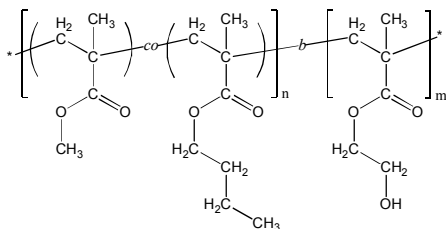


Poly(methyl methacrylate-*co*_(random)-n-butyl methacrylate)-*block*-poly(2-hydroxyethyl methacrylate)

Structure:



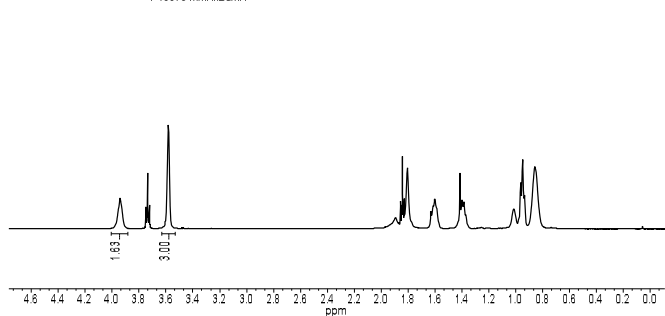
$M_n \times 10^3$ (g/mol)	19.5- <i>b</i> -22.5
M_w/M_n	1.2
Molar ratio MMA : nBuMA	55 : 45 (mol/mol)
Weight ratio MMA:nBuMA:HEMA	21 : 25 : 54 (wt%)
T_g (MMA nBuMA)	79 °C
T_g (HEMA)	119 °C

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.

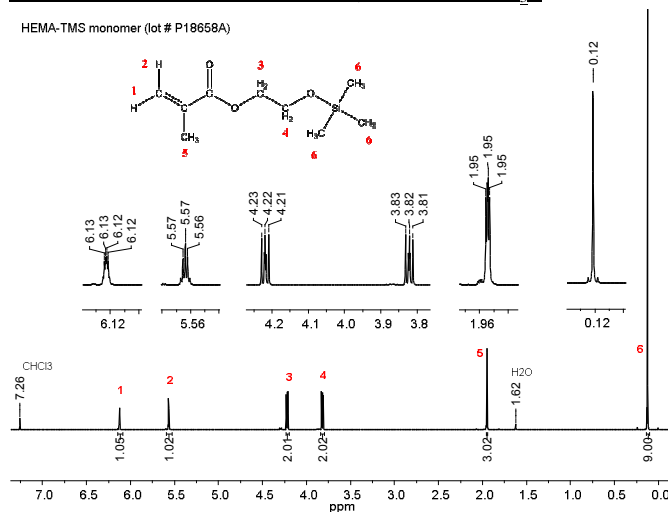
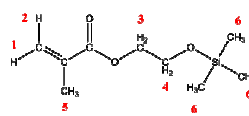
The polymer composition was determined by ^1H NMR. MMA:nBuMA molar ratio was calculated by comparing the integration of the $-\text{OCH}_2-$ protons of nBuMA (at $\delta = 3.9$ ppm) to the integration of methoxy group of MMA (at $\delta = 3.6$ ppm). Molecular weight of the second (HEMA) block was calculated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

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

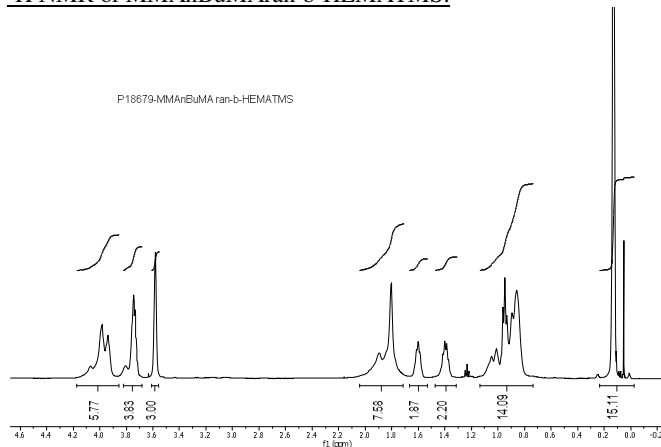
Thermal analysis of the sample was done on a TA Q100 differential scanning calorimeter (DSC) at a heating rate of 10°C/min. The glass transition temperature (T_g) was determined as a midpoint of step change in heat flow curve for the second heating scan.

P18679-MMA α BuMA

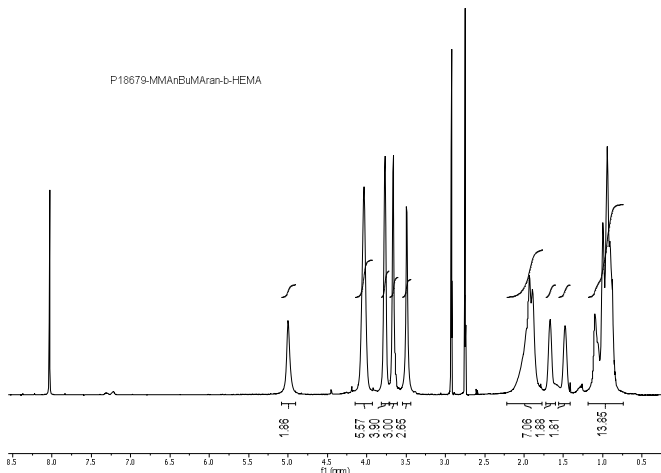
HEMA-TMS monomer (lot # P18658A)



P18679-MMAAnBuMA ran-b-HEMATMS



P18679-MMApBuMAran-b-HEMA

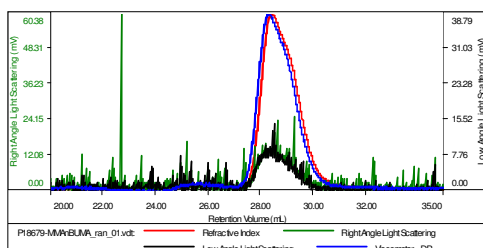


SEC of MManBuMAran [first block] in (a) THF and (b) DMF:

(a)

Sample ID: P18679-1-MManBuMAran

Concentration (mg/mL)	17.5189
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-Apr15-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

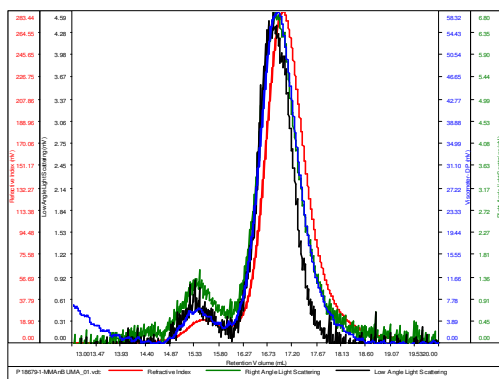


Sample	Mh	Mw	Mp	Mw/Mh	IV
P18679-MManBuMAran_01.vdt	19,268	20,748	20,129	1.077	0.0562

(b)

SAMPLE ID: P18679-1-MMABuMA

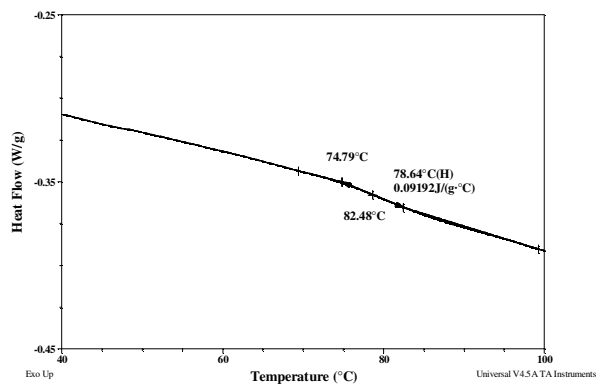
Conc (mg/mL)	6.2117
dn/dc (mL/g)	0.0650
Method	ps80k042014-0000.vcm
Solvent	DMF w 0.03MLIBr
Column	PSS



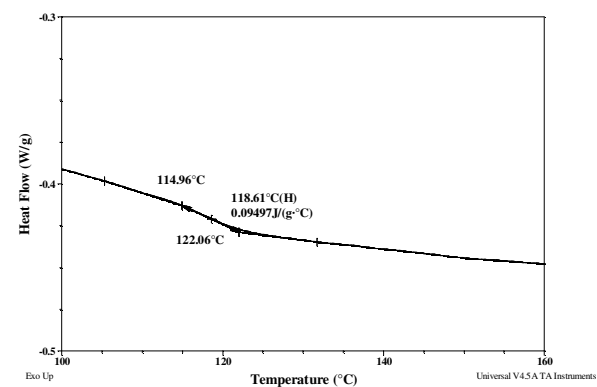
Sample	Mh	Mw	Mp	Mw/Mh	IV
P18679-1-MManBuMA_01.vdt	19,316	21,207	19,867	1.098	0.0960

DSC of MManBuMAran-b-HEMA:

Sample: 18679
Size: 8.0000 mg
DSC
File: P18679.001



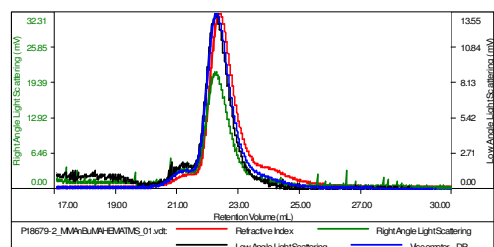
Sample: 18679
Size: 8.0000 mg
DSC
File: P18679.001



SEC of MManBuMAran-b-HEMATMS in THF:

Sample ID: P18679-2-MManBuMA-HEMATMS

Concentration (mg/mL)	6.3422
Sample dn/dc (mL/g)	0.0800
Method File	PS80K-Apr15-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mh	Mw	Mp	Mw/Mh	IV
P18679-2_MManBuMA-HEMATMS_01.vdt	54,715	64,868	72,923	1.186	0.1073