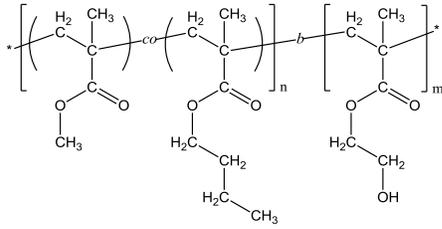


Sample Name:

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

Sample #: P10547-MMA-nBuMAran-b-HEMA

Structure:



Composition:

$M_n \times 10^{-3}$ (g/mol)	10.5-b-14.0
M_w/M_n	1.44
Molar ratio MMA : nBuMA	50 : 50 (mol/mol)
Weight ratio MMA:nBuMA:HEMA	18 : 25 : 57 (wt%)

Synthesis Procedure:

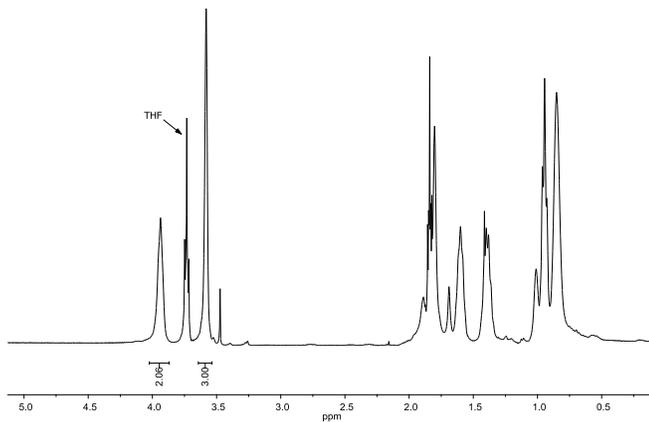
Poly(methyl methacrylate-co-n-butyl methacrylate)-b-poly(2-hydroxyethyl methacrylate) block copolymer was synthesized by living anionic polymerization. First, methyl methacrylate (MMA) and n-butyl methacrylate (n-BuMA) were co-polymerized; and then 2-[trimethylsilyloxy]ethyl methacrylate (hydroxyl-protected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

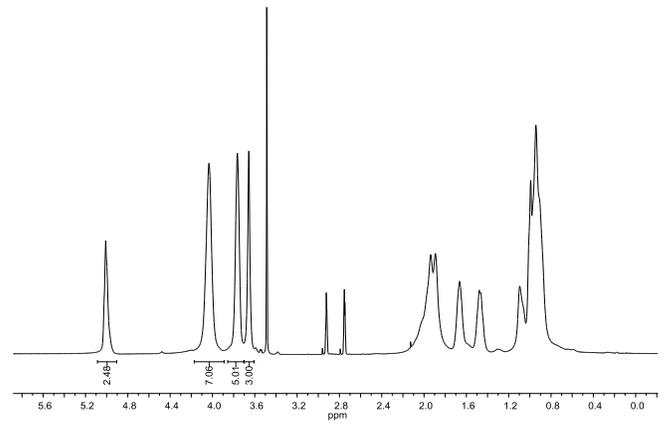
Characterization:

The polymer composition was calculated by $^1\text{H NMR}$. 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 $10^\circ\text{C}/\text{min}$. The glass transition temperature (T_g) was determined as a midpoint of step change in heat flow curve for the second heating scan.

$^1\text{H NMR}$ of MMA-nBuMA [first block] in CDCl_3 :



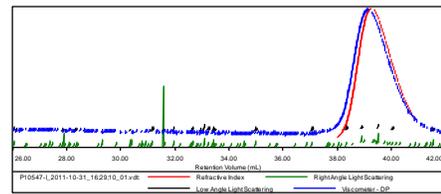
$^1\text{H NMR}$ of [MMA-nBuMA]-b-HEMA in DMF-d_7 :



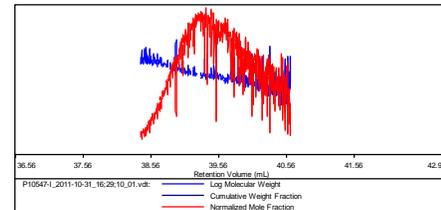
SEC of MMA-nBuMA [first block]:

Sample ID: P10547-1-MMA-nBuMA

Concentration (mg/mL)	7.2560
Sample dn/dc (mL/g)	0.0800
Method File	PS80K-Oct-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



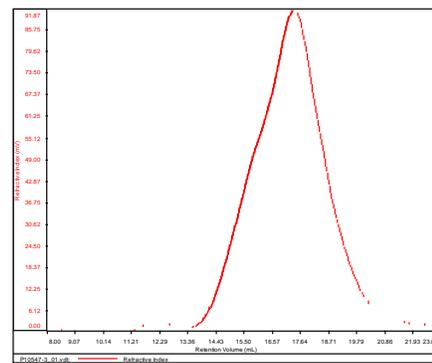
Sample	Mn (Da)	Mw (Da)	Mp (Da)	Mw/Mn	IV (dL/g)
P10547-1_2011-10-31_16:29;10_01.vdt	10,517	11,986	11,129	1.140	0.1301



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

P10547-MMA-nBuMA-b-HEMA

Conc	7.6336
dn/dc	0.1450
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS-80K_2018-04-02-0000.vcm



Sample	Mn	Mw	Mp	Mw/Mn	IV
P10547-3_01.vdt	24,665	35,732	21,712	1.449	0.3820