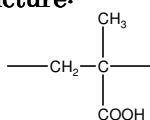


Sample Name:

Poly(methacrylic acid) rich in syndiotactic or isotactic contents

Sample #: P4545-MAA (rich in syndiotactic)

Structure:

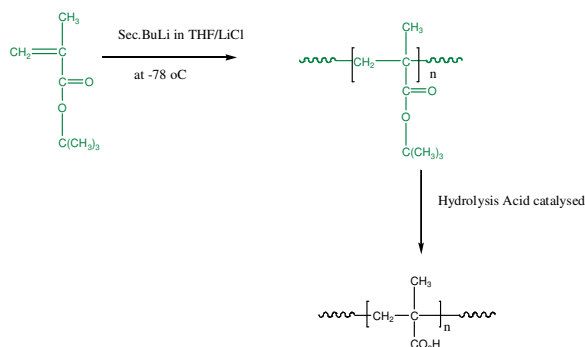


Composition:

Mn x 10 ³	PDI
76.0	1.18
T _g (°C)	

Synthesis Procedure:

Poly(methacrylic) is synthesized by living anionic polymerization of t-butyl methacrylate followed by hydrolysis of the t-butyl group. The reaction scheme is shown below.



Characterization:

The molecular weight and polydispersity index (PDI) of Poly(methacrylic) are obtained by size exclusion chromatography based on its precursor in the ester form.

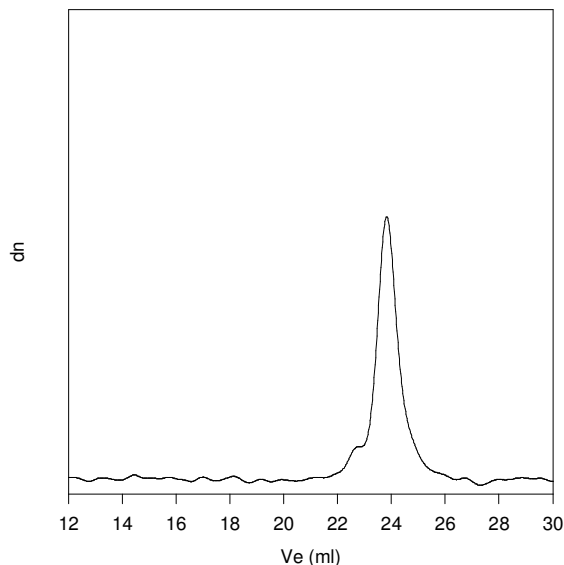
Hydrolysis: The removal of tert.butyl ester moiety to COOH was checked by their FTIR, disappearance of characteristics at 1365cm⁻¹.

Solubility:

Polymer is soluble in methanol and ethanol.

SEC of Homopolymer:

**P4545-tBuMA
(precursor of P4545-MAA)**



Size Exclusion Chromatography of Poly(t-butyl methacrylate)

M_n=126000, M_w=148000 PI=1.18

Poly(methacrylic acid) after hydrolysis of tert.butyl ester:
M_n=76000 PI=1.18

References:

S. K. Varshney, R. Fayt, and Ph. Teyssie
Fr.appl.89-07374 (June 5,1989).
Eur.Pat File# 90401496 and Fr.Appl.90-06351 (May 22,1990)."Procedure and initiator System for the Anionic Polymerization of Acrylates and Methacrylates".

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.