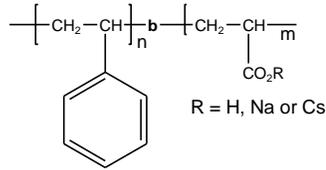


Sample Name: Poly(styrene -b- acrylic acid)

Sample #: P5991A-SAA

Structure:

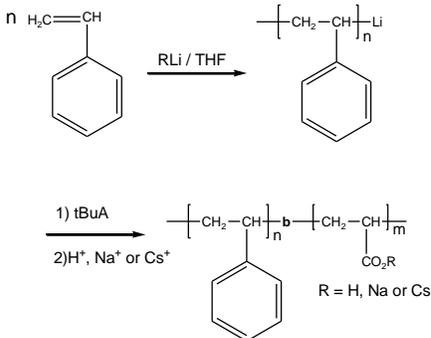


Composition:

| Mn x 10 ³ PS-b-PAA | PDI |
|----------------------------------|------|
| 197.0-b-190.0 | 1.10 |

Synthesis Procedure:

Poly(styrene-b-acrylic acid) is prepared by living anionic polymerization with sequence addition of styrene followed by t-butyl acrylate and hydrolysis of the t-butyl group. The scheme of the reaction is illustrated below:



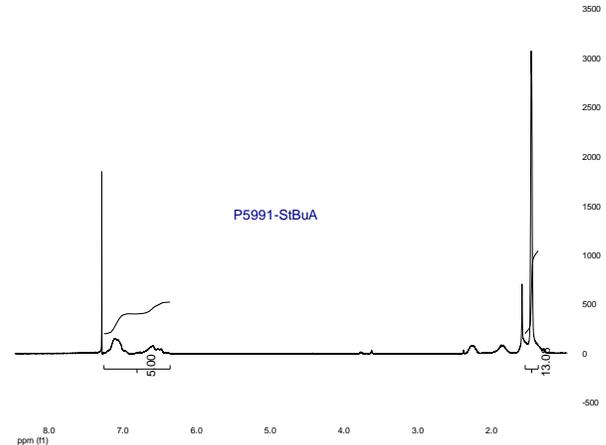
Characterization:

An aliquot of the polystyrene block was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The hydrolysis of the tert. butyl ester to acid was followed by FT-IR spectroscopy by disappearance of characteristic absorbance at 1362cm⁻¹ of tert.butyl group.

Solubility:

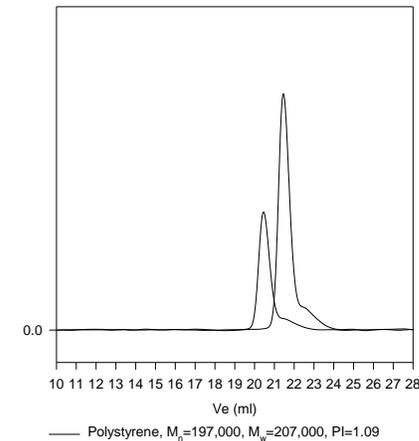
Poly (styrene-b-acrylic acid) is soluble in Hot THF, dioxane. It takes time to solubilize 100mg polymer in 20ml THF. Not a clear solution but little opaqueness due to micellization. Adding a drop of DMF result much clear solution.

HNMR of the Polymer StBuA:



SEC of the block copolymer:

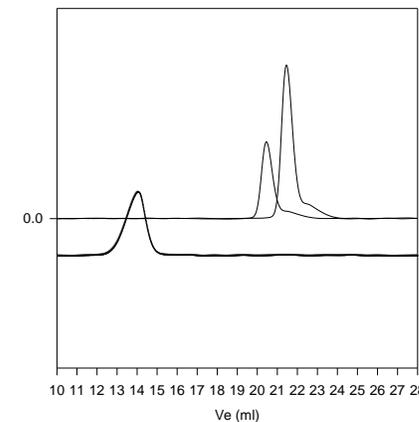
P5991-StBuA Precursor for P5991A-SAA



Block Copolymer PS(197,000)-b-PtBuA(338,000), PI=1.10
After hydrolysis of tert.butyl ester Mn: 197,000-b-190,000 Mw/Mn 1.10

SEC of the SAA carried out in THF showing micellization and the absence of any homopolystyrene fractions and the diblock copolymer StBuA.

P5991-StBuA Precursor for P5991A-SAA



Block Copolymer PS(197,000)-b-PtBuA(338,000), PI=1.10
After hydrolysis of tert.butyl ester Mn: 197,000-b-190,000 Mw/Mn 1.10
After the Hydrolysis SEC profile: Showing micellization in THF