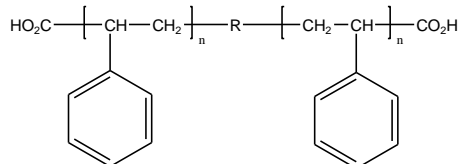


**Sample Name:**  
 **$\alpha,\omega$ -Carboxy Terminated Polystyrene**

**Sample #:** P8047-S2COOH

**Structure:**

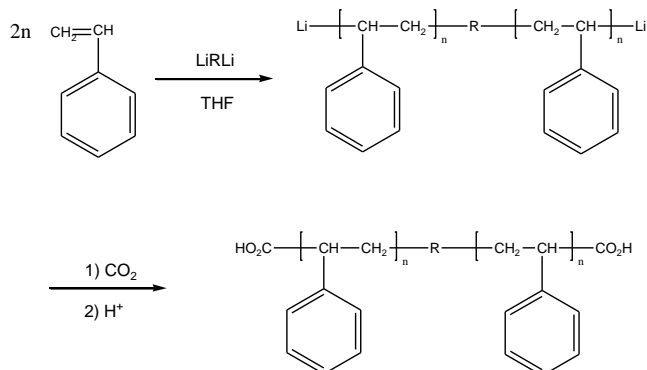


**Composition: functionality over 1.90**

$M_n \times 10^3$	PDI
9.0	1.10

**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  $\text{CO}_2$ . The scheme of the reaction is illustrated below:



**Characterization:**

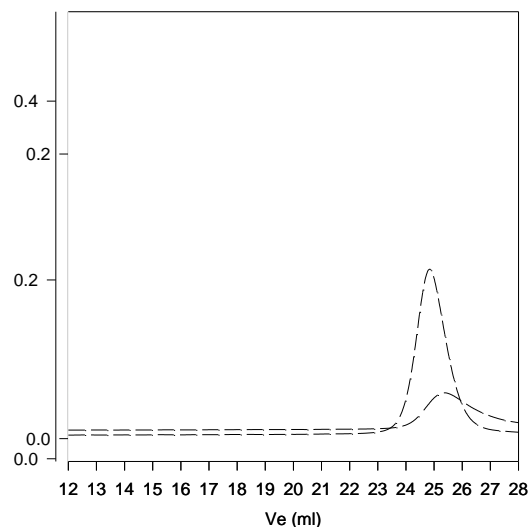
The molecular weight and polydispersity index of this polymer were determined before the addition of the carboxy function by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. In our columns the polymer after termination with  $\text{CO}_2$  the elution is retarded. This is because of the strong interaction with the column packing material. Furthermore the  $M_w/M_n$  broadens because of that reason.

Polymer functionality was determined by the titration with NaOH using phenolphthalein as the indicator.

**Solubility:** Polymer is soluble in THF, Dioxane,  $\text{CHCl}_3$  and precipitated out from methanol/water, and in cold hexane.

**SEC of Sample:**

**P8047-S2COOH**



--- Polystyrene before terminating with  $\text{CO}_2$   
 $M_n=9000$ ,  $M_w=10,000$   $PI=1.10$

— after Termination with  $\text{CO}_2$ : The elution retarded due to the adsorption with the packing material of the column: Functionality by titration: 1.90