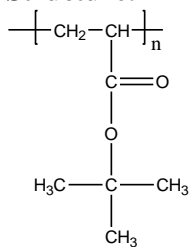


Sample Name: Poly (t-butyl acrylate)

Sample #: P2212-tBuA

Structure:



Composition:

$M_n \times 10^3$	PDI
1.4	1.13

Synthesis Procedure:

Poly (t-butyl acrylate) is obtained by living anionic polymerization of t-butyl acrylate.¹⁻⁴

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 $10^\circ\text{C}/\text{min}$. The inflection glass transition temperature (T_g) of the sample has been considered.

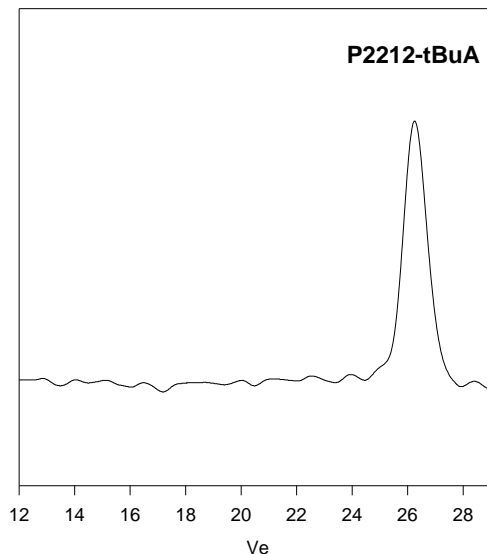
Solubility:

Poly(t-butyl acrylate) is soluble in THF, hexanes (low MW), toluene and CHCl_3 . This polymer precipitates from ethanol and methanol containing 10-15% water.

T_g vs MW for selected poly t-butyl acrylate

$M_n \times 10^3$	T_g ($^\circ\text{C}$)	$M_n \times 10^3$	T_g ($^\circ\text{C}$)
0.75	-15	11.6	28
1.4	-5	22	32
2	7	65	35
4.5	12	1128	38

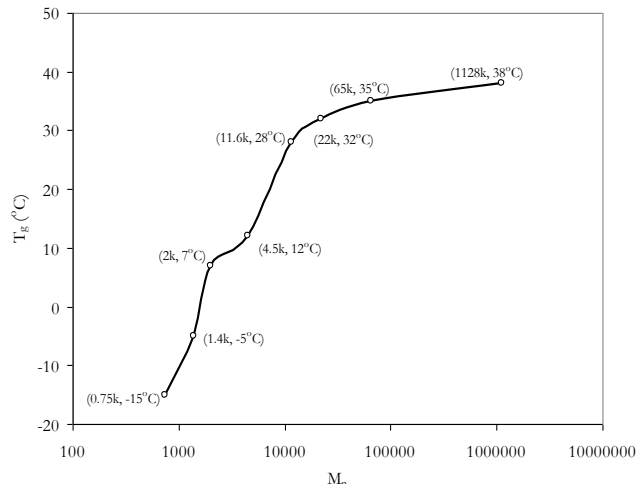
SEC of Sample:



Size Exclusion Chromatography of Poly tert.-butyl acrylate:

$M_n=1440$, $M_w=1630$, $M_z=1520$, $PI=1.13$

T_g of poly t-butyl acrylate as function of molecular weight



References:

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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