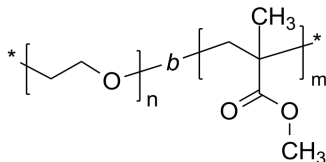


Sample Name:

Poly(ethylene oxide-*b*-methyl methacrylate)

Sample # **P4005B-EOMMA**

Structure:

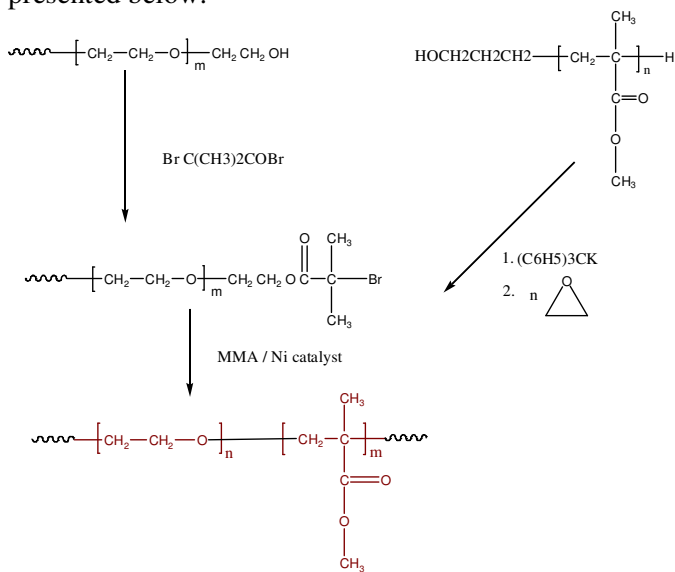


Composition:

Mn x 10 ³ PEO- <i>b</i> -MMA	Mw/Mn
3.5- <i>b</i> -68.5	1.20

Synthesis procedure:

Poly(ethylene oxide-*b*-methyl methacrylate) diblock copolymer was prepared according to the scheme presented below:



Purification:

To purify the intermediate product [first block], the poly(ethylene oxide) was stirred in hot water to remove unreacted PEG. Then the polymer was dissolved in chloroform/toluene mixture and purified by column chromatography.

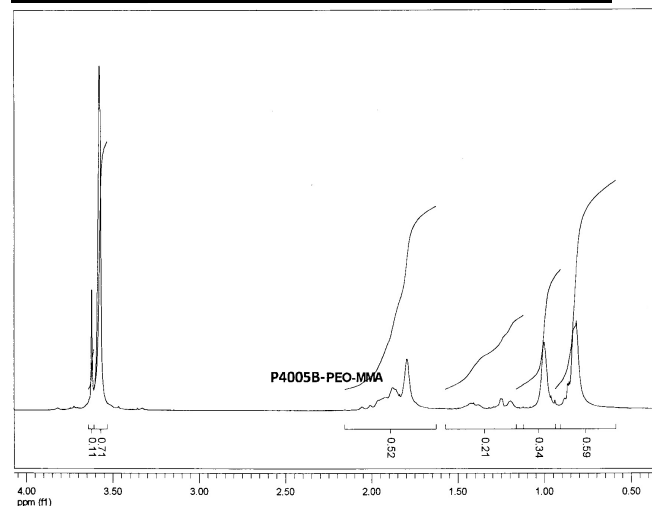
To purify the diblock copolymer, the final product was dissolved in chloroform/toluene mixture and passed through the Silica gel column to remove traces of Nickel catalyst. Then the diblock copolymer was stirred in hot water to remove the unreacted PEG macroinitiator, followed by recovering by precipitation in cold ether/hexane mixture.

Solubility:

Poly(ethylene oxide-*b*-methyl methacrylate) is soluble in chloroform (CHCl₃), tetrahydrofuran (THF), and toluene.

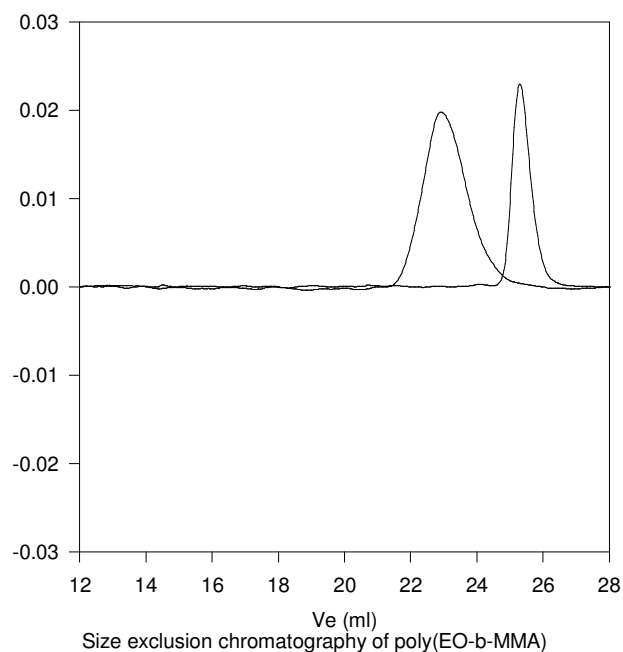
The diblock copolymer precipitates from hexanes.

¹H NMR spectrum of the PEO-PMMA product:



SEC elugrams of the PEO (first block) and PEO-PMMA (diblock copolymer) in THF:

P4005B-EOMMA



Size exclusion chromatography of poly(EO-*b*-MMA)

- PEO, M_n=3500, M_w=3700, Mw/Mn=1.06
- Poly(ethylene glycol-*b*-Methylmethacrylate)
Mn: PEO(3500)-*b*-MMA(68.500) Mw/Mn=1.20
Composition from ¹H NMR