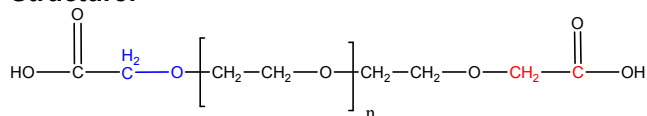


Sample Name:

$\alpha$ -  $\omega$ - O-acetic acid terminated Poly(ethylene glycol)

Sample #: P14182-EG2CH2COOH

**Structure:**

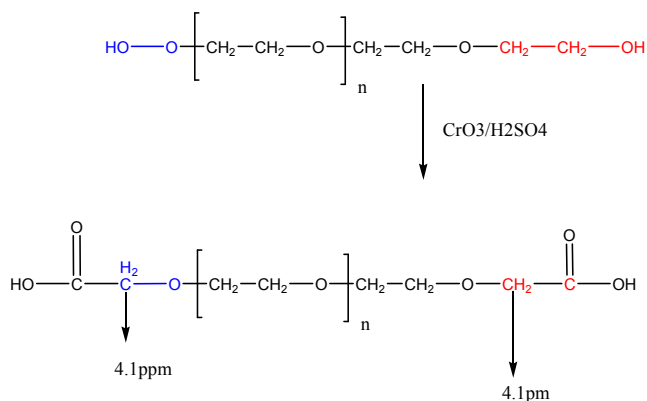


**Composition:**

Mn x 10 <sup>3</sup>	PDI
30	1.40
COOH Functionality by HNMR	0.98

**Synthesis Procedure:**

$\alpha$ -Carboxy  $\omega$ -methoxy terminated poly(ethylene glycol) was synthesized by a simple procedure.<sup>1</sup> The details can be found in the US patent published.<sup>1</sup>



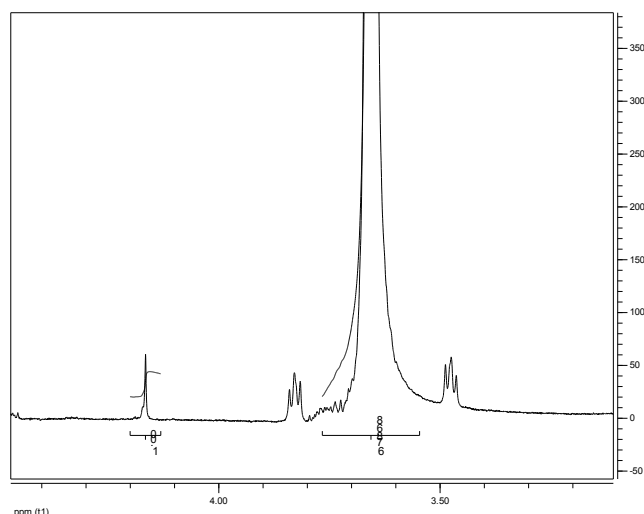
**Characterization:**

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 acid base titration and from H NMR analysis.

**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.

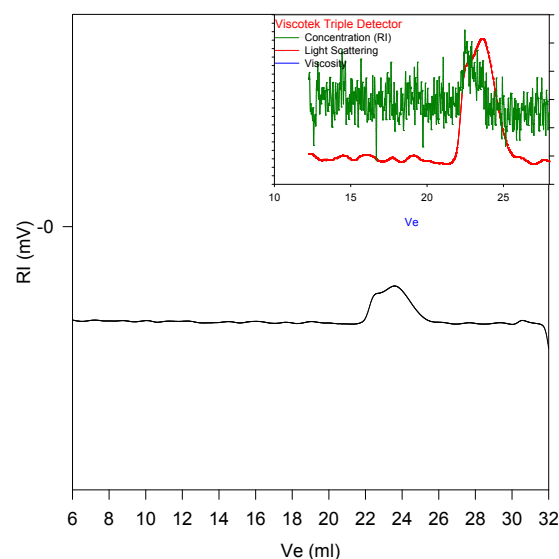
**NMR of the product**



**SEC of the product:**

before converting the terminal end group to COOH

**P14182-EG2OH**



Size Exclusion Chromatography of poly(ethylene glycol) or Poly (ethylene Oxide);

— M<sub>n</sub> = 30,000, M<sub>w</sub> = 42,000, M<sub>w</sub>/M<sub>n</sub> = 1.4

**Reference (s):**

**S. K. Varshney**, J.X. Zhang, US patent 7,009,033 B2, 2006

Assigned to Polymer source, Inc. Canada  
Heterofunctional Polyethylene glycol and Poly ethylene oxide, process for their Manufacture