



## Product Profile

### Identification

**Product Name:** POLY(2-VINYL PYRIDINE)

**Synonym(s):** P2VP

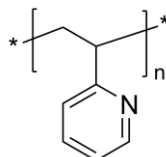
**Linear Formula:** (C<sub>7</sub>H<sub>7</sub>N)<sub>n</sub>

**CAS:** 25014-15-7

**Product Lot Number:** P45682-2VP

**Product Chemical Architecture:**

**Composition:**



|                     |                     |
|---------------------|---------------------|
| <b>Mn (g/mole)</b>  | <b>4,700</b>        |
| <b>MW (g/mole)</b>  | <b>5,000</b>        |
| <b>Mw/Mn</b>        | <b>1.02</b>         |
| <b>dn/dc (mL/g)</b> | <b>0.167 in THF</b> |

### Method of Synthesis

Poly(2-vinyl pyridine) is synthesized by living anionic polymerization of 2-vinyl pyridine using an adduct of Sec-butyllithium and diphenyl ethylene. Polymerization is carried out in THF at -78 °C. Polymerization reaction is terminated using degassed methanol.

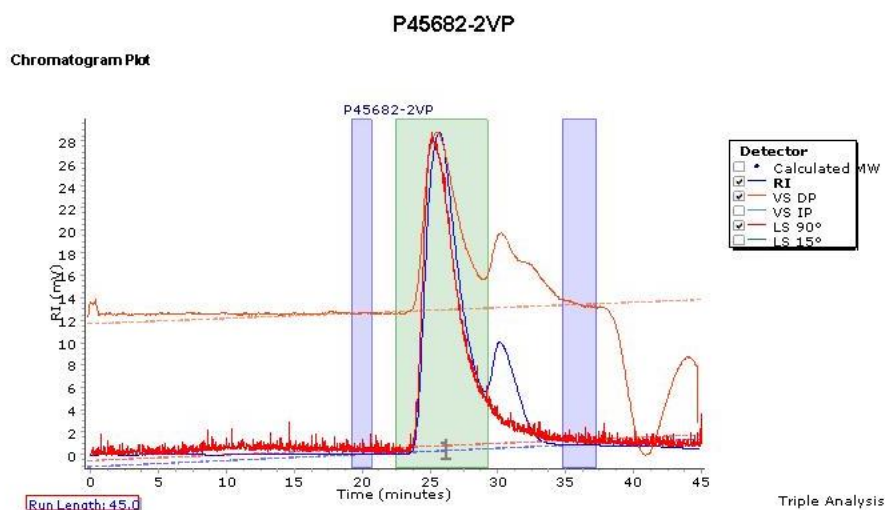
### Solubility in different solvents

|               |   |                   |   |
|---------------|---|-------------------|---|
| THF           | √ | DMF               | √ |
| Methanol      | √ | CHCl <sub>3</sub> | √ |
| Toluene (Hot) | √ | DMSO              | √ |

### Validation of Architecture

#### A. Gel Permeation Chromatography (GPC), SEC- Profile:

Molecular weights were determined by Agilent Technologies 1260 Infinity II GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LALS 15°) and three columns (PLgel 5 um, 10 um × 2). THF with 1% (v/v) triethylamine) was the eluent. The flow rate was 1.0 ml/min.



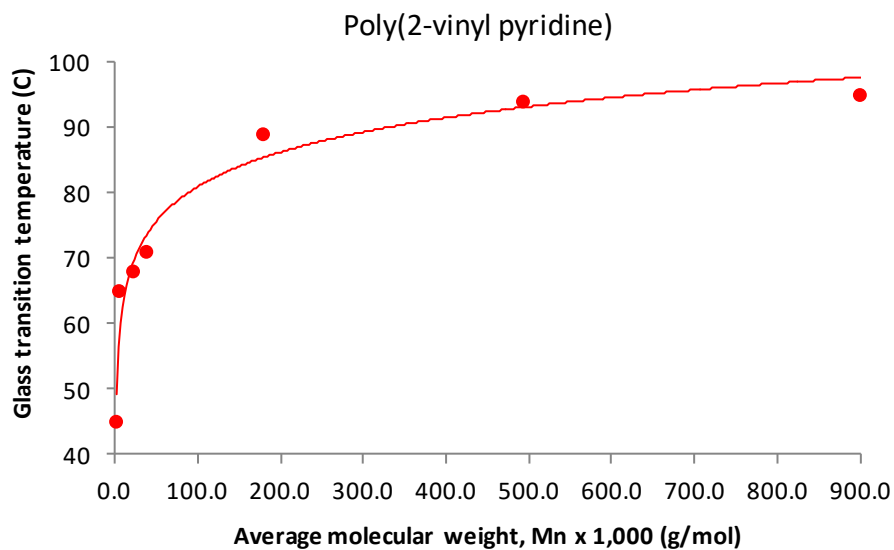
#### Molecular Weight Averages

| Peak   | Mp (g/mol) | Mn (g/mol) | Mw (g/mol) | Mz (g/mol) | Mz+1 (g/mol) | Mv (g/mol) | PD    |
|--------|------------|------------|------------|------------|--------------|------------|-------|
| Peak 1 | 5414       | 4738       | 5012       | 5262       | 5485         | 5193       | 1.058 |

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**B. Thermal analysis results:**

Dependence of glass transition temperature ( $T_g$ ) of P2VP from its molecular weight:



**C. NMR (HNMR) OF P2VP in CDCl<sub>3</sub>, general**

