

Product Profile

Identification

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

Product Lot Number: P3918-R-S4VP

CAS #: 26222-40-2

Product Chemical Architecture:



Composition:

Composition (S-b-4VP)	34,000-b-59,000
4VP mole %	63.1
Mn (g/mole)	93,000
Mw (g/mole)	145,000
Mw/Mn	1.55
dn/dc (mL/g) in DMF at 35 °C	0.157

Method of Synthesis

The polymer is synthesized by anionic polymerization process.

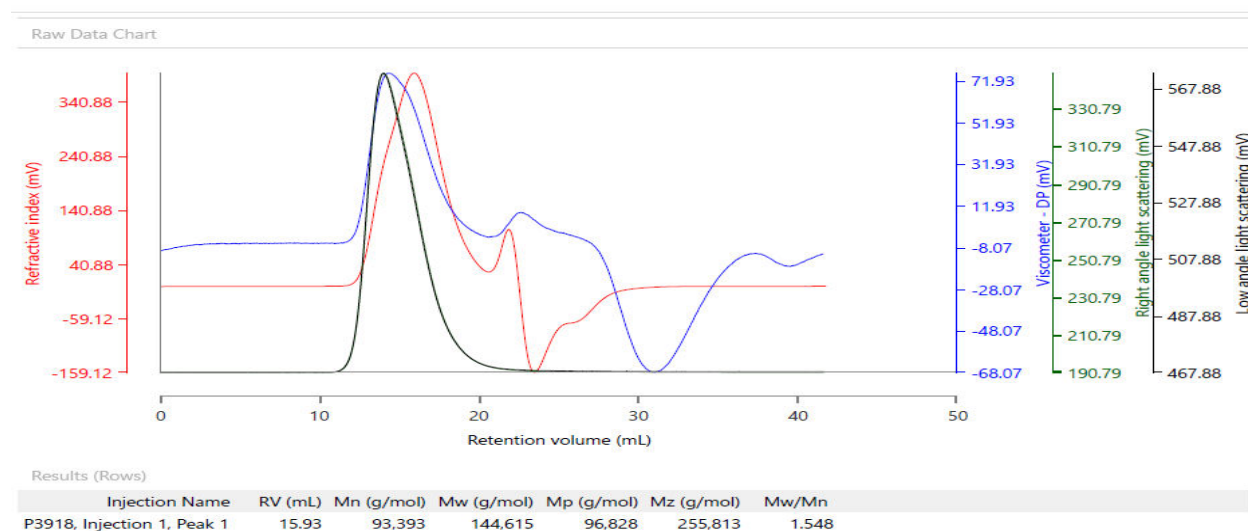
Solubility in different solvents:

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 a copolymer. The chemical structure of the copolymer is shown above the spectrum, consisting of two repeating units: a polyisobutylene unit (with n units) and a poly(2-phenyl-2,6-dimethyl-5,7-dicyano-1,4-dihydropyridine) unit (with m units). The spectrum shows several peaks corresponding to the protons in the structure. Integration values are provided for two regions: 1.0 and 2.46. The peak at approximately 7.2 ppm is assigned to the aromatic protons of the phenyl rings in the second unit, and the peak at approximately 4.5 ppm is assigned to the methylene protons adjacent to the phenyl rings. The peak at approximately 1.9 ppm is assigned to the methyl protons in the first unit, and the peak at approximately 1.5 ppm is assigned to the methine protons in the first unit.