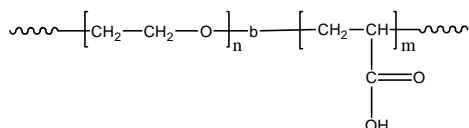


**Sample Name:**  
Poly(ethylene oxide-b-acrylic acid)

**Sample #:** P20128-EOAA

**Structure:**

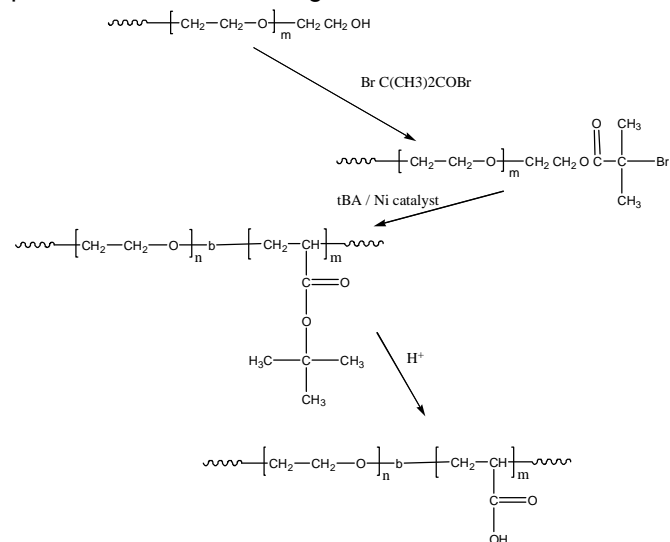


**Composition:**

Mn x 10 <sup>3</sup> PEO-b-PAA	PDI
11.0-b-11.0	1.35

**Synthesis procedure:**

Synthesis of the PEO-PAA diblock copolymer is presented on the following scheme:



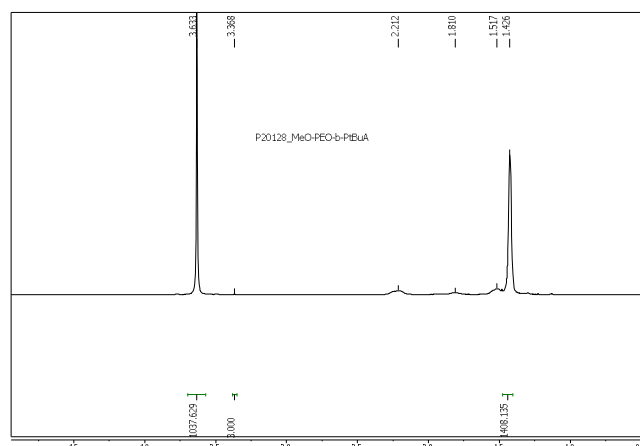
**Characterization:**

The final block copolymer composition was calculated from <sup>1</sup>H-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 water, methanol, THF and precipitated out from cold hexane or ether.

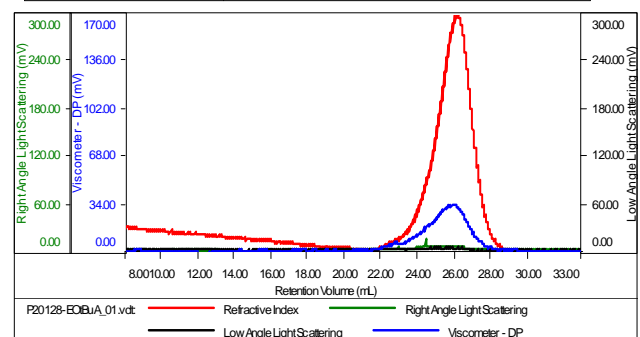
**<sup>1</sup>H-NMR (500 MHz, CDCl<sub>3</sub>) spectrum of the diblock copolymer before hydrolysis:**



**SEC elugram of the PEO-PAA diblock copolymer before hydrolysis:**

**Sample ID:** P20128-EOtBuA

Concentration (mg/mL)	5.2751
Sample dn/dc (mL/g)	0.0680
Method File	PS80K-1028-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P20128-EOtBuA_01.vdt	29,187	39,891	28,528	1.367	0.3322

### Thermal analysis of the P20128-EOAA

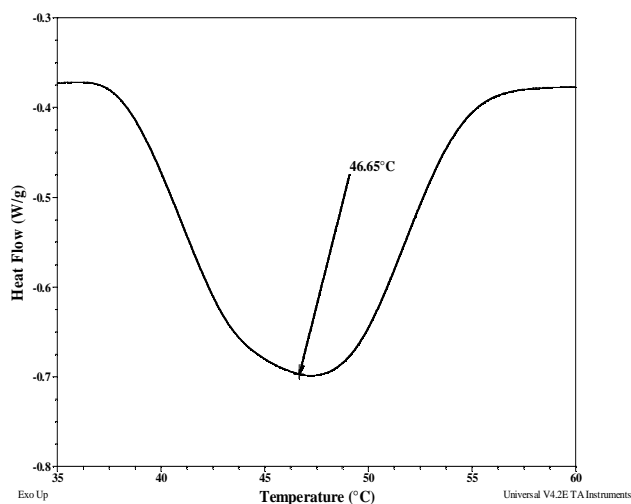
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature ( $T_g$ ).

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.

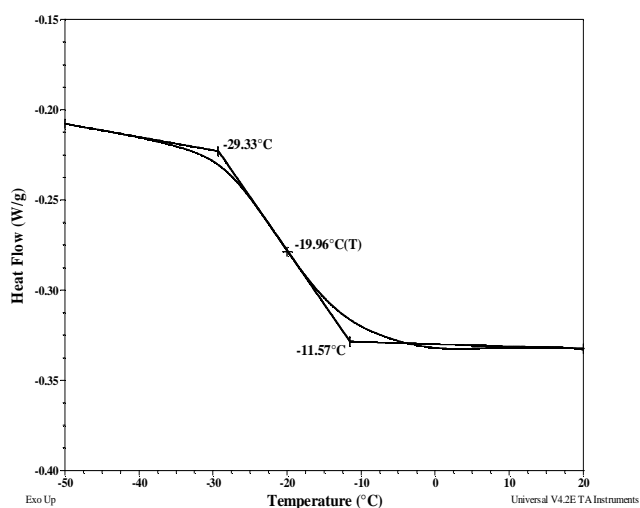
### Summary of typical thermal analysis results:

Polymer	$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
EO	47	—	-20
AA			20

### Melting curve for EO block:



### Thermogram for the EO block



### Thermogram for AA block:

