



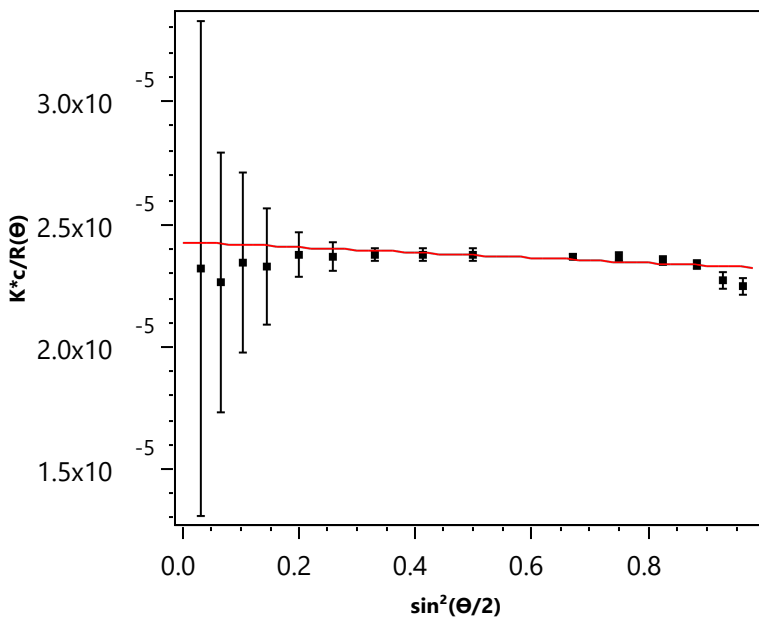
File Properties

File Name: D:\GoogleDrive\LBNL\SIBYLS_Group\MALS and DLS Data\Sequences\Plate15-18\COVID3[063020_COVID].afe7
Created: June 30, 2020 21:17:21.114

Sample: COVID3

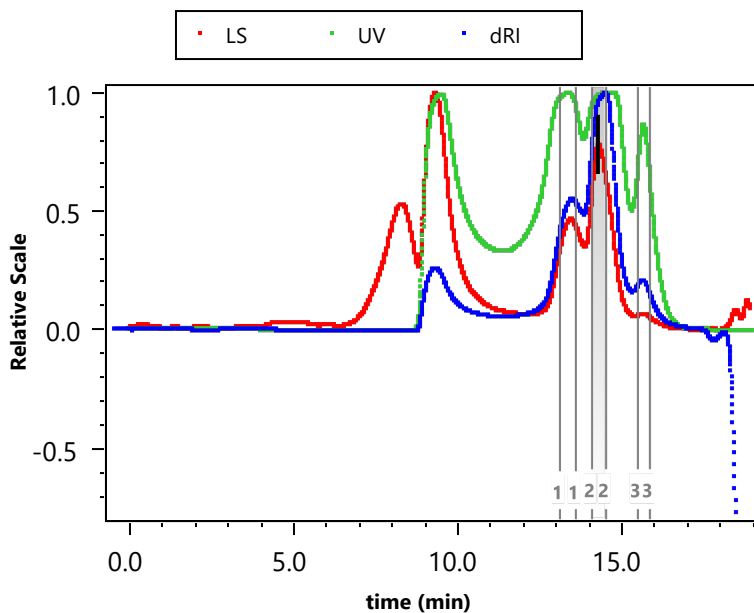
dn/dc: 0.1750 mL/g
Concentration: 2.000 mg/mL

