

Product Profile

Identification

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

Product Lot Number: P11433-R-S4VP

CAS #: 26222-40-2

Product Chemical Architecture:



Composition:

Composition (S-b-4VP)	198,000-b-29,000
4VP mole%	12.7
Mn (g/mole)	227,000
Mw (g/mole)	233,000
Mw/Mn	1.03
dn/dc (mL/g) in DMF at 35 °C	0.163

Method of Synthesis

The polymer is synthesized by anionic polymerization process.

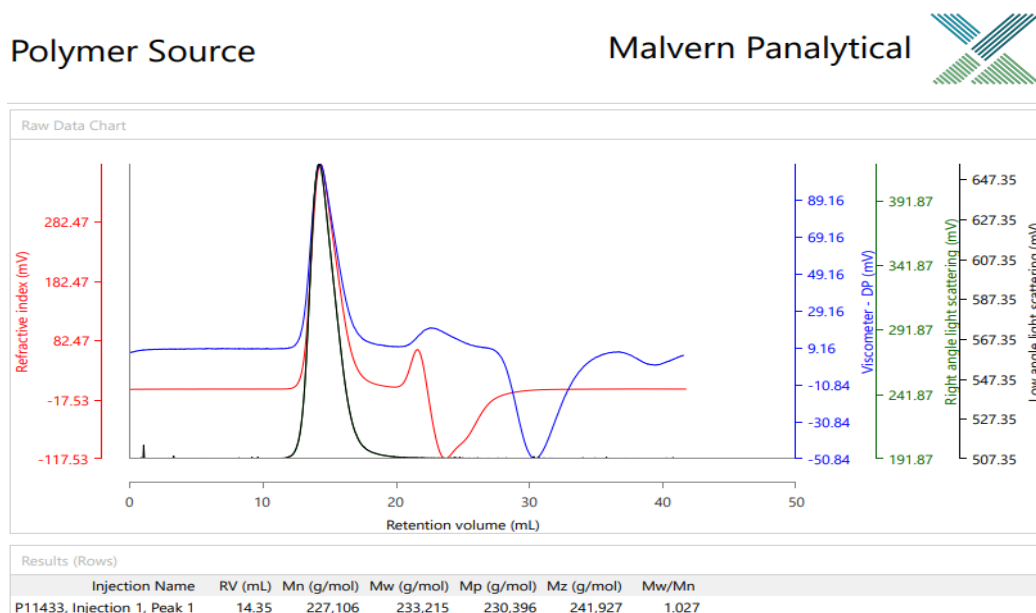
Solubility in different solvents:

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.



Chemical structure of the polymer P11433-S4VP is shown above the spectrum. The structure consists of a backbone with isobutylene and 4-phenyl-1,3-butadiene units, and a side chain containing a 4-phenyl-1,3-butadiene unit and a 4-phenyl-1,3-butadiene unit with a 4-phenyl-1,3-butadiene side chain.

The ^1H NMR spectrum shows peaks corresponding to the protons in the polymer structure. The x-axis represents the chemical shift in ppm (f1), ranging from 0.5 to 9.5. The y-axis represents the intensity, ranging from 0 to 1100. Key features include a small peak at ~8.5 ppm (integral 2.00), a large multiplet between 6.5-7.5 ppm (integral 36.22), and a sharp peak at ~1.5 ppm.