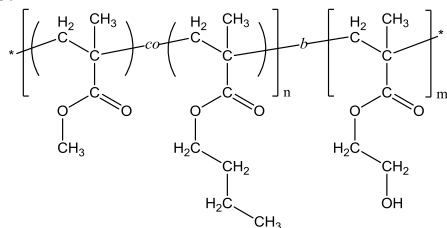


Sample Name:

**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)	10.5-14.0
$M_w/M_n$	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.

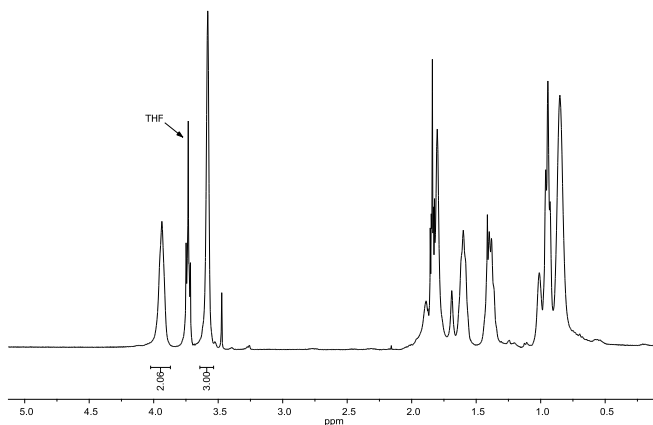
**Characterization:**

The polymer composition was calculated by  $^1\text{H}$  NMR.

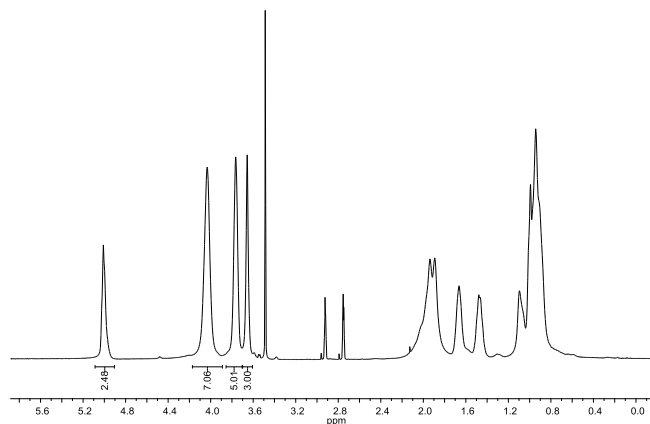
The average molecular weight and polydispersity index were determined by size exclusion chromatography (SEC). For SEC analysis, the (MMA-nBuMA)-b-HEMA block copolymer was treated with acetic anhydride in presence of pyridine to convert the hydroxy-groups to acetate groups.

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  $\text{CDCl}_3$ :



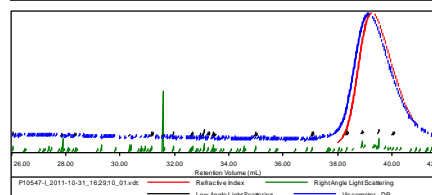
$^1\text{H}$  NMR of [MMA-nBuMA]-b-HEMA in  $\text{DMF-d}_7$ :



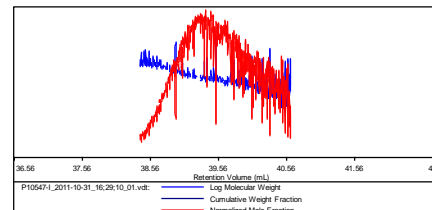
SEC of MMA-nBuMA [first block]:

Sample ID: P10547-I-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



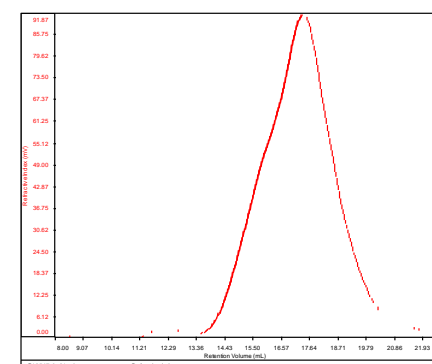
Sample	Mn (Da)	Mw (Da)	Mp (Da)	Mw/Mn	IV (dL/g)
P10547-I_2011-10-31_16:29;10_01.vdt	10,517	11,986	11,129	1.140	0.1301



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