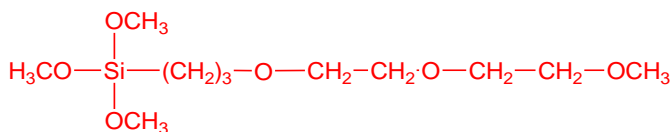


## Sample Name:

Trimethoxysilyl terminated Polyethylene glycol methyl ether  
 $\omega$ -Trimethoxysilane Terminated Poly(ethylene glycol) methyl ether

Sample #: **P8991-EGTMS**

Structure:

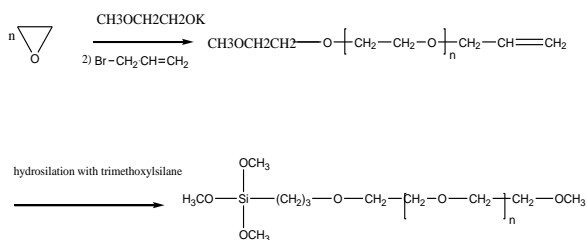


Composition:

Mn x 10 <sup>3</sup>	PDI (Mw/Mn)
0.9	1.12

## Synthesis Procedure:

Allyl Terminated Poly(ethylene glycol) was prepared by anionic living polymerization of ethylene oxide using a methoxy ethanol –potassium salt followed by terminated with allyl bromide. The obtained polymer was hydrosilated in the presence of platinum catalyst. The scheme of the reaction is illustrated below:



## Characterization:

By Size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF containing 1 vol% (Et)<sub>3</sub>N as the eluent. The molecular weights were determined using light scattering detector and viscosity detector.

An aqueous GPC column from Supelco(G5000 PWXL) was also used with 0.5 M acetic acid and 0.8 M NaNO<sub>3</sub> as the eluent. It was kept at a constant temperature of 50°C. The flow rate was 1.0 ml/min. The column was calibrated with monodisperse poly(ethylene oxide) standards. The molecular weights and the polydispersity index of polyethylene oxide were calculated by using GPC software.

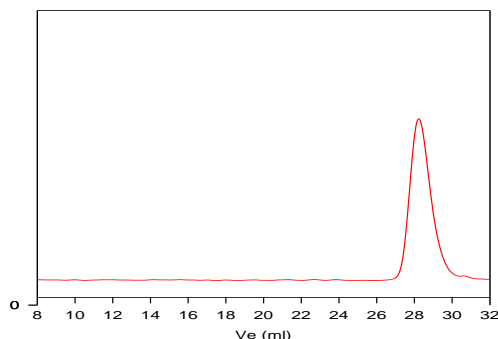
**Functionality:** Functionality of the polymer was determined by H NMR analysis or FT-IR spectroscopy.

## Solubility:

Polymer is soluble in water, methanol and ethanol, THF and CHCl<sub>3</sub>.

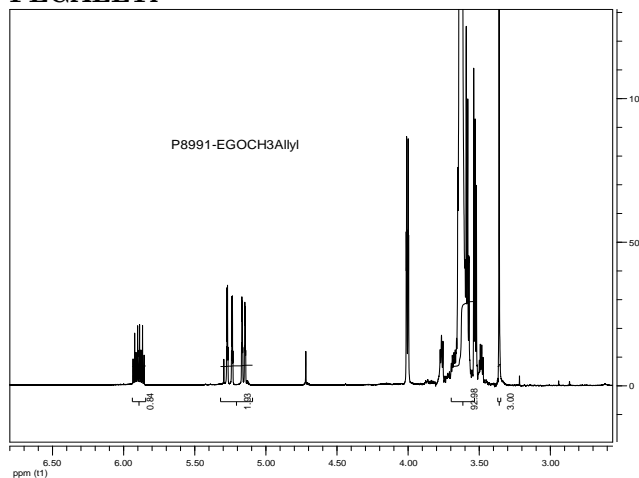
## SEC of Sample:

**P4805-EGOCH3**

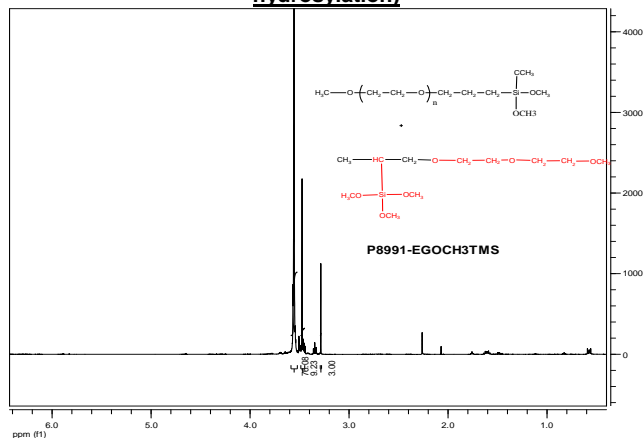


Size exclusion chromatograph of Poly(ethylene glycol methyl ether)  
M<sub>n</sub>=900, M<sub>w</sub>=1050, PI=1.12

## PEGALLYI



## PEGTMS (after hydrosylation)



## Thermal analysis of the sample# P8991-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 ( $T_g$ ).

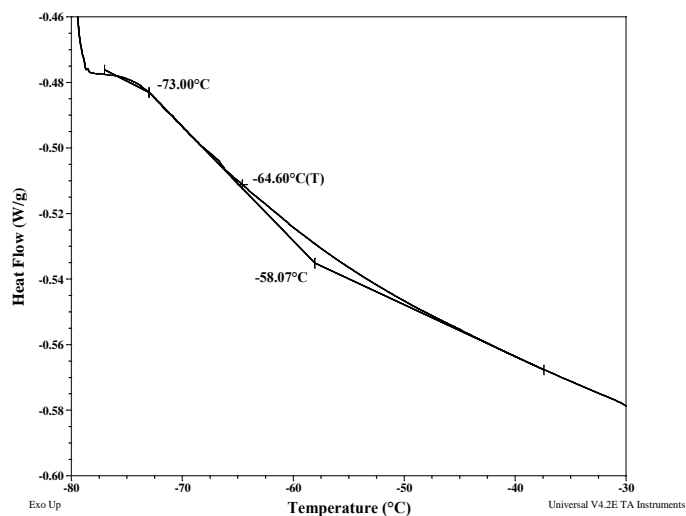
### Melting and crystallization curve for the sample

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.

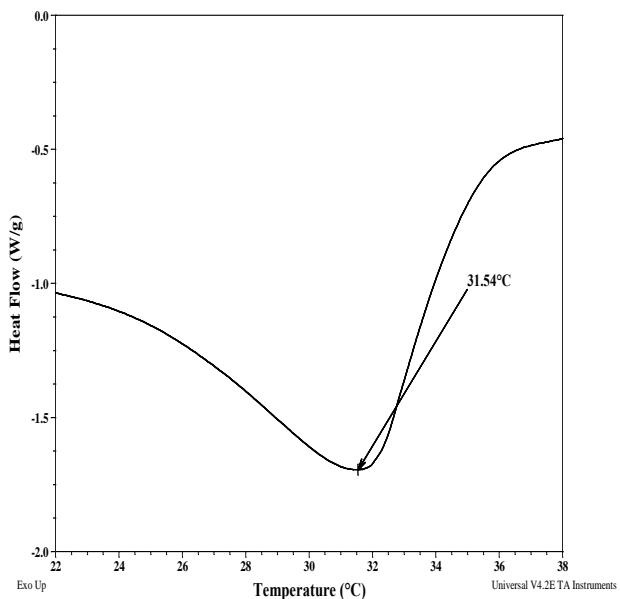
### Thermal analysis results at a glance

Sample	$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
EGTMS	32	10	Not distinct

### DSC thermogram for the polymer:



### Melting curve for the sample:



### Crystallization curve for the sample:

