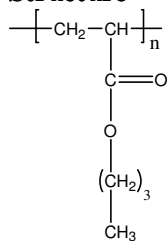


Sample Name: Poly(n-butyl acrylate)

Sample #: P1111-nBuA

Structure:

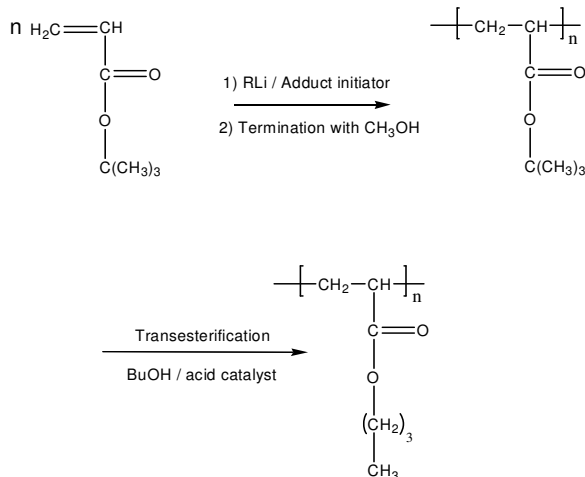


Composition:

$M_n \times 10^3$	PDI
193.2	1.08
T_g ($^{\circ}\text{C}$)	-51

Synthesis Procedure:

Poly(n-butyl acrylate) is obtained by living anionic polymerization of t-butyl acrylate followed by transesterification with n-butanol in the presence of catalyst.¹⁻⁴ The reaction scheme is shown below:



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.

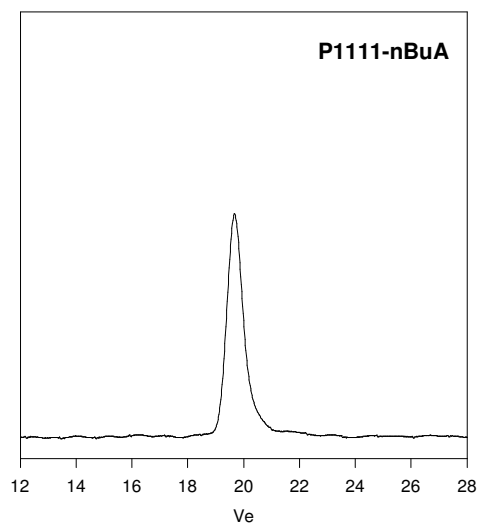
Thermal analysis:

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:

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

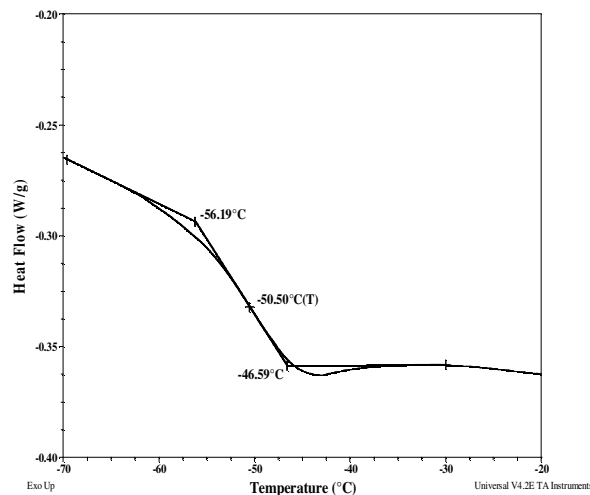
SEC of the Homopolymer:



Size Exclusion Chromatography of Poly n-butyl acrylate:

$M_n=193200$, $M_w=209600$, $M_z=224500$, $PI=1.08$

DSC thermogram for the polymer:



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.