

Product Profile

Identification

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

Product Lot Number: P10999A-R-S4VP

CAS #: 26222-40-2

Product Chemical Architecture:



Composition:

Composition (S-b-4VP)	35,000-b-25,000
4VP mole%	42.3
Mn (g/mole)	60,000
Mw (g/mole)	65,000
Mw/Mn	1.09
dn/dc (mL/g) in DMF at 35 °C	0.16

Method of Synthesis

The polymer is synthesized by anionic polymerization process.

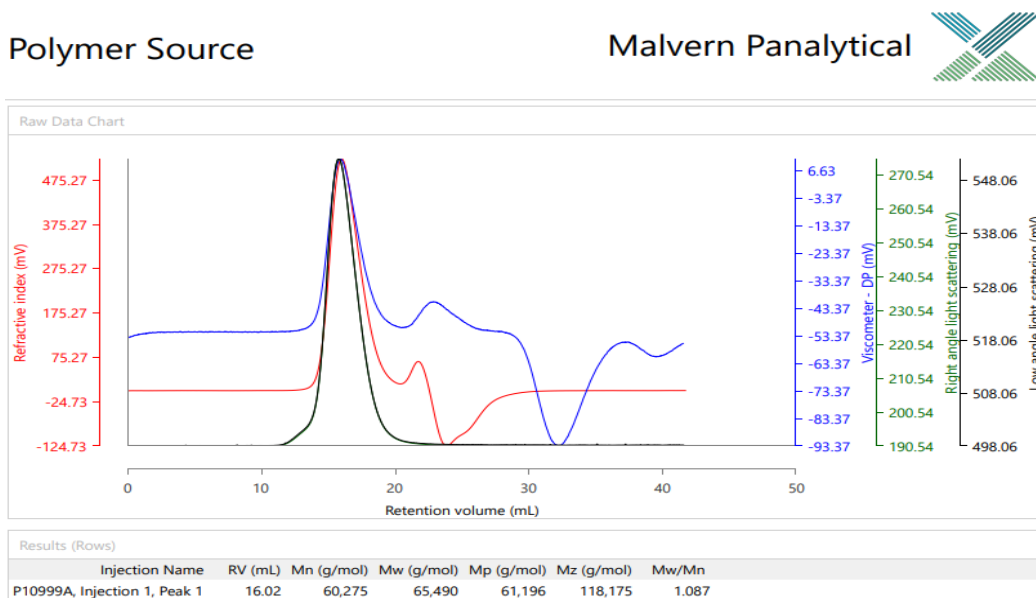
Solubility in different solvents:

THF	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.



The figure displays the ¹H NMR spectrum of the polymer P10999A-S4Vp. The chemical structure of the polymer is shown at the top, consisting of two repeating units: a polyisobutylene (PIB) block and a poly(phenyl isobutylene) (PBIB) block. The PIB unit is represented as $\text{H}_3\text{C}-\text{CH}_2-\text{CH}(\text{H}_3\text{C})-\text{CH}(\text{H})-\text{C}(\text{H})(\text{Ph})$ with subscript n . The PBIB unit is represented as $\text{H}_2\text{C}-\text{C}(\text{Ph})_2-\text{CH}(\text{H})-\text{C}(\text{H})(\text{Ph})$ with subscript m . The spectrum shows peaks in the aromatic region (6.5-7.5 ppm) and aliphatic region (3.5-4.5 ppm). Integration values of 2.00 and 8.83 are indicated for the aromatic and aliphatic regions, respectively. A reference peak for the solvent is visible at approximately 3.3 ppm. The x-axis is labeled f1 (ppm) and ranges from 9.0 to 3.0. The y-axis represents intensity, ranging from -500 to 2500.