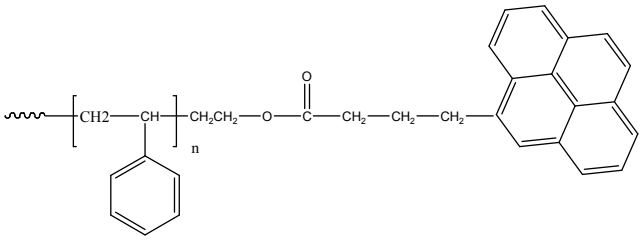
Sample Name:
ω-Pyrene Terminated Polystyrene

Sample #: **P4542-PySPy**

Structure:



Composition:

Mn x 10^3	PDI
1.2	1.10

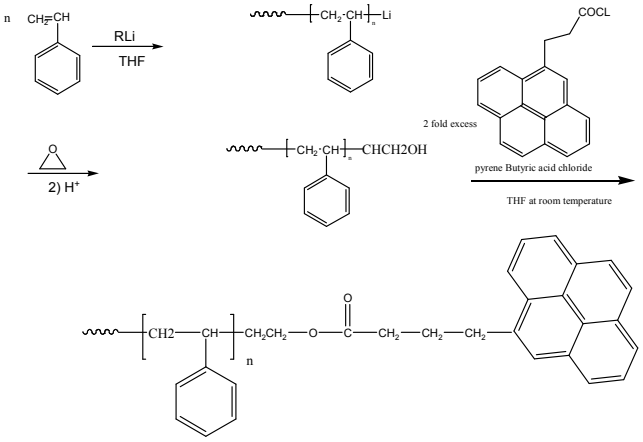
Synthesis Procedure:

The functionalized polymer was prepared by anionic living polymerization of styrene using monfunctional as initiator.

The product was synthesized in 2 steps:

1. Synthesis of **ω**-hydroxy terminated Polystyrene
2. 2. Reaction of ω- OH terminated Polystyrene with pyrene-butric acid chloride.

The obtained polymer was purifed by passing through a column packed with neutral $Al_2O_3$and the obtained polymer was precipitated in methanol. Polymer was dried at room temperature under vacuum. The scheme of the reaction is as follows:



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV (at 390 nm) and refractive index detector. Polymer functionality was determined by the FTIR/ HNMR. The Pyrene functionality close to 1.0

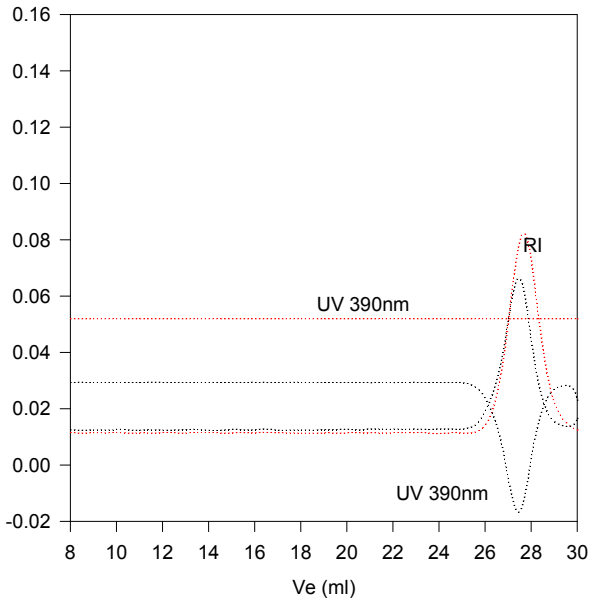
Solubility: Polymer is soluble in THF, Dioxane, CHCl3 and precipitated out from methanol/water, and in cold hexane.

FTIR of the Polystyrene and Before reaction with Pyrene butyric acid chloride and after the reaction with Pyrene butyric acid chloride showing the formation of ester linkage:

C=O absorbance in Free acid: pyrene butyric acid: 1692 cm-1
C=O in pyrene butyric acid chloride : 1793 cm-1
C=) in ester formation with polystyrene dihydroxy terminated: 1730 cm-1

SEC of Sample:

P4542A-SPy

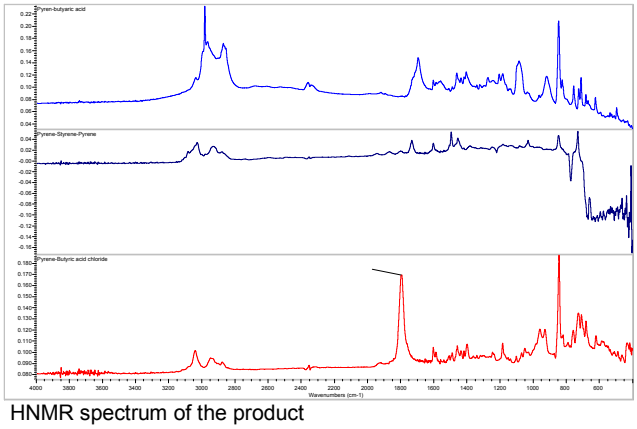


Size exclusion chromatography of Pyrene labeled polystyrene

Polystyrene OH terminated M_n=1200, M_w=1300, M_w/M_n=1.10

ω–Pyrene labeled PS, M_w/M_n=1.10

H NMRindicates functionality quantitative



HNMR spectrum of the product