

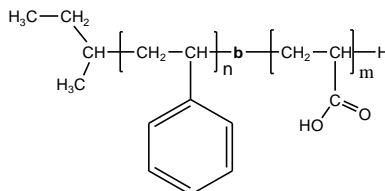
# Product Profile

## Identification

**Product Name:** Poly (styrene-*b*- Acrylic acid)

**Product Lot Number:** P44612-SAA

**Product Chemical Architecture:**



### Composition:

Mn x 10 <sup>3</sup> P(S- <i>b</i> -AA)	Mw/Mn (PDI)
90.0- <i>b</i> -152.0	1.24
Dp of each block: A-B from <sup>1</sup> H NMR S <sub>865</sub> - <i>b</i> -AA <sub>2101</sub>	

**Method of Synthesis** Poly(styrene-*b*-tert.acrylate) is prepared by living anionic polymerization in THF at -78 °C using sec.BuLi initiator adduct with  $\alpha$ -methyl styrene in the presence of LiCl. tert.butyl acrylate (tBuA) monomer was added after dilution in THF. More details are available in the published literature.<sup>1-3</sup>

1. S. K. Varshney, R. Fayt, Ph. Teyssie, and J.P. Hautekeer US Patent 5,264,527 (1993)
2. Ph. Teyssie, R. Fayt, J. P. Hautekeer, C. Jacobs, R. Jerome, L. Leemans and S. K. Varshney *Makromolekular Chemie, Macromol. Symp.*, 1990, 32,61-73.
3. S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, and Ph.Teyssie *Macromolecules*, 1990, 23, 2618-2622.

### Solubility in different solvents

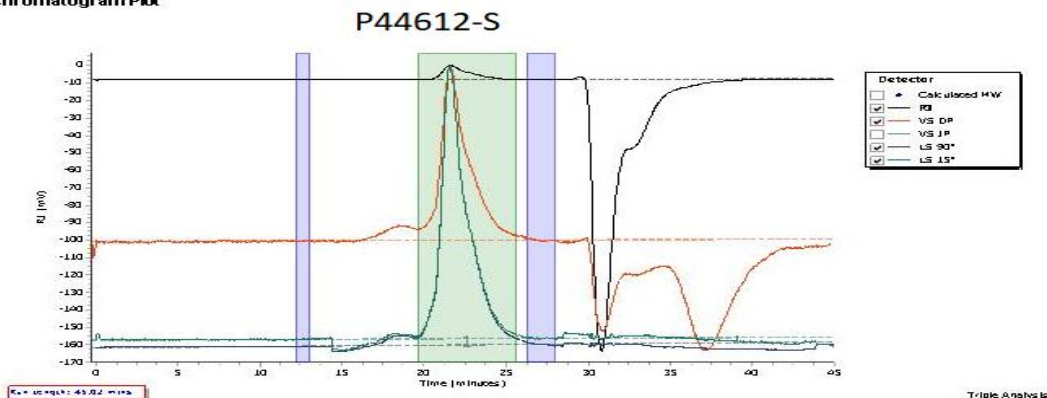
THF	✓		
CHCl <sub>3</sub>	X	DMF	✓
Toluene-Hot	X	THF-Methanol	✓

**Purification of Polymer** to remove any homo polystyrene fractions.

## Validation of Architecture:

### A. ✓Gel Permeation Chromatography (GPC), SEC- Profile

Chromatogram Plot

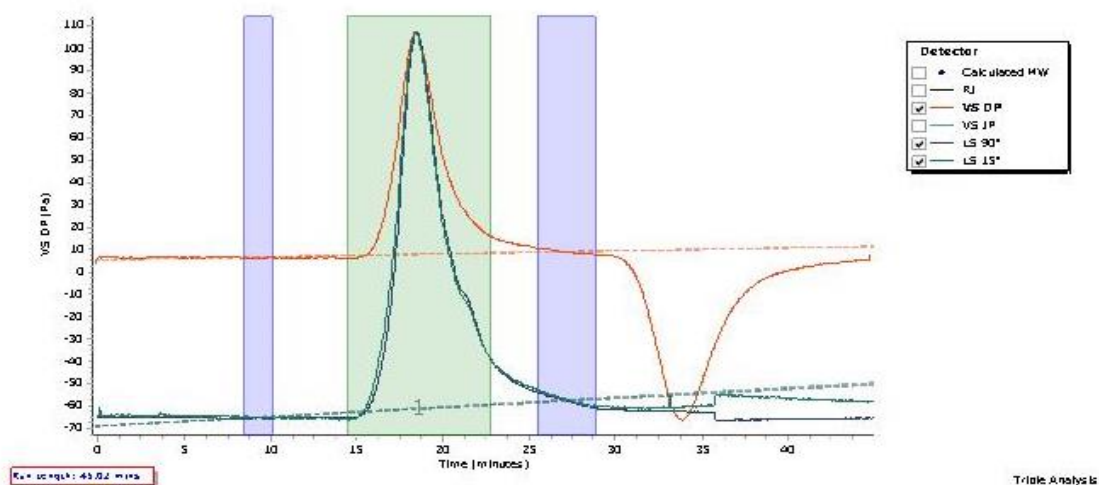


Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	107886	89544	95005	99641	103564	99954	1.061

# Chromatogram Plot

P44612-StBuA



## Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	508906	359365	444502	527743	601065	528484	1.237

## B. NMR (HNMR) of polymer:

