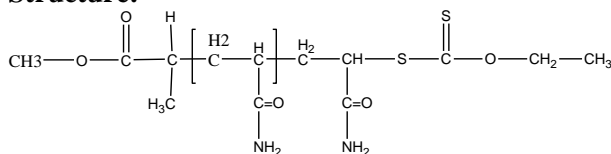


Sample Name: Poly (Acrylamide)

Sample #: P20225A-AMD

Structure:

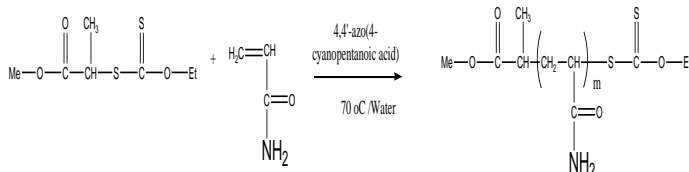


Composition:

Mn × 10 ³	Mw/Mn (PDI)
4.5	1.10
T _g (°C)	184

Synthesis Procedure:

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



Characterization:

Polyacrylamide was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI) using water containing 0.1M NaNO₃ and 0.01M NaH₂PO₄ and 4 vol% acetonitrile as eluent. The polymer architecture was also verified by ¹H-NMR spectroscopy by comparing the peak area of the terminal moieties bearing xanthate unit. The molecular weight can also be varied by HNMR and by SEC the distribution of the polymer calculated using poly acrylic acid standards polymers.

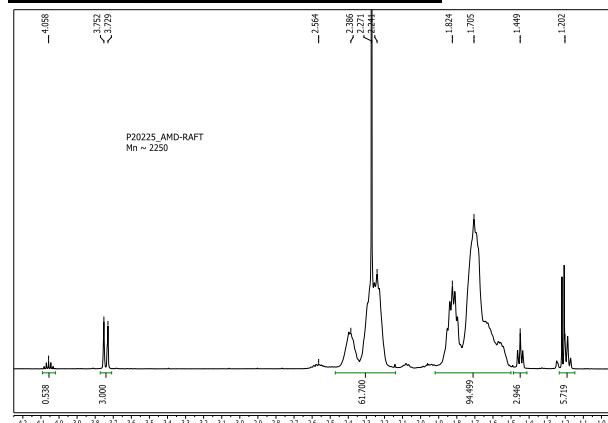
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

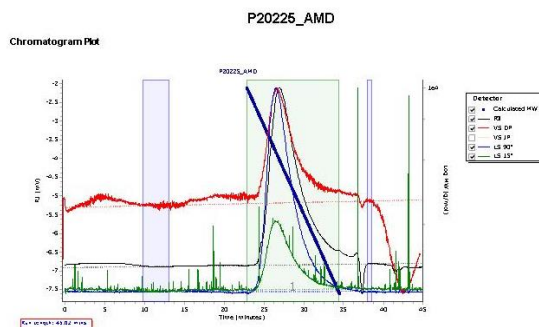
Polymer is soluble in water.

¹H-NMR Spectrum of the Polymer:



SEC elugram of the polymer:

Agilent GPC/SEC Software



Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz-1 (g/mol)	Me (g/mol)	PD
Peak 1	5550	4399	4628	5190	5490	5104	1.098

Processing Parameters
Method: RI
Concentration Detector Used in: RI
Analysis: 100.00
Injection volume (μL): 1.00
Flow rate (mL/min): 1.00
Concentration options: Calculate Sample Concentration from Entered Sample Properties
Entered eluid (mL/g): 0.180
Entered Ext Coeff ((mg/mL)⁻¹cm⁻¹): 1.000
J):
Calculated RI concentration (mg/mL): 3.777
Last modified by GPC/Agilent at 10:33:31 AM on August 29, 2018

DSC thermogram for the polymer:

