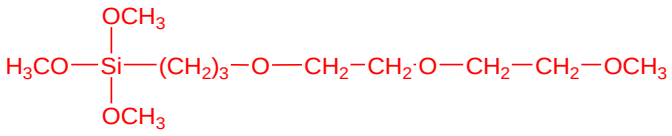
Sample Name:

Trimethoxysilyl terminated Polyethylene glycol methyl ether or
ω-Trimethoxysilane Terminated Poly(ethylene glycol) methyl ether
Sample #: **P4648-EGTMS**

Structure:

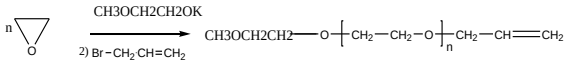


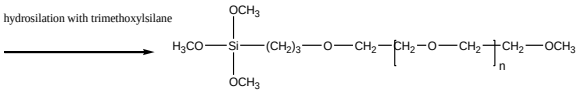
Composition:

Mn x 10^3	PDI (Mw/Mn)
0.35	1.10

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% $(Et)_3N$ 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 NaNO3 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.

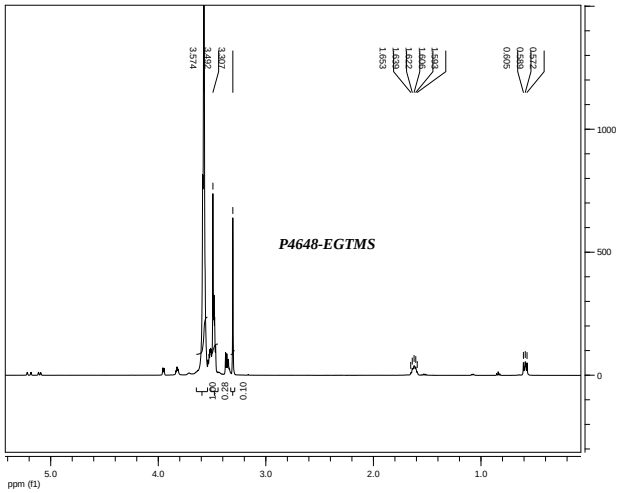
Functionality:

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

Solubility:

Polymer is soluble in water, methanol and ethanol, THF, CHCl3.

H NMR of PEG-TMS:



Thermal analysis of the sample# P4648-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).

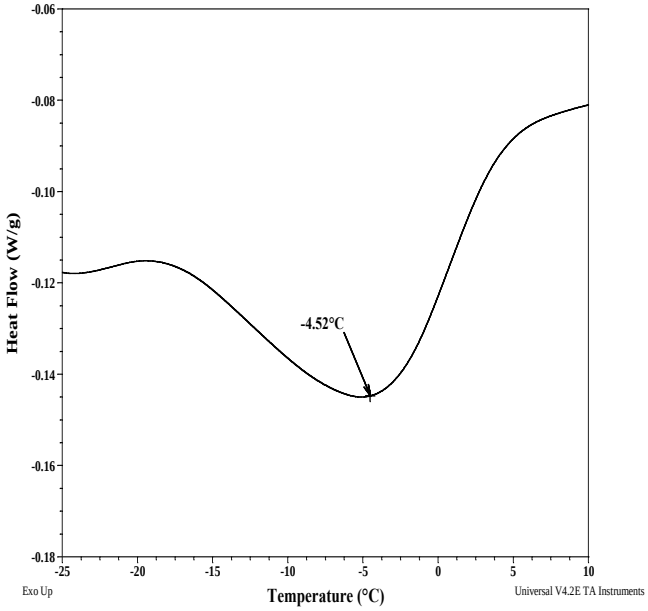
Melting and crystallization curve for the sample

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	-05	-18	Not distinct

Melting curve for the sample:



Crystallization curve for the sample: