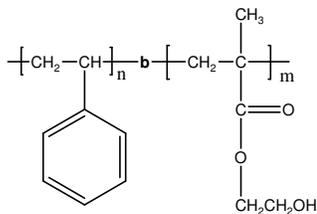


Sample Name:
Poly(styrene-b-hydroxyethyl methacrylate)

Sample #: **P40051A-SHEMA**

Structure:



Composition:

Mn × 10 ³ S-b-HEMA	Mw/Mn (PDI)
99.0-b-20.0	1.15

Glass transition temperature at a glance

T _g for PS block	85 °C
T _g for HEMA block	Not distinct

Synthesis Procedure:

Poly(styrene-b-hydroxy ethyl methacrylate) is prepared by living anionic polymerization by sequence addition of styrene followed by trimethylsiloxy ethyl methacrylate (HEMA-TMS) and deprotection of the OH group.

Characterization:

The polymer was characterized by SEC and ¹H NMR. The SEC analysis of the final polymer is carried out after protecting OH groups of hydroxy ethyl methacrylate to acetate group was treated with acetic anhydride in presence of pyridine. The SEC analysis of the obtained polymer gives more reliable results.

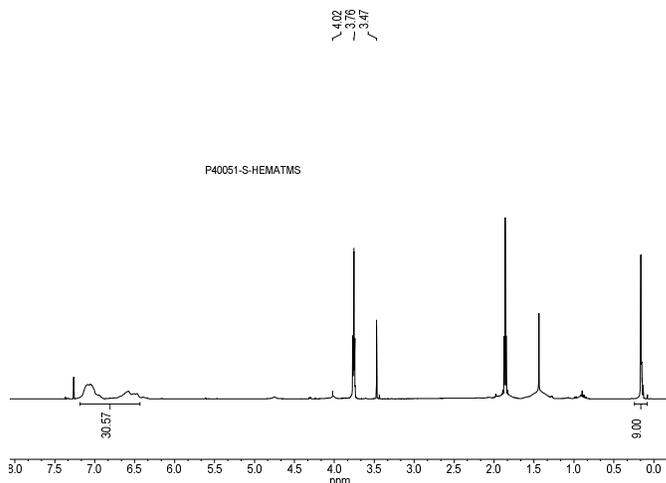
Thermal analysis:

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).

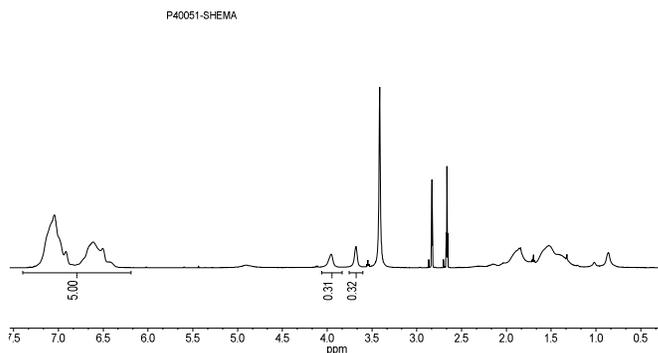
Solubility:

Poly(styrene-b-hydroxyethyl methacrylate) is soluble in DMF, and precipitated into hexanes.

¹H NMR spectrum of the Polymer in CDCl₃:



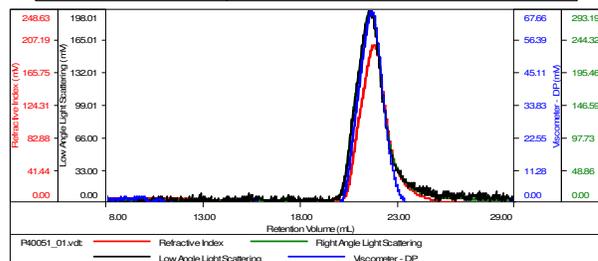
¹H NMR spectrum of the SHEMA in CDCl₃ after deprotection:



SEC elugram of the first block:

Sample ID: P40051-S

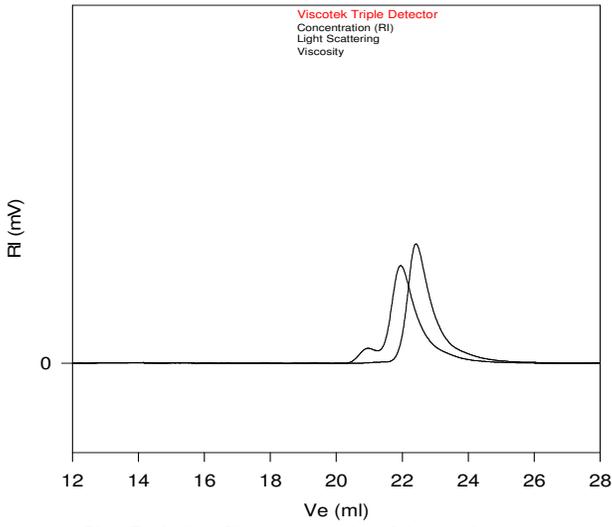
Concentration (mg/mL)	5.4870
Sample chn/c: (mL/g)	0.1850
Method File	PS80K-30JUNE2016-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
F40051_01.vdt	99,127	102,078	1.030	0.5184	97,159

SEC elugram of the block copolymer:

P40051A-SHEMA



Size Exclusion Chromatography of the product
PS Mn : 99,000 Mw: 102,000 Mw/Mn 1.03

— PS-b-PHEMA-TMS: $M_n = 99,000$ -b- 31,000 $M_w/M_n = 1.15$
After deprotection of OH: PS-b-HEMA: 99,000-b-20,000

Thermogram for PS block:

