

Product Profile

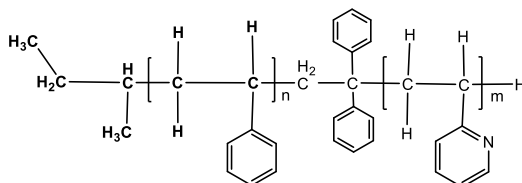
Identification

Product Name: Poly(styrene-b-2-vinyl-pyridine)

Product Lot Number: P18549-R-S2VP

CAS #: 24980-54-9

Product Chemical Architecture:



Composition:

Composition (S-b-2VP)	100,000-b-104,000
2VP mole %	50.9
Mn (g/mole)	204,000
Mw (g/mole)	213,000
Mw/Mn	1.05
dn/dc (mL/g) in DMF at 35 °C	0.16

Method of Synthesis

The polymer is synthesized by anionic polymerization process.

Solubility in different solvents:

THF	√	DMF	√
Alcohol	Depends on composition	CHCl ₃	√
Toluene _(hot)	√	Water	X

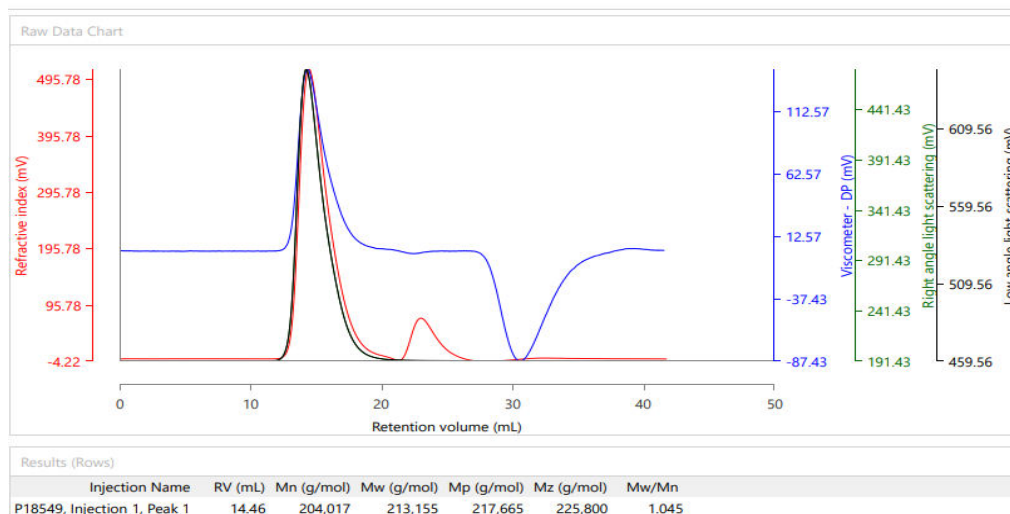
Validation of Architecture

A. Gel Permeation Chromatography (GPC), SEC Profile:

Molecular weights were determined by Malvern OmniSec Reveal & Resolve GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LALS 7°) and two columns (PSS, SDV, 8x300 mm). DMF with 0.023M LiBr was the eluent. The flow rate was 0.7 ml/min.

Polymer Source

Malvern Panalytical



The figure displays the ¹H NMR spectrum of the polymer P18549-S2VP. The x-axis represents the chemical shift in ppm, ranging from 0.0 to 10.0. The spectrum shows several distinct signals: a small peak at approximately 0.8 ppm (labeled with a red circle), a large multiplet between 1.5 and 2.5 ppm (labeled with a black circle), a broad aromatic region between 6.5 and 7.5 ppm (labeled with a black circle), and a small peak at approximately 8.2 ppm (labeled with a green circle). Integration values are provided below the baseline: 1.00 for the peak at 8.2 ppm and 7.83 for the aromatic region. The chemical structure of P18549-S2VP is shown above the spectrum, illustrating the repeating units of the polymer. The structure includes a polyisobutylene (PIB) block, a poly(phenylenevinylene) (PPV) block, and a poly(2-vinylpyridine) (P2VP) block. The PIB block is represented by a repeating unit with a methyl group (H₃C) and a methylene group (H₂C). The PPV block is represented by a repeating unit with two phenyl rings. The P2VP block is represented by a repeating unit with a 2-vinylpyridine ring. The structure is labeled with 'n' and 'm' to indicate the number of repeating units in each block. A green circle highlights the vinyl protons of the P2VP block, and a red circle highlights the methyl protons of the PIB block.