

# Product Profile

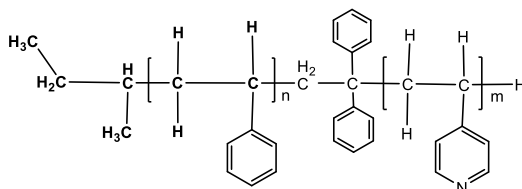
## Identification

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

**Product Lot Number:** P9677-R-S4VP

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

**Product Chemical Architecture:**



**Composition:**

| Composition (S-b-4VP)        | 14,000-b-4,000 |
|------------------------------|----------------|
| 4VP mole %                   | 21.0           |
| Mn (g/mole)                  | 18,000         |
| Mw (g/mole)                  | 18,500         |
| Mw/Mn                        | 1.02           |
| dn/dc (mL/g) in DMF at 35 °C | 0.162          |

## Method of Synthesis

The polymer is synthesized by anionic polymerization process.

**Solubility in different solvents:**

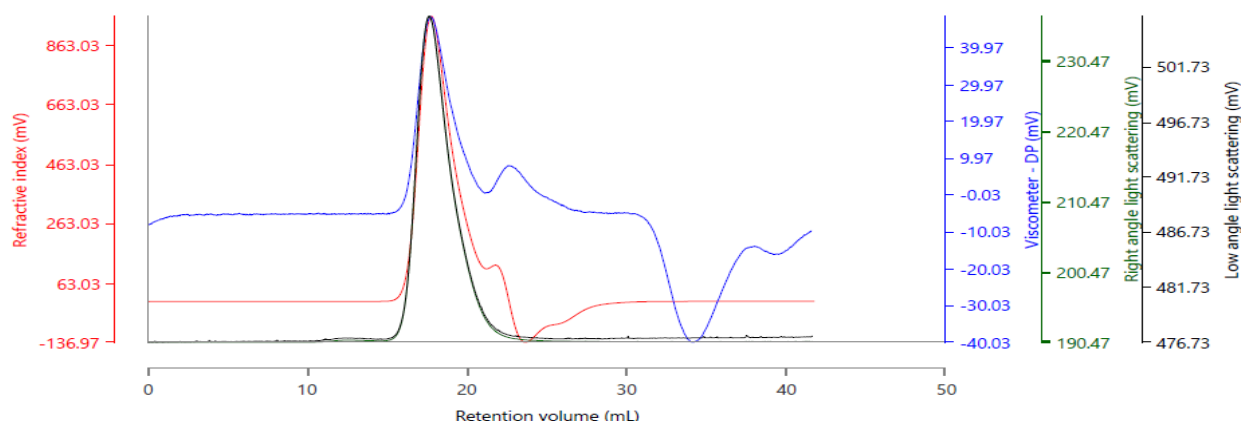
|                          |                        |                   |   |
|--------------------------|------------------------|-------------------|---|
| THF                      | Depends on composition | DMF               | √ |
| Alcohol                  | Depends on composition | CHCl <sub>3</sub> | √ |
| 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.

Raw Data Chart



Results (Rows)

| Injection Name             | RV (mL) | Mn (g/mol) | Mw (g/mol) | Mp (g/mol) | Mz (g/mol) | Mw/Mn |
|----------------------------|---------|------------|------------|------------|------------|-------|
| P9677, Injection 1, Peak 1 | 17.77   | 18,065     | 18,469     | 18,286     | 18,999     | 1.022 |

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

