling reaction of poly(styrene-*block*-ethylene oxide) anion with α - ω -dibromoxylene. The scheme of reaction is shown below:



Purification of the polymer to remove unlinked fraction:

Product was purified to remove the unlinked fraction of the diblock copolymer (PS-*b*-PEO) by passing the polymer solution through Silica column (using various solvent mixtures) by taking advantage of the end group (-OH) present in the diblock copolymer. This is a unique process to remove the unlinked fraction from the triblock copolymer. The fractional precipitation procedure is not sufficient to remove the unlinked diblock copolymer from the required ABA-triblock copolymer.

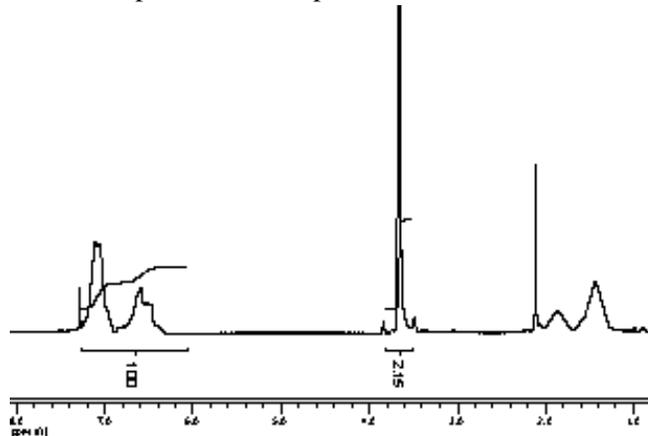
Characterization:

The molecular structure was confirmed by proton NMR spectroscopy. The molecular weight and polydispersity index were determined by size exclusion chromatography (SEC) using triple detection method.

Solubility:

The polymer is soluble in tetrahydrofuran (THF), toluene, and chloroform.

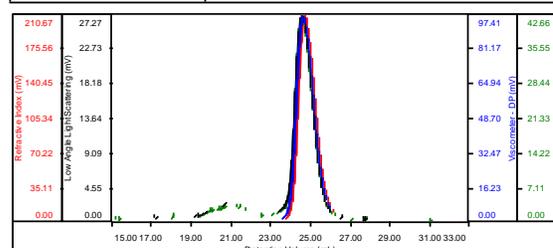
¹H-NMR spectrum of the product:



SEC of the precursor (diblock copolymer):

Sample ID: P9667-SEO

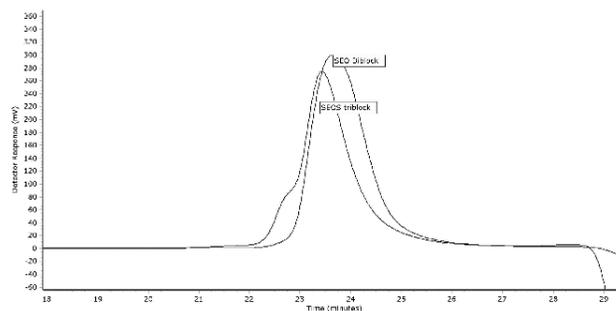
Concentration (mg/mL)	4.4246
Sample dn/dc (mL/g)	0.1200
Method File	PS80K-March13-2014-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P9667-SEO_01.vdt	19,798	21,909	20,017	1.107	0.4578

Comparative SEC of the precursor and final product:

Chromatogram Plot



Reference:

- [1] S. K. Varshney, X. F. Zhong, P. Kesani, N. Varshney; "Architecturally control polymers from Academia to the Industry". ACS-Symposium, Orlando, August 1996.