results graph



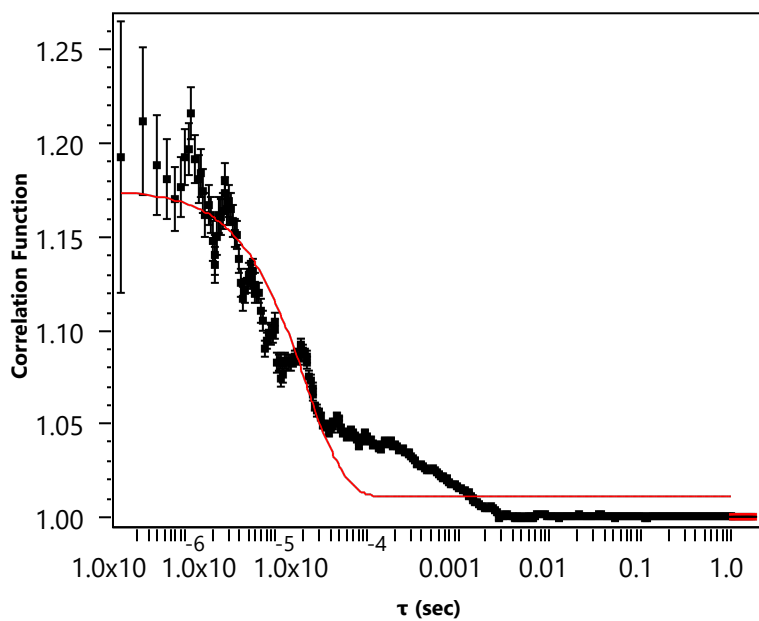
Fit $R^2=n/a$

control graph



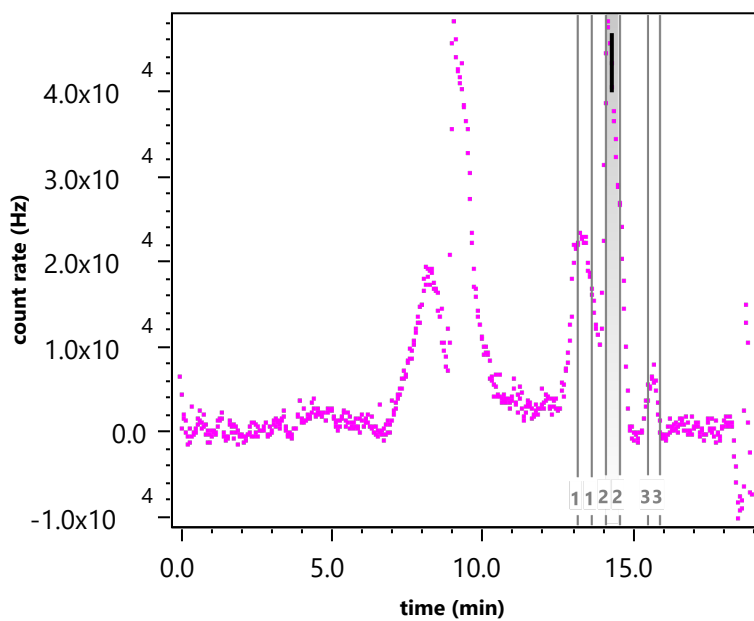
Index = 14.316 min

Correlation Function



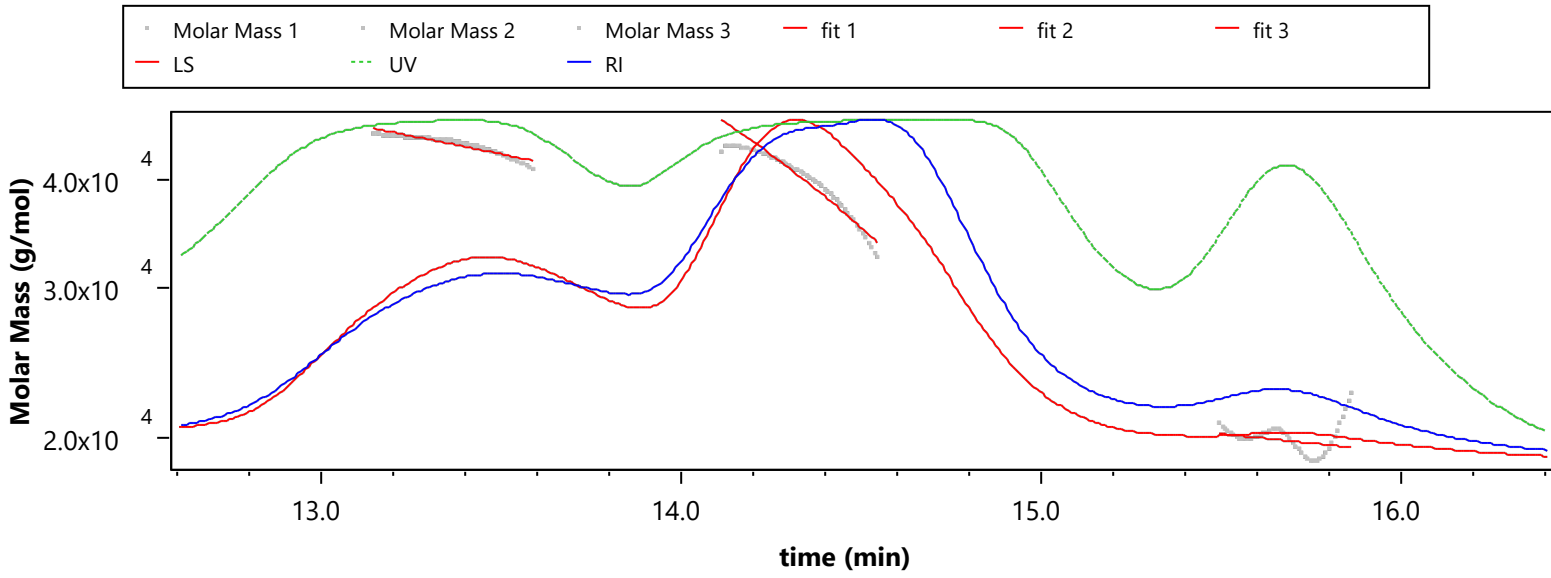
Fit $R^2=0.8778$

control graph



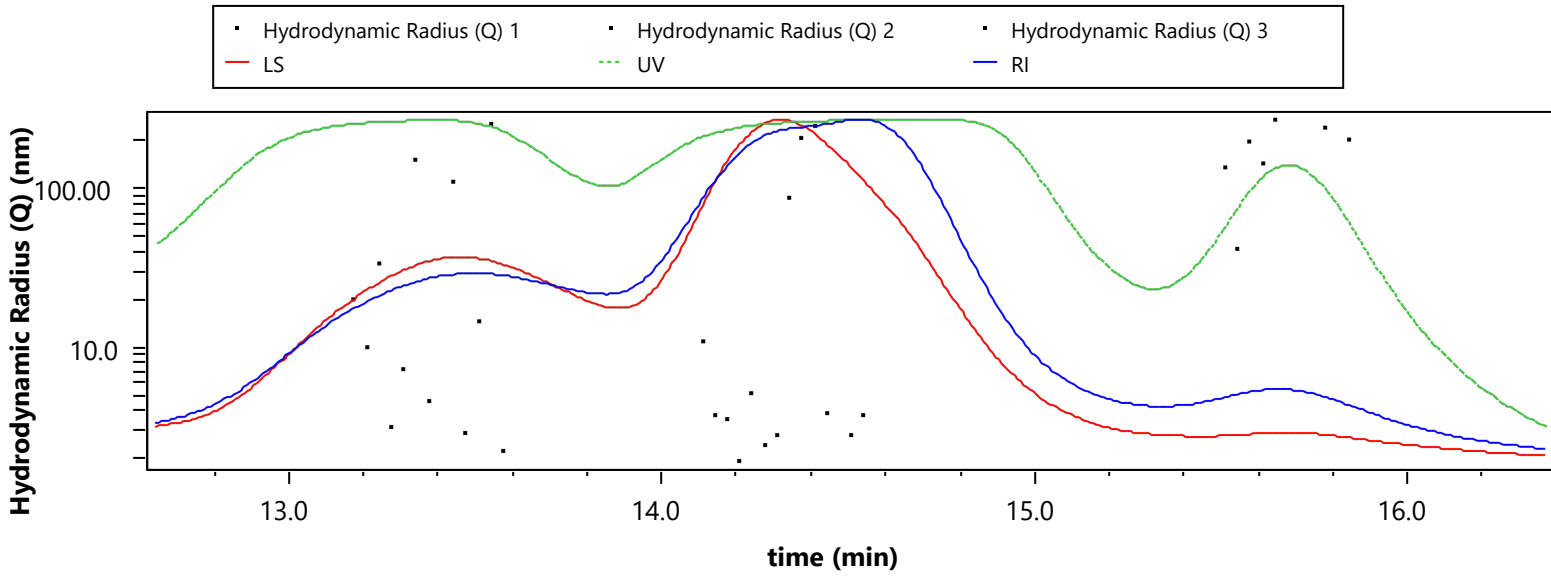
Index = 14.243 min

Results Fitting

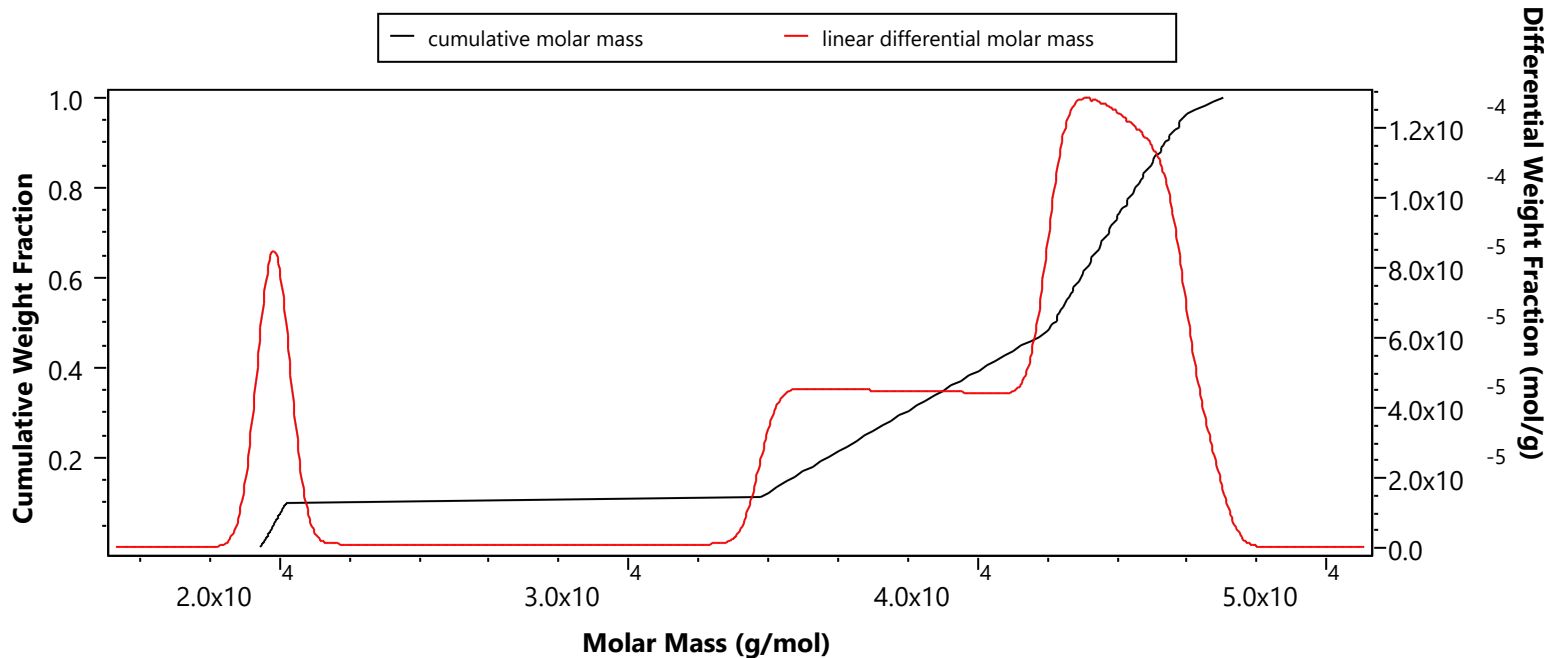


Peak 1 Fit Adjusted $R^2=0.8939$; Peak 2 Fit Adjusted $R^2=0.9636$; Peak 3 Fit Adjusted $R^2=0.0478$

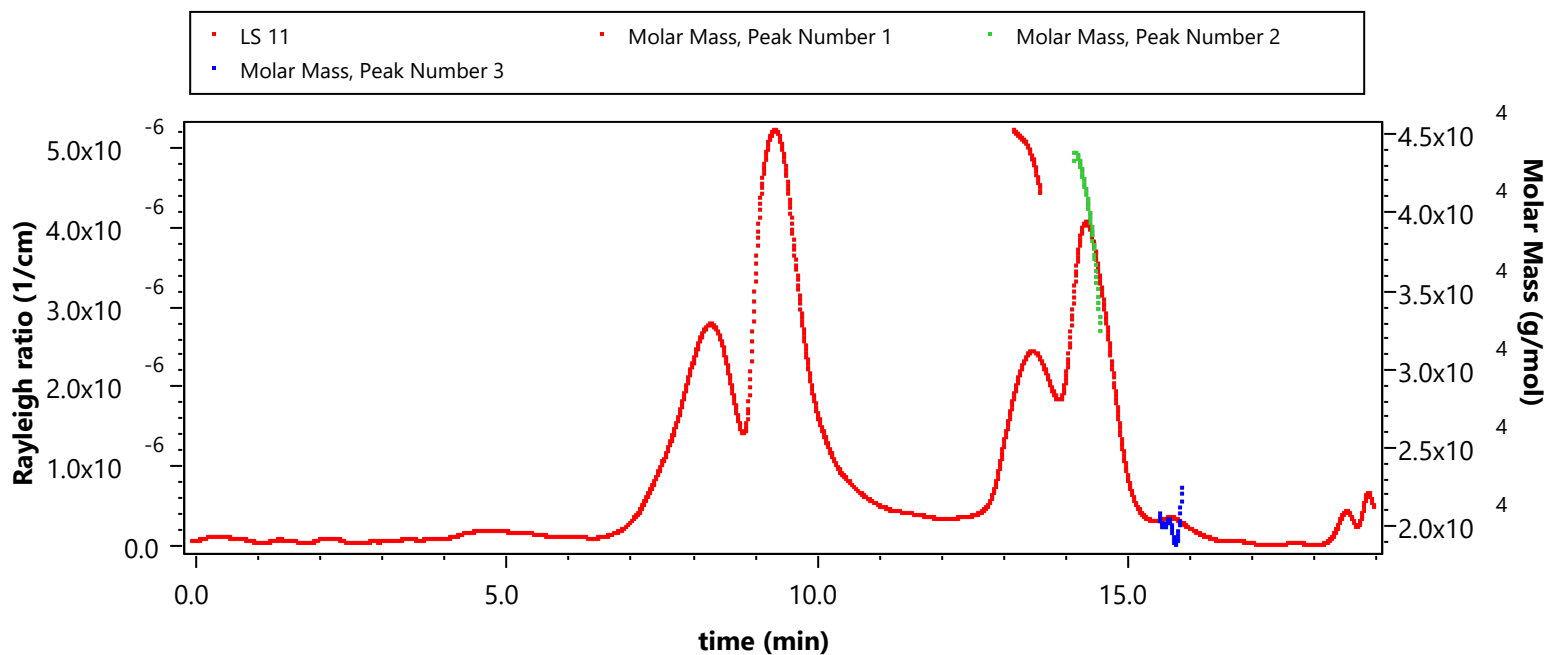
Results Fitting



Distribution Analysis



masses vs volume



Configuration

Abscissa Units: min
Concentration Source: RI
Flow Rate: 0.500 mL/min
Pulse Correction Enabled: yes
Light Scattering Instrument: DAWN HELEOS
Cell Type: Fused Silica
Wavelength: 660.0 nm
Calibration Constant: 3.3316×10^{-5} 1/(V cm)
RI Instrument: Optilab T-rEX
Wavelength: 658.0 nm
UV Instrument: Generic UV
Solvent: PBS, Aqueous

Refractive Index: 1.331

Fluid Connections

Source Instrument	Destination Instrument	Delay Volume (mL)
Generic Pump	Injector	0.000
Injector	Generic UV Instrument	0.000
Generic UV Instrument	DAWN HELEOS	0.026
DAWN HELEOS	Optilab rEX	0.222

Aux Connections

Source Instrument	Destination Instrument	Source Aux Channel	Destination Aux Channel	Calibration Constant
Generic UV Instrument	DAWN HELEOS		2	1.000
Generic UV Instrument	DAWN HELEOS	2	3	1.000

Autoinject Connections

Source Instrument	Destination Instrument
autoinject	DAWN HELEOS

Processing

Collection Operator: MICHAELFARADAY\Michael Faraday (MICHAELFARADAY\Michael Faraday (Michael Faraday))

Collection Time: Tuesday, June 30, 2020 16:05:35 PM

Collection Version: 7.1.4.8

Processing Operator: ALAN-TURING\Alan Turing (Alan Turing)

Processing Time: Wednesday, July 01, 2020 13:25:54 PM

Despiking Level: Heavy

Peak settings:

Peak Name	Peak 1	Peak 2	Peak 3
Peak Limits (min)	13.142 - 13.588	14.109 - 14.545	15.493 - 15.865
Light Scattering Model	Zimm	Zimm	Zimm
Fit Degree	1	1	1
dn/dc (mL/g)	0.1650	0.1650	0.1650
dn/dc Ref. Temp. (°C)	25.000	25.000	25.000
Modifier dn/dc (mL/g)	0.0000	0.0000	0.0000
Modifier dn/dc Ref. Temp. (°C)	25.000	25.000	25.000
A2 (mol mL/g ²)	0.000	0.000	0.000
UV Ext. Coef. (mL/(mg cm))	0.667	0.667	0.667
UV Ext. Coef. Ref. Temp. (°C)	25.000	25.000	25.000
Modifier UV Ext. Coef. (mL/(mg cm))	0.000	0.000	0.000
Modifier UV Ext. Coef. Ref. Temp. (°C)	25.000	25.000	25.000
Real Refractive Index	0	0	0
Imaginary Refractive Index	0	0	0
Shell Thickness (nm)	0.000	0.000	0.000
Shell Real Refractive Index	0	0	0
Shell Imaginary Refractive Index	0	0	0
Rod radius (nm)	0.000	0.000	0.000
Molecular Standard	n/a	n/a	n/a
Concentration (mg/mL)	2.000	2.000	2.000
Concentration Ref. Temp. (°C)	25.000	25.000	25.000
Mn (g/mol)	0.000	0.000	0.000
Mw (g/mol)	0.000	0.000	0.000
Mp (g/mol)	0.000	0.000	0.000
Intrinsic Viscosity (mL/g)	0.000	0.000	0.000
Intrinsic Viscosity Ref. Temp. (°C)	25.000	25.000	25.000
Mark-Houwink-Sakurada K (mL/g)	0.000	0.000	0.000
Mark-Houwink-Sakurada a	0	0	0
Flory-Fox Equation Phi Parameter	0	0	0
Ptitsyn-Eizner Equation Epsilon Parameter	0	0	0
Viscometry Model	Huggins	Huggins	Huggins
Huggins Equation Parameter	0	0	0
Kraemers Equation Parameter	0	0	0
radius (nm)	3.480	3.480	3.480
Radius Type	rms	rms	rms

Molar Mass & Radius from LS:

Peak Name: Peak 2
Molar Mass: (4.120 ± 0.045) e+4 g/mol
rms radius: 0.0 ± 0.0 nm
Light Scattering Model: Zimm
Fit Degree: 1
Concentration: (5.748 ± 0.002) e-1 mg/mL
dn/dc: 0.166 mL/g
Slice Index: 1755
Abscissa Position: 14.316 min

Fit R²: n/a

Enabled Detectors: 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18

rh from QELS:

Use Disabled Slices: no

Prefilter Correlation Function before Averaging: yes

Minimum Delay for Fit: 2.000×10⁻⁷ sec

Maximum Delay for Fit: 1.0 sec

Minimum Radius Threshold: 1.00 nm

Maximum Radius Threshold: 300.00 nm

Suppress Distribution Peaks Below: 0.50 nm

Suppress Distribution Peaks Above: 10000.000 nm

Results Fitting Procedure:

Data	Fit Model	Degree	R ²	Extrapolation
Molar Mass	Polynomial	1	0.893915	none

Results

Peak Results

	Peak 1	Peak 2	Peak 3
Hydrodynamic radius (Q) moments (nm)			
rh(Q)n	52.999 (±7.871%)	48.435 (±5.526%)	176.151 (±13.882%)
Std Dev rh(Q)n	78.018	84.339	71.957
rh(Q)w	52.387 (±7.895%)	46.799 (±5.553%)	175.678 (±13.910%)
Std Dev rh(Q)w	77.301	82.872	72.083
rh(Q)z	51.773 (±7.919%)	44.840 (±5.583%)	175.206 (±13.937%)
Std Dev rh(Q)z	77.303	82.895	72.084
rh(Q)(avg)	3.174 (±4.167%)	2.784 (±2.278%)	184.263 (±4.478%)
General (mL/(mg cm))			
UV Ext. Coef. (mL/(mg cm))	2.990	1.658	6.271
Masses			
Injected Mass (µg)	100.00	100.00	100.00
Calculated Mass (µg)	68.50	120.65	21.72
Mass Recovery (%)	68.5	120.7	21.7
Mass Fraction (%)	32.5	57.2	10.3
Concentration (mg/mL)			
Average concentration	0.306 (±0.000%)	0.561 (±0.000%)	0.115 (±0.000%)
Molar mass moments (g/mol)			
Mn	4.385×10 ⁴ (±0.367%)	3.977×10 ⁴ (±0.329%)	1.984×10 ⁴ (±3.295%)
Mp	4.288×10 ⁴ (±0.347%)	3.450×10 ⁴ (±0.425%)	1.989×10 ⁴ (±2.360%)
Mv	n/a	n/a	n/a
Mw	4.388×10 ⁴ (±0.367%)	4.014×10 ⁴ (±0.332%)	1.984×10 ⁴ (±3.296%)
Mz	4.391×10 ⁴ (±0.822%)	4.050×10 ⁴ (±0.746%)	1.984×10 ⁴ (±7.371%)
Mz+1	4.393×10 ⁴ (±1.326%)	4.087×10 ⁴ (±1.202%)	1.984×10 ⁴ (±11.887%)
M(avg)	4.384×10 ⁴ (±0.046%)	3.943×10 ⁴ (±0.041%)	1.982×10 ⁴ (±0.446%)
Polydispersity			
Mw/Mn	1.001 (±0.519%)	1.009 (±0.467%)	1.000 (±4.660%)
Mz/Mn	1.001 (±0.900%)	1.018 (±0.815%)	1.000 (±8.074%)
rms radius moments (nm)			
rn	n/a	n/a	32.6 (±48.8%)
Std Dev rn	n/a	n/a	30.293
rw	n/a	n/a	32.7 (±48.4%)
Std Dev rw	n/a	n/a	30.283
rz	n/a	4.1 (±348.3%)	32.8 (±48.0%)
Std Dev rz	n/a	18.917	30.271
r(avg)	12.5 (±9.7%)	14.8 (±6.5%)	35.0 (±6.8%)
Light scattering peak statistics			
Peak Area (1/cm min)	9.970×10 ⁻⁷	3.381×10 ⁻⁶	4.992×10 ⁻⁷
Peak Height (1/cm)	2.375×10 ⁻⁶	3.989×10 ⁻⁶	4.266×10 ⁻⁷
Retention Time (min)	13.426	14.283	15.651
Peak Width at Half-Height (min)	0.000	0.000	0.000
Peak Width at Quarter-Height (min)	0.000	0.000	0.000
Peak Width at Tenth-Height (min)	0.000	0.000	0.000
Peak Width at User-Specified-Height (4.4%, min)	0.000	0.000	0.000
Asymmetry Factor	0.000	0.000	0.000
Tailing Factor	0.000	0.000	0.000
Column Plate Count	0.000	0.000	0.000

	Peak 1	Peak 2	Peak 3	
Mean (min)	13.371	14.325	15.675	
Standard Deviation (min)	0.128	0.124	0.106	
Skew	-4.571	2.160	16.048	
Peak Area (%)	20.443	69.321	10.237	
Resolution Relative to Peak 2	0.000	n/a	0.000	
Refractive index peak statistics				
Peak Area (RIU min)	2.260×10 ⁻⁵	3.981×10 ⁻⁵	7.167×10 ⁻⁶	
Peak Height (RIU)	5.398×10 ⁻⁵	9.825×10 ⁻⁵	2.057×10 ⁻⁵	
Retention Time (min)	13.491	14.527	15.649	
Peak Width at Half-Height (min)	0.000	0.000	0.000	
Peak Width at Quarter-Height (min)	0.000	0.000	0.000	
Peak Width at Tenth-Height (min)	0.000	0.000	0.000	
Peak Width at User-Specified-Height (4.4%, min)	0.000	0.000	0.000	
Asymmetry Factor	0.000	0.000	0.000	
Tailing Factor	0.000	0.000	0.000	
Column Plate Count	0.000	0.000	0.000	
Mean (min)	13.371	14.334	15.674	
Standard Deviation (min)	0.127	0.122	0.106	
Skew	-1.583	-0.903	1.563	
Peak Area (%)	32.483	57.217	10.300	
Resolution Relative to Peak 2	0.000	n/a	0.000	
UV peak statistics				
Peak Area (channel 1) (AU min)	4.096×10 ⁻¹	4.000×10 ⁻¹	2.724×10 ⁻¹	
Peak Area (channel 2) (AU min)	-0.000	0.000	0.000	
Peak Height (channel 1) (AU)	9.328×10 ⁻¹	9.338×10 ⁻¹	8.100×10 ⁻¹	
Peak Height (channel 2) (AU)	-0.000	0.000	0.000	
Retention Time (channel 1) (min)	13.396	14.663	15.682	
Retention Time (channel 2) (min)	13.305	14.431	15.725	
Peak Width at Half-Height (channel 1) (min)	0.000	0.000	0.000	
Peak Width at Half-Height (channel 2) (min)	0.000	0.000	0.000	
Peak Width at Quarter-Height (channel 1) (min)	0.000	0.000	0.000	
Peak Width at Quarter-Height (channel 2) (min)	0.000	0.000	0.000	
Peak Width at Tenth-Height (channel 1) (min)	0.000	0.000	0.000	
Peak Width at Tenth-Height (channel 2) (min)	0.000	0.000	0.000	
Peak Width at User-Specified-Height (channel 1) (4.4%, min)	0.000	0.000	0.000	
Peak Width at User-Specified-Height (channel 2) (4.4%, min)	0.000	0.000	0.000	
Asymmetry Factor (channel 1)	0.000	0.000	0.000	
Asymmetry Factor (channel 2)	0.000	0.000	0.000	
Column Plate Count (channel 1)	0.000	0.000	0.000	
Column Plate Count (channel 2)	0.000	0.000	0.000	
Tailing Factor (channel 1)	0.000	0.000	0.000	
Tailing Factor (channel 2)	0.000	0.000	0.000	
Mean (channel 1) (min)	13.365	14.329	15.679	
Mean (channel 2) (min)	13.356	14.350	15.679	
Standard Deviation (channel 1) (min)	0.127	0.125	0.102	
Standard Deviation (channel 2) (min)	0.122	0.120	0.106	
Skew (channel 1)	0.000	-0.002	-0.001	
Skew (channel 2)	0.000	-7.920	-0.371	
Peak Area % (channel 1) (%)	37.856	36.969	25.176	
Peak Area % (channel 2) (%)	-98.339	72.583	125.756	
Resolution Relative to Peak 2	0.000	0.000	n/a	n/a 0.000 0.000
Translational diffusion coefficient moments (cm²/sec)				
Dt(n)	4.69×10 ⁻⁷ (±9.97%)	7.30×10 ⁻⁷ (±6.81%)	2.55×10 ⁻⁸ (±29.16%)	
Dt(w)	4.66×10 ⁻⁷ (±9.98%)	7.34×10 ⁻⁷ (±6.77%)	2.56×10 ⁻⁸ (±29.25%)	
Dt(z)	4.62×10 ⁻⁷ (±10.00%)	7.39×10 ⁻⁷ (±6.73%)	2.57×10 ⁻⁸ (±29.34%)	
Dt(avg)	1.61×10 ⁻⁸ (±4.20%)	1.47×10 ⁻⁸ (±3.15%)	1.26×10 ⁻⁸ (±4.16%)	

laser monitor average: 0.999 V
 Forward Monitor Average: 0.931 V
 laser current average: 0.156 amps
 laser voltage average: -226761.207 V
 rms conformation plot slope: -0.88 (±10.37%) log(nm)/log(g/mol)
 rms Conformation Plot y-intercept: 5.418 (±7.676%) log(nm)
 rh(Q) conformation plot slope: -3.792 (±1.483%) log(nm)/log(g/mol)
 rh(Q) Conformation Plot y-intercept: 18.686 (±1.379%) log(nm)
 rms radius vs. rh(Q) plot slope: 0.028 (±6.663%) rms radius vs. rh(Q) plot slope
 rms radius vs. rh(Q) Plot y-intercept: 14.625 (±1.555%) log(nm)