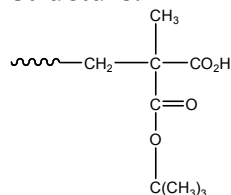


Sample Name:
Carboxy Terminated Poly(t-butyl methacrylate)

Sample #: P4512-tBuMACOOH

Structure:

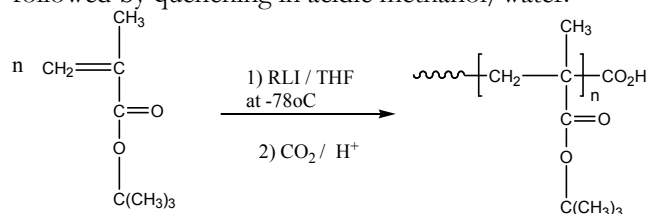


Composition:

Mn x 10 ³	PDI
4.5	1.15
Functionality	>98%
T _g for the polymer	92°C

Synthesis Procedure:

Carboxy Terminated Poly(t-butyl methacrylate) is synthesized by living anionic polymerization of methyl methacrylate followed by termination with dry CO₂ 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 CO₂H 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.

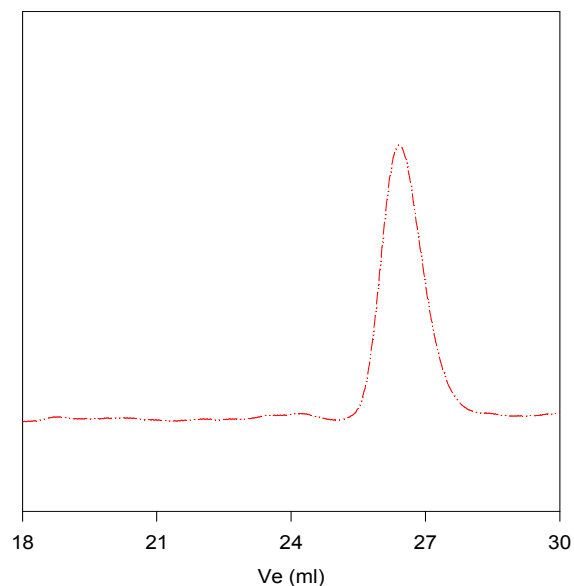
Thermal analysis:

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:

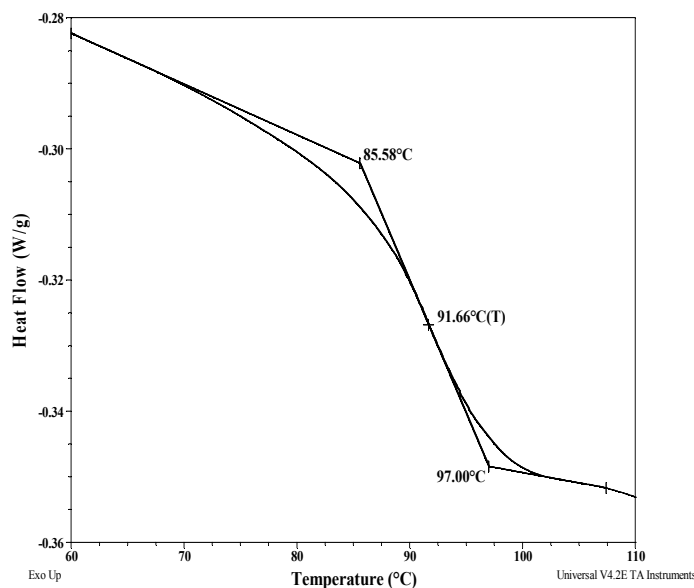
Polymer is soluble in THF, CHCl₃, Toluene, dioxin and precipitated out from methanol/water or in cold hexane.

SEC of Sample:
P4512-tBuMACOOH



--- Poly tert. butylmethacrylate (before terminating with CO₂)
M_n=4500, M_w=5200 PI=1.15 Functionality after titration > 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.
2. Macromonomers and Macromonomers so Prepared". 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.