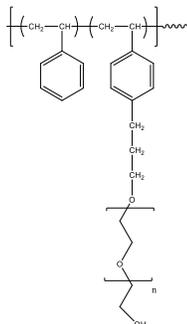


**Sample Name: Poly(styrene)-graft-poly (ethylene oxide), PEO is hydroxy-terminated**

**Sample #: P43260B-SEOcomb**

**Structure:**



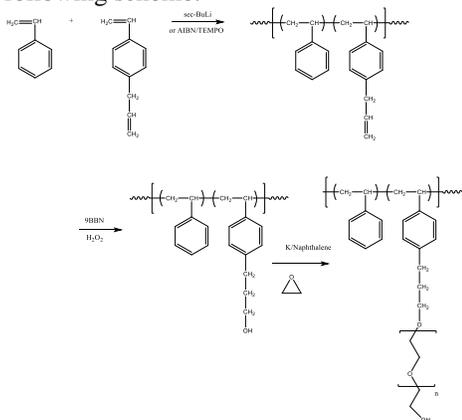
**Composition:**

| Mn x 10 <sup>3</sup><br>(Main Chain) | Mn x 10 <sup>3</sup><br>(Graft Chain) | Mn x 10 <sup>3</sup><br>(Total PEO Chain) | Mw/Mn<br>(Total) |
|--------------------------------------|---------------------------------------|---|------------------|
| 7.0                                  | 6.3                                   | 38.0                                      | 1.6              |

|                             |
|-----------------------------|
| Mn (total): 45,000          |
| Number of branches about: 6 |

**Synthesis Procedure:**

Polystyrene-g-poly(ethylene oxide) is synthesized by polymerization of ethylene oxide on the polystyrene bearing hydroxyl functions. The brief synthetic route is illustrated as following scheme.



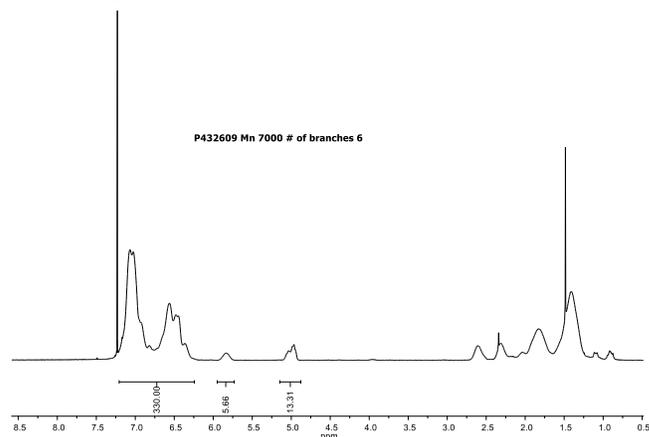
**Characterization:**

The molecular weight and polydispersity index (PDI) of polymers are obtained by size exclusion chromatography (SEC). The composition of grafting polymer is determined by NMR.

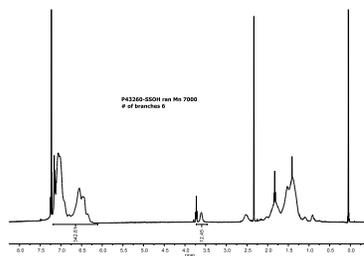
**Solubility:**

Polystyrene-g-poly(ethylene oxide) is soluble in THF, DMF, and chloroform.

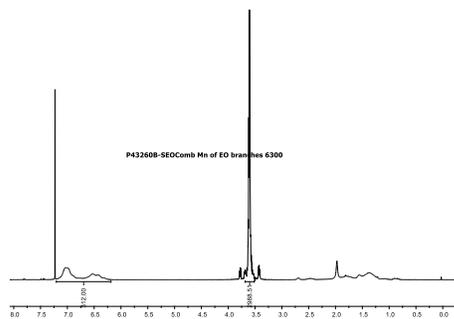
**H NMR spectrum of SSallyl random Polymer:**



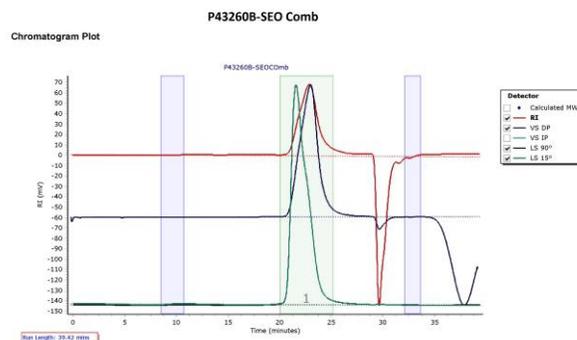
**H NMR spectrum of SSpropanol random Polymer:**



**H NMR spectrum of SEO comb Polymer:**



**SEC elugram of the Polymer:**



| Peak   | Mp (g/mol) | Mn (g/mol) | Mw (g/mol) | Mz (g/mol) | Mz+1 (g/mol) | Mv (g/mol) | PD    |
|--------|------------|------------|------------|------------|--------------|------------|-------|
| Peak 1 | 56655      | 45095      | 75241      | 117634     | 175047       | 95395      | 1.688 |