

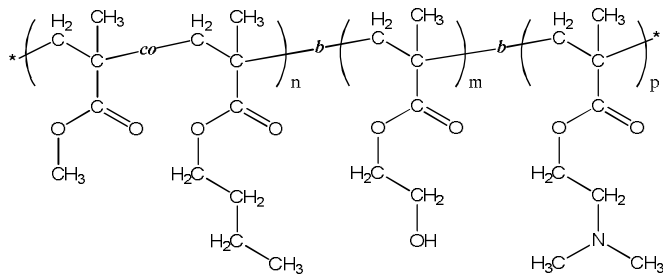
Sample Name:

Poly(methyl methacrylate-*co*_{random}-n-butyl methacrylate)-b-poly(2-hydroxyethyl methacrylate)-b-poly(N,N-dimethylamino ethylmethacrylate)

Sample #

P19679A-MMA_nBuMA_ran-b-HEMA-b-DMAEMA

Structure:



Composition:

$M_n \times 10^3$	PDI
MMA _n BuMA _r an-b-HEMA-b-DMAEMA 22.0-b-27.0-b-4.7	1.02
MMA : nBuMA molar ratio	52 : 48 mol%
T _g (MMA _n BuMA block):	76 °C
T _g (HEMA block):	97 °C

Synthesis procedure:

The triblock copolymer was synthesized by anionic polymerization process by sequential addition of corresponding monomers.

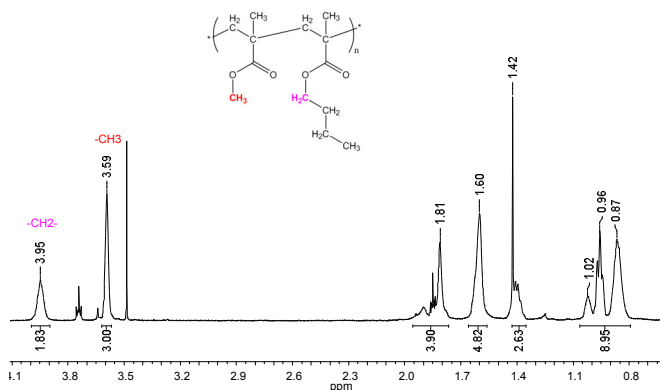
Characterization:

The ratio between MMA:nBuMA was calculated by ¹H NMR spectroscopy. Molecular mass of the first block was determined by size exclusion chromatography (SEC); and molecular masses of the other blocks were calculated from NMR and compared to SEC data. Polydispersity index (PDI) was determined SEC.

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.

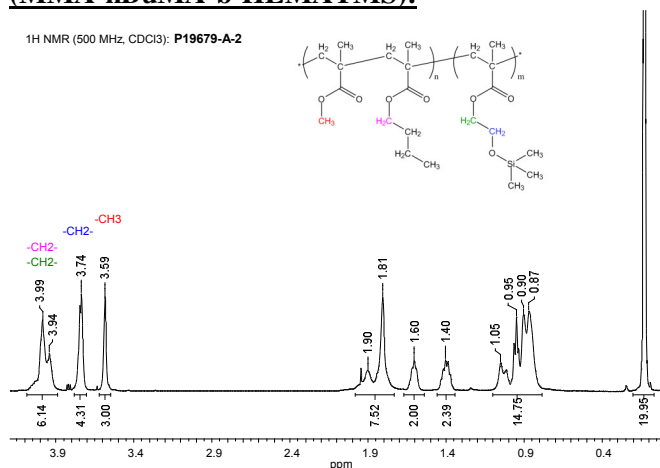
¹H NMR of MMA-nBuMA (first block):

¹H NMR (500 MHz, CDCl₃): P19679-A-1 (MMA : nBuMA = 52 : 48 mol%)



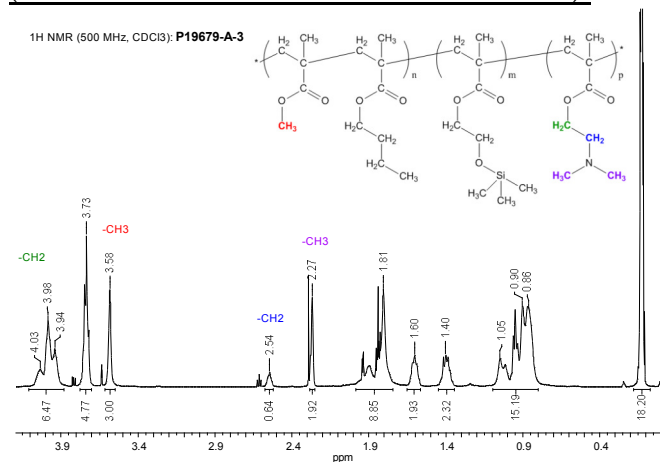
¹H NMR of protected diblock copolymer (MMA-nBuMA-b-HEMATMS):

¹H NMR (500 MHz, CDCl₃): P19679-A-2



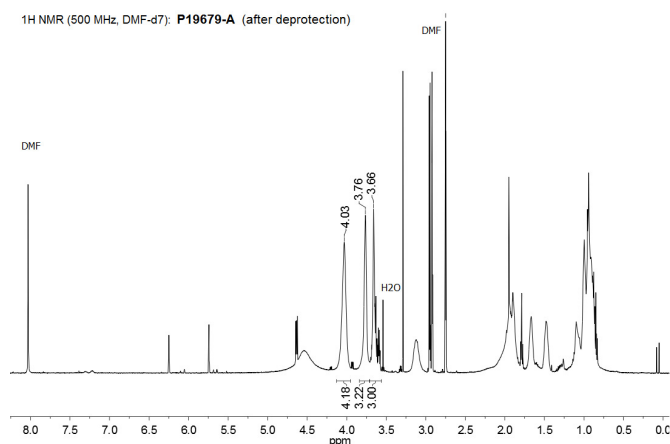
¹H NMR of protected triblock copolymer (MMA-nBuMA-b-HEMATMS-b-DMAEMA):

¹H NMR (500 MHz, CDCl₃): P19679-A-3



¹H NMR of deprotected triblock copolymer in DMF (MMA-nBuMA-b-HEMA-b-DMAEMA):

¹H NMR (500 MHz, DMF-d7): P19679-A (after deprotection)

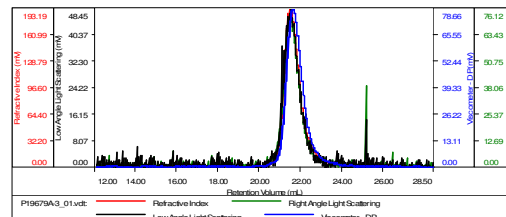


SEC of protected triblock copolymer:

Sample

ID-P19679A3-MMA-nBuMAran-HEMATMS-DMAEMA

Concentration (mg/mL)	2.1312
Sample dn/dc (mL/g)	0.0700
Method File	P580K-June03.2015-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF

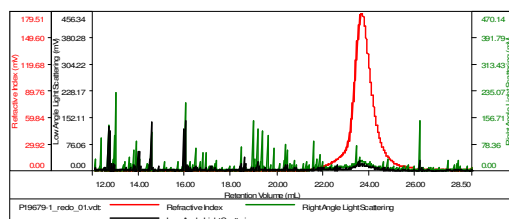


Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19679A3_01.vct	59,038	61,211	60,960	1.020	0.969

SEC of MMA-nBuMA [first block]:

Sample ID-P19679-1

Concentration (mg/mL)	1.9278
Sample dn/dc (mL/g)	0.0340
Method File	P580K-June03.2015-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF



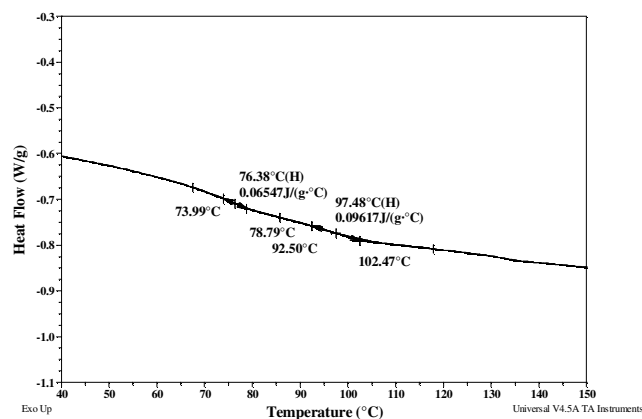
Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19679-1_red_01.vct	22,247	25,466	19,396	1.100	0.6245

DSC thermogram of the product:

Sample: P19679-A_triblock
Size: 9.7000 mg

DSC

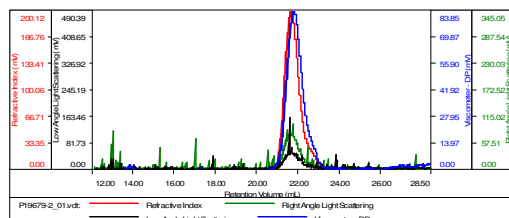
File: P19679-A_triblock.002



SEC of protected diblock copolymer:

Sample ID-P19679-MMA-nBuMAran-HEMATMS

Concentration (mg/mL)	2.0013
Sample dn/dc (mL/g)	0.0750
Method File	P580K-June03.2015-0000.vcm
Column Set	3x PL 1113-6000
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19679-2_01.vct	67,686	69,542	64,031	1.038	1.0015