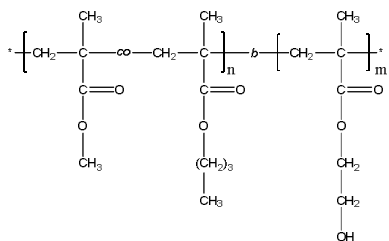


Sample Name:

Poly(methyl methacrylate-*co*(*random*)-*n*-butyl methacrylate)-*block*-poly(2-hydroxyethyl methacrylate)

Sample #: P19400-MMA_nBuMA_ran-b-HEMA

Structure:**Composition:**

$M_n \times 10^3$ (g/mol)	20.5- <i>b</i> -20.0
M_w/M_n	1.15
Molar ratio MMA : nBuMA	52 : 48 (mol/mol)
Weight ratio MMA:nBuMA:HEMA	22 : 29 : 49 (wt%)

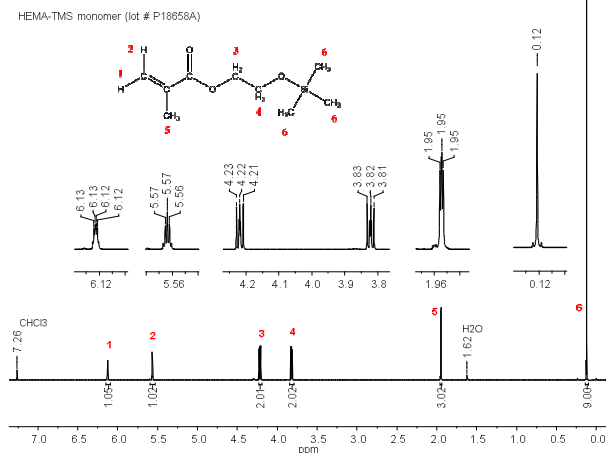
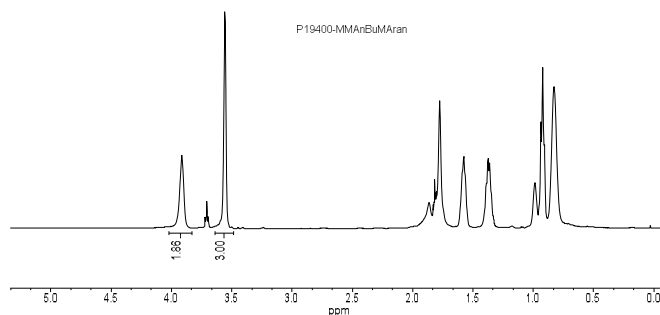
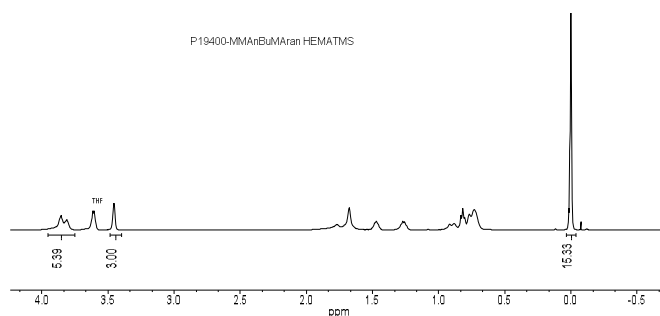
Synthesis Procedure:

Poly(methyl methacrylate-*co*-*n*-butyl methacrylate [random])-*b*-poly(2-hydroxyethyl methacrylate) block copolymer was synthesized by living anionic polymerization. First, methyl methacrylate (MMA) and *n*-butyl methacrylate (*n*-BuMA) were copolymerized; and then 2-[trimethylsilyloxy]ethyl methacrylate (hydroxyl-protected HEMA monomer) was added. The obtained block copolymer was precipitated in acidic methanol solution to deprotect the hydroxyl group.

Solubility: The polymer is soluble in THF, DMF.

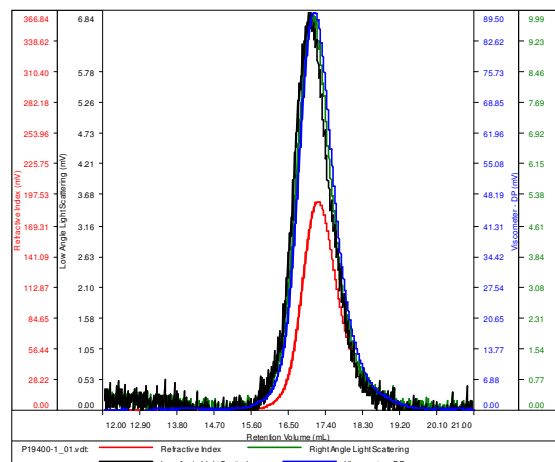
Characterization:

The polymer composition was confirmed by ^1H NMR. The average molecular weight and polydispersity index were determined by size exclusion chromatography (SEC). For SEC analysis, the (MMA-*n*BuMA)-*b*-HEMA block copolymer was treated with acetic anhydride in presence of pyridine to convert the hydroxy-groups to acetate groups. Thermal analysis of the sample was done on a TA Q100 differential scanning calorimeter (DSC) at a heating rate of $10^\circ\text{C}/\text{min}$. The glass transition temperature (T_g) was determined as a midpoint of step change in heat flow curve for the second heating scan.

 ^1H NMR of HEMA-TMS monomer (500 MHz, CDCl_3): **^1H NMR of MMA-*n*BuMA [first block] (500MHz, CDCl_3):** **^1H NMR of [MMA-*n*BuMA]-*b*-HEMA-TMS (500MHz, CDCl_3):****SEC of MMA-*n*BuMA [first block] in DMF:**

SAMPLE ID: P19400-1-MMA_nBuMA_ran

Conc (mg/mL)	9.7846
dn/dc (mL/g)	0.0650
Method	ps80k-July2015-0000.vcm
Solvent	DMF w 0.03M LiBr
Column	PSS

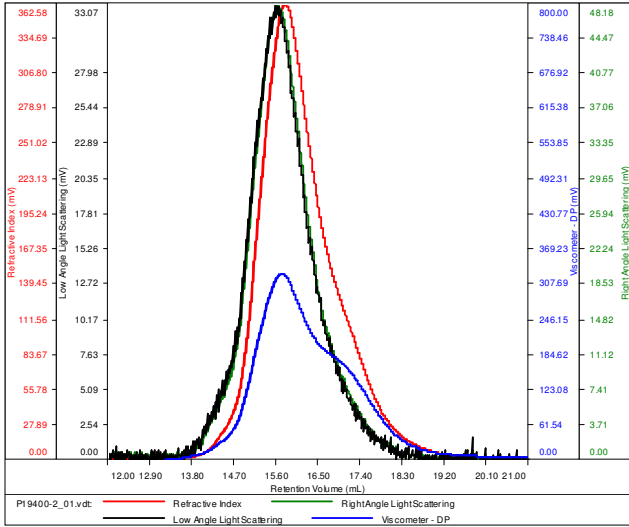


Sample	Mn	Mw	Mp	Mw/Mn	IV
P19400-1_01.vdt	20,511	22,169	21,380	1.081	0.1107

SEC of [MMA-nBuMA]-b-HEMA-TMS in DMF:

SAMPLE ID:
P19400-MMA nBuMAranHEMATMS

Conc (mg/mL)	28.7142
dn/dc (mL/g)	0.0610
Method	ps80k-July2015-0000.vcm
Solv ent	DMF w 0.03M LIBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
P19400-2_01.vdt	51,233	58,733	59,230	1.146	0.2325

DSC of [MMA-nBuMA]-b-HEMA:

