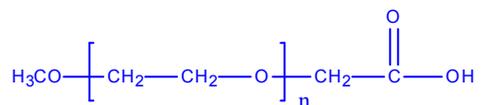


Sample Name:

ω -Carboxyl Terminated Poly(ethylene glycol) methyl ether (O-Acetic Acid Ester Terminal group)

Sample #: **P14173-EGOCH₃CH₂COOH**

Structure:

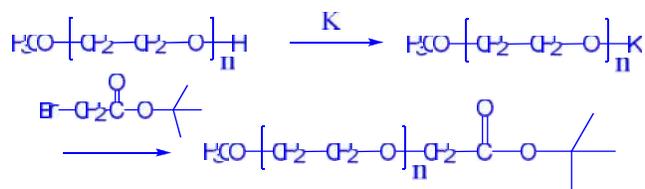


Composition:

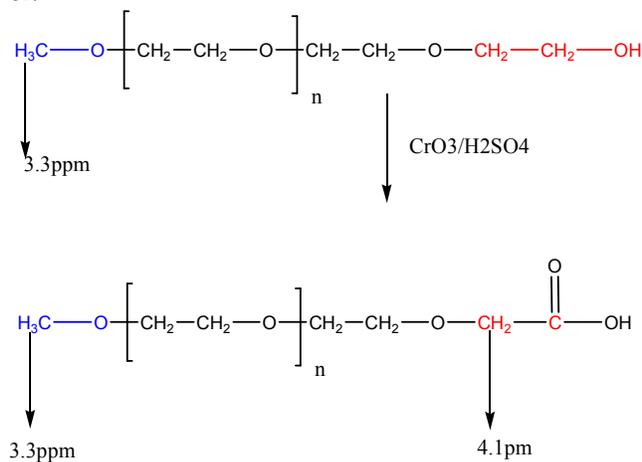
$M_n \times 10^3$	PDI
1.6	1.15
COOH Functionality by HNMR	0.98
COOH functionality by titration	0.93

Synthesis Procedure:

Carboxy terminated poly(ethylene glycol) was synthesized by anionic living polymerization of ethylene oxide using ethylene glycol/potassium salt as an initiator. The hydroxyl end groups were converted into carboxyl groups by reacting them with 2-bromoacetate or using Jones Reagent ($\text{CrO}_3/\text{H}_2\text{SO}_4$) as oxidizing agent. The reaction is illustrated as Scheme 1.



or:



Characterization:

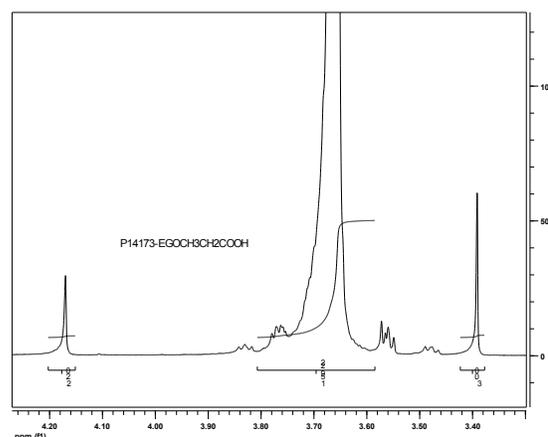
The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

Functionality: Functionality of the polymer was determined by H NMR analysis or FT-IR spectroscopy.

Solubility:

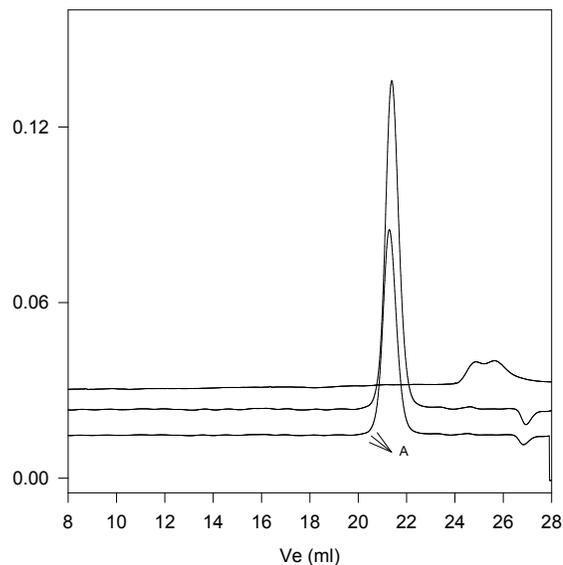
Polymer is soluble in water, methanol and ethanol, THF, CHCl_3 . It is precipitated out from cold ethanol, isopropanol, hexane and ether.

NMR of Sample:



SEC of Polymer:

P14172-EGOCH₃CH₂COOH



Size Exclusion Chromatography of Polyethylene glycol methyl ether before converting terminal OH to COOH $M_n=2000$, $M_w=2200$, $PI=1.09$

It elution retarded; By converting terminal COOH back to its ester (A):