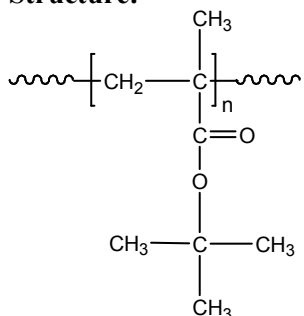


Sample Name: **Poly(t-butyl methacrylate)**  
*Atactic microstructure*

Sample #: **P14563A-tBuMA**

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup>	PDI
24.5	1.6
S <sub>2</sub> H <sub>2</sub> I	0:93:7

**Synthesis Procedure:**

Poly(t-butyl methacrylate) is obtained by RAFT polymerization of t-butyl methacrylate.

**Characterization:**

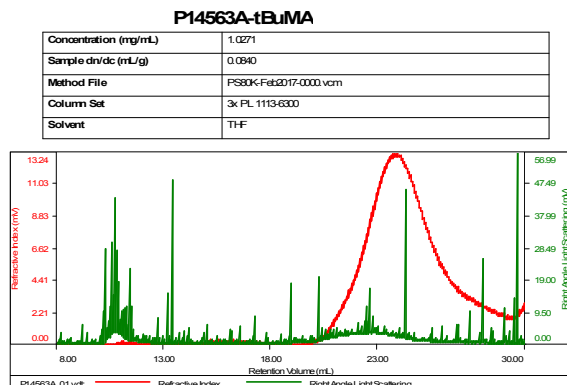
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co. <sup>1</sup>H NMR analysis was carried out on Varian instrument at 500MHz.

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T<sub>g</sub>) of the sample has been considered.

**Solubility:**

Poly(tert butylmethacrylate) is soluble in THF, CHCl<sub>3</sub>, toluene and dioxane. The polymer precipitates from cold methanol and ethanol.

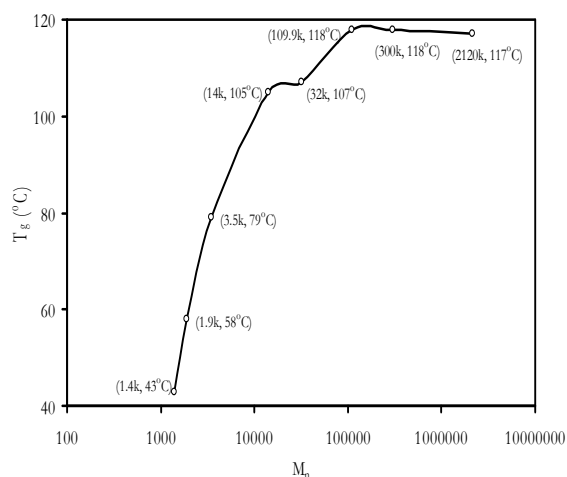
**SEC of Homopolymer:**



Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
P14563A_01.vdt	24,506	41,064	1.676	0.2883	25,259

**DSC thermogram of the Product:**

T<sub>g</sub> of poly t-butyl methacrylate as function of molecular weight



**T<sub>g</sub> vs MW for selected poly t-butyl methacrylate**

M <sub>n</sub> × 10 <sup>3</sup>	T <sub>g</sub> (°C)	M <sub>n</sub> × 10 <sup>3</sup>	T <sub>g</sub> (°C)
1.4	43	32	107
1.9	58	109.9	118
3.5	79	300	118
14	105	2120	117

**References for further information:**

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.