

MICROMERITICS INSTRUMENT CORPORATION

AutoPore IV 9500 V1.09

Serial: 830

Port: 2/1

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Sample ID: 008-470
Operator: wwl
Submitter:
File: C:\9500\DATA\0969#.SMP

LP Analysis Time: 2019-8-3 13:50:25??
HP Analysis Time: 2019-8-3 14:22:31??
Report Time: 2019-8-3 14:22:31??

Sample Weight: 0.9427 g
Correction Type: None
Show Neg. Int: Yes

Summary Report

Penetrometer parameters

Penetrometer:	3 Bulb, 0.412 Stem, Solid		
Pen. Constant:	11.007 $\mu\text{L}/\rho\text{F}$	Pen. Weight:	61.9165 g
Stem Volume:	0.4120 mL	Max. Head Pressure:	4.6800 psia
Pen. Volume:	3.4484 mL	Assembly Weight:	104.5823 g

Hg Parameters

Adv. Contact Angle:	130.000 degrees	Rec. Contact Angle:	130.000 degrees
Hg Surface Tension:	485.000 dynes/cm	Hg Density:	13.5335 g/mL

User Parameters

Param 1:	N/A	Param 2:	N/A	Param 3:	N/A
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Low Pressure:

Evacuation Pressure:	90 μmHg
Evacuation Time:	5 mins
Mercury Filling Pressure:	0.52 psia
Equilibration Time:	5 secs

High Pressure:

Equilibration Time:	5 secs
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No Blank Correction

(From Pressure 0.10 to 60000.00 psia)

Intrusion Data Summary

Total Intrusion Volume =	-0.0027 mL/g
Total Pore Area =	-6.908 m^2/g
Median Pore Diameter (Volume) =	344744.2 nm
Median Pore Diameter (Area) =	344744.4 nm
Average Pore Diameter (4V/A) =	1.6 nm
Bulk Density at 0.52 psia =	2.5796 g/mL
Apparent (skeletal) Density =	2.5618 g/mL
Porosity =	-0.6930 %
Stem Volume Used =	6 % ****

Pore Structure Summary

Threshold Pressure:	26.41 psia (Calculated)
Characteristic length =	6847.2 nm
Conductivity formation factor =	0.030
Permeability constant =	0.00442
Permeability =	6.2788 mdarcy
BET Surface Area =	230.0000 m^2/g
Pore shape exponent =	1.00
Tortuosity factor =	0.000
Tortuosity =	42.4007
Percolation Fractal dimension =	3.331
Backbone Fractal dimension =	3.417

Material Compressibility

Linear Coefficient =	-1.3954e-03 1/psia
Quadratic Coefficient =	7.4163e-05 1/psia ²



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Tabular Report

Table with 6 columns: Pressure (psia), Pore Diameter (nm), Cumulative Pore Volume (mL/g), Incremental Pore Volume (mL/g), % Incremental Intrusion Volume, MayerStowe Particle Diameter (nm). Rows range from 0.52 to 1894.81 psia.



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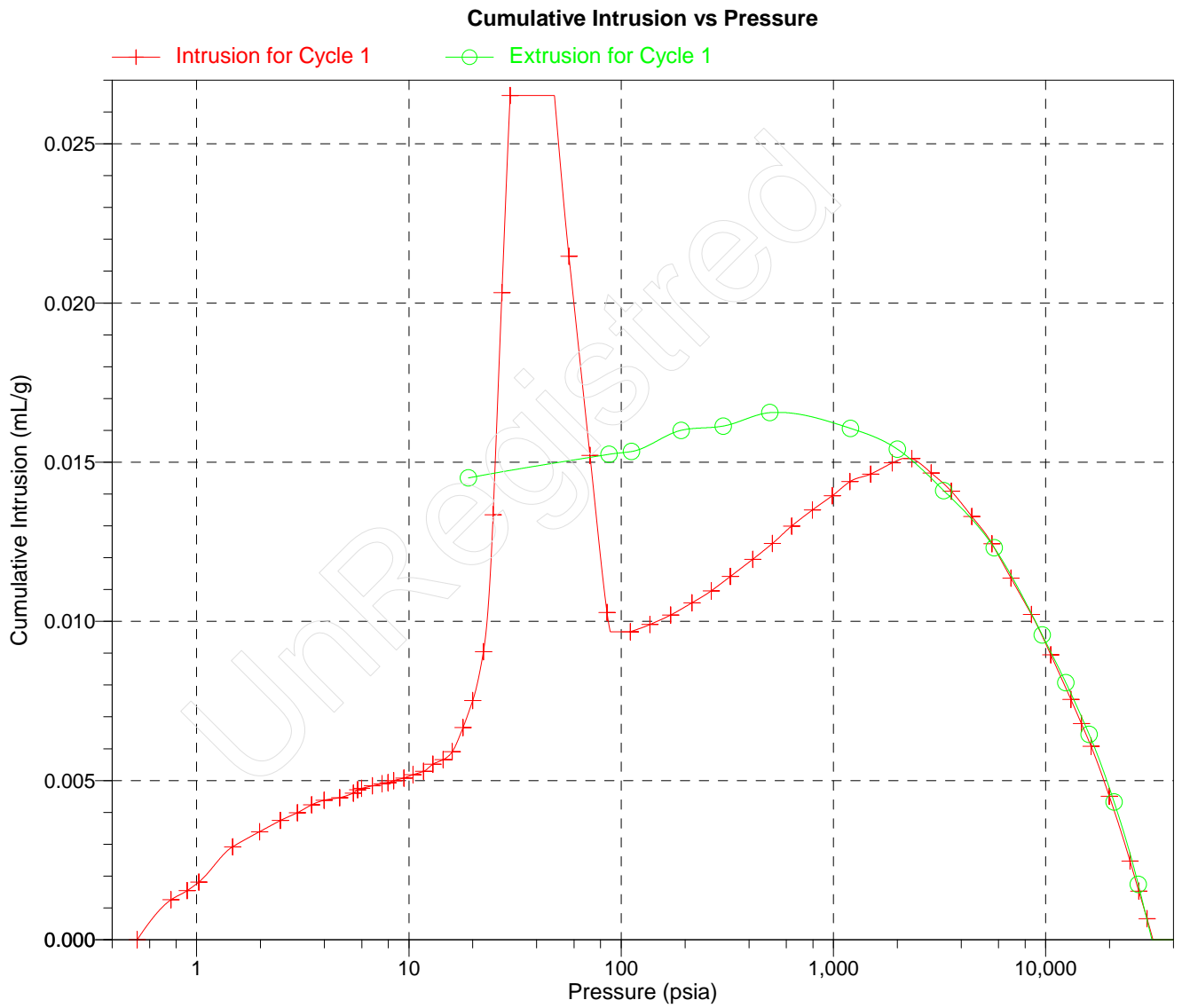
Tabular Report

Table with 6 columns: Pressure (psia), Pore Diameter (nm), Cumulative Pore Volume (mL/g), Incremental Pore Volume (mL/g), % Incremental Intrusion Volume, MayerStowe Particle Diameter (nm). Rows contain numerical data for various pressure and pore diameter points.

