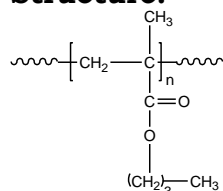


Sample Name: Poly(n-butyl methacrylate)

Sample #: P10837-nBuMA

Structure:

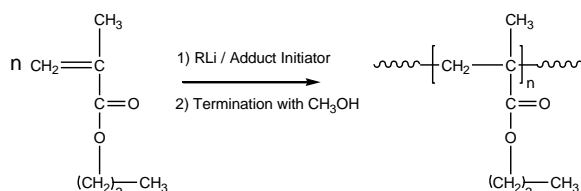


Composition:

| | |
|----------------------|------|
| Mn x 10 ³ | PDI |
| 19.5 | 1.07 |
| T _g (°C) | 10 |

Synthesis Procedure:

Poly(n-butyl methacrylate) is obtained by living anionic polymerization of n-butyl methacrylate. The reaction scheme used for the polymer synthesis is shown below:



Characterization:

The molecular weight and polydispersity index (PDI) of Poly(n-butyl methacrylate) are obtained by size exclusion chromatography.

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/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).

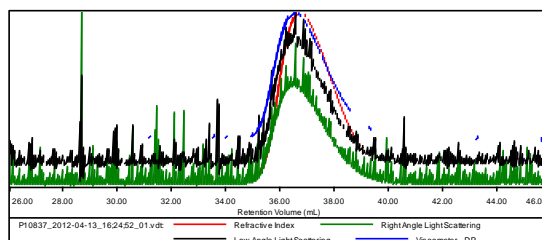
Solubility:

Poly(n-butyl methacrylate) is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from cold methanol and ethanol.

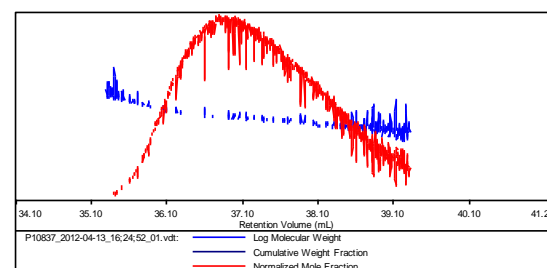
SEC of Homopolymer:

Sample ID: P10837-nBuMA

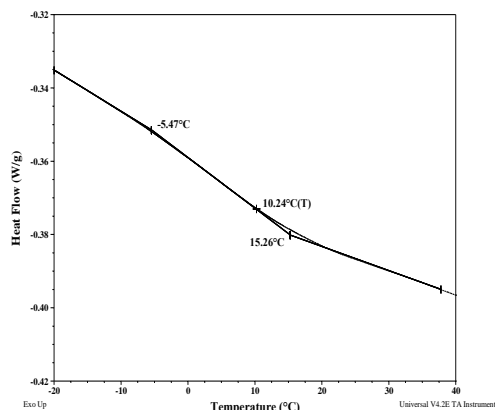
| | |
|-----------------------|-----------------------|
| Concentration (mg/mL) | 13.3973 |
| Sample dn/dc (mL/g) | 0.0760 |
| Method File | PS80-APR2012-0000.vcm |
| Column Set | 3x PL 1113-6300 |
| System | System 1 |



| Sample | Mn (Da) | Mw (Da) | Mp (Da) | Mw/Mn | IV (dL/g) |
|------------------------------------|---------|---------|---------|-------|-----------|
| P10837_2012-04-13_16;24;52_01.v dt | 19,247 | 20,629 | 20,716 | 1.072 | 0.1354 |



DSC thermogram for the polymer:



References for further reading:

- (a) S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,629,393, 1997 (b) Ph. Bayard, R. Fayt, Ph. Teyssie and S. K. Varshney, Vuillemin B, Phillipe, H, US patent 5,677,387, 1997. (c) Ph. Bayard, R. Fayt, Ph. Teyssie and S. K. Varshney, B, Vuillemin, H. Phillipe, US patent 5,687,534, 1997. (d) S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,723,559, 1998. (e) Ph. Teyssie, S. K. Varshney, R. Jerome, R. Fayt US patent, 4,826,941., 1989.
- 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.
- Ph. Teyssie, R. Fayt, J. P. Hautekeer, C. Jacobs, R. Jerome, L. Leemans and S. K. Varshney *Makromolekular Chemie, Macromol. Symp.*, 1990, 32,61-73.
- S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, and Ph. Teyssie *Macromolecules*, 1990, 23, 2618-2622.