

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

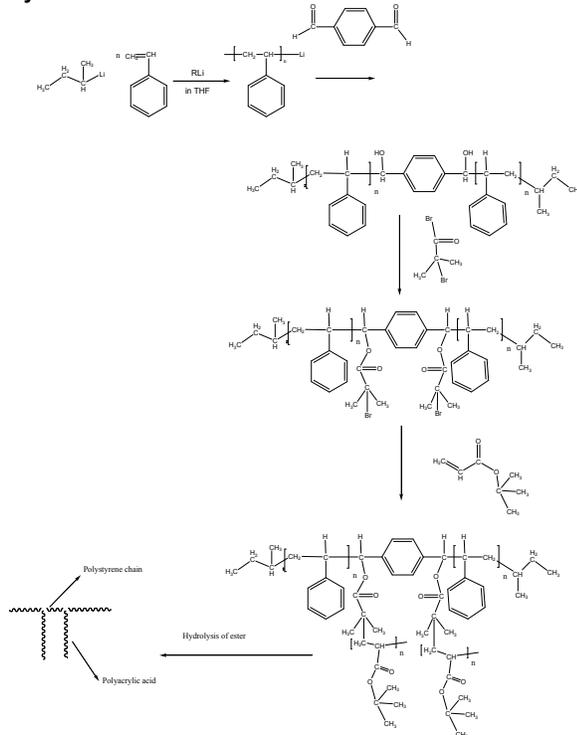
Sample #: **P18121BB-SAAcomb**

Structure:

Composition:

| Mn x 10 ³ (Main Chain) Polystyrene | Mn x 10 ³ (Graft Chain) Poly acrylic acid | Total # of branches | Mw/Mn (Total) |
|---|---|------------------------|------------------|
| 10.0 | 1.8 | 2 | 1.25 |

Synthesis Procedure:



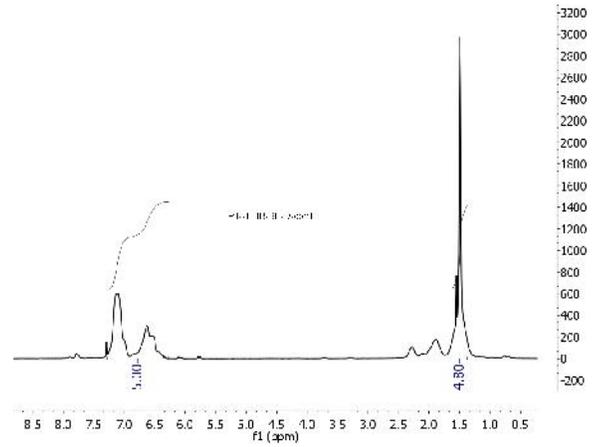
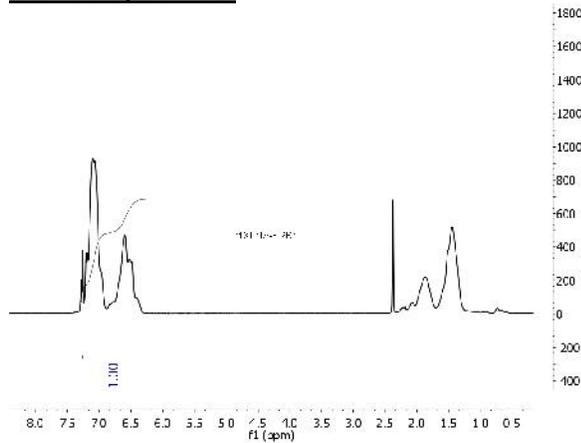
Characterization:

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:

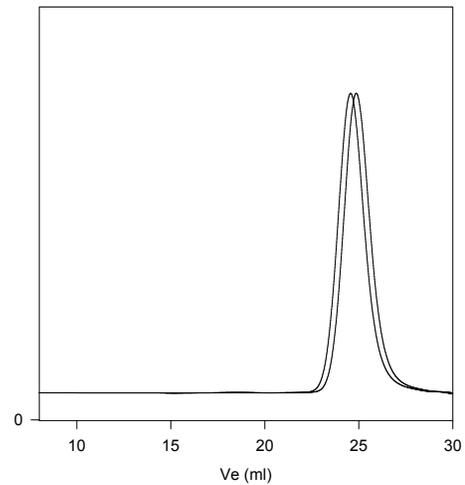
Polystyrene-g-poly(t-butyl acrylate) is soluble in THF, DMF, chloroform, and Toluene. It precipitates from methanol-water.

NMR of Polymer: **S2Br**



SEC of Polymer:

P18121B-StBuA comb for P18121BB-SAAcomb



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

- Graft was prepared by backbone first and controlled radical polymerization of t.butyl acrylate: # of braches 2
- Mn total of Pt BuA: 6,200 Each brach 3,100
- After Hydrolysis of each branch Poly acrylic acid Mn 1800 Mw/Mn =1.20