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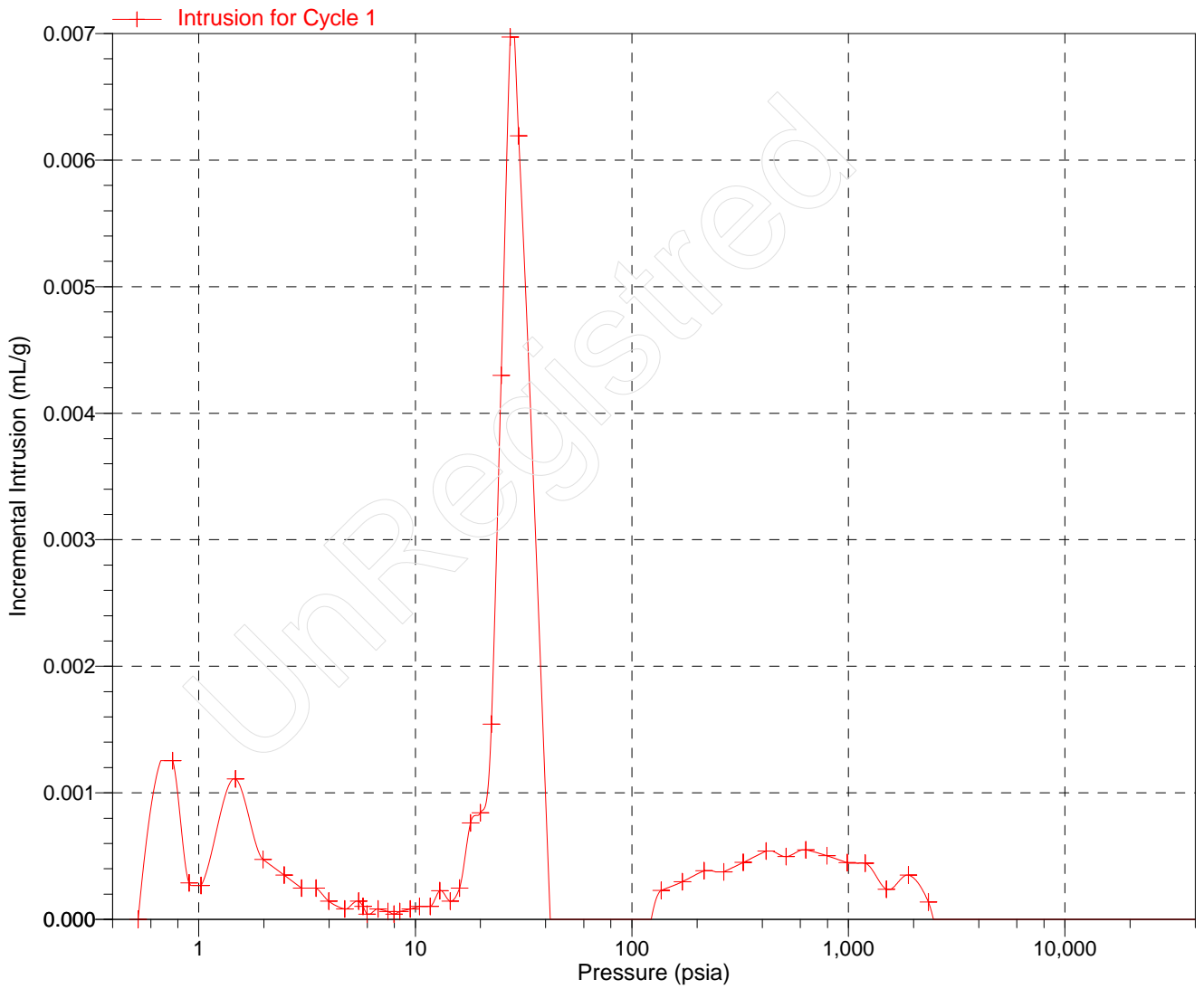


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Show Neg. Int: Yes

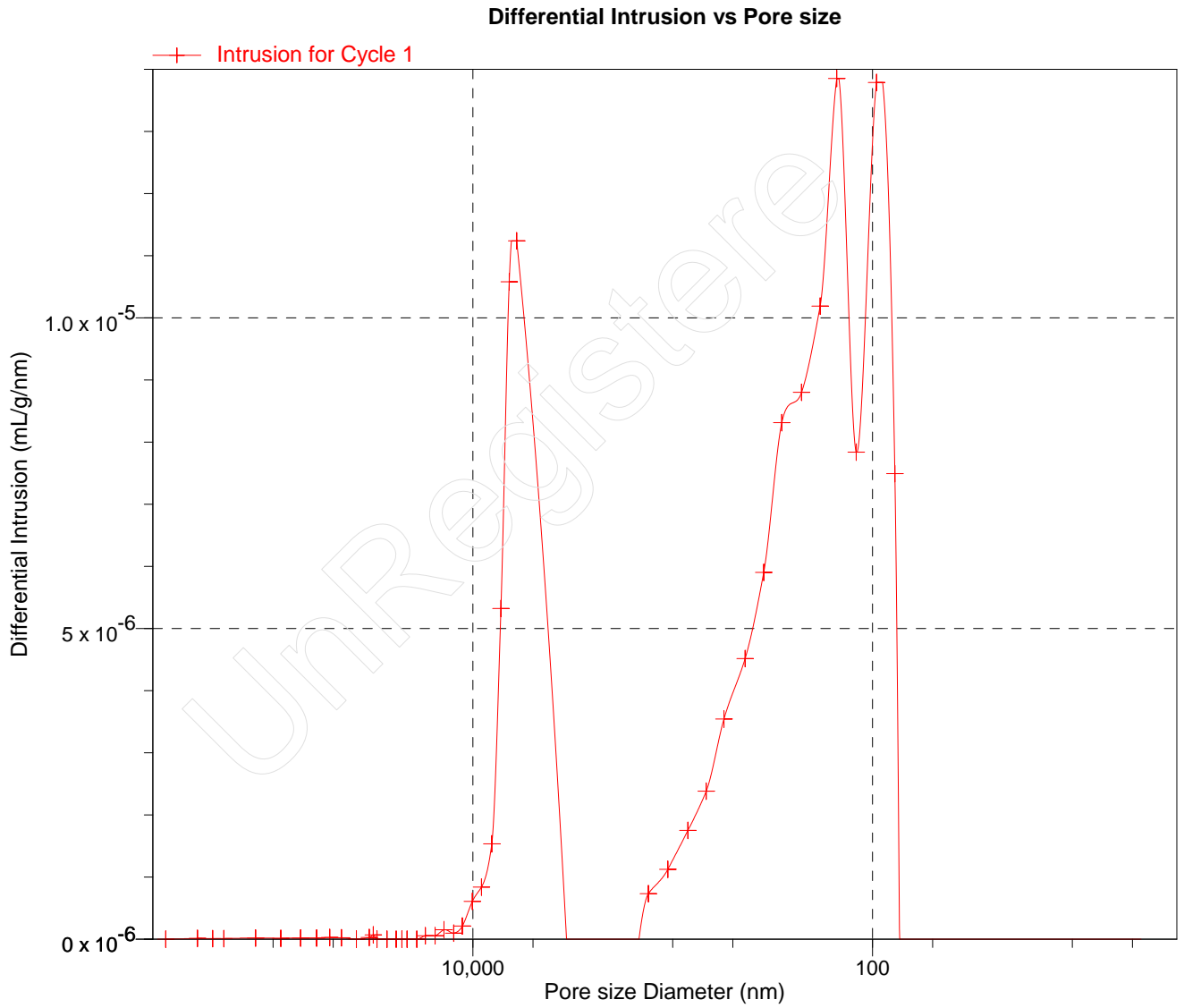
Incremental Intrusion vs Pressure



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Correction Type: None
Show Neg. Int: Yes

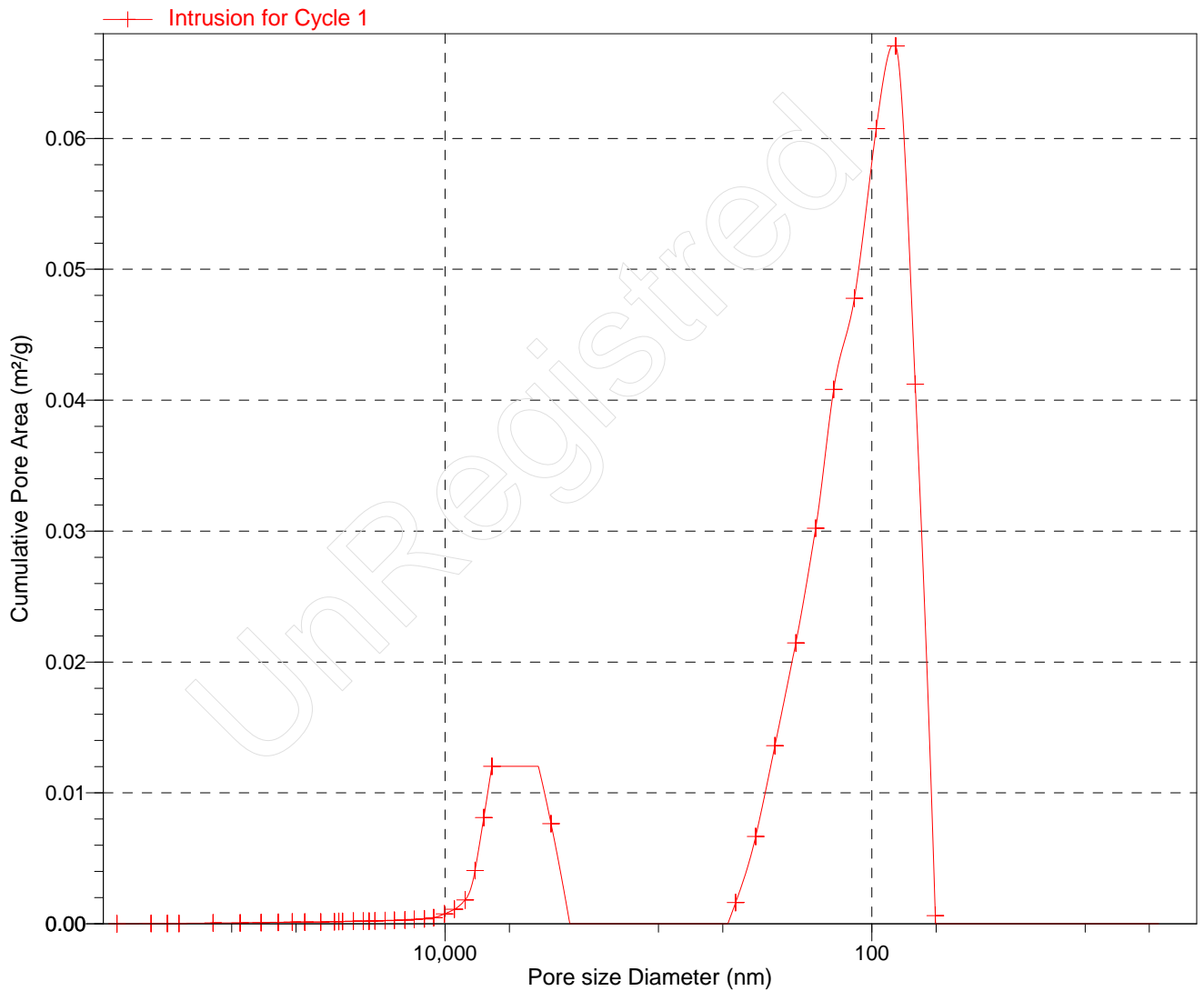


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Cumulative Pore Area vs Pore size

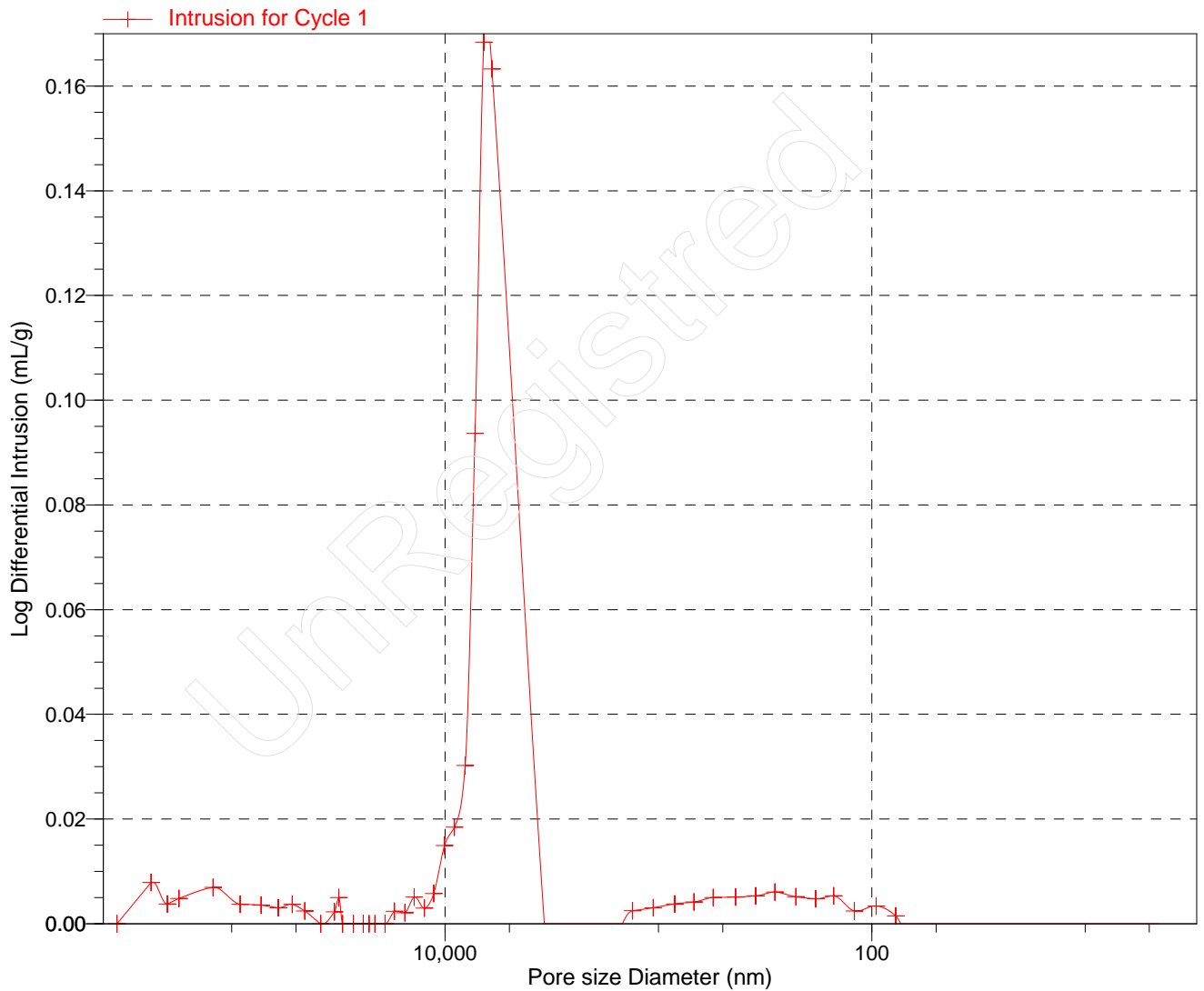


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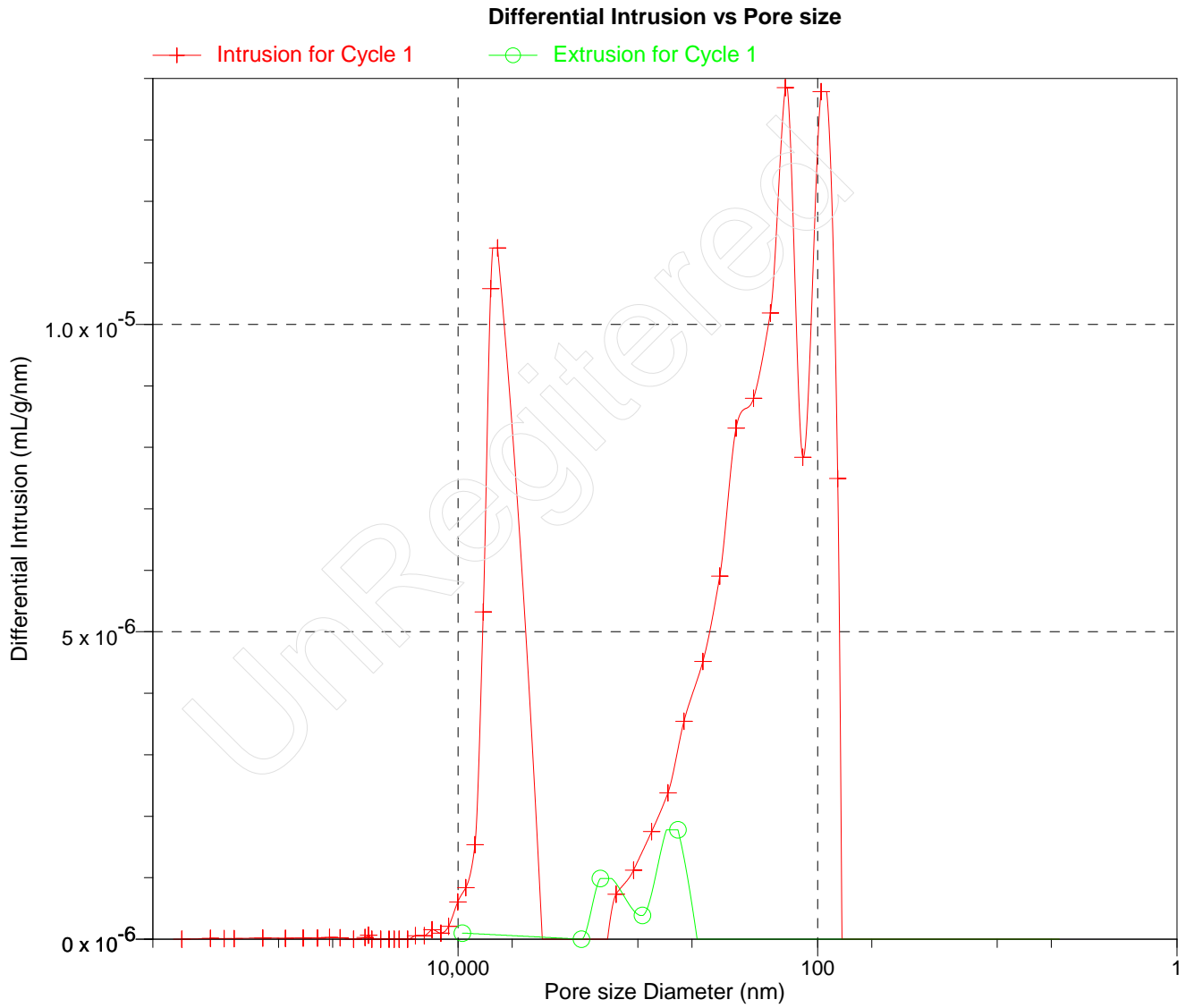
Log Differential Intrusion vs Pore size



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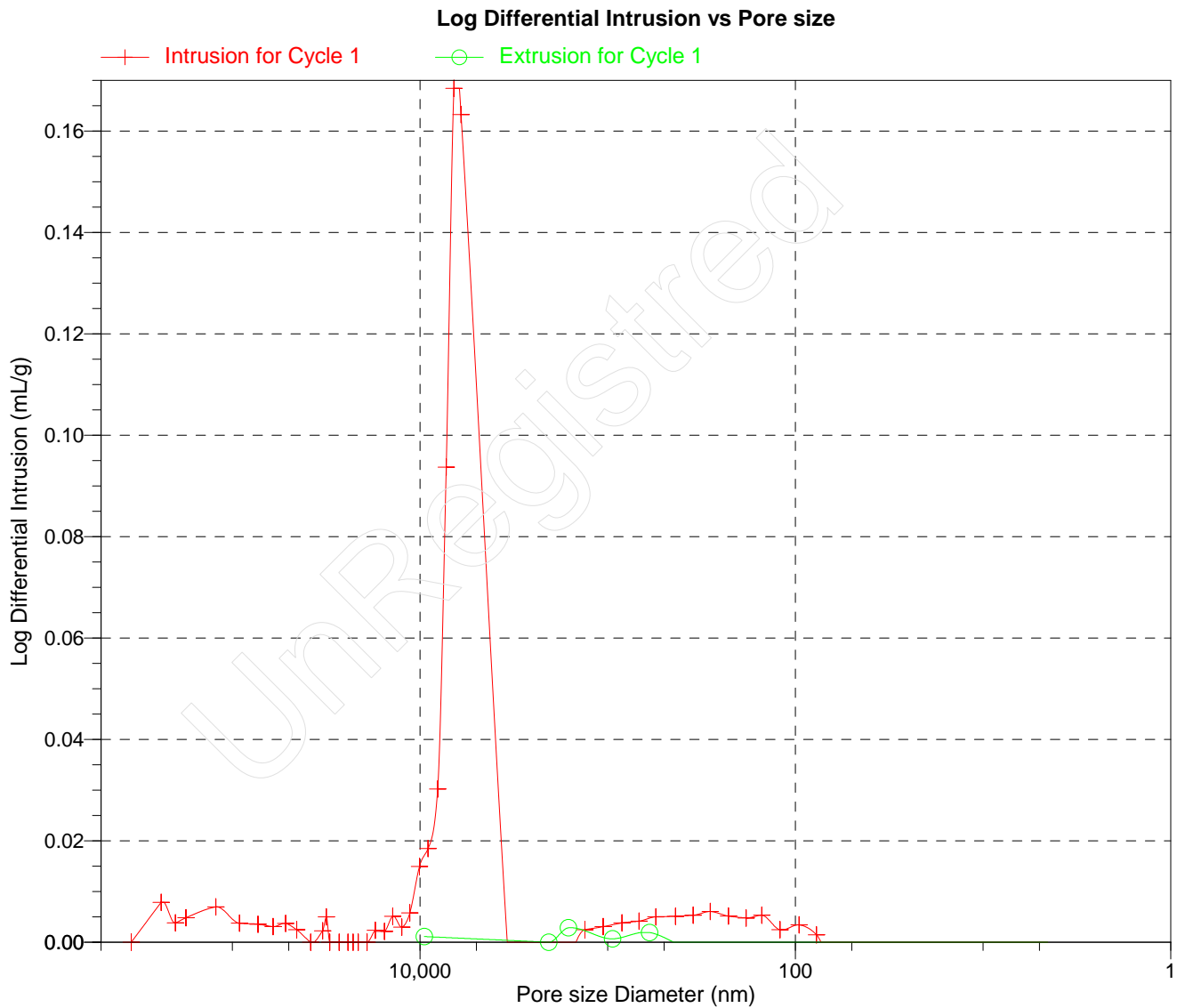
Sample Weight: 0.9427 g
Correction Type: None
Show Neg. Int: Yes



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Sample Weight: 0.9427 g
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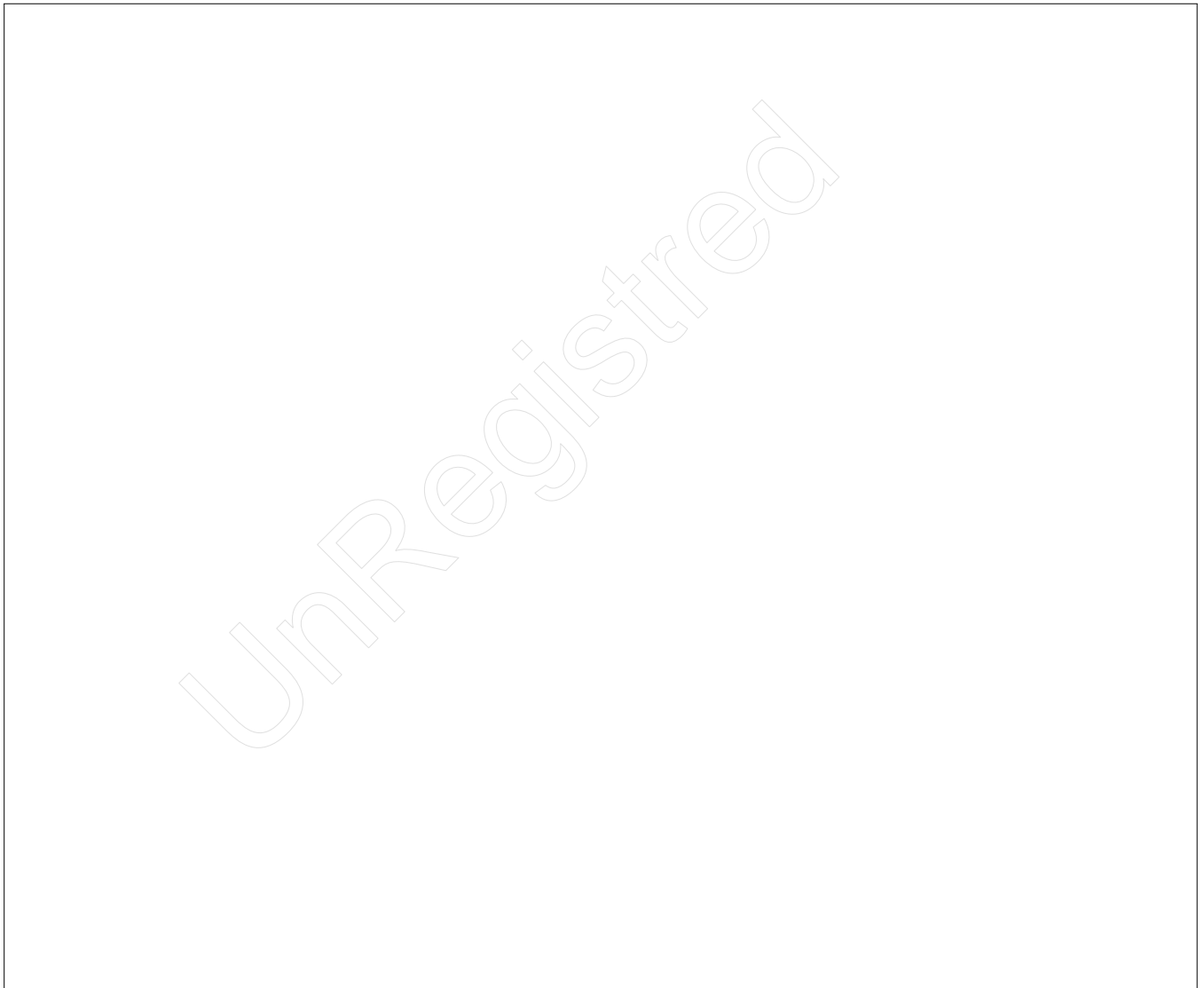
Report Time: 2019-8-3 14:22:31??

Sample Weight: 0.9427 g

Correction Type: None

Show Neg. Int: Yes

Difference from reference % volume vs Pore size





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Sample Weight: 0.9427 g

Correction Type: None

Show Neg. Int: Yes

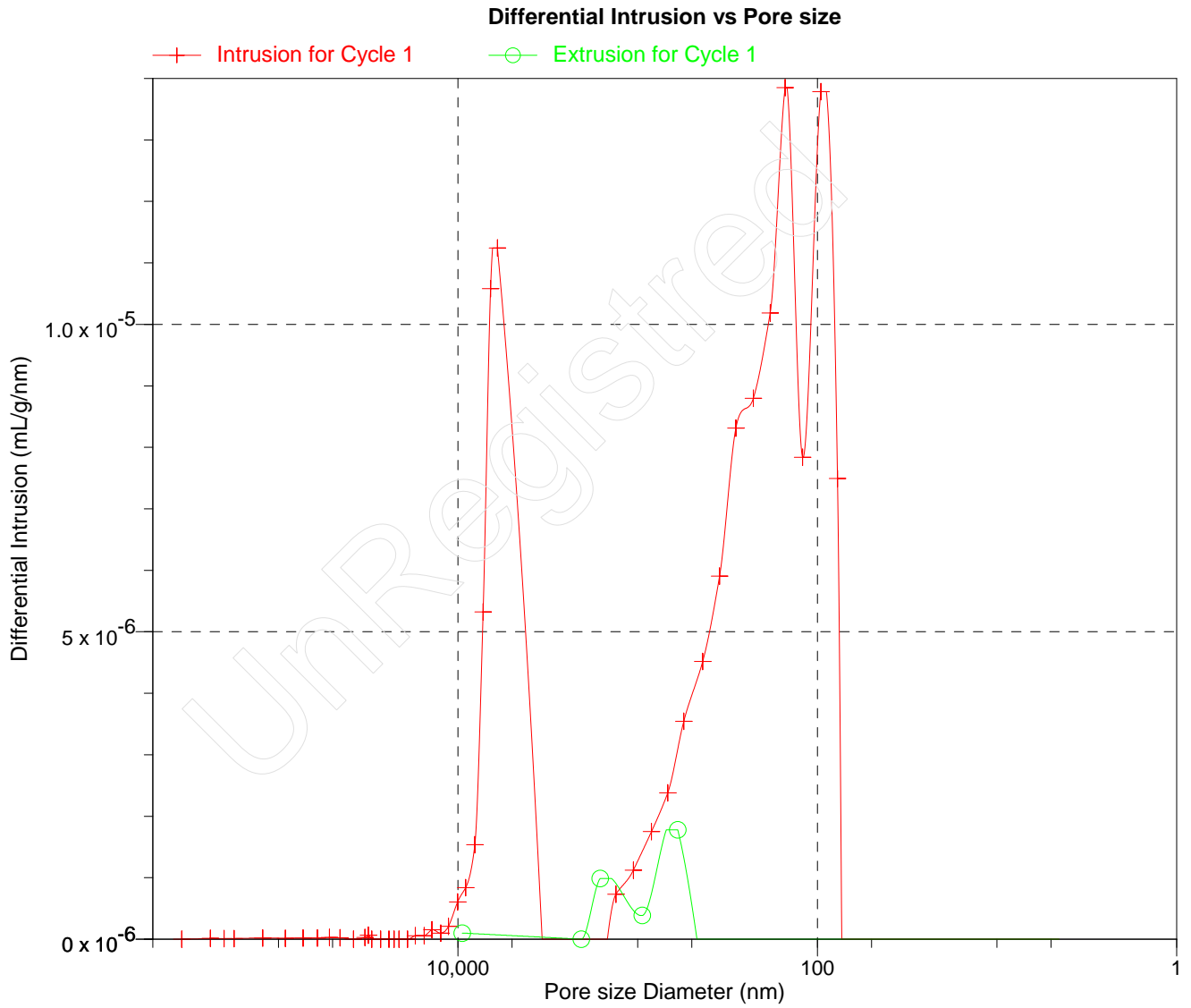
Out of specification % volume vs Pressure



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Sample Log

Date	Time	Log Message
2019-8-3	13:33:49??	Starting low pressure analysis
2019-8-3	13:50:25??	Finished low pressure analysis
2019-8-3	13:56:03??	Starting high pressure analysis
2019-8-3	14:22:31??	Finished high pressure analysis

UnRegistered

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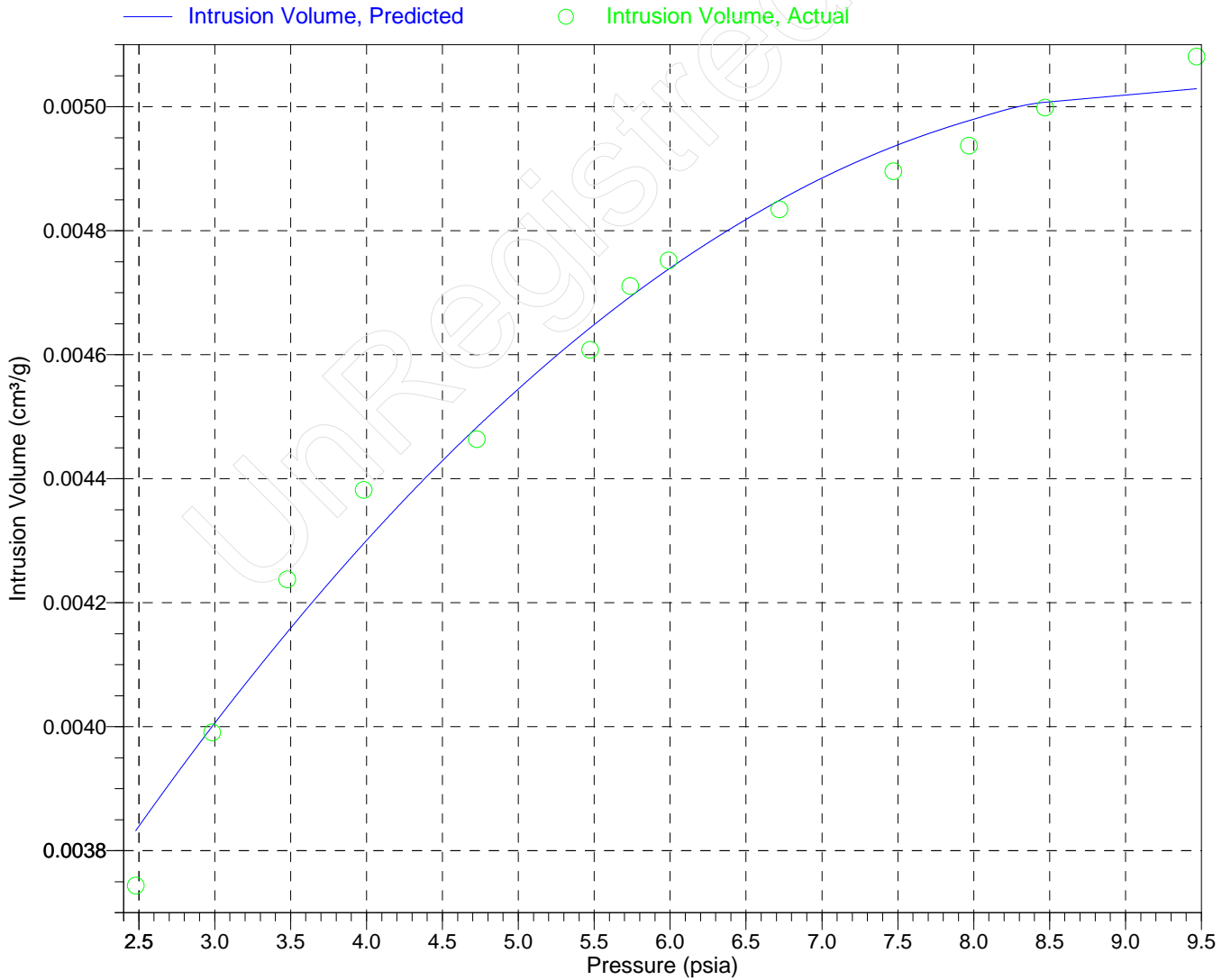
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Sample Weight: 0.9427 g
Correction Type: None
Show Neg. Int: Yes

Compressibility Summary

Density: 2.9737 g/mL (Entered)
Linear Compressibility: -1.3954×10^{-3} 1/psia
Quadratic Compressibility: 7.4163×10^{-5} 1/psia²
RMS Error: 0.0000 mL/g

Material Compressibility



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Correction Type: None

Show Neg. Int: Yes

Compressibility Summary

Density: 2.9737 g/mL (Entered)
Linear Compressibility: $-1.3954e-03$ 1/psia
Quadratic Compressibility: $7.4163e-05$ 1/psia²
RMS Error: 0.0000 mL/g

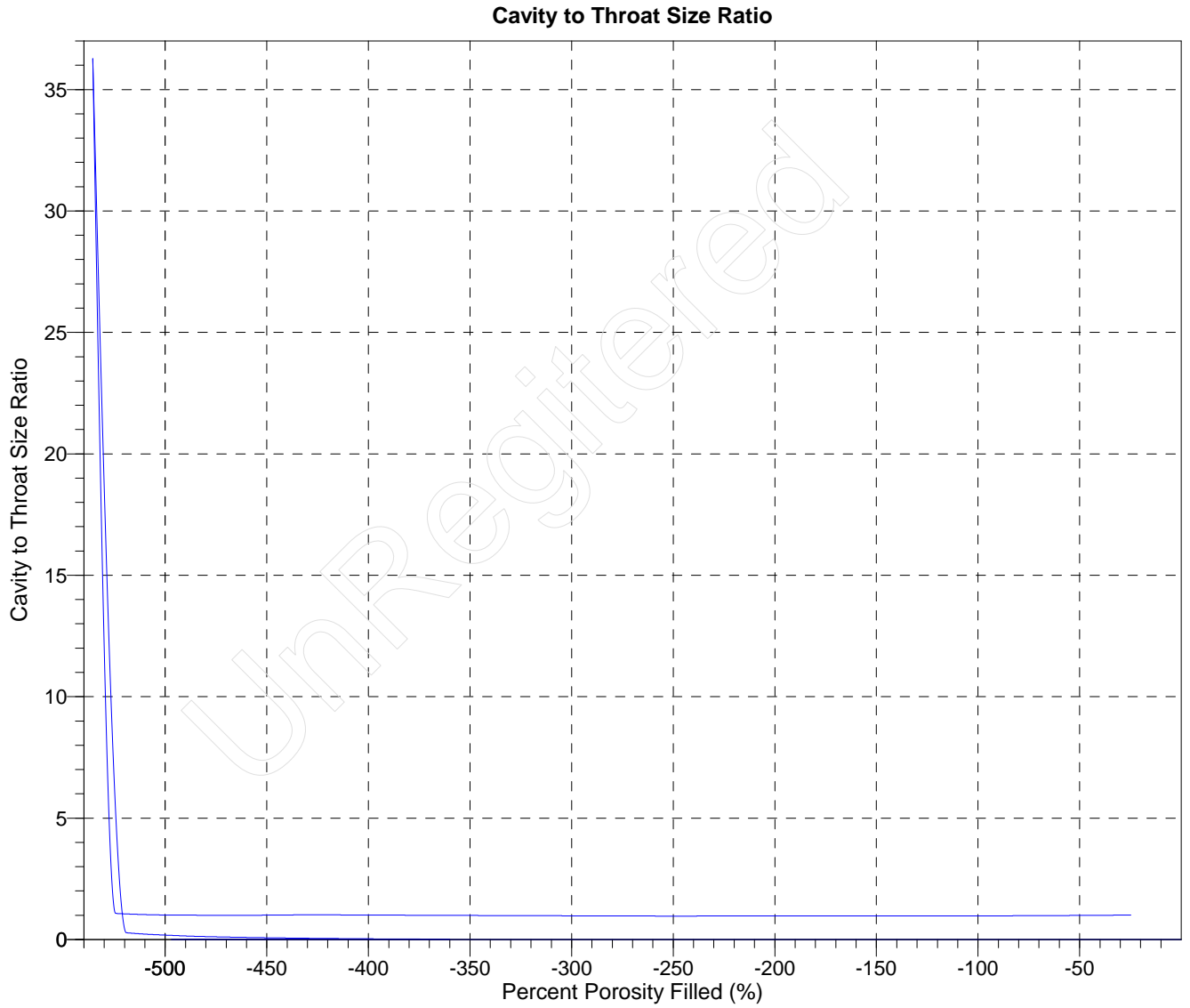
Material Compressibility

Pressure (psia)	Intrusion Volume, Actual (cm ³ /g)	Intrusion Volume, Predicted (cm ³ /g)	Error (cm ³ /g)
2.48	0.0037	0.0038	0.0001
2.98	0.0040	0.0040	0.0000
3.48	0.0042	0.0042	-0.0001
3.98	0.0044	0.0043	-0.0001
4.73	0.0045	0.0045	0.0000
5.47	0.0046	0.0046	0.0000
5.74	0.0047	0.0047	-0.0000
5.99	0.0048	0.0047	-0.0000
6.72	0.0048	0.0048	0.0000
7.47	0.0049	0.0049	0.0000
7.97	0.0049	0.0050	0.0000
8.47	0.0050	0.0050	0.0000
9.47	0.0051	0.0050	-0.0001

