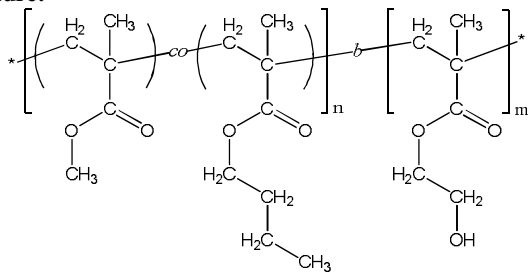


Sample Name:

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

Sample #: P40193-MMA_nBuMA_ran-b-HEMA

Structure:



Composition:

| | |
|---------------------------|----------------------|
| $M_n \times 10^3$ (g/mol) | 28.2- <i>b</i> -22.0 |
| M_w/M_n | 1.12 |
| Molar ratio MMA : nBuMA | 53 : 47 (mol/mol) |

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.

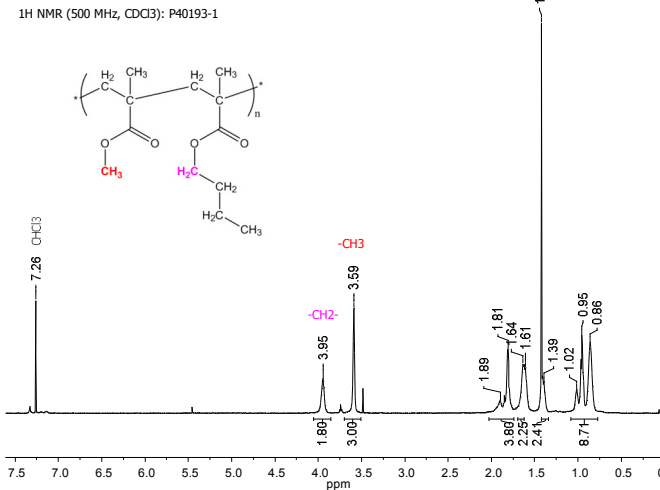
Solubility: The polymer is soluble in THF, DMF.

Characterization:

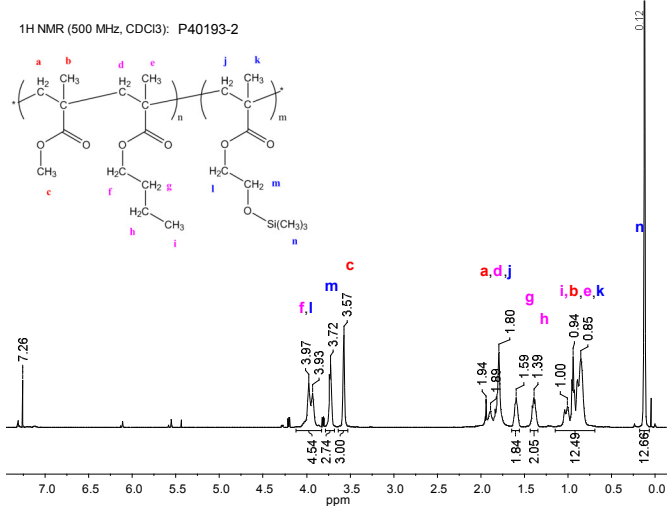
The polymer composition was determined by ¹H NMR. MMA:nBuMA molar ratio was calculated by comparing the integration of the -OCH₂-protons of nBuMA (at δ = 3.9 ppm) to the integration of methoxy group of MMA (at δ = 3.6 ppm). Molecular weight of the second (HEMA) block was calculated by comparing the integration of -OCH₂- protons of HEMATMS 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).

¹H NMR of MMA_nBuMA_ran [first block]:



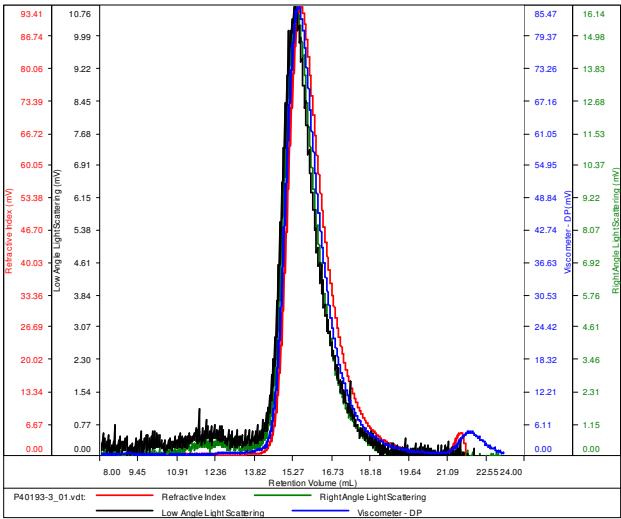
¹H NMR of MMA_nBuMA_ran-b-HEMATMS [protected diblock]:



SEC of MMA_nBuMA_ran-b-HEMA:

P40193-MMA_nBuMA_ran-HEMA

| | |
|--------------|------------------------------|
| Conc (mg/mL) | 14.5638 |
| dn/dc (mL/g) | 0.0650 |
| Method | PS80k_December-2016-0004.vcm |
| Solvent | DMF w 0.023M LiBr |
| Column | PSS |



| Sample | Mn | Mw | Mp | Mw/Mn | IV |
|-----------------|--------|--------|--------|-------|--------|
| P40193-3_01.vdt | 50,230 | 56,219 | 56,407 | 1.119 | 0.1026 |