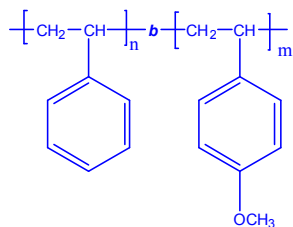


**Sample Name:**

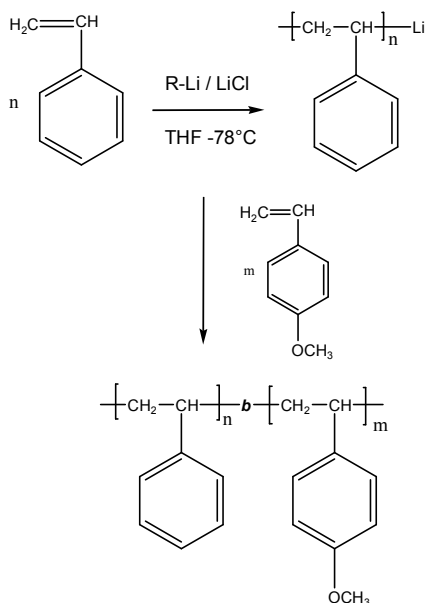
Poly(styrene-b-4-methoxy styrene)

**Sample #:** P8617-S4MeOS**Structure:****Composition:**

Mn x 10 <sup>3</sup> S-b-4HOS	Mw/Mn (PDI)
7.5-b-5.0	1.10

**Synthesis Procedure:**

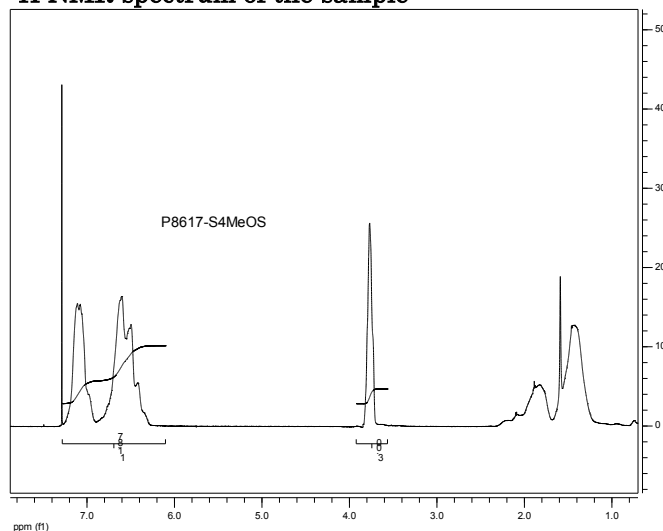
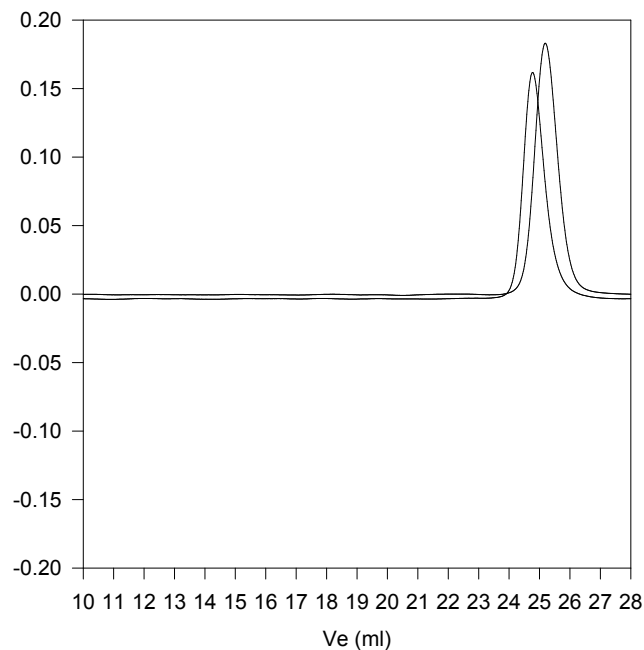
Poly(styrene-b-4-methoxy styrene) is prepared by living anionic polymerization by sequence addition of styrene followed by 4-methoxy styrene. The reaction scheme is shown below:

**Characterization:**

An aliquot of the polystyrene block was terminated before addition of 4-methoxy styrene and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area of 4-methoxy at 3.8 ppm. Block copolymer PDI is determined by SEC.

**Solubility:**

Poly(styrene-b-eth4-hydroxystyrene) is soluble in CHCl<sub>3</sub>, toluene, dioxane, THF.

**<sup>1</sup>H NMR spectrum of the sample:****SEC profile of the block copolymer****P8617-S4MeOS**

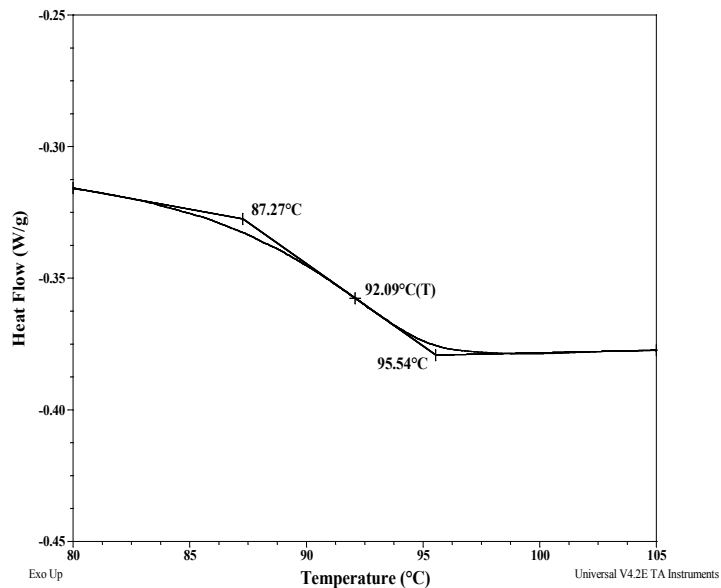
—— Polystyrene, M<sub>n</sub>=7500, M<sub>w</sub>=8100, PI=1.08

—— Block Copolymer PS(7500)-b-P4MeOS(5000), PI=1.10

## Thermal analysis of P8617-S4MeOS

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 ( $T_g$ ).

### DSC thermogram for PS block:



### Thermal analysis results at a glance:

Polymer block	T <sub>g</sub> (°C)
PS	92
4MeOS	164

### DSC thermogram for 4 MeOS block:

