

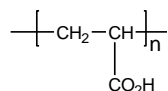
# Product Profile

## Identification

**Product Name:** Poly(Acrylic acid)

**Product Lot Number:** P1599-R-AA

**Product Chemical Architecture:**

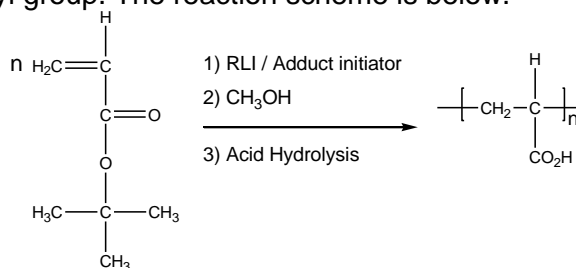


**Composition:**

<b>Mn (g/mole)</b>	<b>4,500</b>
<b>MW (g/mole)</b>	<b>6,000</b>
<b>MW/Mn</b>	<b>1.36</b>
<b>dn/dc (mL/g)</b>	<b>0.178 in water</b>

## Method of Synthesis

Poly(acrylic acid) is synthesized by anionic polymerization of t-butyl acrylate followed by hydrolysis of the tert. butyl group. The reaction scheme is below.



**Solubility in different solvents**

THF	√	DMF	X
Alcohol	√	CHCl <sub>3</sub>	X
Toluene	X	DMSO	X

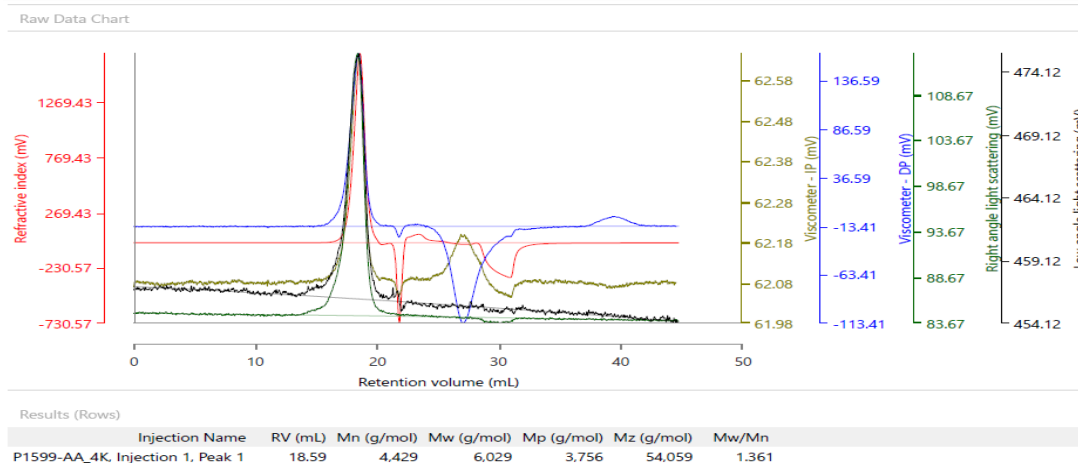
## Validation of Architecture

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

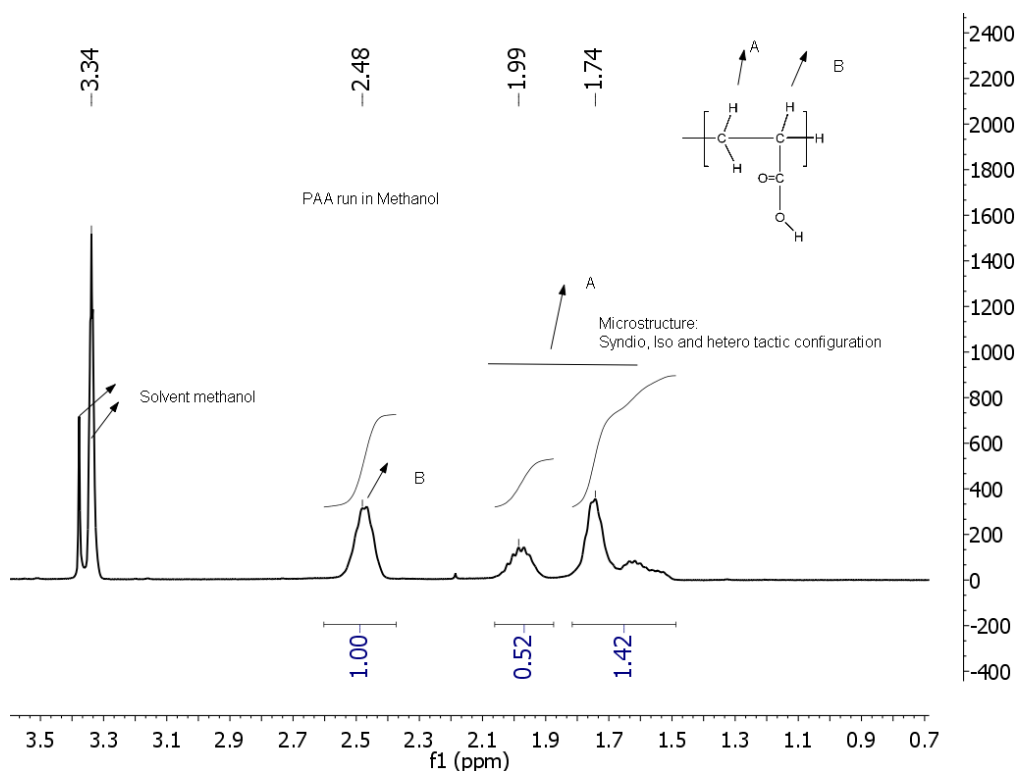
Molecular weights were determined by Malvern OmniSec Reveal & Resolve GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LALS 7°) and two columns (A600M General Mixed 300×7.5 mm, Viscotek). 0.25 M NaNO<sub>3</sub> + 0.01M NaH<sub>2</sub>PO<sub>4</sub> (PH=7) in water was the eluent. The flow rate was 1.0 ml/min.

Polymer Source

Malvern Panalytical



**B. NMR (HNMR) OF PAA general**



**C. FTIR OF PAA general (compare with Poly (tert. butyl acrylate))**

