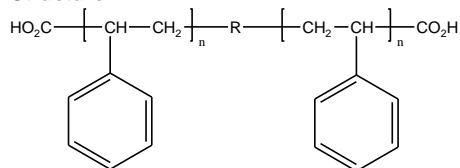


**Sample Name:**  
 **$\alpha,\omega$ -Carboxy Terminated Polystyrene**

**Sample #: P18022-S2COOH**

**Structure:**

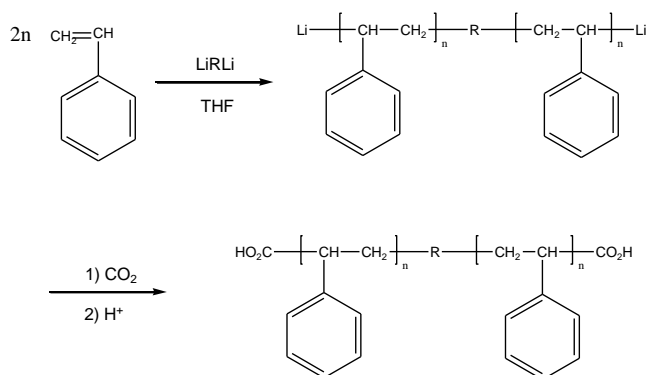


**Composition:**

Mn x 10 <sup>3</sup>	PDI
2.0	1.5

**Synthesis Procedure:**

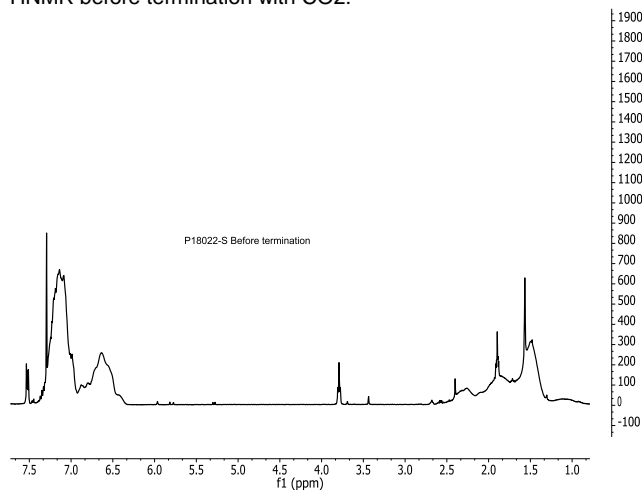
The functionalized polymer was prepared by anionic living polymerization of styrene using bifunctional as initiator in THF followed by terminating the polymerization reaction with dried CO<sub>2</sub>. The scheme of the reaction is illustrated below:



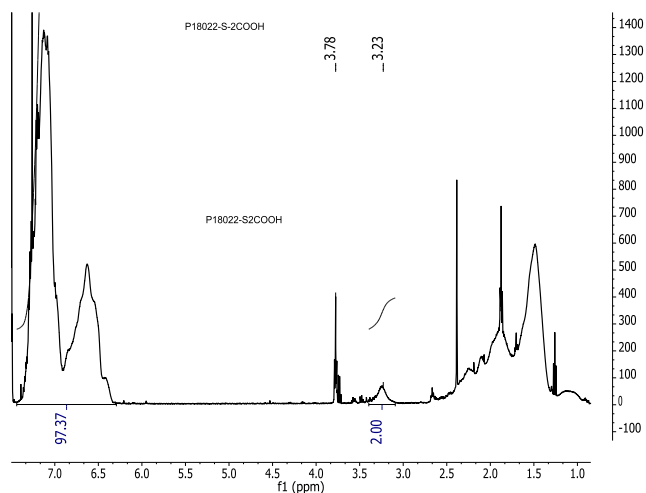
**Characterization:**

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 CO<sub>2</sub>:



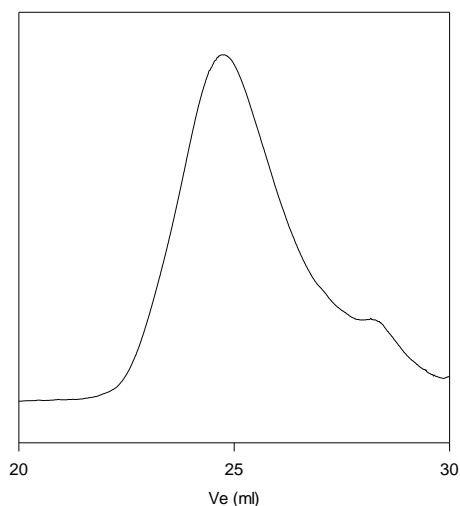
HNMR after termination with CO<sub>2</sub>:



**Solubility:** Polymer is soluble in THF, Dioxane, CHCl<sub>3</sub> and precipitated out from methanol/water, and in cold hexane.

**SEC of Sample:**

**P18022-S2COOH**



Size exclusion chromatography of  $\alpha,\omega$ -dicarboxy terminated polystyrene before termination with CO<sub>2</sub>:

M<sub>n</sub>=2,000, M<sub>w</sub>=3,000, PI=1.5  
 functionality=1.95 by titration: