

# Product Profile

## Identification

**Product Name:** Poly(styrene-b-methylmethacrylate)

**Product Lot Number:** P2878-R-SMMA

**CAS #:** 25034-86-0

**Product Chemical Architecture:**



**Composition:**

| Composition (S-b-MMA)        | 146,000-b-234,000 |
|------------------------------|-------------------|
| MMA mole%                    | 61.6              |
| Tacticity (atac, iso, syn)   | > 78% syn         |
| Mn (g/mole)                  | 380,000           |
| Mw (g/mole)                  | 496,000           |
| Mw/Mn                        | 1.31              |
| dn/dc (mL/g) in THF at 30 °C | 0.127             |

## Method of Synthesis

The polymer is synthesized by anionic polymerization process.

**Solubility in different solvents:**

|         |                        |                   |   |
|---------|------------------------|-------------------|---|
| THF     | √                      | DMF               | √ |
| Alcohol | X                      | CHCl <sub>3</sub> | √ |
| Toluene | Depends on composition | Water             | X |

## Validation of Architecture

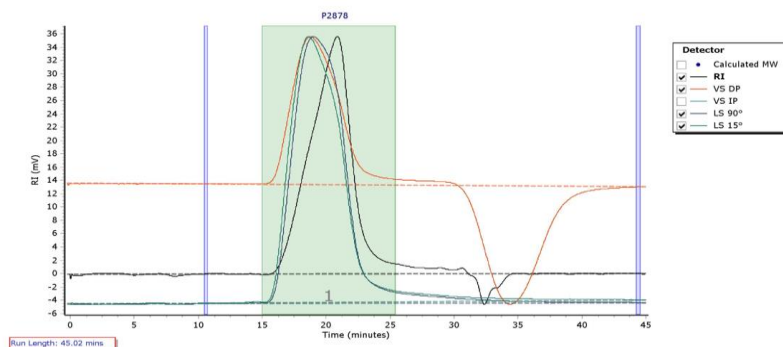
### A. Gel Permeation Chromatography (GPC), SEC Profile:

Molecular weights were determined by Agilent Technologie 1260 Infinity II GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LS 15°) and three columns (PLgel, 7.5x300 mm, 5μm-10μm, 10<sup>5</sup>-10<sup>6</sup>Å). THF (stabilized BHT) with 1%(v/v%) TEA was the eluent. The flow rate was 1.0 ml/min.

Agilent GPC/SEC Software

P2878

Chromatogram Plot



| 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                    | 362810     | 380060     | 495995     | 634227     | 785104       | 633785     | 1.305 |

### B. NMR ( $^1\text{H}$ NMR) of SMMA

SMMA sample was dissolved in  $\text{CDCl}_3$ .  $^1\text{H}$  NMR spectra was determined using a 500 MHz. Bruker Avance III spectrometer.

