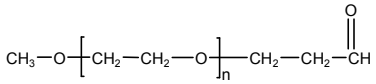
Sample Name:

α–Formyl, ω-Methoxy Terminated Poly(ethylene glycol)

Sample #: **P2953-EGOCH3CHO**

Structure:

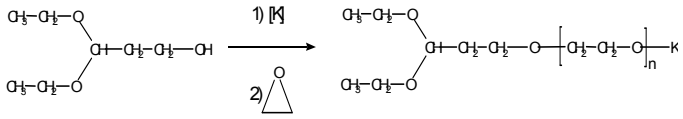


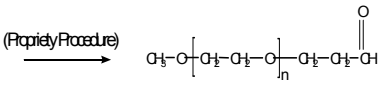
Composition:

Mn × 10^3	PDI
5.0	1.09

Synthesis Procedure:

α–Formyl,ω-Methoxy terminated poly(ethylene glycol) was synthesized by anionic living polymerization of ethylene oxide using acetal as an initiator followed by deprotection of the end group (hydrolysis in presence of acetic acid). 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.

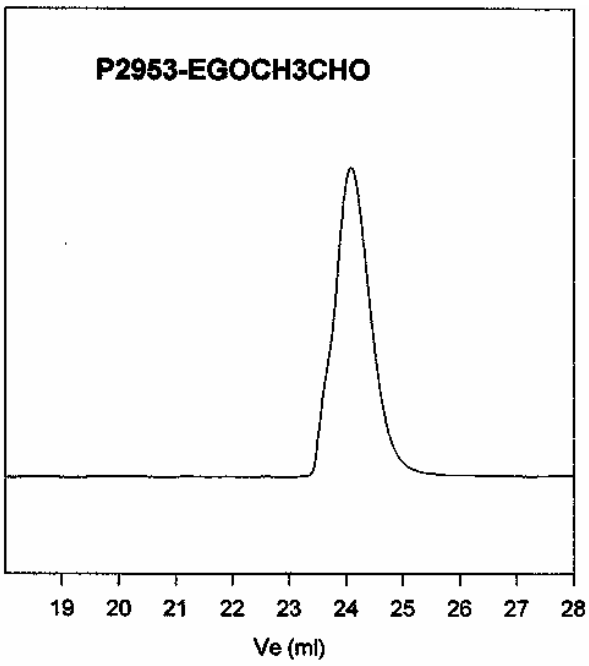
Functionality:

Functionality of the polymer was determined by ^{H}NMR analysis or FT-IR spectroscopy.

Solubility:

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

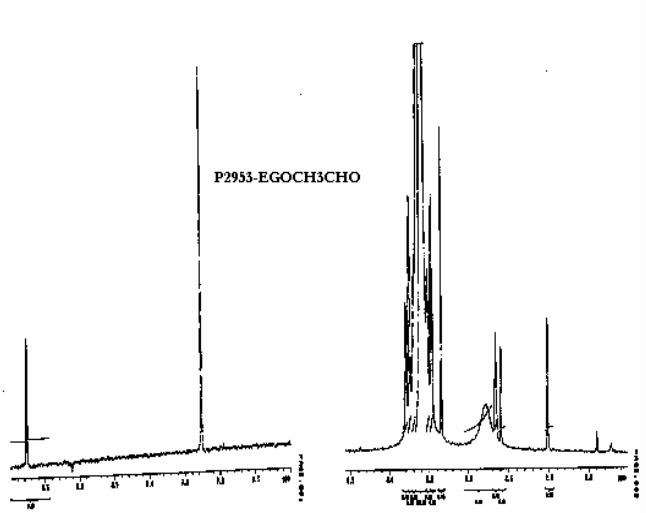
SEC of Sample:



Size exclusion chromatography of funcyionalized α–formyl-ω–Methoxy terminated Poly(ethylene glycol):

M_n=5000, M_w=5500,Mw/Mn =1.09

HNMR of the sample:



Thermal analysis of the sample# P2953-EGOCH3CHO

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10^{o}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).

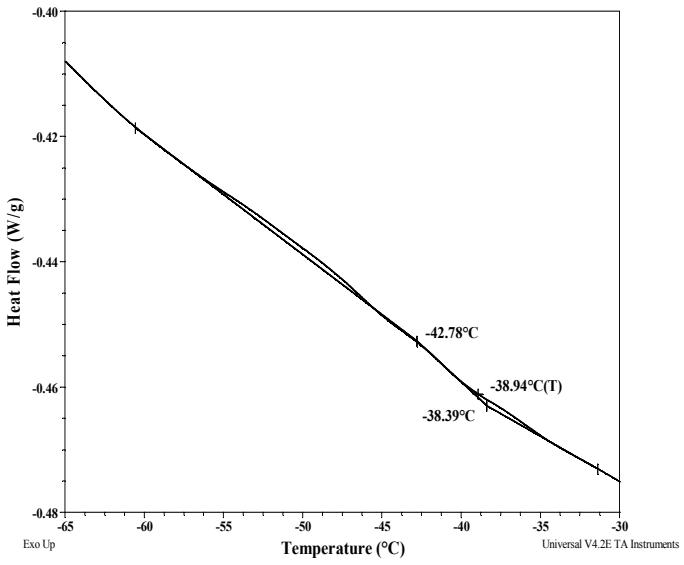
Melting and crystallization curve for the sample

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.

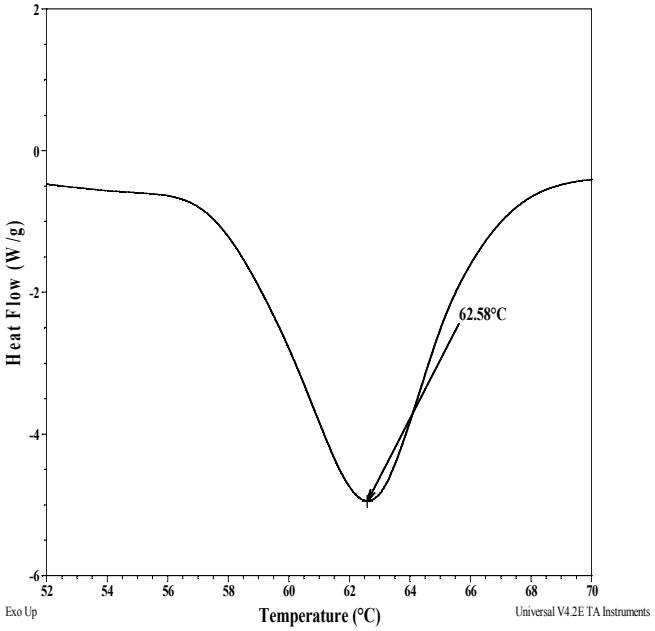
Thermal analysis results at a glance

Sample	T_m (^{o}C)	T_c (^{o}C)	T_g (^{o}C)
EGTMS	63	37	-39

DSC thermogram for the polymer:



Melting curve for the sample:



Crystallization curve for the sample: