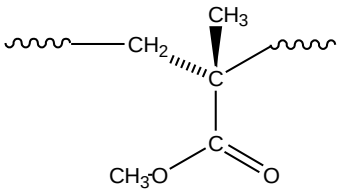
Sample Name: Carboxy terminated Poly(isotactic methyl methacrylate)

Sample #: P6168-iMMACOOH

Structure:

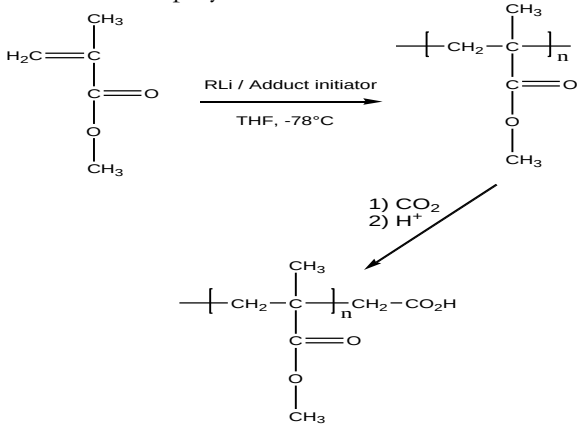


Composition:

Mn x 10^3	PDI
12.0	1.18
Degree of functionality	90%
T_g for the polymer	28°C

Synthesis Procedure:

Carboxy terminated poly(methyl methacrylate) is obtained by living anionic polymerization in the presence of an adduct. Termination of the reaction with dried CO_2 produced a carbonyl end functionalized polymer:



Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography. The carboxyl functionality is determined by acid-base titration.

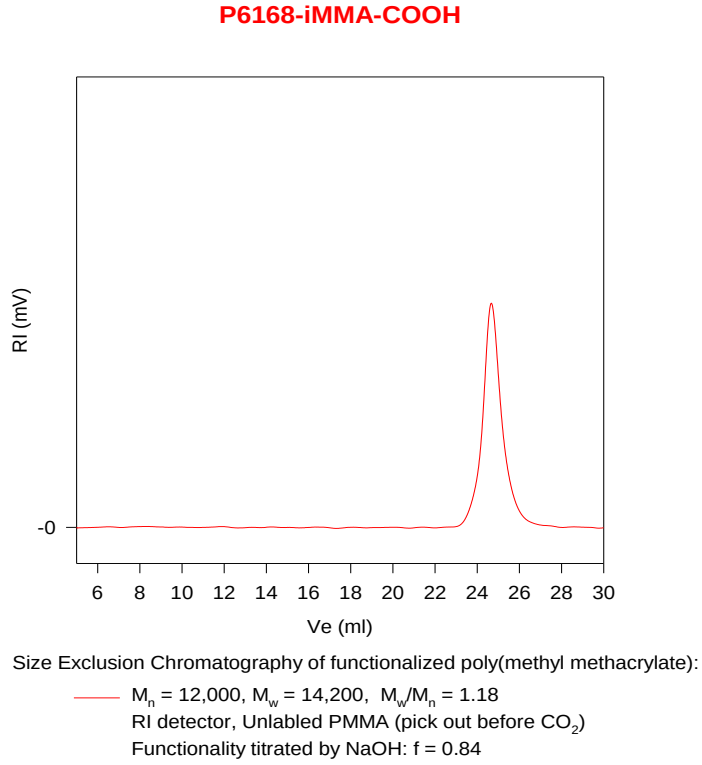
Thermal analysis:

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:

Poly(methyl methacrylate) is soluble in THF, $CHCl_3$, toluene and dioxane. The polymer precipitates from hexanes, cold methanol and cold ethanol. The polymer may be soluble in methanol at room temperature depending on its molecular weight.

SEC of the functional polymer:



Size Exclusion Chromatography of functionalized poly(methyl methacrylate):

M_n = 12,000, M_w = 14,200, M_w/M_n = 1.18

RI detector, Unlabled PMMA (pick out before CO_2)

Functionality titrated by NaOH: f = 0.84

DSC thermogram for the sample: