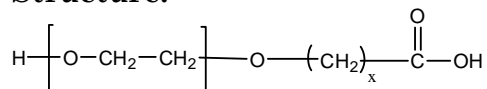


Sample Name:

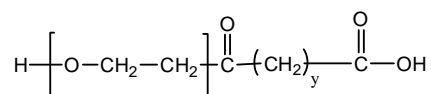
**α -Carboxy ω -Hydroxy Terminated
Poly(ethylene glycol)**

Sample #: **P2471-EGCOOH**

Structure:



or



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

Composition:

$M_n \times 10^3$	PDI
1.2	1.20

Synthesis Procedure:

α -Carboxy, ω -Hydroxy terminated poly(ethylene glycol) was synthesized by a simple procedure discovered in our lab. The details can be found in the US patent.¹

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.

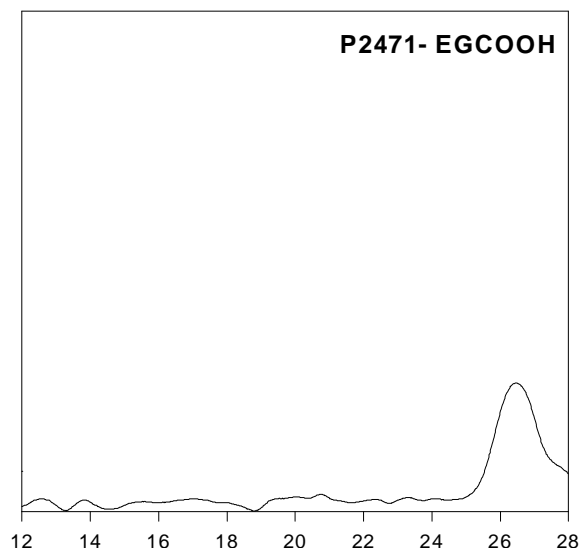
Functionality:

Functionality of the polymer was determined by acid base titration and from ¹H NMR analysis.

Solubility:

Polymer is soluble in water, methanol and ethanol, THF, CHCl₃. It is precipitated out from cold ethanol, isopropanol, hexane and ether.

SEC of Sample:



Size Exclusion Chromatography profile of the product:
 $M_n = 1200$, $M_w = 1440$, $PI = 1.20$

Reference:

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

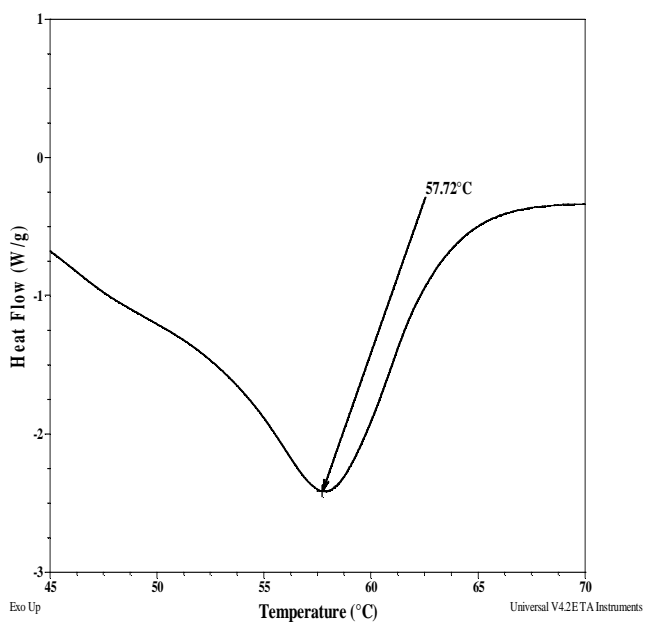
Thermal analysis of the P2471-EGCOOH

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Melting and crystallization curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Melting curve for the polymer:



Thermal analysis results at a glance

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EGCOOH	58	24	Not distinct

Crystallization curve for the polymer:

