Sample Name:
Amino end functionalized Poly(ethylene oxide -b- methacrylic acid)

Sample #: **P5538- NH2EOMAA**

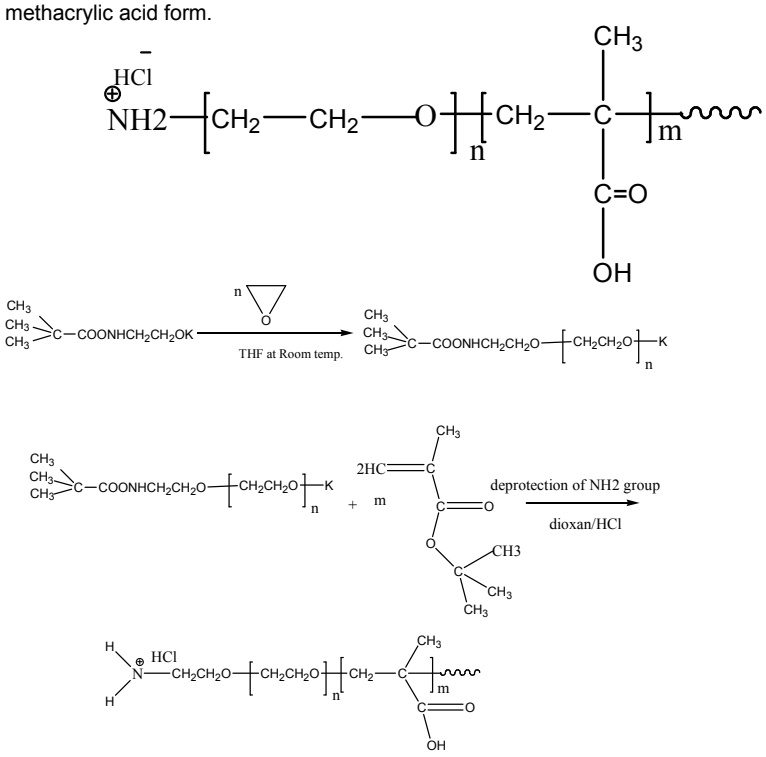
Structure:

Composition:

Mn x 10^3 NH2PEG-b-PMAA	PDI
4.0-b-1.3	1.3

Synthesis Procedure:

NH2 end functionalized Poly(ethylene oxide -b- methacrylic acid) is prepared by living anionic polymerization of ethylene oxide and tert. Butyl methacrylate followed by hydrolysis of tert.butyl ester to methacrylic acid form.



Characterization:

An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of tert.butyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The polymer obtained at each step and the final block copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about about 3.6 ppm with the one protons at about 1.2ppm.

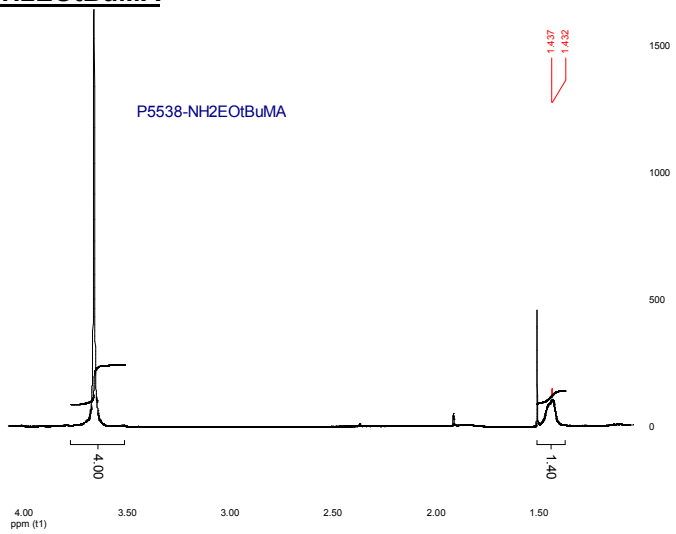
FTIR:

The degree of hydrolysis of tert,butyl ester to methacrylic acid was determined from the FTIR by disappearance of characteristic absorbance of tert.butyl ester at 1265 cm-1 and broadening of ester C=O absorbance.

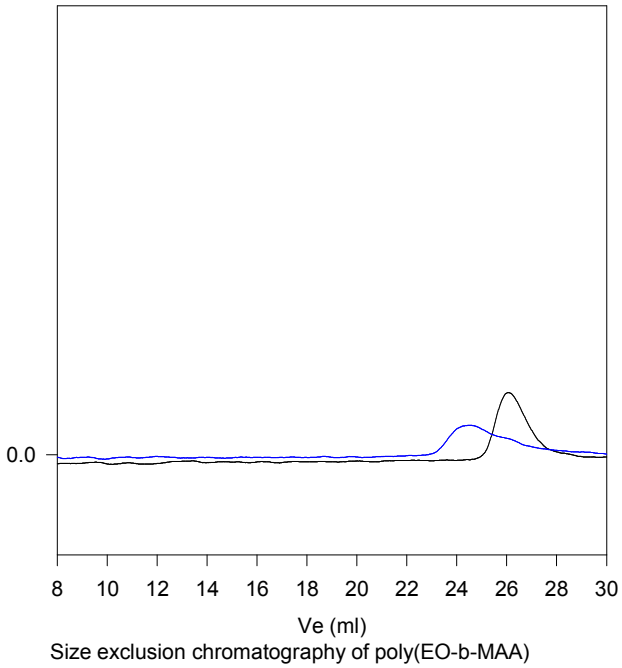
Solubility:

NH2 end functionalized Poly(ethylene oxide –b-methacrylic acid) is soluble in methanol, ethanol and it **in water cloudy solution to a clear solution –depending on the temperature of the solution, due to less hydrophilic characteristics of methacrylic acid block**. It is also soluble in THF.

^{1}H-NMR Spectrum of the block copolymer NH2EOtBuMA



P5538-NH2EOtBuMA
(Precursor of P5538-NH2EOMAA)



Size exclusion chromatography of poly(EO-b-MAA)

PEO, M_n=4000, M_w=4200, M_w/M_n=1.05

Poly(ethylene oxide-b-tBuMA)
Mn : 4000-b- 2000 Mw/Mn 1.3
After hydrolysis: PEO(4000)-b-PMAA(1300), Mw/Mn=1.3