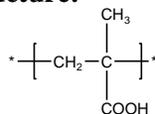


Sample Name: Poly(methacrylic acid),  
*syndiotactic*

Sample #: P43683A-MAA

**Structure:**



**Composition:**

$M_n \times 10^3$	PDI
112.0	1.35

**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  $1365\text{cm}^{-1}$ .

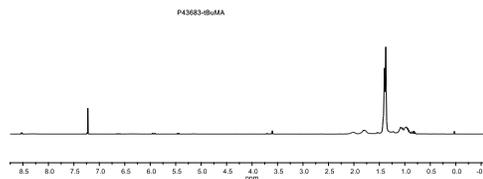
**Thermal analysis:**

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 ( $T_g$ ).

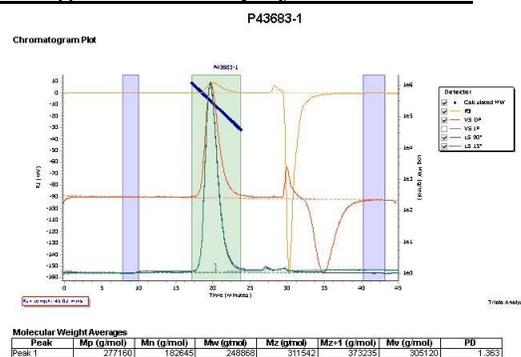
**Solubility:**

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: 112,000**

**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.