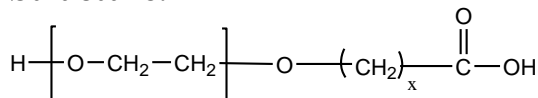


Sample Name:

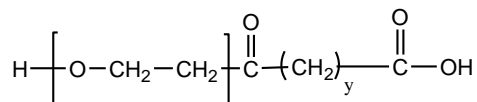
**$\alpha$ -Carboxy  $\omega$ -Hydroxy Terminated  
Poly(ethylene glycol)**

Sample #: **P8656-EGCOOH**

**Structure:**



or



$x = 3, 4, 11 \quad y = 2, 3$

**Composition:**

$M_n \times 10^3$	PDI
1.0	1.20

**Synthesis Procedure:**

$\alpha$ -Carboxy  $\omega$ -Hydroxy terminated poly(ethylene glycol) was synthesized by a simple procedure discovered in our lab. The details can be found in the US patent.<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:**

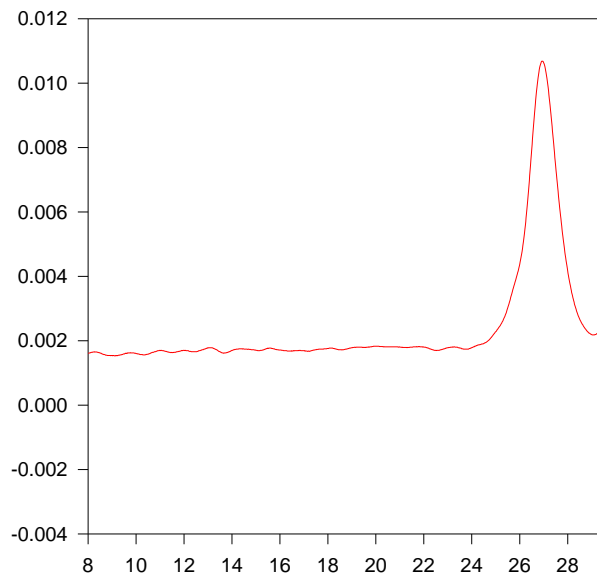
Functionality of the polymer was determined by acid base titration and from  $^1\text{H}$  NMR analysis.

**Solubility:**

Polymer is soluble in water, methanol and ethanol, THF,  $\text{CHCl}_3$ . It is precipitated out from cold ethanol, isopropanol, hexane and ether.

**SEC of Sample:**

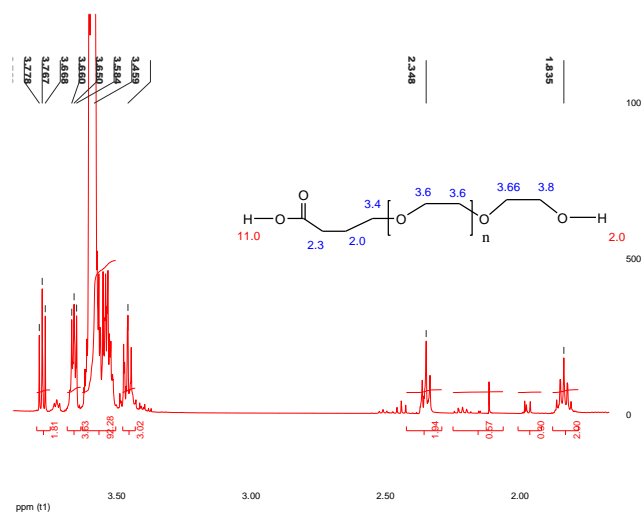
**P8656- HO-PEG-COOH**



Size Exclusion Chromatography profile of the product:

—  $M_n = 1000$  (from titration)  $PI = 1.2$

$M_n$ : 1600 (SEC w.r.t PEG calibration)



**Reference:**

**S. K. Varshney, J.X. Zhang**, US patent 7,009,033 B2, 2006 Assigned to Polymer source, Inc. Canada Heterofunctional Polyethylene glycol and Polyethylene oxide, process for their Manufacture