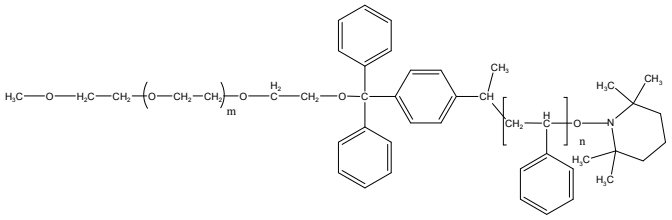
Sample Name: **Poly(styrene-b-ethylene oxide)Clevage**

Sample #: **P6503-SEOCleavable**

Structure:



Composition:

Mn x 10^3 S-b-EO	PDI
22.0-b-6.0	1.14

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:

The molecular weight and polydispersity index (PDI) of the block copolymer are characterized by size exclusion chromatography (SEC). The composition of the block copolymer was calculated from ^{1}H-NMR by comparing the peak area of the phenyl polystyrene protons between 6.4 to 7.2 ppm and the ethylene oxide protons at 3.65 ppm.

Solubility:

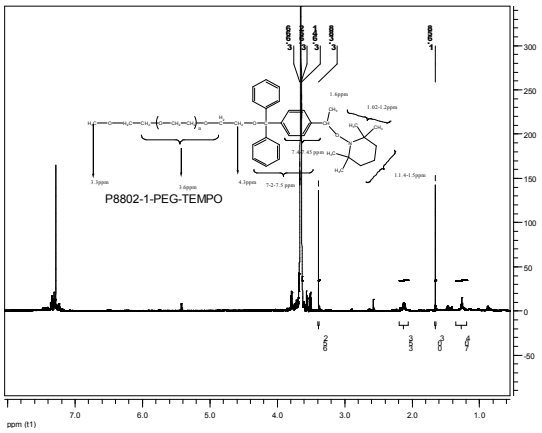
The polymer is soluble in THF (at 35 °C), $CHCl_3$, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

Quick test for the presence of cleavage group at the junction:

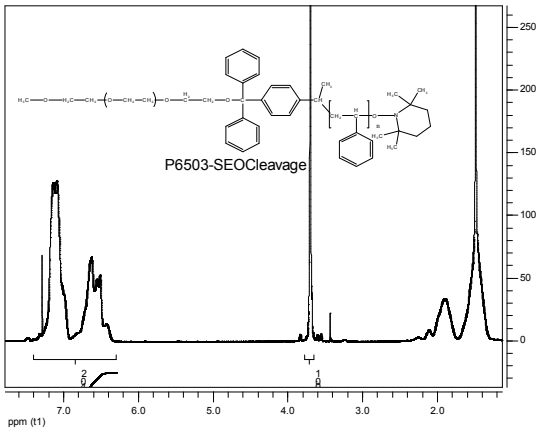
Prepare the solution of polymer in toluene 10mg in 1 ml of toluene and add a drop of trifluroacetic acid . Immediately the color turn yellow. This indicate the formation of Phenyl moiety (Phenyl-C+) charge with cation. This indicate the cleavage of PEO block from Polystyrene block at the junction.

^{1}H NMR spectrum of the sample

1. **PEG- end functionalized TEMPO**



^{1}H NMR of The polymer:



SEC profile of the block copolymer

P6503-SEO cleavage