

Product Profile

Identification

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

Product Lot Number: P11012-R-S4VP

CAS #: 26222-40-2

Product Chemical Architecture:



Composition:

Composition (S-b-4VP)	6,000-b-6,000
4VP mole%	48.4
Mn (g/mole)	12,000
Mw (g/mole)	14,000
Mw/Mn	1.11
dn/dc (mL/g) in DMF at 35 °C	0.159

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

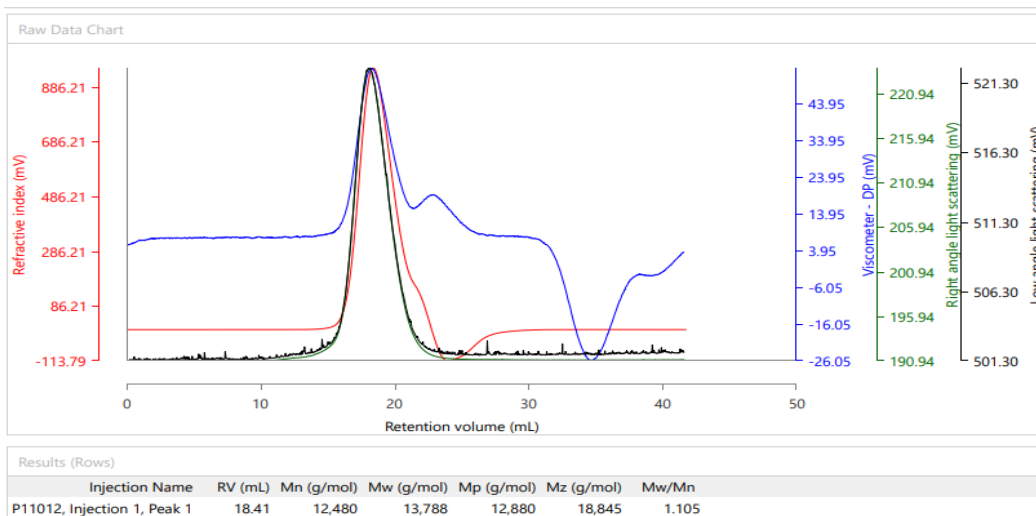
Validation of Architecture

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 polymer P11012-S4VP. The chemical structure of the polymer is shown at the top, consisting of a polyisobutylene (PIB) block and a poly(4-phenyl-1-vinylpyridine) (P4VP) block. The PIB block is represented by the repeating unit $[-\text{CH}_2-\text{CH}(\text{CH}_3)-\text{C}(\text{H})_2-]$, and the P4VP block is represented by the repeating unit $[-\text{CH}_2-\text{C}(\text{Ph})=\text{CH}-\text{CH}_2-]$, where Ph is a phenyl group. The spectrum shows two main regions: aromatic protons (7.1-7.3 ppm) and aliphatic protons (3.1-3.5 ppm). The integration values are 2.00 for the aromatic region and 7.32 for the aliphatic region. The x-axis is labeled 'f1 (ppm)' and ranges from 8.9 to 5.9. The y-axis represents intensity, ranging from -100 to 1900.