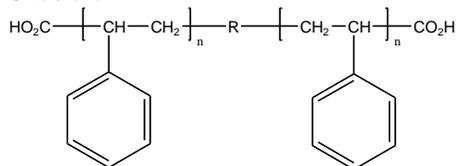


Sample Name:
 α,ω -Carboxy Terminated Polystyrene

Sample #: P18023-S2COOH

Structure:

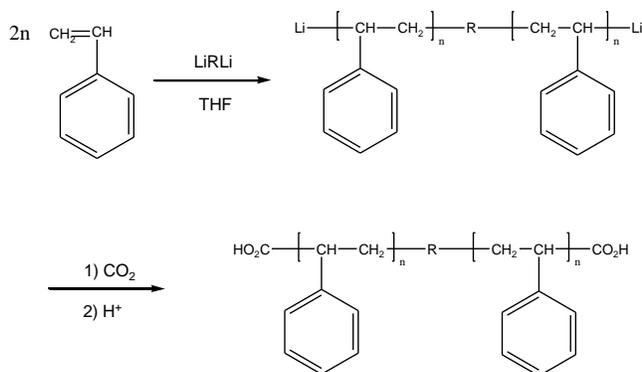


Composition:

Mn x 10 ³	PDI
1.3	1.5

Synthesis Procedure:

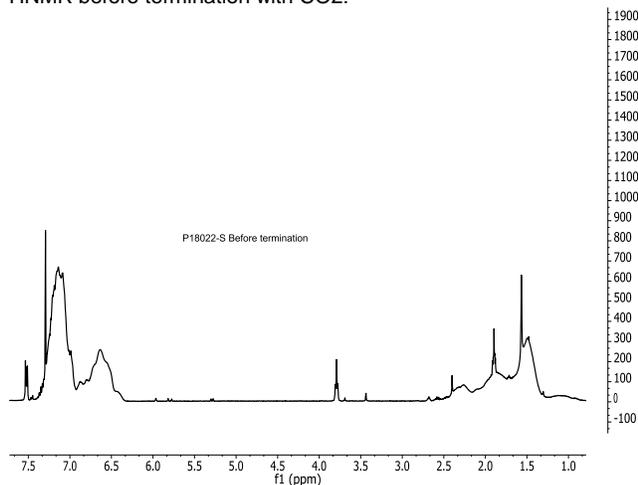
The functionalized polymer was prepared by anionic living polymerization of styrene using bifunctional as initiator in THF followed by terminating the polymerization reaction with dried CO₂. The scheme of the reaction is illustrated below:



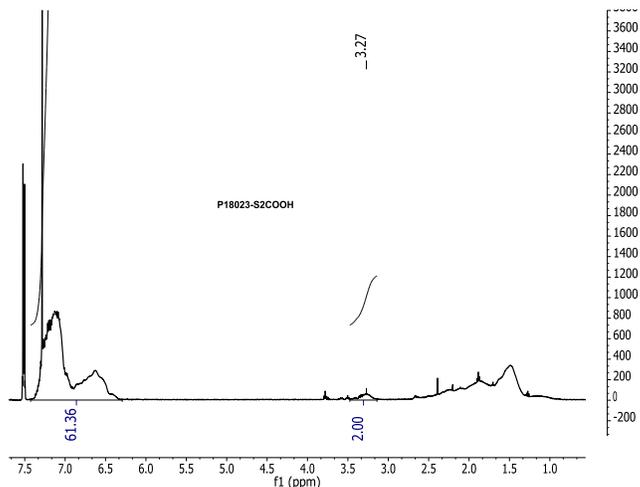
Characterization:

The molecular weight and polydispersity index of this polymer were determined before the addition of the carboxy function by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. Polymer functionality was determined by the titration with NaOH using phenolphthalein as the indicator.

HNMR before termination with CO₂:



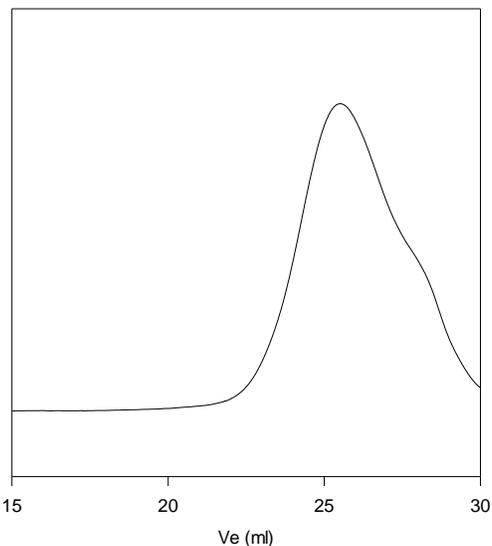
HNMR after termination with CO₂:



Solubility: Polymer is soluble in THF, Dioxane, CHCl₃ and precipitated out from methanol/water, and in cold hexane.

SEC of Sample:

P18023-S2COOH



Size exclusion chromatography of α,ω -dicarboxy terminated polystyrene before termination with CO₂:

M_n=1,300, M_w=2,000, PI=1.5
 functionality=1.95 by titration: