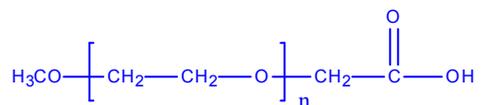


Sample Name:

**$\omega$ -Carboxyl Terminated Poly(ethylene glycol) methyl ether (O-Acetic Acid Ester Terminal group)**

Sample #: P14172-EGOCH<sub>3</sub>CH<sub>2</sub>COOH

Structure:

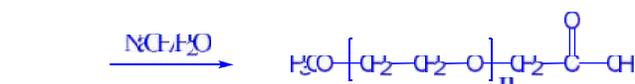
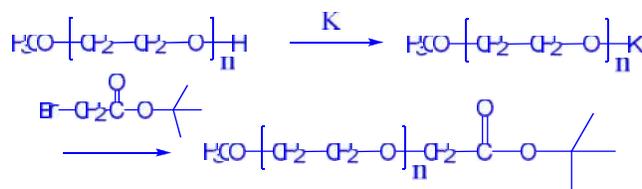


Composition:

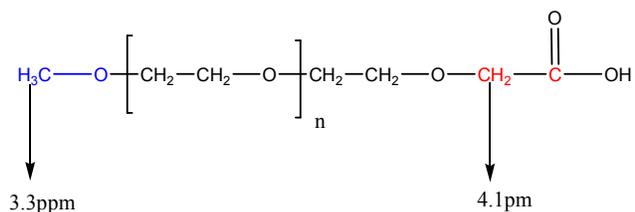
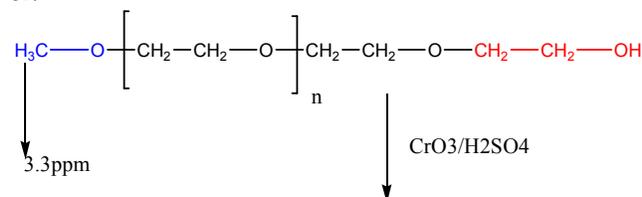
Mn $\times 10^3$	PDI
2.0	1.09
COOH Functionality by HNMR	0.88
COOH functionality by titration	0.93

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 (CrO<sub>3</sub> H<sub>2</sub>SO<sub>4</sub>) as oxidizing agent. The reaction is illustrated as Scheme 1.



or:



Characterization:

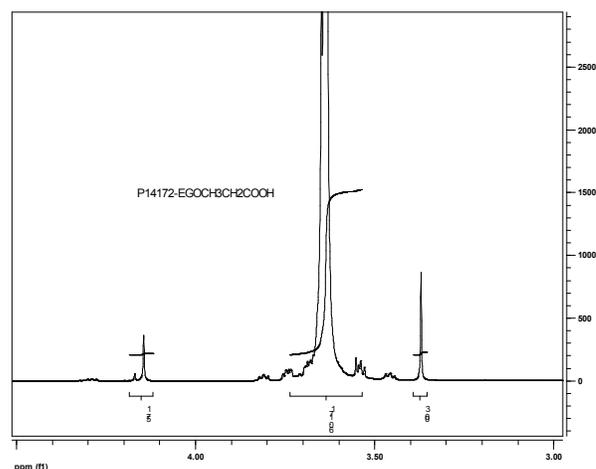
The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

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

**Solubility:**

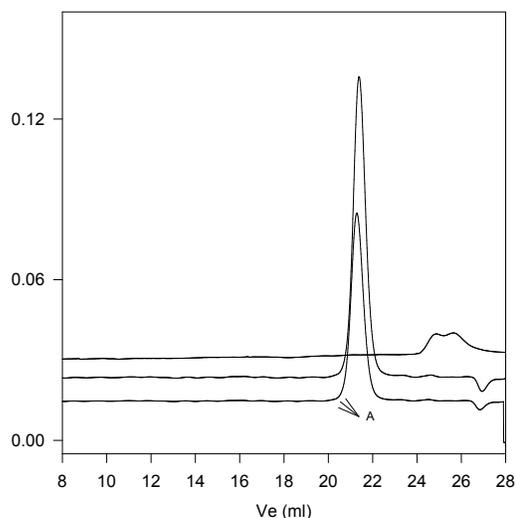
Polymer is soluble in water, methanol and ethanol, THF, CHCl<sub>3</sub>. It is precipitated out from cold ethanol, isopropanol, hexane and ether.

**NMR of Sample:**



**SEC of Polymer:**

**P14172-EGOCH<sub>3</sub>CH<sub>2</sub>COOH**



Size Exclusion Chromatography of Polyethylene glycol methyl ether before converting terminal OH to COOH M<sub>n</sub>=2000, M<sub>w</sub>=2200, PI=1.09

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