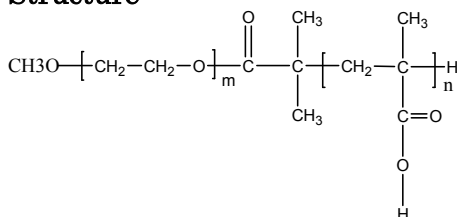


Sample Name: Poly(ethylene oxide -b- methacrylic acid)

Sample #: P18048-EOMAA

Structure:



Composition:

Mn x 10 ³ PEO-b-MAA	PDI
5.0-b-0.5	1.2

Synthesis Procedure:

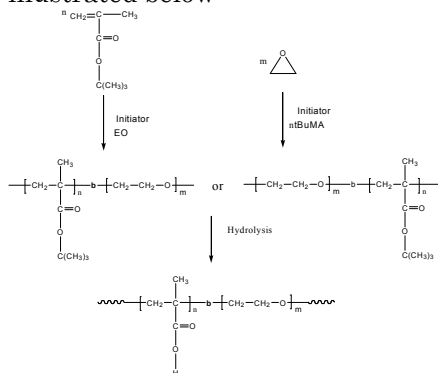
Poly(ethylene oxide -b- tert-butyl methacrylate) is prepared by ATRP using bromo-terminated poly(ethylene glycol) as the macro-initiator.

Synthesis Procedure:

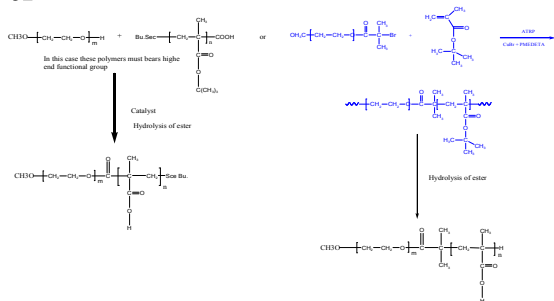
Poly(ethylene oxide -b- methacrylic acid) is prepared by 2 different routes:

A. By living anionic polymerization of sequential addition of EO and tBuMA (ethylene oxide or t-butyl methacrylate) followed by hydrolysis of the t-butyl group¹

B. by chemical coupling reaction of the corresponding functionalized polymer. The scheme of the reaction is illustrated below:



or



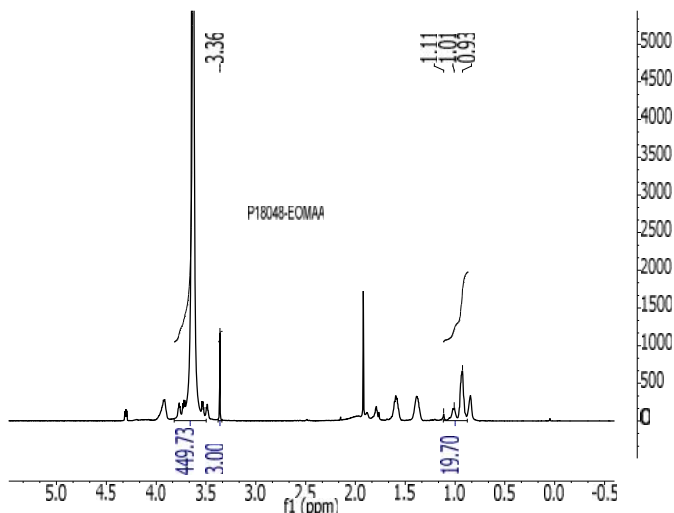
Characterization:

PEG-Br and final block copolymer were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight of PEG and polydispersity index (PDI) for both PEG and block copolymer. The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the tert.butyl protons at about 1.4 ppm.

Solubility:

Poly(ethylene oxide -b- t-butyl methacrylate) is soluble in THF, acetone, and chloroform and it precipitates out in hexane if t-butyl methacrylate block is not that long.

¹H-NMR Spectrum of the block copolymer



SEC of the block copolymer:

P18048-EOtBuMA
(Precursor of P18048-EOMAA)

