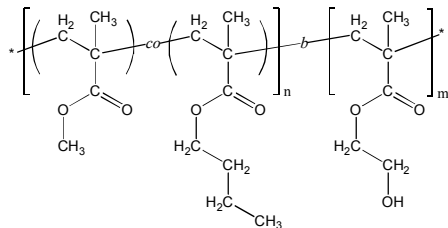


Sample Name:

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

Sample #: P18662-MMA_nBuMA_ran-b-HEMA

Structure:



Composition:

$M_n \times 10^3$ (g/mol)	22.0- <i>b</i> -27.5
M_w/M_n	1.24
Molar ratio MMA : nBuMA	55 : 45 (mol/mol)
Weight ratio MMA:nBuMA:HEMA	21 : 24 : 55 (wt%)

Synthesis Procedure:

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

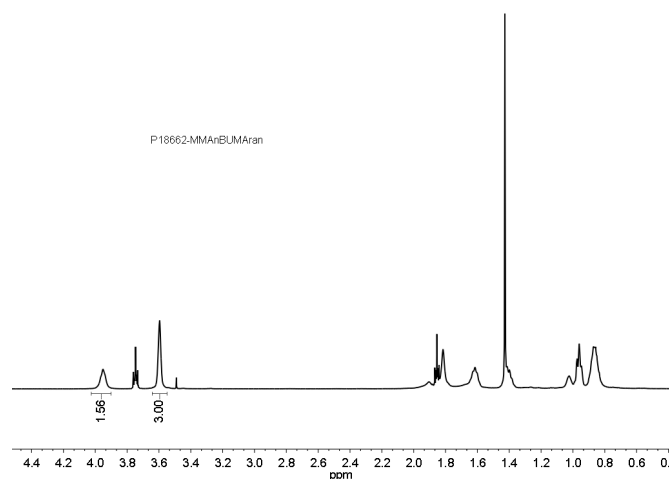
Solubility: The polymer is soluble in THF, DMF.

Characterization:

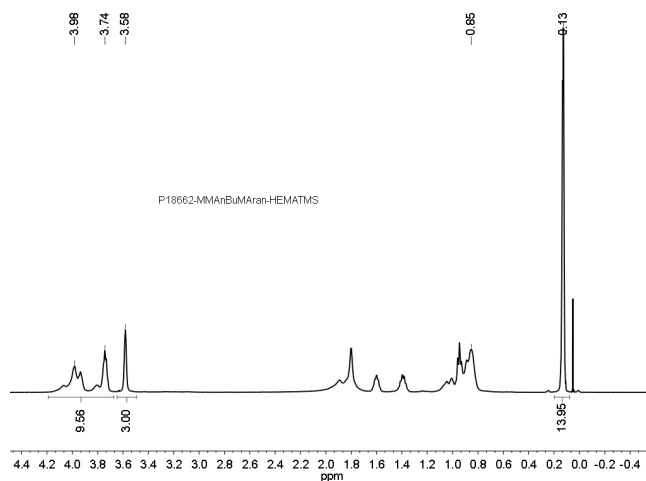
The polymer composition was determined by ^1H NMR. MMA:nBuMA molar ratio was calculated by comparing the integration of the $-\text{OCH}_2-$ protons of nBuMA (at $\delta = 3.9$ ppm) to the integration of methoxy group of MMA (at $\delta = 3.6$ ppm). Molecular weight of the second (HEMA) block was calculated by comparing the integration of $-\text{OCH}_2-$ protons of HEMA to the integration of methoxy group of MMA and using SEC data for the first (MMA_nBuMA) block.

The average molecular weight and polydispersity index were determined by size exclusion chromatography (SEC). For SEC analysis, the MMA_nBuMA-b-HEMA block copolymer can be treated with acetic anhydride in presence of pyridine to convert the hydroxy-groups to acetate groups.

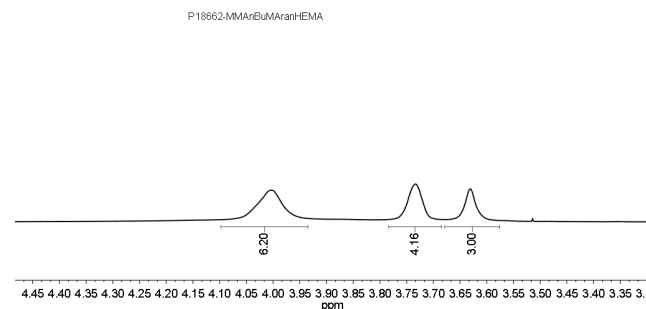
^1H NMR of MMA_nBuMA_ran [first block]:



^1H NMR of MMA_nBuMA_ran-b-HEMATMS:



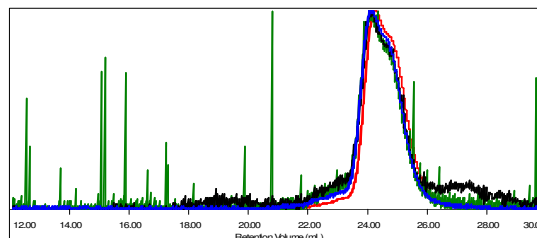
^1H NMR of MMA_nBuMA_ran-b-HEMA:



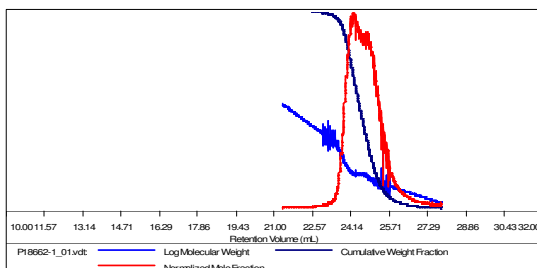
SEC of MMA_nBuMA_ran [first block]:

Sample ID: P18662-1-MMA_nBuMA

Concentration (mg/mL)	10.0155
Sample ch/d: (mL/g)	0.0840
Method File	PS80K-Apr15-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

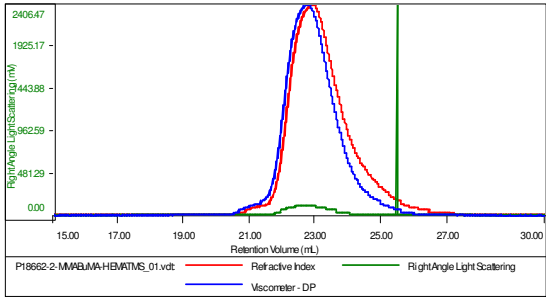


Sample	Mh	Mw	Mp	Mw/Mh	IV
P18662-1_01.vdt	22,080	24,079	23,011	1.091	0.0604



SEC of MManBuMAran and MManBuMA-b-HEMATMS:
Sample ID: P18662-MManBuMAran HEMATMS

Concentration (mg/mL)	60.0721
Sample ch/dc (mL/g)	0.0800
Method File	PS80K-Apr15-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn	Mw	Mp	MvMh	IV
P18662-2-MManBuMA-HEMATMS_01.v	59,212	73,217	80,879	1.237	0.1166

