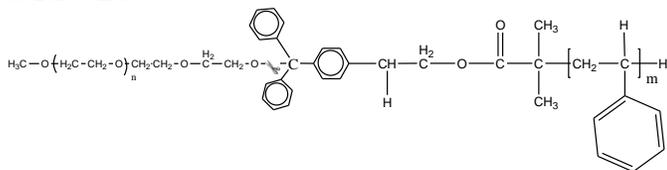


Sample Name: Acid Cleavable Poly(ethylene oxide-b-Styrene)

Sample #: P9669B-EOS cleavable

Structure:



Composition:

Mn x 10 ³ PEO-b-PS	PDI
5.0-b-70.0	1.5
From HNMR indicates also presence of homopolystyrene fraction < 15%	T _g for PS block: 82°C; PEO block is not distinct

Synthesis Procedure:

1. Synthesis of poly(styrene-block-ethylene oxide) copolymers by anionic polymerization and acid cleavage into its constituent homopolymers for the formation of ordered nanoporous thin films: e-polymer, 2008, 094, 1618

Characterization:

PEG-Br and final block copolymer were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight of PEG and polydispersity index (PDI) for both PEG and block copolymer. The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the benzene ring protons at about 6-8 ppm.

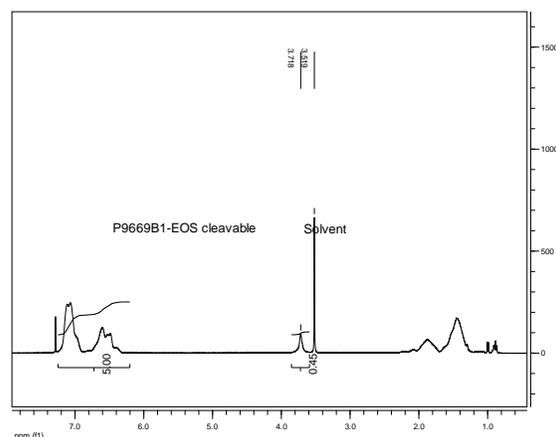
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

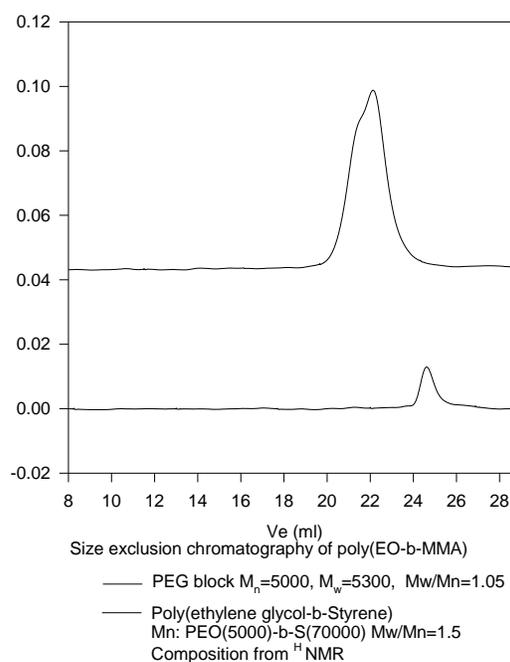
Poly(ethylene oxide-b-MMA) is soluble in THF, acetone, and chloroform and it precipitates out in hexane or methanol.

¹H-NMR Spectrum of the block copolymer:



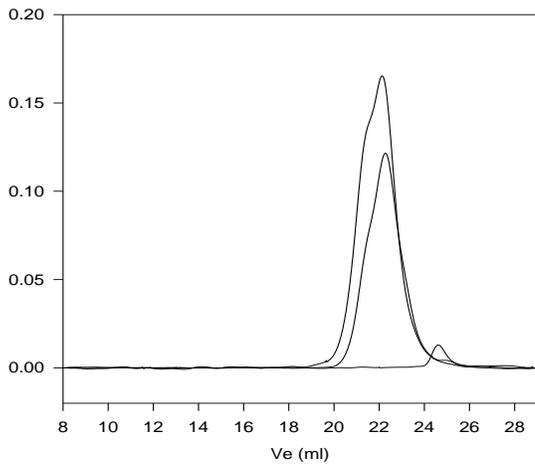
SEC of the block copolymer:

P9669B-EOS Cleavable



SEC after acid Cleavage:

P9669B-EOS Cleavable



Size exclusion chromatography of poly(EO-b-MMA)

— PEG block $M_n=5000$, $M_w=5300$, $M_w/M_n=1.05$

— Poly(ethylene glycol-b-Styrene)
Mn: PEO(5000)-b-S(70000) $M_w/M_n=1.5$
Composition from 1H NMR

Thermogram for the PS block:

