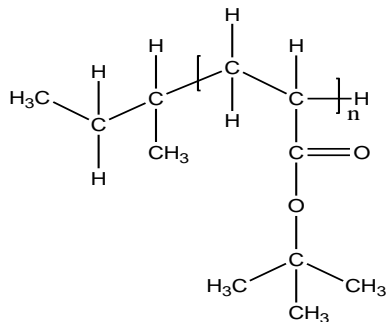


Sample Name: Oligomers of Poly(t-butyl acrylate)

Sample #: P9348C-tBuA

**Structure:**



**Composition:**

| Degree of Polymerization | PDI  |
|--------------------------|------|
| Dp by HNMR: 3            | 1.04 |
|                          |      |

#### Synthesis Procedure:

Poly(t-butyl acrylate) is obtained by living anionic polymerization of t-butyl acrylate.<sup>1-4</sup>

#### Characterization:

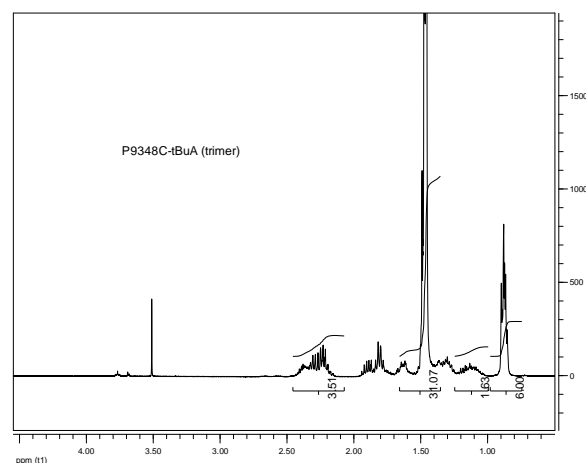
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

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 ( $T_g$ ) of the sample has been considered.

#### Solubility:

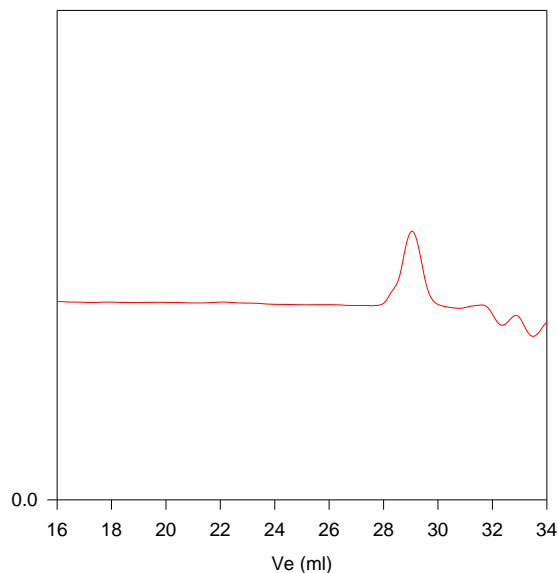
Poly(t-butyl acrylate) is soluble in THF, hexanes (low MW), toluene and  $\text{CHCl}_3$ . This polymer precipitates from ethanol and methanol containing 10-15% water.

#### HNMR of the Polymer



SEC of Sample:

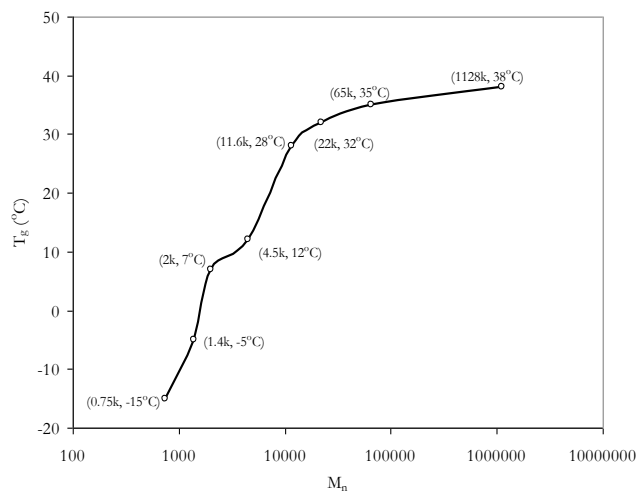
**P9348B-tBuA Oligomer**



Size Exclusion Chromatography of Poly tert-Butyl acrylate

Dp of tBuA monomer is : 2 Mw/Mn 1.04

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



#### References:

1. Ph. Teyssie, Ph. Bayard, R. Jerome, **S. K. Varshney**, and J. S. Wang, *35th IUPAC International Union of Pure & Applied Chemistry International Symposium on Macromolecules* 1994, 67.
2. R. Fayt, R. Forte, C. Jacobs, R. Jerome, T. Ouhadi, Ph. Teyssie and **S. K. Varshney**, *Macromolecules*, 1987, 20, 1442-1444.
3. Jerome, R. Forte, **S. K. Varshney**, R. Fayt, and Ph. Teyssie, "The Anionic Polymerization of Alkylacrylates: A Challenge" in the Recent Advances in Mechanistic and Synthetic Aspects of Polymerization: M. Fontanille and A. Guyot Ed., NATO ASI Series C 215, 101 (1987), *CA Vol. 108*, 12, 094992.
4. Ph. Teyssie, R. Fayt, C. Jacobs, R. Jerome, L. Leemans, and **S. K. Varshney** *Am. Chem. Soc., Polym. Prepr.* 1988, 28, 2, 52-53