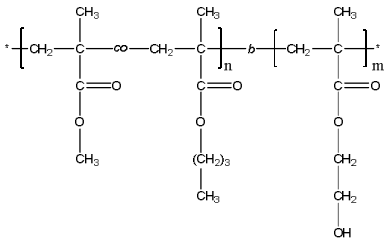


**Sample Name:**

**Poly(methyl methacrylate-co<sub>(random)</sub>-n-butyl methacrylate)-block-poly(2-hydroxyethyl methacrylate)**

**Sample #: P19404-MMA<sub>n</sub>BuMA<sub>r</sub>an-b-HEMA**

**Structure:**



**Composition:**

$M_n \times 10^{-3}$ (g/mol)	19.5- <i>b</i> -20.0
$M_w/M_n$	1.15
Molar ratio MMA : nBuMA	50 : 50 (mol/mol)
Weight ratio MMA:nBuMA:HEMA	20 : 29 : 51 (wt%)

**Synthesis Procedure:**

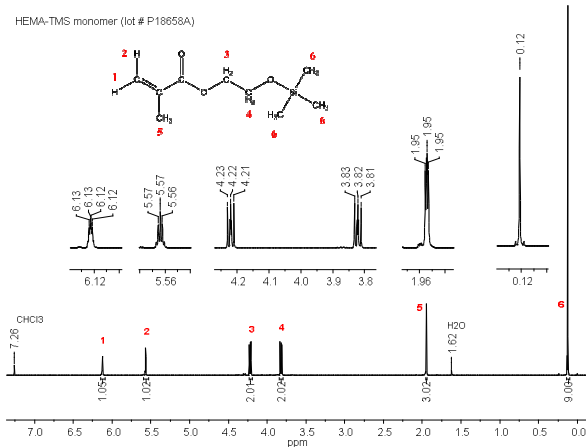
Poly(methyl methacrylate-co-n-butyl methacrylate [random])-b-poly(2-hydroxyethyl methacrylate) block copolymer was synthesized by living anionic polymerization. First, methyl methacrylate (MMA) and n-butyl methacrylate (n-BuMA) were copolymerized; and then 2-[trimethylsilyloxy]ethyl methacrylate (hydroxyl-protected 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.

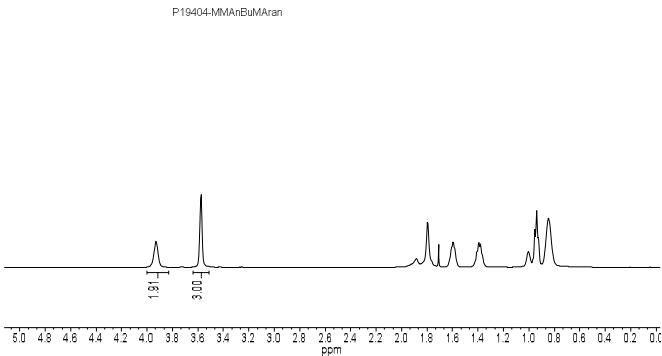
**Characterization:**

The polymer composition was confirmed by <sup>1</sup>H NMR. The average molecular weight and polydispersity index were determined by size exclusion chromatography (SEC). For SEC analysis, the (MMA-nBuMA)-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°C/min. The glass transition temperature (T<sub>g</sub>) was determined as a midpoint of step change in heat flow curve for the second heating scan.

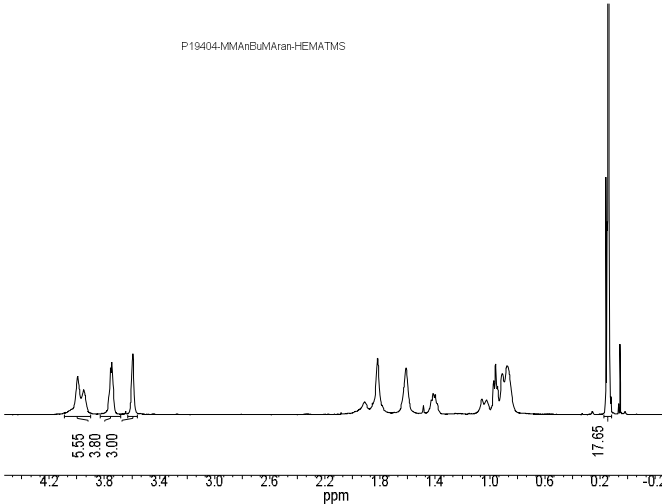
**<sup>1</sup>H NMR of HEMA-TMS monomer (500 MHz, CDCl<sub>3</sub>):**



**<sup>1</sup>H NMR of MMA-nBuMA [first block] (500MHz, CDCl<sub>3</sub>):**



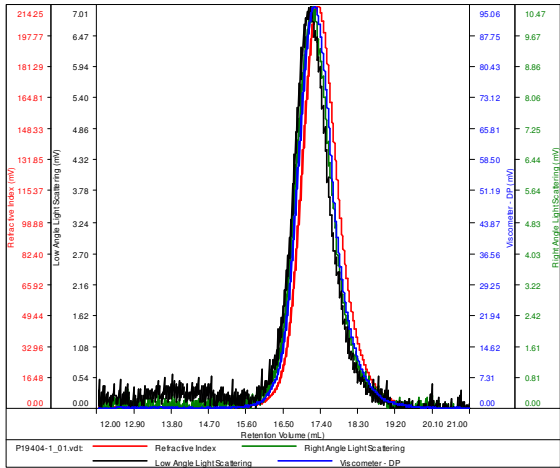
**<sup>1</sup>H NMR of [MMA-nBuMA]-b-HEMA-TMS (500MHz, CDCl<sub>3</sub>):**



**SEC of MMA-nBuMA [first block] in DMF:**

**SAMPLE ID: P19404-1-MMA<sub>n</sub>BuMA<sub>r</sub>an**

Conc (mg/mL)	10.9117
dn/dc (mL/g)	0.0650
Method	ps80k-July2015-0000.vcm
Solvent	DMF w 0.03M LiBr
Column	PSS

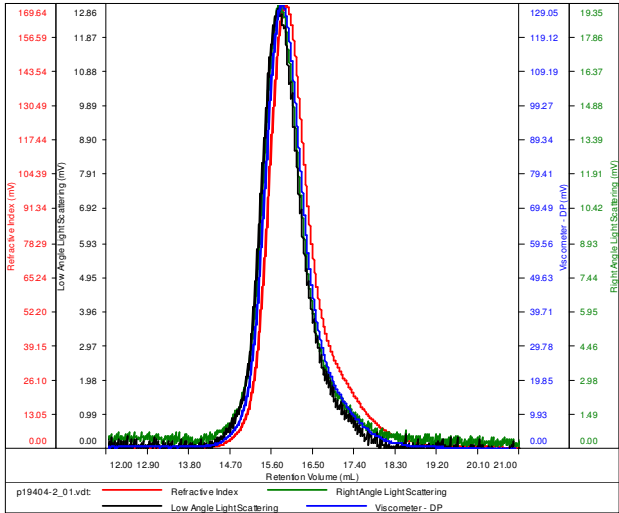


Sample	Mn	Mw	Mp	Mw/Mn	IV
P19404-1_01.vdt	19,565	20,881	19,757	1.067	0.1031

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

SAMPLE ID:  
P19404-MMAAnBuMAranHEMATMS

Conc (mg/mL)	10.9418
dn/dc (mL/g)	0.0550
Method	ps80k-July2015-0000.vcm
Solvent	DMF w 0.03M LiBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
p19404-2_01.vdt	53,014	57,283	56,780	1.081	0.1454

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

