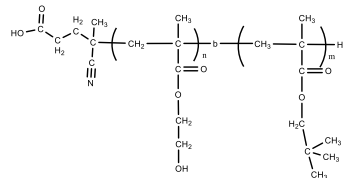


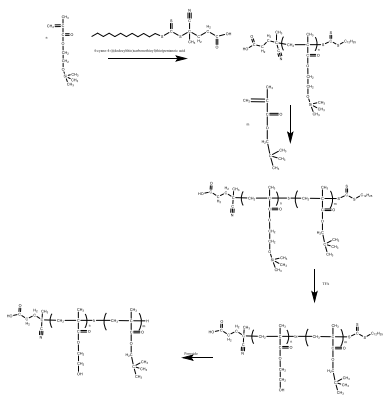
Poly (2-hydroxyethyl methacrylate-*b*- Neopentyl methacrylate

Structure:



Mn × 10 ³ HEMA-b-NPMA	PDI
1.6-b-12.0	1.3
T _g for NPMA block: 124 °C Poly HEMA T _g not visible	

Poly(2-hydroxy ethyl methacrylate-*b*-neopentyl acrylate) is synthesized by living RAFT polymerization process.



An aliquot of the anionic poly(hydroxyl ethyl methacrylate) block was terminated before addition of neopentyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from SEC result since the first block is very short.

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Poly(2-hydroxy ethyl methacrylate-b-neopentyl methacrylate) is soluble in DMF, THF and CHCl_3 (depends upon block composition) but insoluble in water. The polymer is insoluble in hexane while HEMA chain is too long.

1H NMR spectrum of P44306-HEMANPMA in acetone. The x-axis is chemical shift in ppm, ranging from 7.0 to -0.5. A sharp peak at 2.1 ppm is labeled 'Acetone'. A broad peak at 3.5 ppm is labeled 'P44306-HEMANPMA run in Acetone'. A small peak at 1.0 ppm is also visible.

Chromatogram Plot

P44306-HEMA-RAFT

Detector

- Calculated MW
- RI
- V5 0P
- V5 1P
- LS 90°
- LS 15°

Wavelength: 405.2 nm

Time (minutes)

Peak

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz-1 (g/mol)	Mv (g/mol)	PD
204	2633	2375	2418	2462	2396	1.018	

Chromatogram Pk1

P44306-HEMATMS-NPMA

Time (minutes)

AU (mV)

Detector

- ☐ C6H5OH 100%
- ☐ IS
- ☐ VS 18°
- ☐ VS 18°
- ☐ VS 18°
- ☐ VS 18°
- ☐ VS 18°

Peak 1: 24.02 min

Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mg (g/mol)	PDI
Peak 1	15038	12518	16179	20926	26695	19636	1.292

DSC thermogram for Polymer:

