

# Product Profile

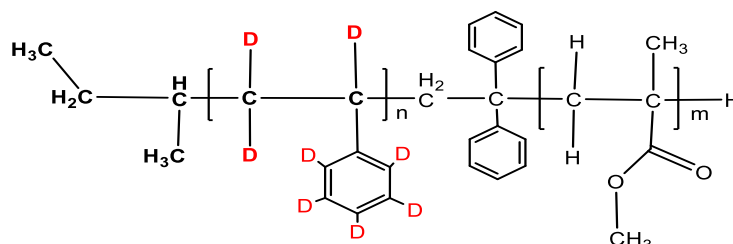
## Identification

**Product Name:** Poly(deuterated styrene (d8)-b-methylmethacrylate)

**Product Lot Number:** P44711-dPSMMA

**CAS #:** 25034-86-0 (protonated analog)

**Product Chemical Architecture:**



**Composition:**

<b>Composition (dPS-b-MMA)</b>	<b>22,500-b-16,500</b>
<b>MMA mole %</b>	<b>42.3 %</b>
<b>Tacticity (atac, iso, syn)</b>	<b>PMMA &gt; 78 % syn</b>
<b>Mw/Mn</b>	<b>1.10</b>
<b>dn/dc (mL/g) in THF at 30 °C</b>	<b>0.105-0.135 depends on its composition</b>

## Method of Synthesis

The polymer is synthesized by anionic polymerization process.

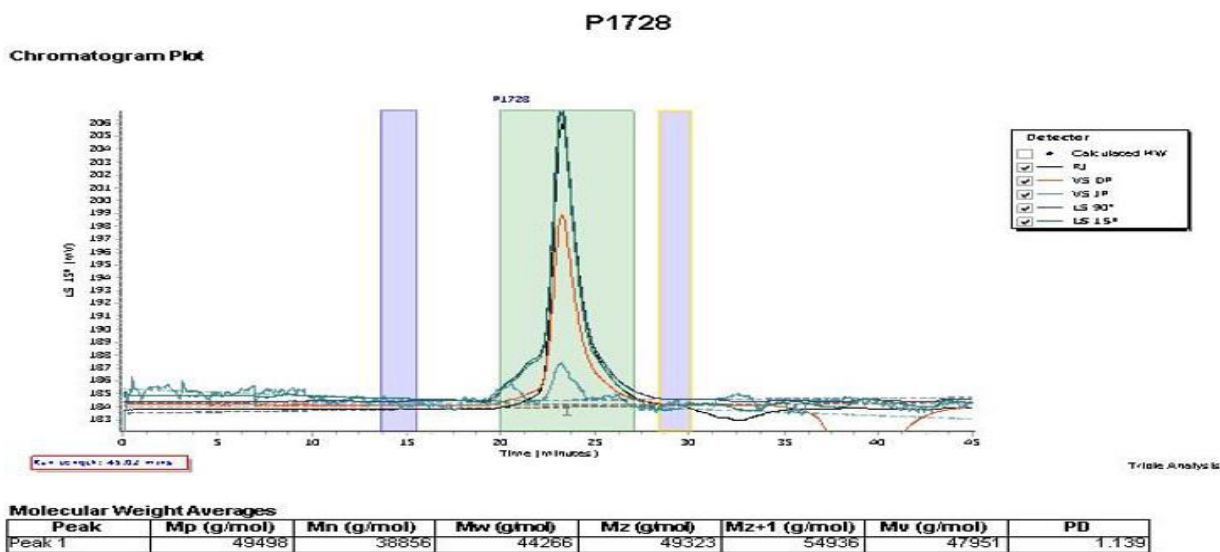
**Solubility in different solvents:**

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

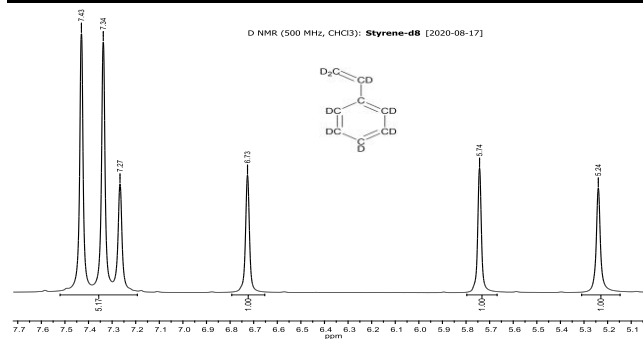
## Validation of Architecture

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

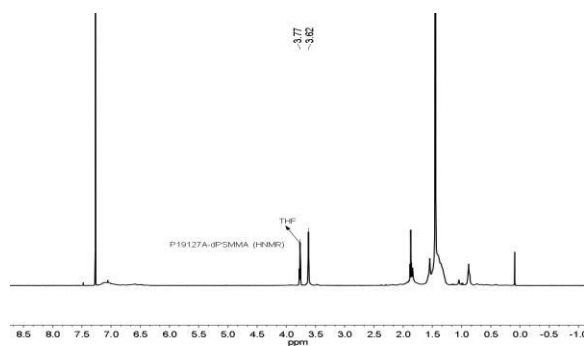
Molecular weights were determined by Agilent Technologie 1260 Infinity II GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LS 15°) and three columns (PLgel, 7.5x300 mm, 5µm-10µm, 10<sup>5</sup>-10<sup>6</sup>Å). THF (stabilized BHT) with 1%(v/v%) TEA was the eluent. The flow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



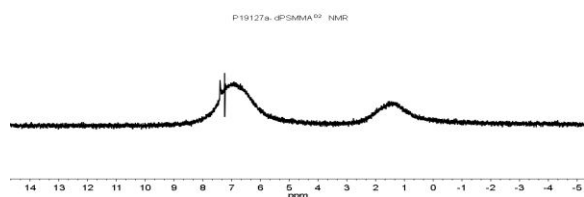
**B. NMR (D<sup>2</sup>NMR) of d8 styrene used**  
**<sup>2</sup>D (deuterium) NMR spectrum (500 MHz, CHCl<sub>3</sub>):**



**H NMR:**



**D2 NMR:**



**C. DSC Thermogram of the block copolymer**

