



## Product Profile

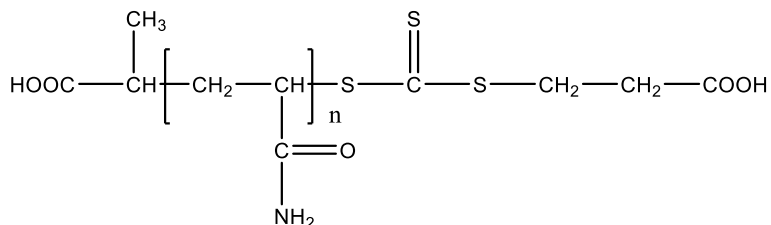
### Identification

**Product Name:** Poly(Acrylamide)

**Product Lot Number:** P41547-AMD

**CAS #:** 9003-05-8

**Chemical Architecture:**

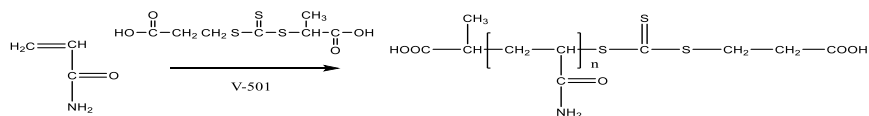


**Composition:**

<b>Mn (g/mole)</b>	<b>1,467,000</b>
<b>Mw (g/mole)</b>	<b>2,055,000</b>
<b>Mw/Mn</b>	<b>1.40</b>
<b>Tg (°C)</b>	<b>184</b>
<b>dn/dc (mL/g) in THF at 30 °C</b>	<b>0.180</b>

### Method of Synthesis

Poly(acrylamide) is synthesized by RAFT polymerization of acrylamide using 4,4'-azo(4-cyanopentanoic acid) as initiator and trithiocarbonate as chain transfer agent in water. The reaction scheme is shown below:



**Solubility in different solvents:**

Water	√
THF	X
Alcohol	X

## Validation of Architecture

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

The polymer was characterized by size exclusion chromatography (SEC) using State-of-the-art Agilent Technologies 1260 Infinity II GPC system Equipped with triple detector:

**Solvent (mobile phase)** 2% acetic acid in Millipore water

**Filtration:** 0.45 µNylon Syringe Filter

**Columns:** Agilent three columns

**Flow Rate:** 1 ml/min

**Injection Volume:** 100 µL

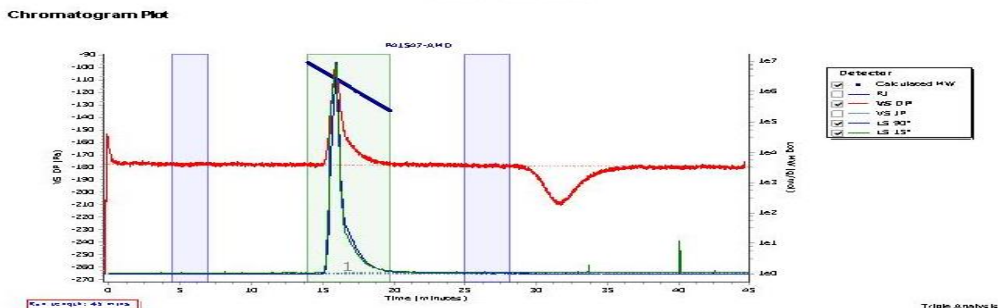
**Column Temperature:** 30 °C

**Calibration of Instrument using PEO polymer.**

**Note:** Polyacrylamide bearing Mw > 1M are difficult to filter therefore this equipment is highly sensitive where less than 1mg/ml polymer solution can be detected by triple detector.

Agilent GPC/SEC Software

Chromatogram Plot P41547-AMD



Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Ms (g/mol)	PD
Peak 1	2603182	1467254	2055429	2431031	2654464	2387225	1.401

### B. DSC thermogram for the polymer:

