## Sample Name:
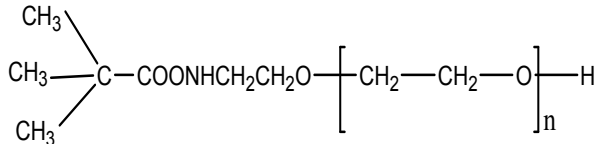
*N*-(*tert*-Butoxycarbonyl)ethanolamine terminated Poly ethylene glycol (Boc-2-aminoethanol terminated Poly (ethylene glycol)

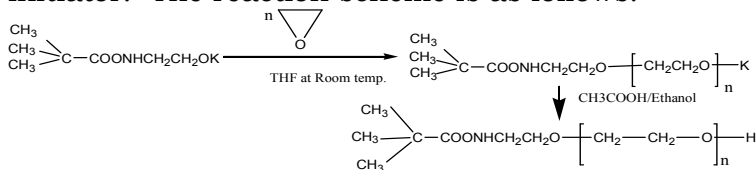## Sample #: **P4858A- BOC-EG**

## Structure:



## Composition:

| Mn × 10$^3$ BOC-EG | PDI |
|---|---|
| 5.0 | 1.08 |

## Synthesis Procedure:

BOC- end functionalized Poly(ethylene oxide) is prepared by living anionic polymerization of ethylene oxide using and (Boc-2-aminoethanol) potassium salt as initiator. The reaction scheme is as follows:



## Characterization:

Polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). Polymer composition was calculated from $^1$H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about about 3.6 ppm with the 9-protons from tert. Butoxoy at 1.2ppm.

## Solubility:

Polymer is soluble in THF, water, methanol and precipitated out fromcold hexane, ether.

## $^1$H-NMR Spectrum of the BOC protected PEG;



p4858-1 N-Boc-PEG
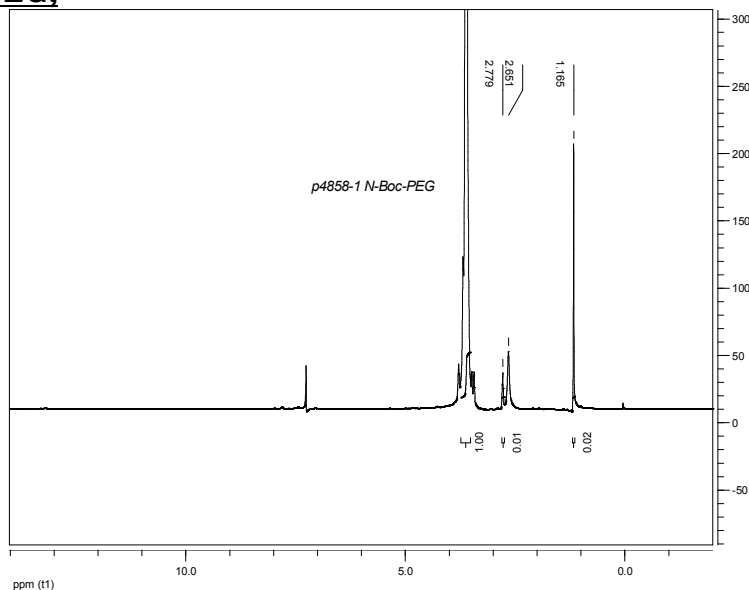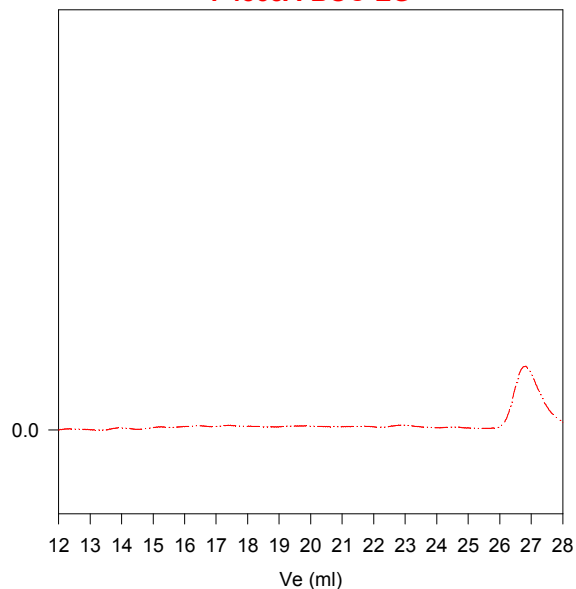


**P4858A-BOC-EG**

Size exclusion chromatography of poly(ethylene oxide-b-t.butyl methacrylate)
-------- Poly(ethylne oxide), $M_n$=5000, $M_w$=5500, PI=1.08

## Thermal analysis of the sample # P4858A-BOCEG

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 ($T_g$).
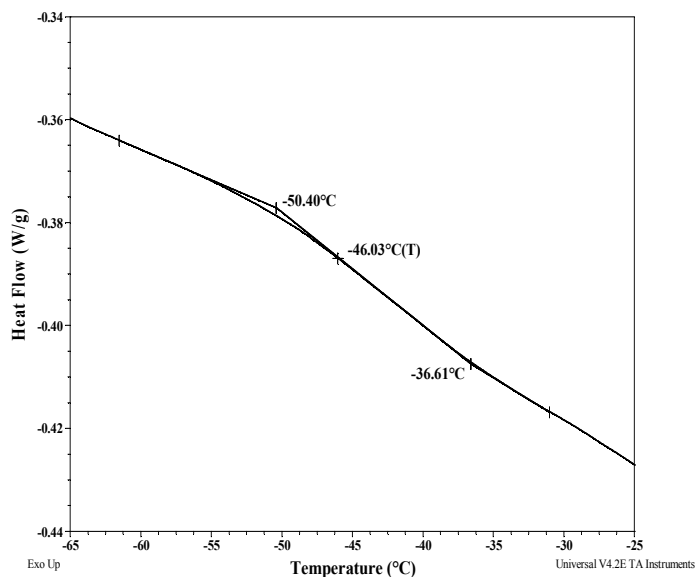
### Melting and crystallization curve for the sample

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.
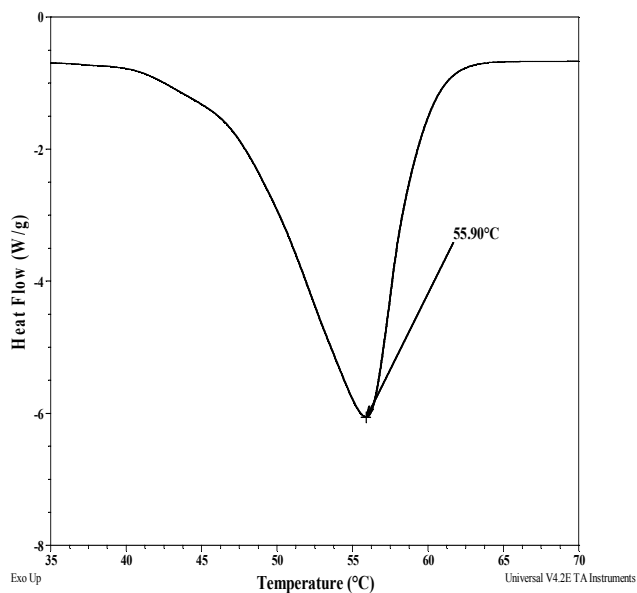
### Thermal analysis results at a glance

| Sample | $T_m$ (°C) | $T_c$ (°C) | $T_g$ (°C) |
|--------|-----------|-----------|-----------|
| EGMA | 56 | 29 | -46 |

### Thermogram for the sample



## Melting curve for the sample:



## Crystallization curve for the sample: