

Product Profile

Identification

Product Name: Poly(styrene-b-4-vinyl-pyridine)

Product Lot Number: P18315-R-S4VP

CAS #: 26222-40-2

Product Chemical Architecture:



Composition:

Composition (S-b-4VP)	49,000-b-13,000
4VP mole%	21.0
Mn (g/mole)	62,000
Mw (g/mole)	64,000
Mw/Mn	1.03
dn/dc (mL/g) in DMF at 35 °C	0.162

Method of Synthesis

The polymer is synthesized by anionic polymerization process.

Solubility in different solvents:

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

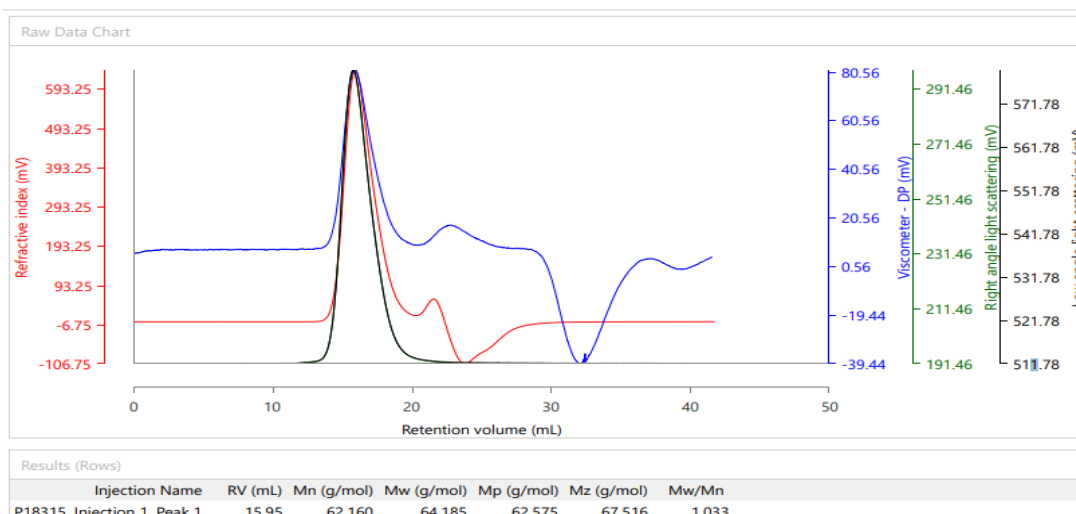
Validation of Architecture

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 copolymer P18315-S4VP. The chemical structure of the copolymer is shown at the top, consisting of two repeating units: a polyisobutylene (PIB) unit and a poly(4-vinylpyridine) (P4VP) unit. The PIB unit is represented as $\text{H}_3\text{C}-\text{CH}_2-\text{CH}(\text{H}_3\text{C})-\text{CH}_2-$ and the P4VP unit as $-\text{CH}_2-\text{C}(\text{H})=\text{C}(\text{H})-\text{CH}_2-$, where the vinyl group is part of a pyridine ring. The spectrum shows several peaks corresponding to these protons. The x-axis represents the chemical shift in ppm (f1), ranging from 10.0 to 1.0. The y-axis represents the intensity, ranging from -500 to 8000. Two integration values are provided: 2.00 for the peak at approximately 8.2 ppm and 20.86 for the peak at approximately 6.8 ppm. A small inset shows a zoomed-in view of the peak at 8.2 ppm, highlighting its integration value of 2.00.