

Product Profile

Identification

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

Product Lot Number: P18557-R-S2VP

CAS #: 24980-54-9

Product Chemical Architecture:



Composition:

Composition (S-b-2VP)	44,000-b-48,000
2VP mole %	52.3
Mn (g/mole)	92,000
Mw (g/mole)	93,000
Mw/Mn	1.02
dn/dc (mL/g) in DMF at 35 °C	0.159

Method of Synthesis

The polymer is synthesized by anionic polymerization process.

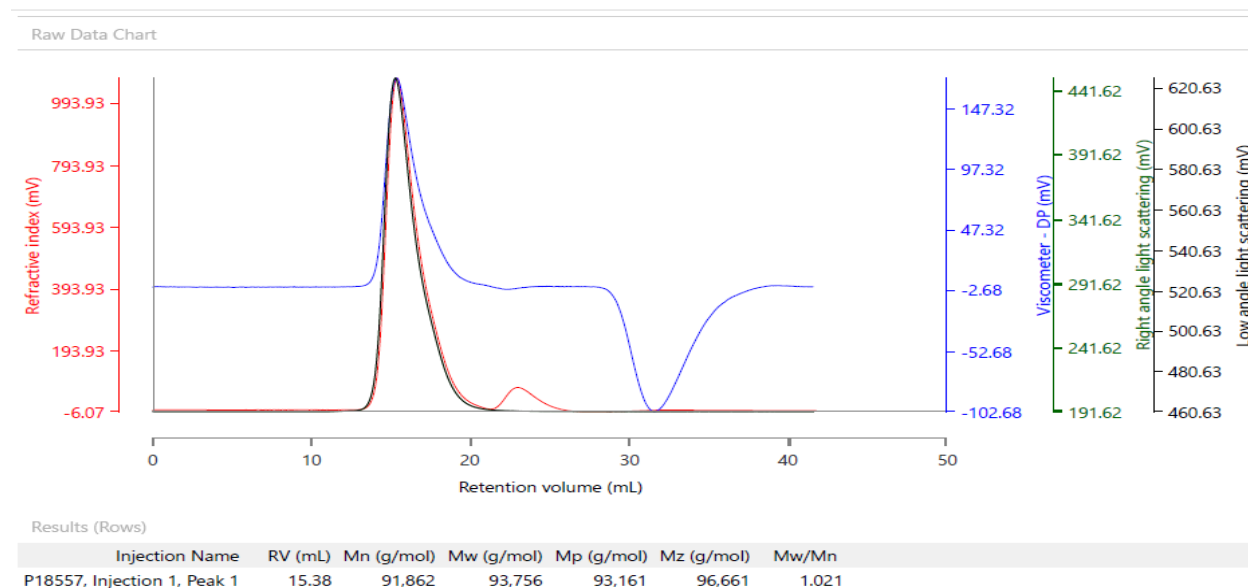
Solubility in different solvents:

THF	√	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.



Chemical structure of the copolymer is shown above the spectrum. The structure consists of three repeating units: a polyisobutylene (PIB) unit, a poly(1-phenyl-1-propyne) (PPA) unit, and a poly(1-vinyl-2-pyrrolidone) (PVVP) unit. The PIB unit is represented by a central carbon atom bonded to two methyl groups and a hydrogen atom. The PPA unit is represented by a central carbon atom bonded to a phenyl group and a propargyl group. The PVVP unit is represented by a central carbon atom bonded to a hydrogen atom and a 1-pyrrolidone ring. The spectrum shows peaks corresponding to these units: a broad peak around 7.0 ppm (aromatic protons), a peak around 6.5 ppm (alkene protons), a peak around 4.5 ppm (pyrrolidone protons), and a peak around 1.5 ppm (methyl protons). Integration values are provided for the peaks: 1.00 for the peak at 7.0 ppm and 7.56 for the peak at 6.5 ppm.