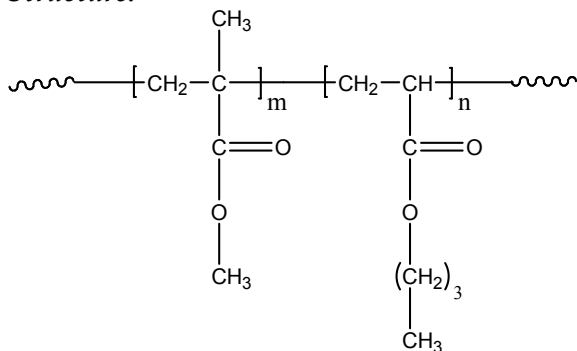


**Sample Name:** Poly(methyl methacrylate-*b*-*n*-butylacrylate)

**Sample #:** P10432-MMAnBuA

**Structure:**

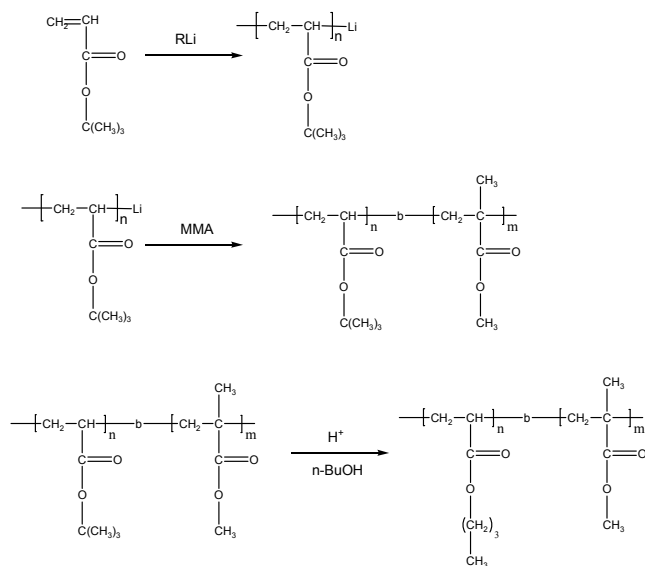


**Composition:**

|   |      |
|---|------|
| Mn x 10 <sup>3</sup><br>PMMA- <i>b</i> - <i>n</i> BuA | PDI  |
| 24.0- <i>b</i> -44.5                                  | 1.15 |

**Synthesis Procedure:**

Poly(*n*-butyl acrylate-*b*-methyl methacrylate) is prepared by living anionic polymerization through sequence addition of poly(*t*-butyl acrylate) followed by methyl methacrylate and transesterification of the *t*-butyl group. The reaction scheme is shown below:



**Characterization:**

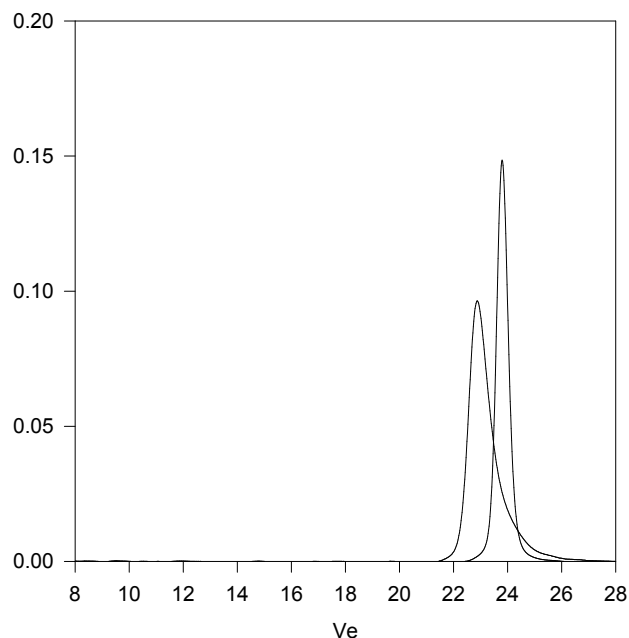
An aliquot of the anionic poly(*t*-butyl acrylate) block was terminated before addition of methyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was determined by <sup>1</sup>H NMR by comparing *t*-butyl protons at about 1.43 ppm with the methyl methacrylate protons at about 3.6 ppm.

**Solubility:**

Poly(methyl methacrylate-*b*-nutylacrylate) is soluble in THF.

**SEC of Sample:**

**P10432-MMAnBuA**



Size Exclusion Chromatography :

— PMMA, M<sub>n</sub> = 24,000 Mw: 25,500 M<sub>w</sub>/M<sub>n</sub> = 1.06

— Block Copolymer PMMA(24,000)-*n*BuA(44,500), M<sub>w</sub>/M<sub>n</sub> = 1.15

**References:**

1. J. Wang, **S. K. Varshney**, J. Jerome and Ph. Teyssie "Synthesis of AB (BA) ABA and BAB Block copolymers of tert-butylmethacrylate (A) and ethylene oxide (B) " *CA Vol 117, 16, 151478, J. Polym. Sci., Part-A: Polym. Chem. Ed., 1992, 30, 2251-2261.*
2. S. K. Varshney, C. Jacobs, J. P. Hautekeer, R. Jerome, R. Fayt, and Ph. Teyssie "Anionic Polymerization of Acrylic Monomers-6; Synthesis, Characterization and Modification of Polymethylmethacrylate-Polytert-Butylacrylate Di and Tri Block Copolymers" *CA Vol. 115, 10, 093054 Macromolecules, 1991, 24, 4997-5000.*
3. Ph. Teyssie, R. Fayt, C. Jacobs, R. Jerome and **S. K. Varshney**, "New Developments in the "Living" Anionic Polymerization of (Meth)Acrylic Esters" *CA Vol. 115, 135, 184032, Am. Chem. Soc., Polym. Prepr., 1991, 31, 1, 299.*