

Sample Name:

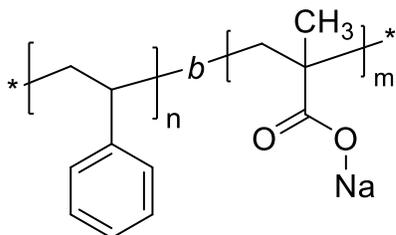
Poly(styrene)-*b*-poly(methacrylic acid sodium salt)

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- <i>b</i> -20.0	1.04

Synthesis Procedure:

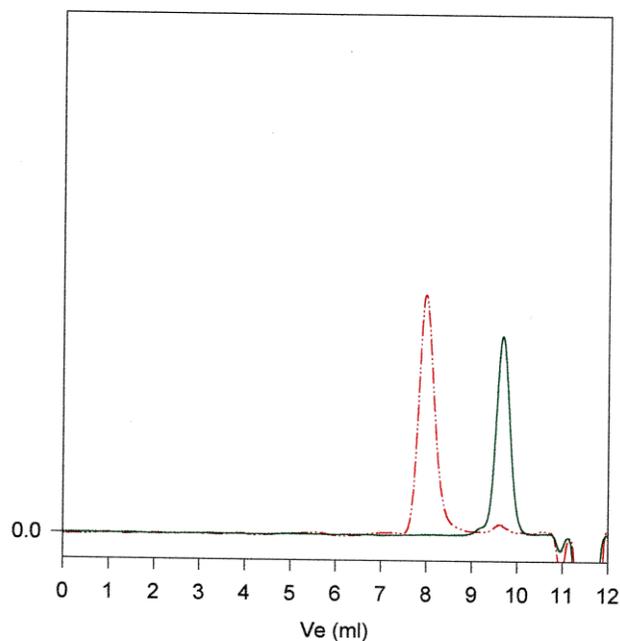
Poly(styrene-*b*-methacrylic acid sodium salt) was synthesized by living anionic polymerization technique by sequential addition of styrene monomer and then *t*-butyl methacrylate monomer, followed by hydrolysis of the obtained polymer and treatment with NaOH.

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 1362cm^{-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 Mn: PS(3100)-*b*-(20000), $PI=1.04$

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

