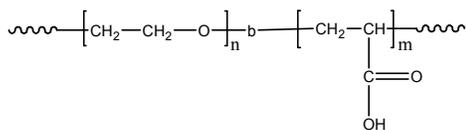


Sample Name: Poly(ethylene oxide -b- acrylic acid)

Sample #: P7364A-EOAA

Structure:

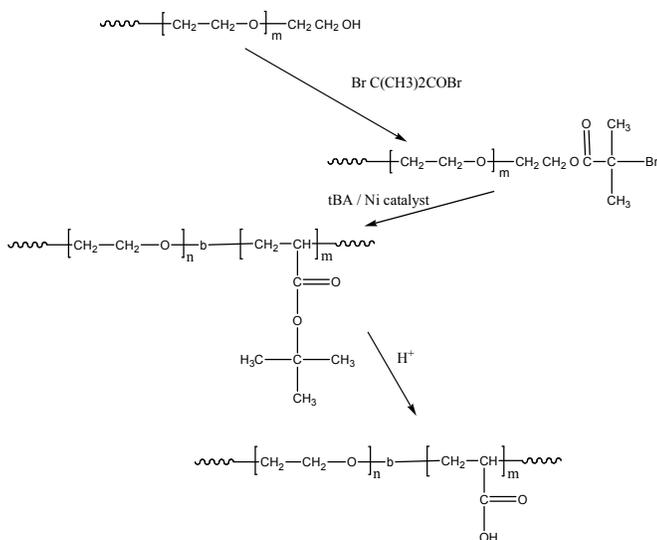


Composition:

Mn x 10 ³ PEO-b-AA	PDI
5.0-5.0	1.15

Synthesis Procedure:

The polymer is prepared as following scheme:



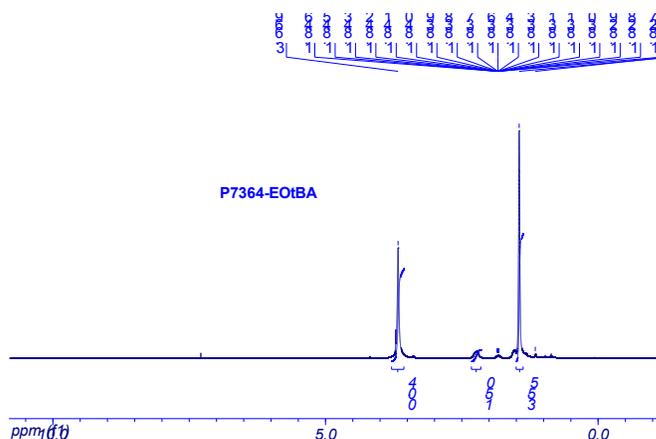
Characterization:

The final block copolymer composition was calculated from ¹H-NMR spectroscopy of poly(ethylene oxide -b- t-butyl acrylate) by comparing the peak area of the t-butyl acrylate protons at 1.43 ppm with the peak area of the ethylene oxide protons at 3.6 ppm, then transferred to the EOAA form accordingly. Copolymer PDI is determined by SEC of poly(ethylene oxide -b- t-butyl acrylate).

Solubility:

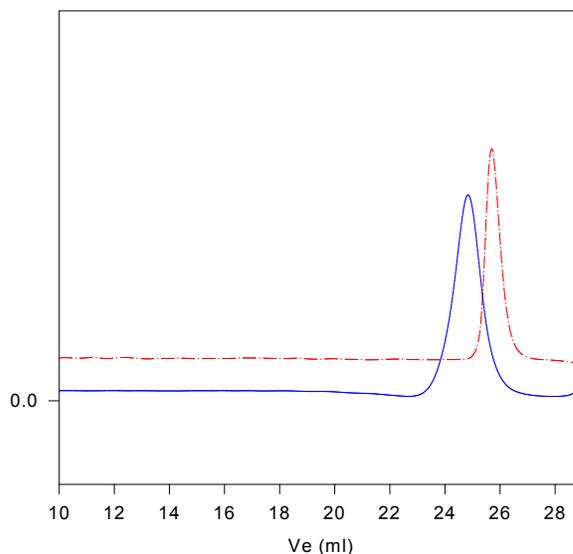
The polymer is soluble in CHCl₃, methanol, THF and precipitated out from cold hexane or ether.

¹H-NMR Spectrum of the block copolymer before hydrolysis:



SEC of the block copolymer before hydrolysis:

P7364-EOtBuA



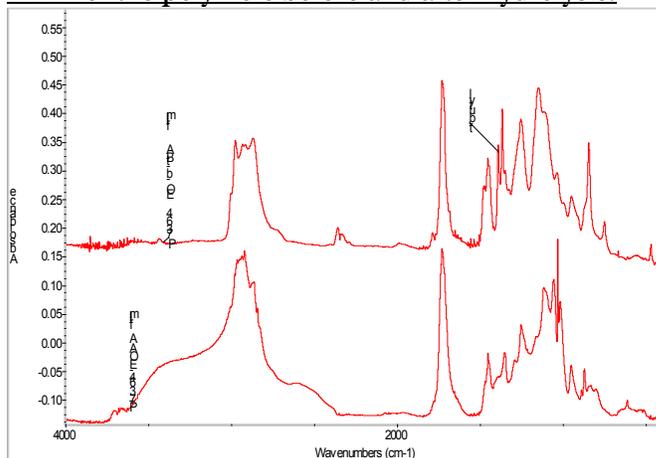
Size exclusion chromatography of poly(ethylene oxide-b-t-butyl acrylate)

--- PEO, M_n=5000, M_w=5200, M_w/M_n=1.05

— Poly(ethylene oxide-b-t-butyl acrylate)

Mn: PEO(5000)-b-tBA(9000) M_w/M_n=1.15

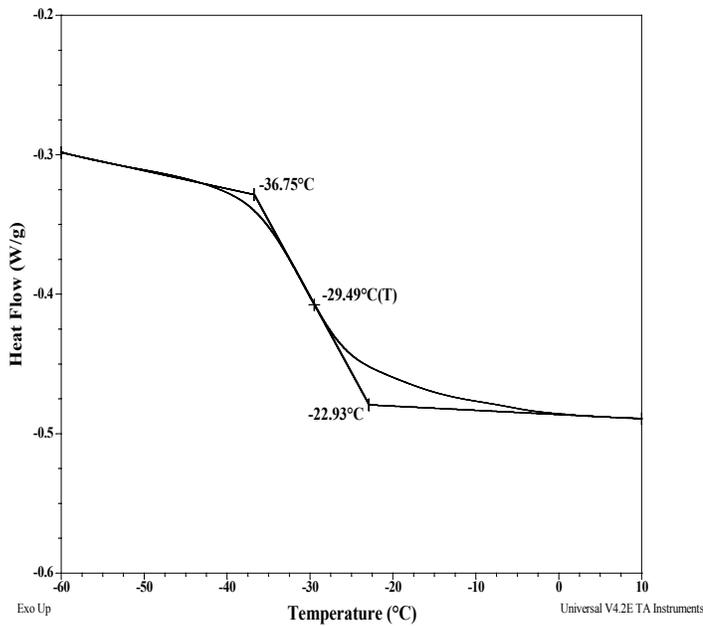
FTIR of the polymers before and after hydrolysis:



Thermal analysis of the sample# P7364A-EOAA

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).

Thermogram for PEO block:



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	-	-	-29
AA	-	-	62

Thermogram for AA block:

