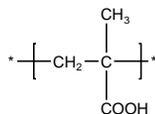


Sample Name: Poly(methacrylic acid)
syndiotactic

Sample #: P43684A-MAA

Structure:



Composition:

$M_n \times 10^3$	PDI
200.00	1.25

Synthesis Procedure:

Poly(methacrylic) is synthesized by living anionic polymerization of t-butyl methacrylate followed by hydrolysis of the t-butyl group.

Characterization:

The molecular weight and polydispersity index (PDI) of Poly(methacrylic) 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} .

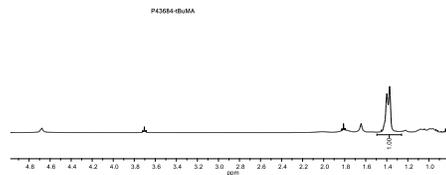
Thermal analysis:

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).

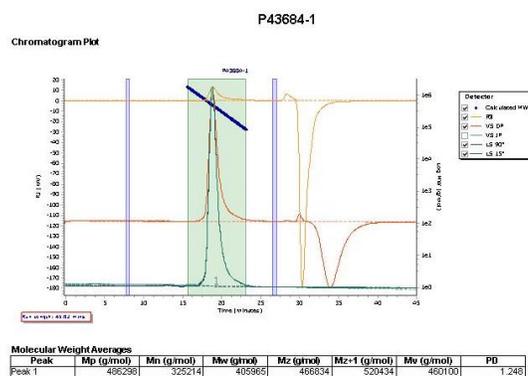
Solubility:

Polymer is soluble in methanol and ethanol.

$^1\text{H-NMR}$ spectrum of PtBuMA before Hydrolysis:



SEC elugram of Homopolymer PtBuMA:



After Hydrolysis of ester to acid:

Mn: 200,000

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.