

Sample Name:

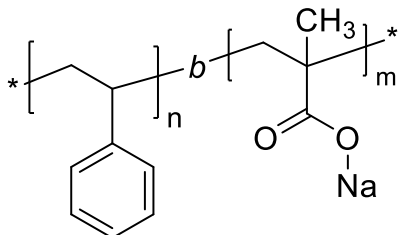
**Poly(styrene)-*b*-poly(methacrylic acid sodium salt)**

Other name:

**Poly(styrene-*block*-sodium methacrylate)**

Product ID: **P59-SMANa**

**Structure:**



**Composition:**

$M_n \times 10^3$ g/mol [PS- <i>b</i> -PMANa]	$M_w/M_n$
3.1-20.0	1.04

**Synthesis Procedure:**

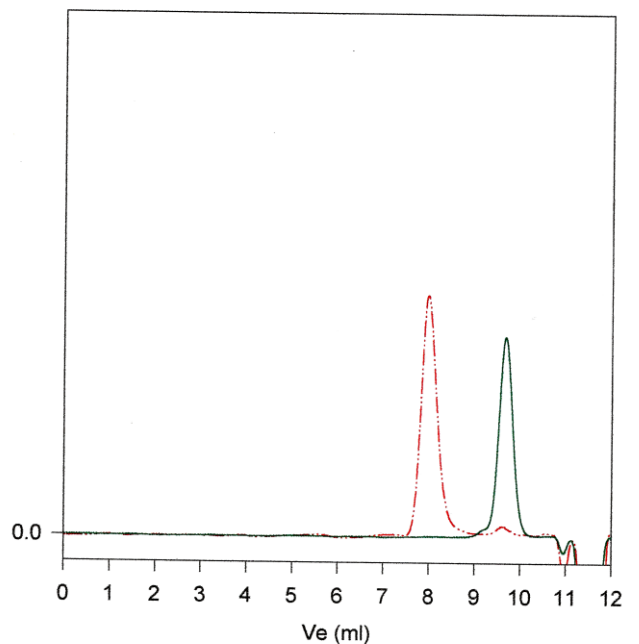
Poly(styrene-*b*-methacrylic acid sodium salt) was synthesized by living anionic polymerization technique by sequential addition of styrene monomer and then t-butyl methacrylate monomer, followed by hydrolysis of the obtained polymer and treatment with NaOH.

**Characterization:**

An aliquot of polystyrene reaction mass was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight of the first block. The intermediate product, poly(styrene-*b*-tert-butyl methacrylate) was also analyzed by SEC. The molecular weight of the final product was calculated from  $^1\text{H-NMR}$  spectroscopy and using the above SEC data. FT-IR spectroscopy analysis was done to confirm the complete conversion of the tert-butyl group (characteristic absorbance peak at  $1362\text{cm}^{-1}$ ) into acid and/or salt.

**SEC chromatogram:**

**P59-StBuMA**  
**Precursor for PSMANa**



— Polystyrene,  $M_n=3100$ ,  $M_w=3370$ ,  $PI=1.09$

--- Block Copolymer PS(3100)-b-PtBuMA(24500),  $PI=1.04$   
PSt-*b*-MANa  $M_n$ : PS(3100)-*b*-(20000),  $PI=1.04$

**$^1\text{H}$  NMR spectrum:**

