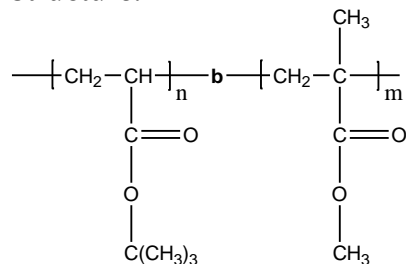


**Sample Name:** Poly(t-butyl acrylate-b-methyl methacrylate)

**Sample #:** P8249-MMAAtBuA

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup> MMA -b- tBuA	PDI
17.0-b-3.5	1.2

**Synthesis Procedure:**

Poly(t-butyl acrylate-b-methyl methacrylate) is prepared by living anionic polymerization with sequence addition of t-butylacrylate followed by methyl methacrylate in THF using an RLi/LiCl adduct.

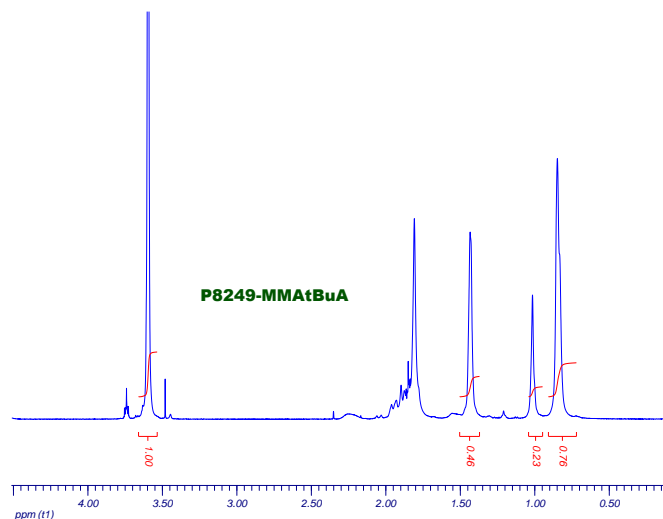
**Characterization:**

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 calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the methyl methacrylate protons at about 3.6 ppm with the peak area of t-butyl acrylate protons at about 1.43 ppm. Copolymer PDI is determined by SEC.

**Solubility:**

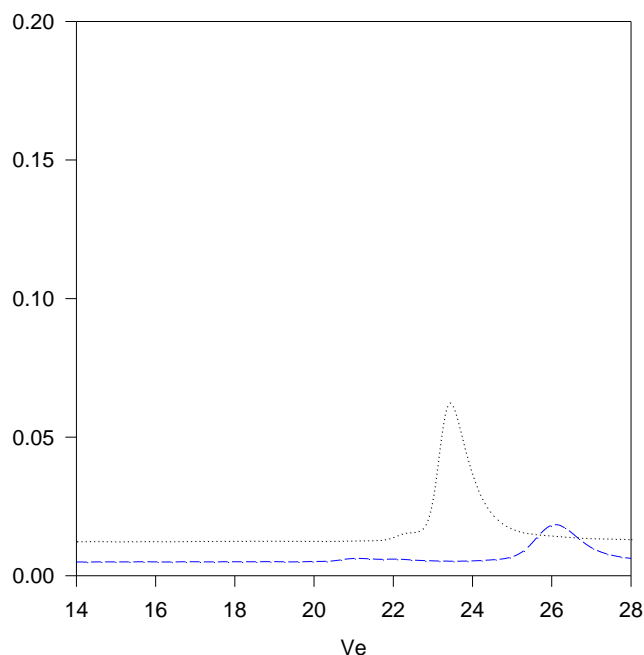
Poly(t-butyl acrylate-b-methyl methacrylate) is soluble in THF, CHCl<sub>3</sub>, toluene, dioxane. The polymer can precipitate from ethanol/water or methanol/water mixtures.

**<sup>1</sup>H-NMR Spectrum of the block copolymer:**



**SEC of the block copolymer:**

**P8249-MMAAtBuA**



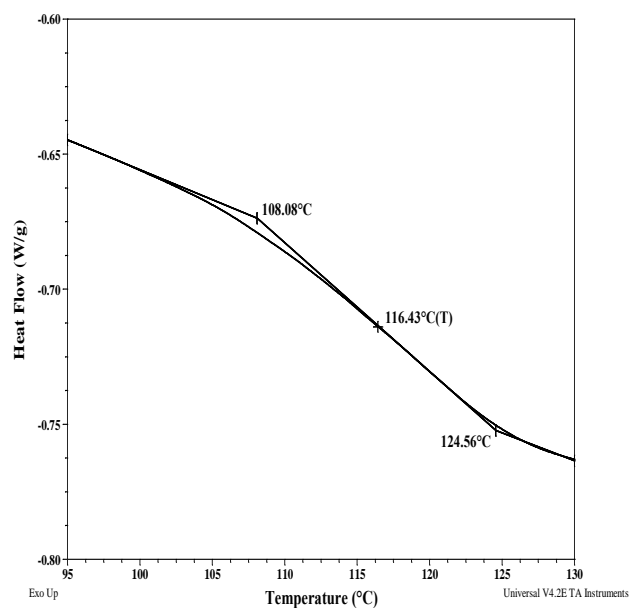
Size Exclusion Chromatography :

- Poly tert.butylacrylate, M<sub>n</sub>=3500 Mw: 4000 M<sub>w</sub>/M<sub>n</sub>=1.15
- ..... Block Copolymer PMMA(17000)-tBuA(3500), M<sub>w</sub>/M<sub>n</sub>=1.20

## Thermal analysis of sample P8249-MMA<sub>t</sub>BuA

Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature ( $T_g$ ) has been considered.

### Thermogram for MMA block



## Glass transition temperature at a glance

MMA block	116°C
t-BuA block	11°C

### Thermogram for tBuA block

