

# Product Profile

## Identification

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

**Product Lot Number:** P4571A-R-S4VP

**CAS #:** 26222-40-2

**Product Chemical Architecture:**



**Composition:**

| Composition (S-b-4VP)        | 4,000-b-6,000 |
|------------------------------|---------------|
| 4VP mole%                    | 59.5          |
| Mn (g/mole)                  | 9,000         |
| Mw (g/mole)                  | 10,000        |
| Mw/Mn                        | 1.03          |
| dn/dc (mL/g) in DMF at 35 °C | 0.158         |

## 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 <sub>3</sub> | √ |
| Toluene <sub>(hot)</sub> | X                      | Water             | X |

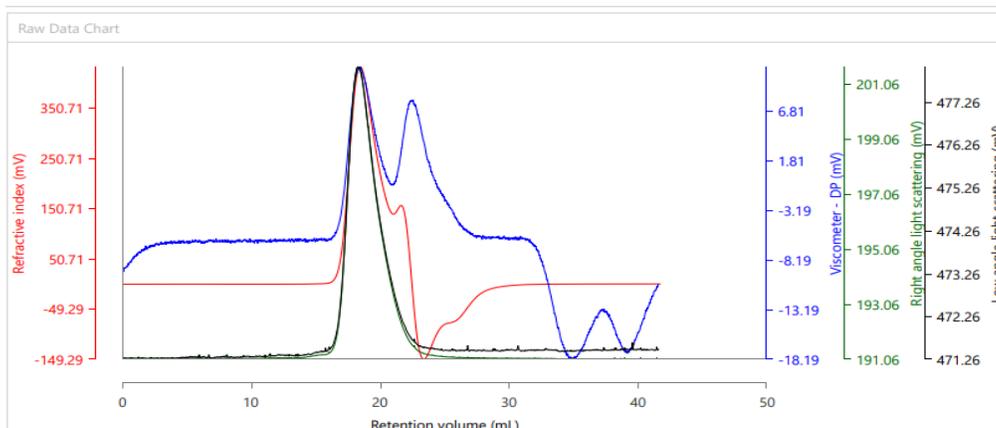
## Validation of Architecture

### 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 Analytical



| Results (Rows)              |         |            |            |            |            |       |
|-----------------------------|---------|------------|------------|------------|------------|-------|
| Injection Name              | RV (mL) | Mn (g/mol) | Mw (g/mol) | Mp (g/mol) | Mz (g/mol) | Mw/Mn |
| P4571A, Injection 1, Peak 1 | 18.46   | 9,344      | 9,597      | 9,463      | 10,364     | 1.027 |

**B. NMR ( $^1\text{H}$ NMR) of S4VP in  $\text{CDCl}_3$ , 500 MHz**

