



Product Profile

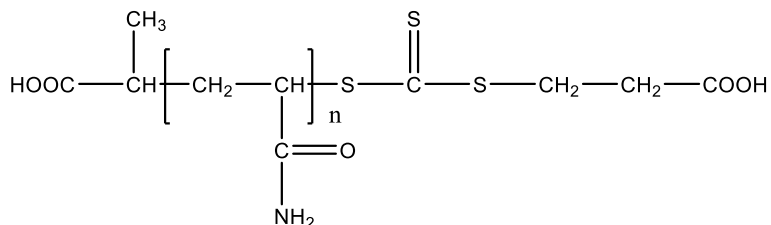
Identification

Product Name: Poly(Acrylamide)

Product Lot Number: P41566-AMD

CAS #: 9003-05-8

Chemical Architecture:

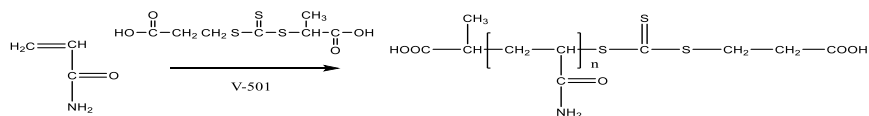


Composition:

Mn (g/mole)	69,000
Mw (g/mole)	84,000
Mw/Mn	1.22
Tg (°C)	184
dn/dc (mL/g) in THF at 30 °C	0.180

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

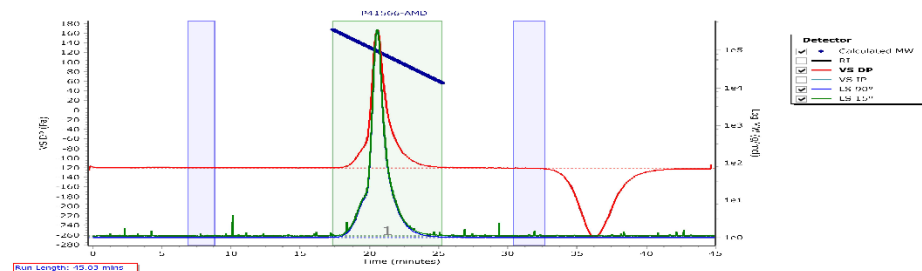
Calibration of Instrument using PEO polymer.

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

P41566-AMD

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	94661	68752	83946	96258	108206	93766	1.221

B. DSC thermogram for the polymer:

