

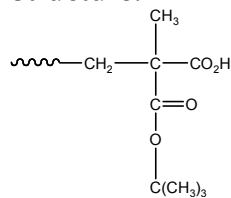
## SEC of Sample:

### Sample Name:

Carboxy Terminated Poly(t-butyl methacrylate)

### Sample #: P4857-tBuMACOOH

### Structure:

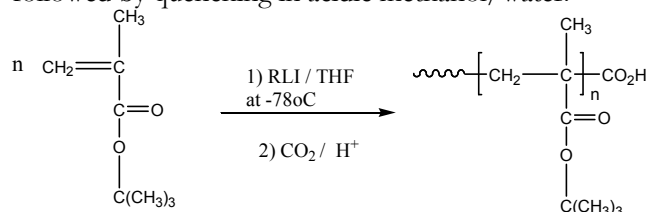


### Composition:

$M_n \times 10^3$	PDI
4.0	1.05
Functionality	>98%
$T_g$ for the functional polymer	88°C

### Synthesis Procedure:

Carboxy Terminated Poly(t-butyl methacrylate) is synthesized by living anionic polymerization of methyl methacrylate followed by termination with dry CO<sub>2</sub> followed by quenching in acidic methanol/water.



### Characterization:

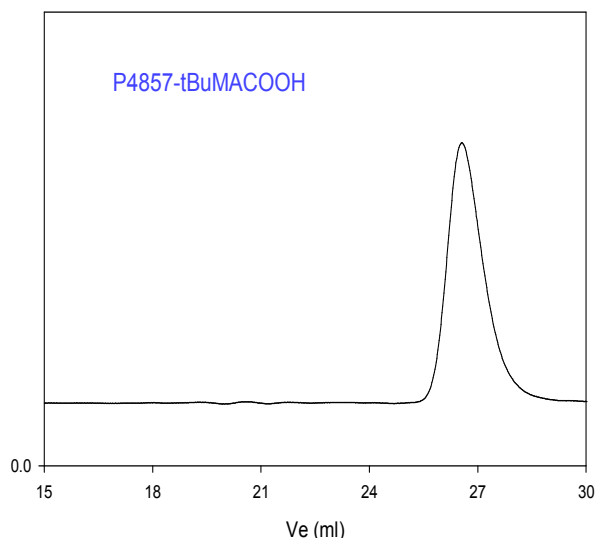
The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) before inclusion of the CO<sub>2</sub>H function using a Varian liquid chromatograph equipped with a UV and refractive index detector. The functionality of polymer was determined by the titration with NaOH, using phenolphthalein as the indicator.

### Thermal analysis:

Thermal analysis of the samples 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.

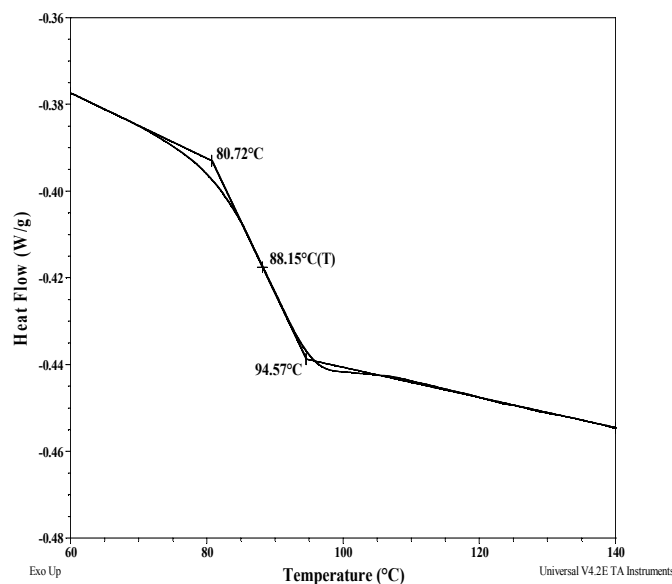
### Solubility:

Polymer is soluble in THF, CHCl<sub>3</sub>, Toluene, dioxin and precipitated out from methanol/water or in cold hexane.



Polyter. Butyl methacrylate (before terminating with CO<sub>2</sub>)  
 $M_n = 4000$ ,  $M_w = 4200$ , PI=1.05 and functionality>98%

### DSC thermogram for the sample:



### References :

1. P. Rempp, Y. Gnanou, R. Fayt, C. Jacobs, Ph. Teyssie and S. K. Varshney. Eur. Pat. Appl. Mar. 27, 1991. *Eur. Pat.* 419314 *Patent assignees- Atochem S.A. France. CA Vol. 115, 06, 050585.* "Process for Preparing Functionalised (Meth)acrylic. Macromonomers and Macromonomers so Prepared".
2. S. K. Varshney, Z. Gao, Xing Fu Zhong, A. Eisenberg. "Effect of Lithium Chloride on the "Living" Polymerization of tert-Butylmethacrylate and Polymer Microstructure Using Monofunctional Initiators" *Macromolecules*, 1994, 27, 1076.