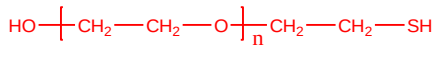
Sample Name:
α-Hydroxy-ω-Thiol Terminated Poly(ethylene glycol)

Sample #: **P8689-EGSHOH**

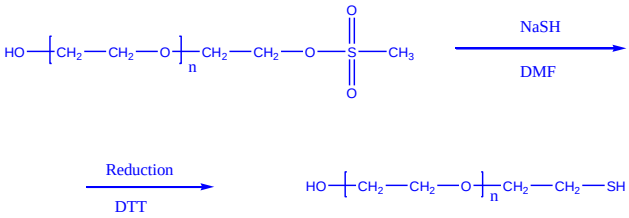
Structure:



Composition:

Mn x 10^3	PDI
1.1	1.15

Synthesis Procedure:
Thiol terminated Poly(ethylene glycol methyl ether) was prepared by mesylation of OH terminated PEG reacting it with Na_2S in polar solvent. The product was stabilized with DTT to avoid the formation of disulfide. The scheme of the reaction is illustrated below.



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. Polymer functionality was verified by oxidation of the thiol to disulfide.

Solubility:

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

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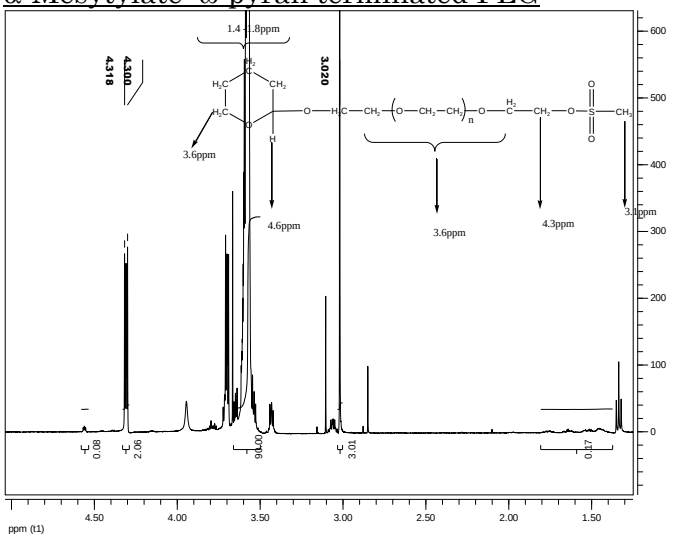
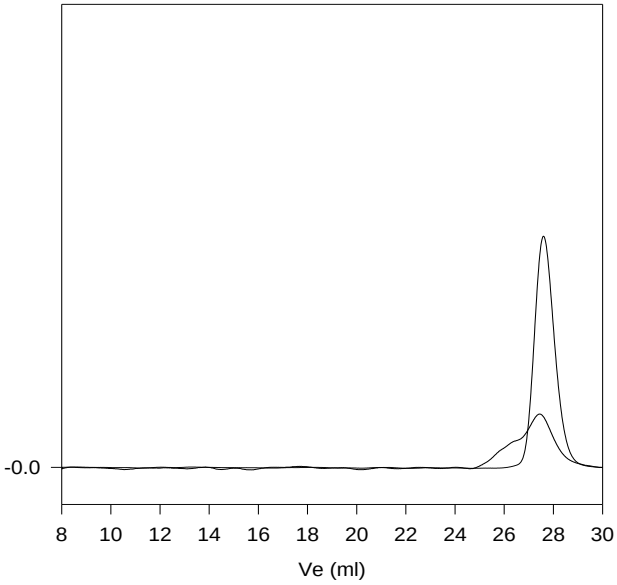
^{1}H-NMR Spectrum of the polymer and the final block copolymer at different stages:

α-Mesytylate–ω-pyran terminated PEG



SEC of the polymer:

P8689-EGSHOH



Size exclusion chromatography of α-methoxy-ω-thiol poly(ethylene glycol):

----M_n=1100, M_w=1300, PI=1.15 (Methoxy mesylate form)
_____ After SH -formation
After oxidation with iodine - showing quantitative functionality

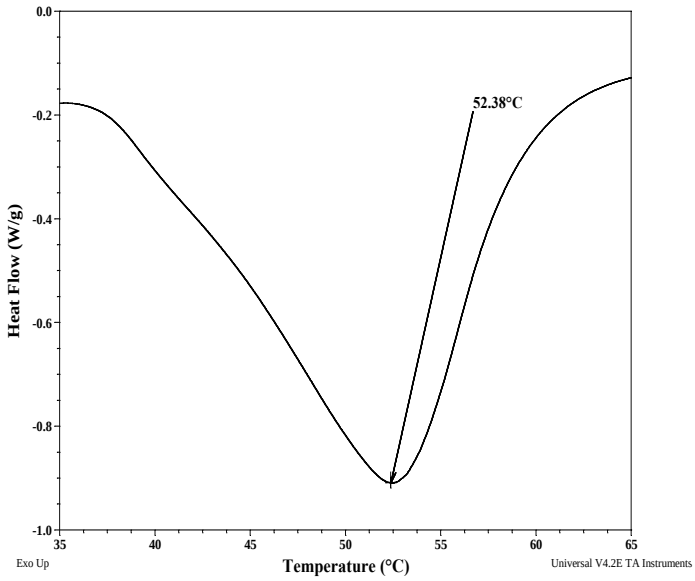
Thermal analysis of the sample# P8689-EGTMS

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 sample:



Thermal analysis results at a glance

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EGTMS	52	04	Not distinct

Crystallization curve for the sample: