

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

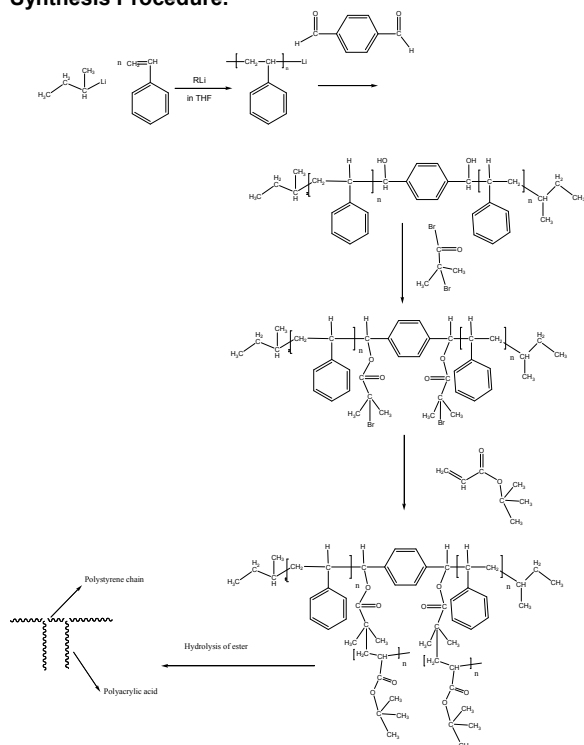
Sample #: **P18120EE-SAAcomb**

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	4.0	2	1.20

Synthesis Procedure:



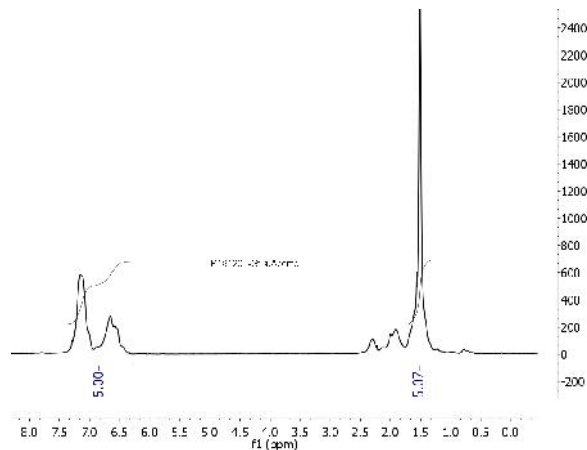
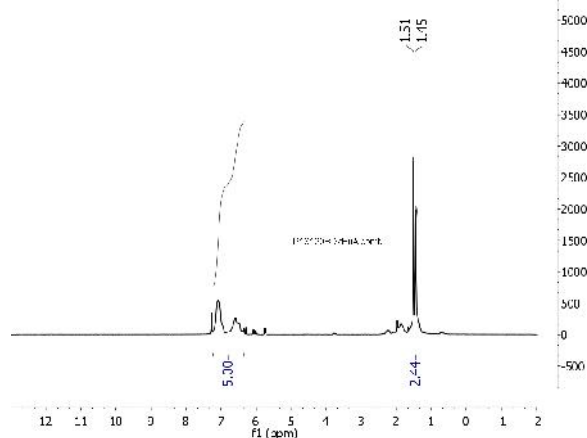
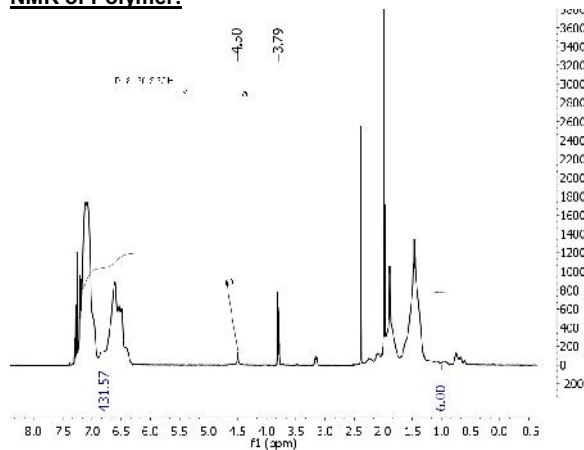
Characterization:

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:

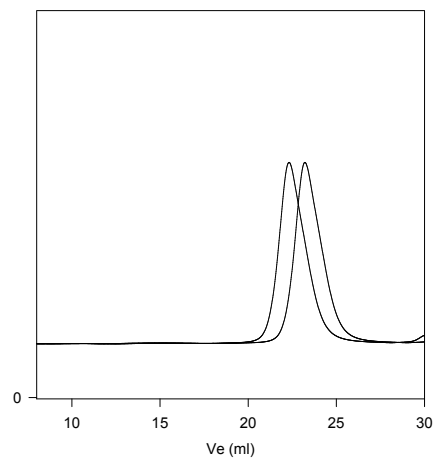
Polystyrene-g-poly(t-butyl acrylate) is soluble in THF, DMF, chloroform, and Toluene. It precipitates from methanol-water.

NMR of Polymer:



SEC of Polymer:

P18120E-StBuA comb for P18120EE-SAAcomb



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

— Polystyrene bearing 2 Bromo active center: Mn=20,000, Mw=23,600, PI=1.18

— Graft was prepared by backbone first and controlled radical polymerization of t-butyl acrylate: # of branches 2

Mn total of Pt BuA: 13,500 Each brach 6,800

After Hydrolysis of each branch Poly acrylic acid Mn 4,000 Mw/Mn =1.20