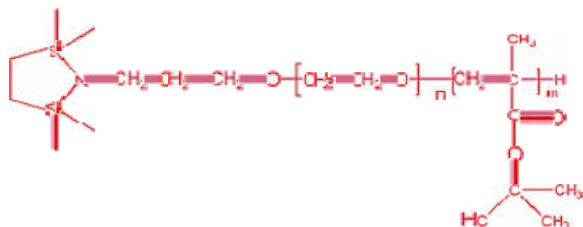


**Sample Name:**

Amino end functionalized Poly(ethylene oxide -b- tert. butylmethacrylate)

Sample #: P4742- NH2EGtBuMA

**Structure:****Composition:**

Mn × 10 <sup>3</sup> NH2PEG-b-PtBuMA	PDI
13.0-b-3.5	1.2

**Synthesis Procedure:**

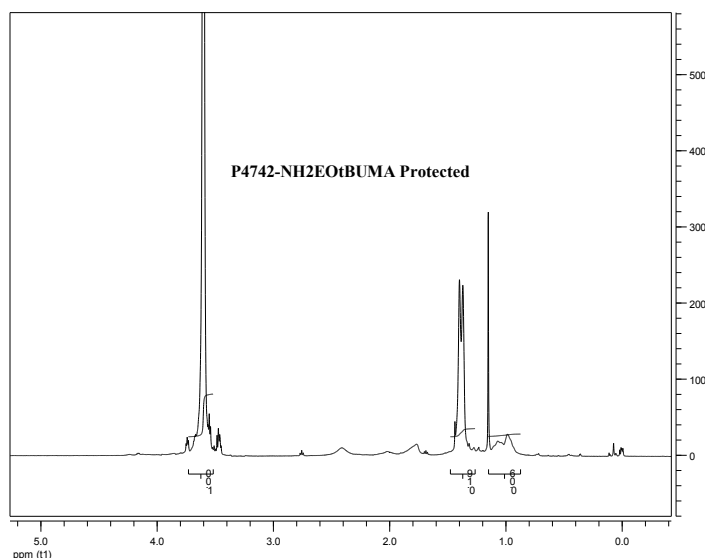
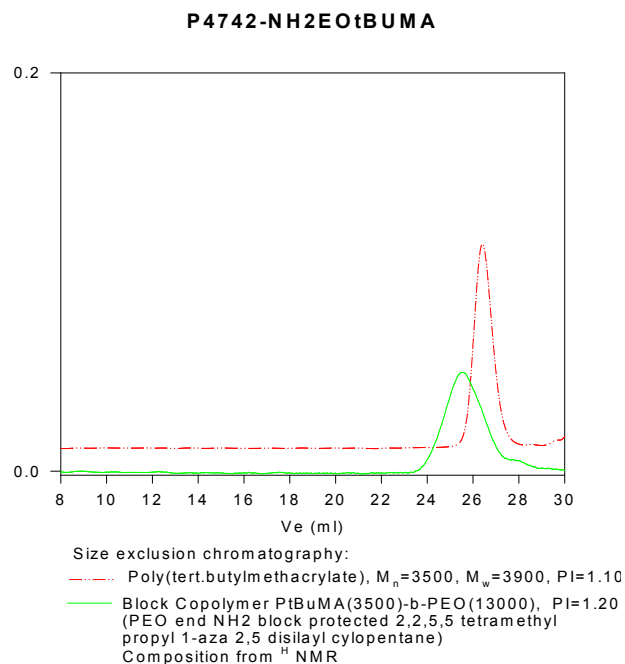
NH<sub>2</sub> end functionalized Poly(ethylene oxide -b- tert. butyl methacrylate) is prepared by living anionic polymerization of tert. Butyl methacrylate followed by addition of ethylene oxide. The end functionalization was carried out by deactivation of living polymerization with 2,2 5,5 tetramethyl-1 (3-chloropropyl) 1-aza-2,5-disilacyclopentane as electrophile.

**Characterization:**

The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The polymer obtained at each step and the final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the one proton at about 1.2ppm.

**Solubility:**

NH<sub>2</sub> end functionalized poly(ethylene oxide-b-tert. butyl methacrylate) is soluble in THF, CHCl<sub>3</sub>, toluene.

**<sup>1</sup>H-NMR Spectrum of the polymer run in CD<sub>3</sub>OD:****SEC for the polymer:****References:**

1. J. Wang, S. K. Varshney, J. Jerome and Ph. Teyssie "Synthesis of AB (BA) ABA and BAB Block copolymers of tert-butylmethacrylate (A) and ethylene oxide (B) " *CA Vol 117, 16, 151478, J. Polym. Sci., Part-A: Polym. Chem. Ed., 1992, 30, 2251-2261.*
2. Leil L., Gohy J.-F., Willet N., Zhang J.-X., Varshney S., Jerome R., *Tuning of the morphology of core-shell-corona aqueous micelles: I. sphere-to-cylinder transition*, *Macromolecules* 2004, 37, 1089-1094.

## Thermal analysis of the P4742- NH2EGtBuMA

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 ( $T_g$ ).

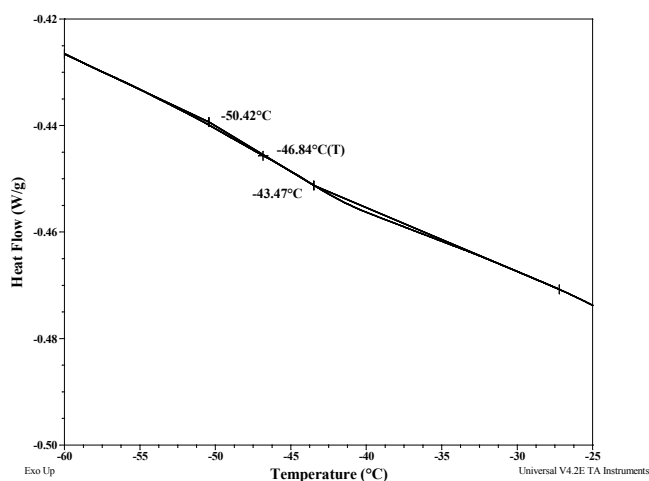
## Melting and crystallization curve for the sample

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.

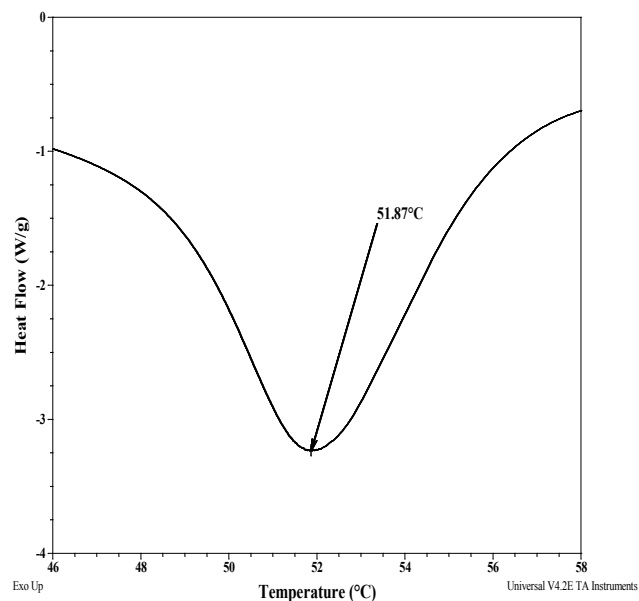
## Thermal analysis results at a glance

Sample	$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
EO Block	52	34	-47
AA block	-	-	Not found

## Thermogram for the EO block:



## Melting curve for the polymer:



## Crystallization curve for the polymer:

