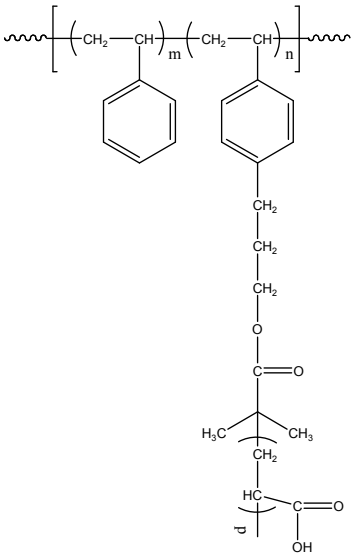
Sample Name: **Polystyrene grafted with poly acrylic acid**

Sample #: **P18120DD-SAAcomb**

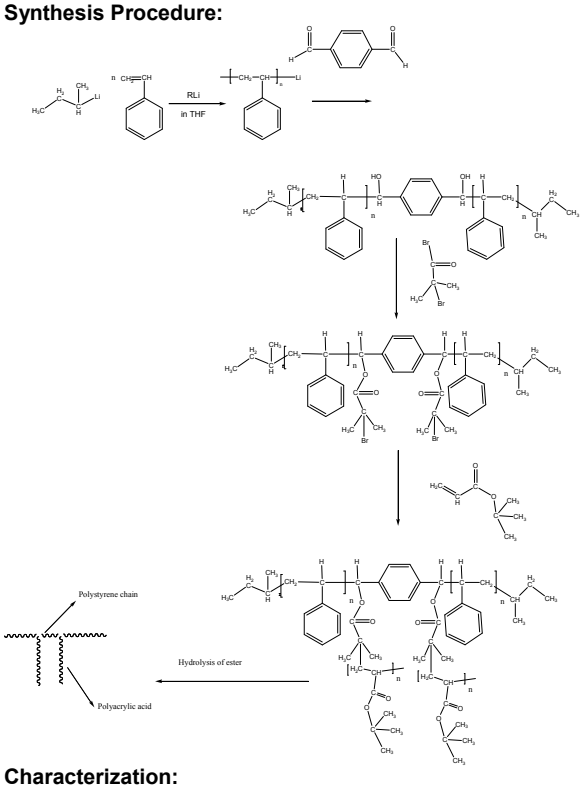
Structure:



Composition:

Mn x 10^3 (Main Chain) Polystyrene	Mn x 10^3 (Graft Chain) Poly acrylic acid	Total # of branches	Mw/Mn (Total)
20.0	2.3	2	1.20

Synthesis Procedure:



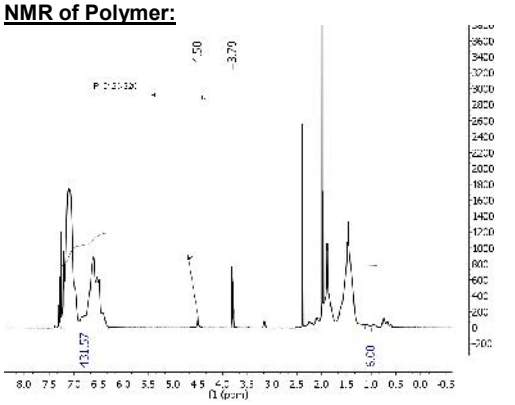
Characterization:

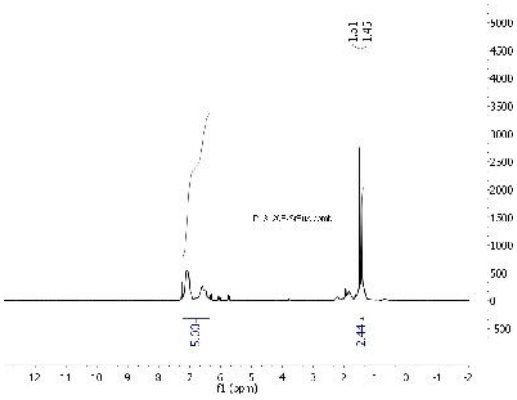
The molecular weight and polydispersity index (PDI) of polymers are obtained by size exclusion chromatography. The composition of grafting polymer is determined by NMR.

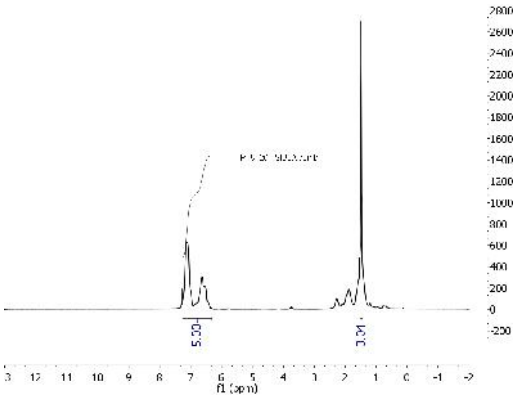
Solubility:

Polystyrene-g-poly(t-butyl acrylate) is soluble in THF, DMF, chloroform, and Toluene. It precipitates from methanol-water.

NMR of Polymer:

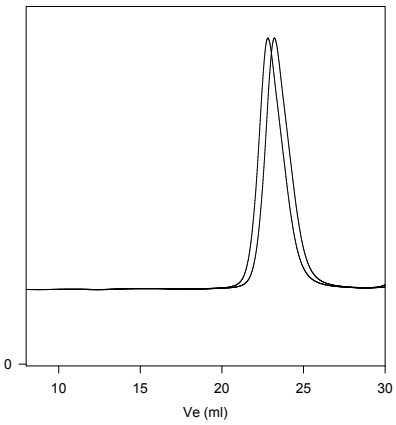






SEC of Polymer:

P18120D-StBuA comb for P18120DD-SAAcomb



Size Exclusion chromatography of poly (styrene-graft-tert.Butylacrylate):

—— Graft was prepared by backbone first and controlled radical polymerization of t.butyl acrylate: # of braches 2
Mn total of Pt BuA: 9000 Each brach 4,500
After Hydrolysis of each branch Poly acrylibc acid Mn 2400 Mw/Mn =1.20