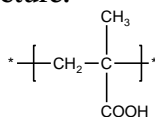


Sample Name:

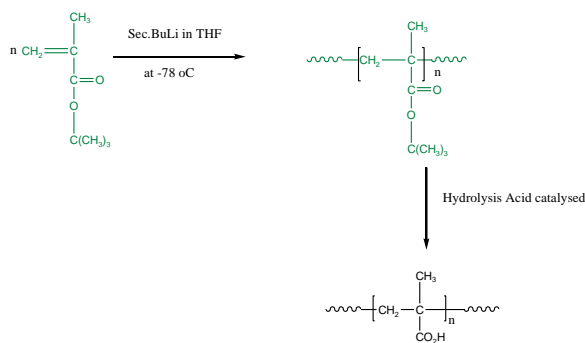
Poly(methacrylic acid) rich in syndiotactic or isotactic contents

Sample #: P8326-MAA (rich in syndio contents)**Structure:****Composition:**

$M_n \times 10^3$	PDI
16.0	1.07
$T_g (^{\circ}\text{C})$	159

Synthesis Procedure:

Poly(methacrylic acid) is synthesized by living anionic polymerization of t-butyl methacrylate followed by hydrolysis of the t-butyl group. The reaction scheme is shown below.

**Characterization:**

The molecular weight and polydispersity index (PDI) of Poly(methacrylic acid) are obtained by size exclusion chromatography based on its precursor in the ester form.

Hydrolysis: The removal of tert.butyl ester moiety to COOH was checked by their FTIR, disappearance of characteristics at 1365cm^{-1} .

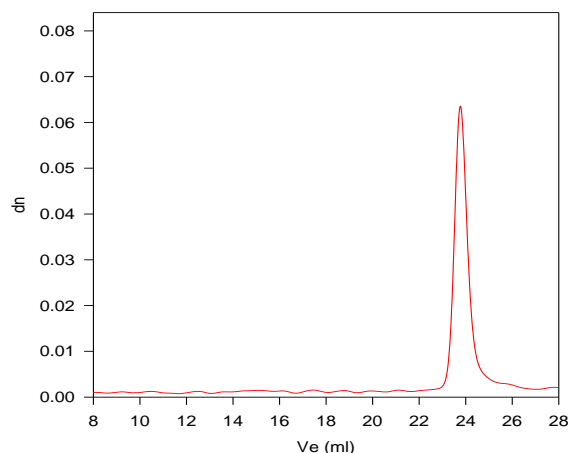
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of $10^{\circ}\text{C}/\text{min}$. 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).

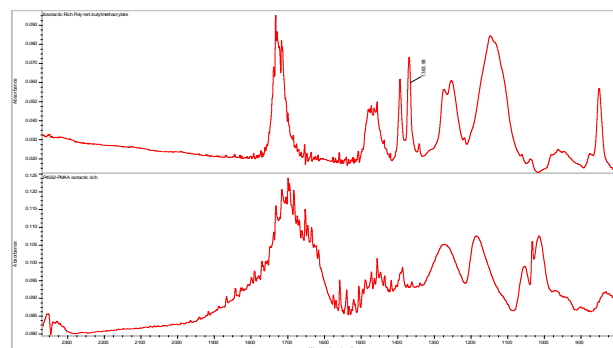
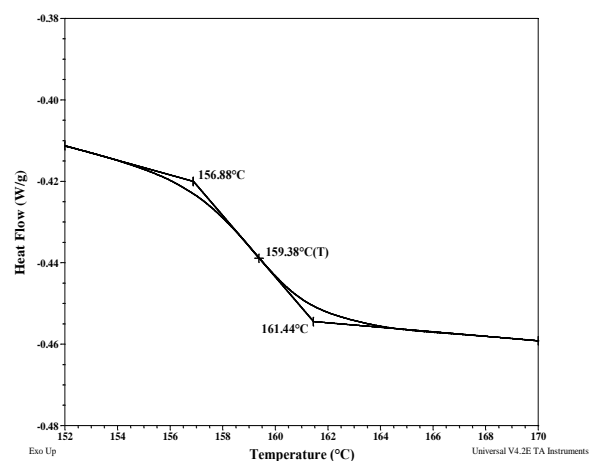
Solubility: Polymer is soluble in methanol and ethanol.

SEC of Homopolymer:

P8326-tBuMA Precursor for P8326-MAA



$M_n=24000$, $M_w=25500$, $PI=1.07$ After Hydrolysis of tert. Butyl ester:
PMAA: 16000 Mw/Mn 1.07

FTIR spectrum of isotactic rich tert.BuMA and PMAA**Thermogram for the polymer:****References:**

S. K. Varshney, Z. Gao, Xing Fu Zhong, A. Eisenberg "Effect of Lithium Chloride on the "Living" Polymerization of tert-Butylmethacrylate and Polymer Microstructure Using Monofunctional Initiators" Macromolecules, 1994, 27, 1076.