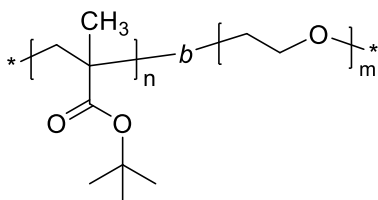


**Product name:** Poly(*tert*-butyl methacrylate)-*b*-poly(ethylene oxide), amphiphilic diblock copolymer

**Product #** P1953-tBuMAEO

**Structure:**

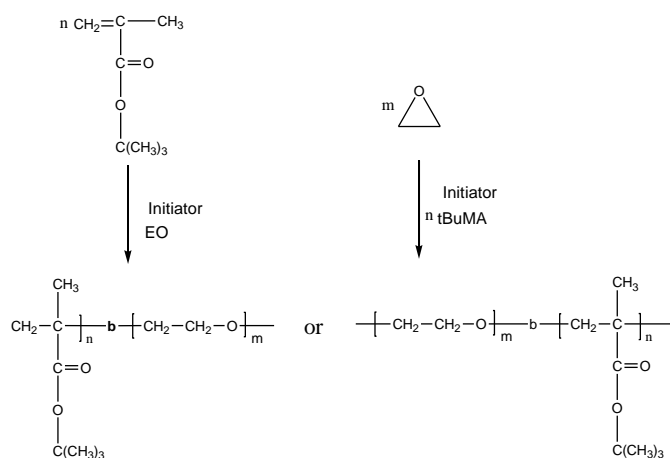


**Composition:**

$M_n \times 10^3$ (g/mol) [PtBuMA- <i>b</i> -PEO]	$M_w/M_n$
23.0- <i>b</i> -1.5	1.20

**Synthesis Procedure:**

Poly(*tert*-butyl methacrylate-*block*-ethylene oxide) can be synthesized by 2 methods: (1) by living anionic polymerization of sequential addition of ethylene oxide and *t*-butyl methacrylate, or (2) by chemical coupling reaction of the corresponding functionalized polymers. The scheme of reactions is presented below:



**Reference:**

J. Wang, S. K. Varshney, J. Jerome and Ph. Teyssie; "Synthesis of AB (BA) ABA and BAB block copolymers of *tert*-butylmethacrylate (A) and ethylene oxide (B)". *CA Vol 117, 16, 151478, J. Polym. Sci., Part-A: Polym. Chem. Ed., 1992, 30, 2251-2261.*

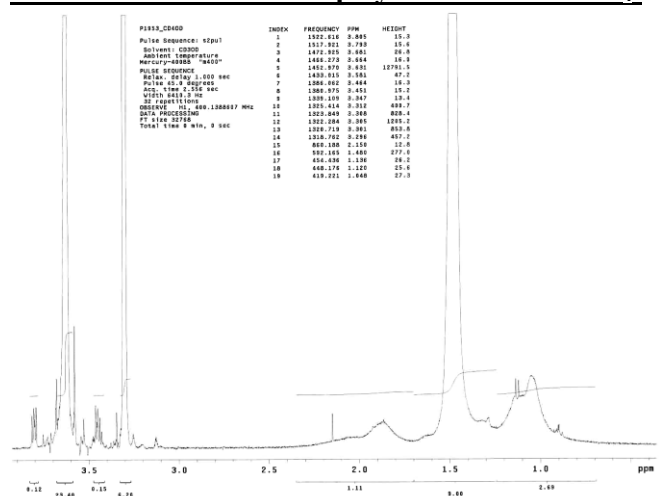
**Characterization:**

An aliquot of the first anionic block was terminated before addition the second monomer and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index of the first block. The molecular weight of the final diblock copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the *t*-butyl methacrylate protons at ~1.43 ppm with the peak area of the ethylene oxide protons at ~3.6 ppm. Polydispersity index of the final product was determined by SEC.

**Solubility:**

Poly(*tert*-butyl methacrylate-*block*-ethylene oxide) is soluble in chloroform, methanol, THF; and it precipitates from cold hexane and ether.

**$^1\text{H-NMR}$  of the diblock copolymer in methanol- $d_4$ :**



**$^1\text{H-NMR}$  of the diblock copolymer in chloroform- $d$ :**