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Correction Type: None

Show Neg. Int: Yes

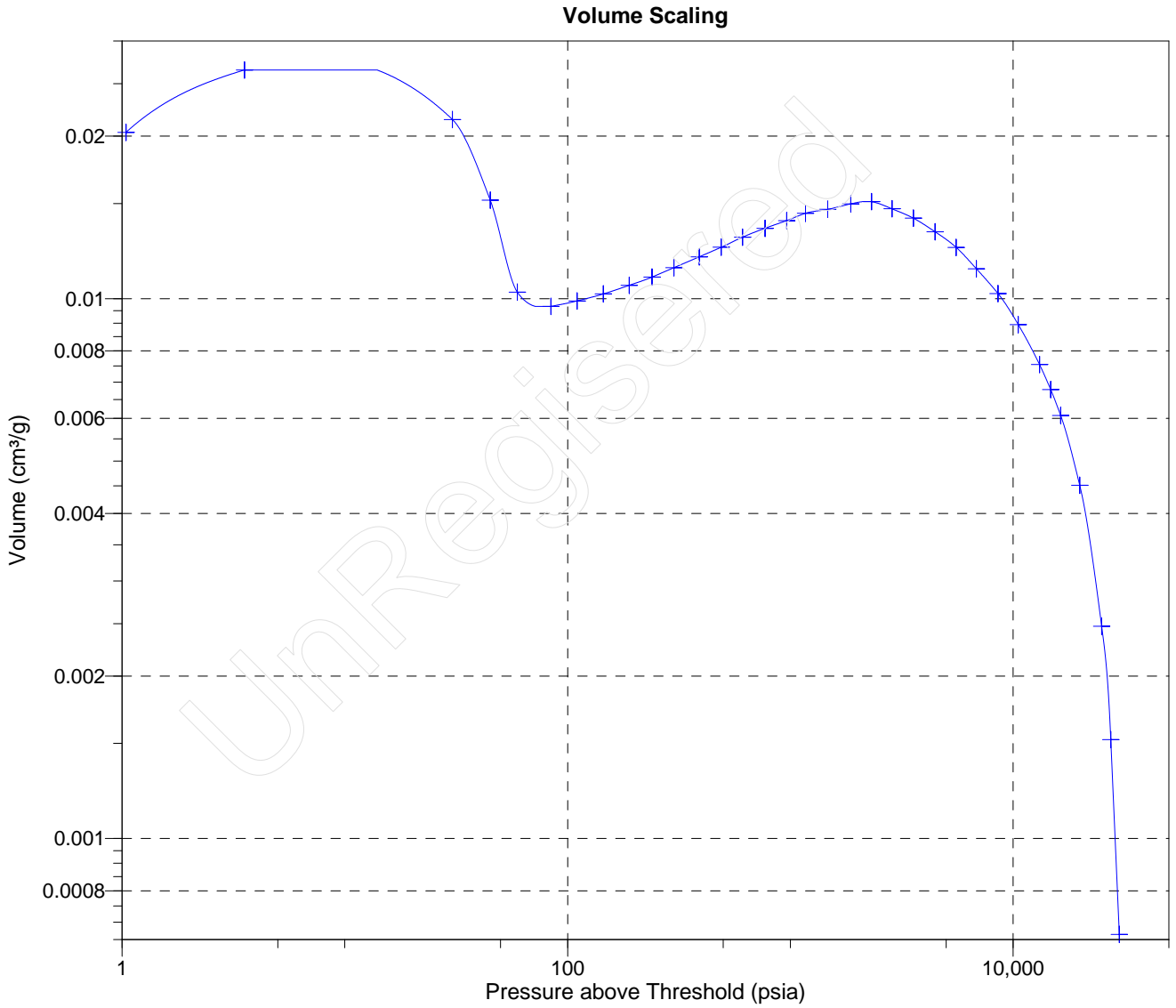
Cavity to Throat Size Ratio

Percent Porosity Filled (%)	Cavity to Throat Size Ratio ()	Percent Porosity Filled (%)	Cavity to Throat Size Ratio ()	Percent Porosity Filled (%)	Cavity to Throat Size Ratio ()
-0.0000	0.000	-189.1206	0.000	-463.2492	0.092
-46.7059	0.000	-192.9490	0.001	-483.7108	0.130
-57.4253	0.000	-196.7773	0.001	-502.4317	0.192
-67.3790	0.000	-205.1997	0.001	-519.1163	0.281
-108.7252	0.000	-210.5594	0.001	-535.6088	36.276
-126.3356	0.000	-219.7475	0.001	-524.4026	1.077
-139.3520	0.000	-248.0773	0.001	-494.9117	1.007
-148.5401	0.000	-279.4698	0.001	-463.0356	0.997
-157.7281	0.000	-336.8951	0.002	-422.7300	1.018
-163.0878	0.000	-496.9202	0.006	-380.3509	1.002
-166.1505	0.000	-382.5740	0.010	-333.2676	0.987
-171.5102	0.000	-360.0424	0.012	-280.8783	0.973
-175.3386	0.000	-368.5574	0.015	-252.5781	0.966
-176.8699	0.000	-379.6354	0.020	-226.1432	0.969
-179.9326	0.000	-393.9386	0.027	-167.8572	0.968
-182.2296	0.000	-407.9463	0.036	-92.0411	0.977
-183.7609	0.000	-424.6897	0.049	-56.7281	0.990
-186.0580	0.000	-444.7971	0.069	-24.7399	1.007

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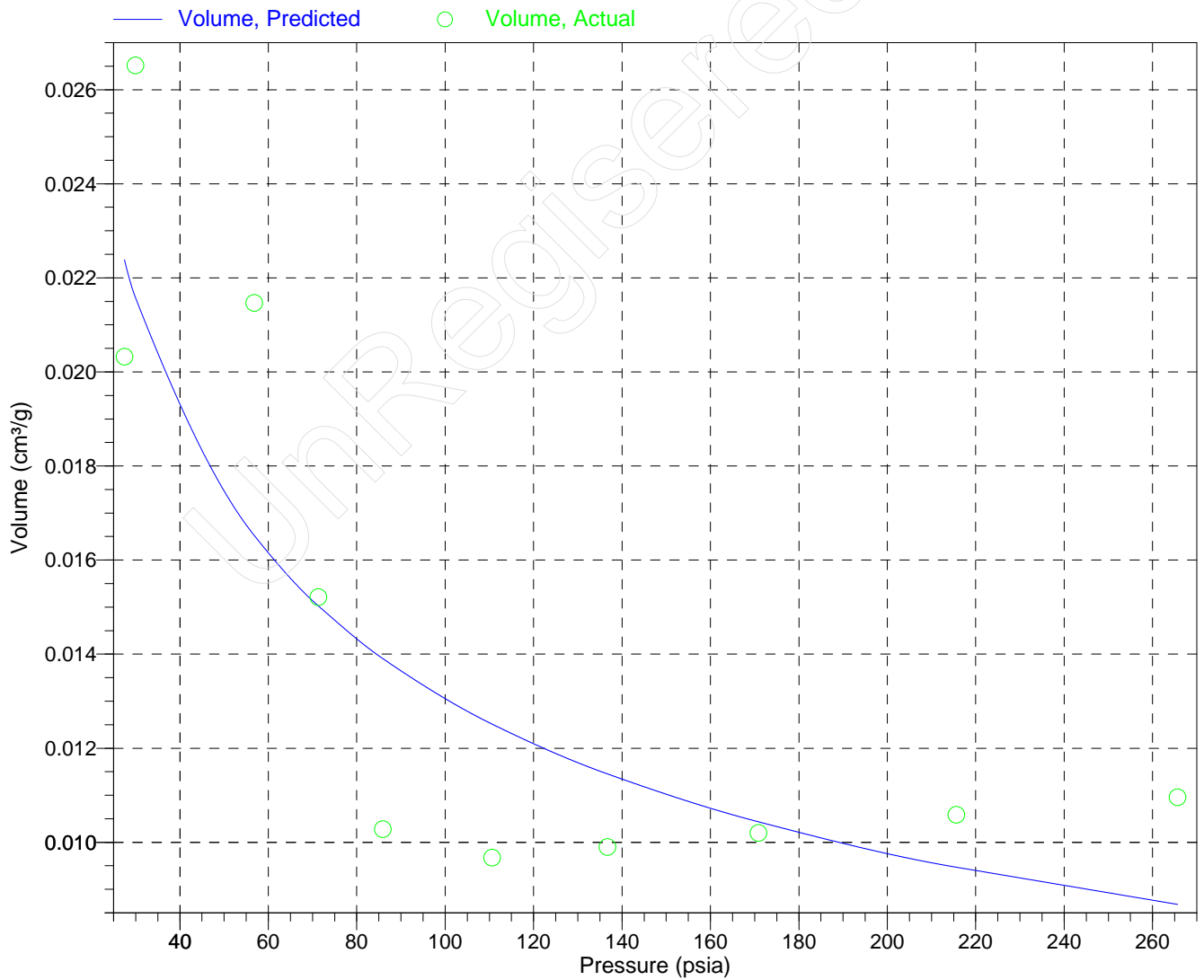
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Fractal Dimension In Backbone Formation Summary

Threshold Pressure: 26.41 psia (Calculated)
Pressure Range: 10.00 - 280.00 psia
Fractal Dimension : 3.417
RMS Error: 0.0029 mL/g

Fractal Dimension In Backbone Formation Region



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Fractal Dimension In Percolation Region Summary

Threshold Pressure: 26.41 psia (Calculated)
Pressure Range: 2500.00 - 10000.00 psia
Fractal Dimension : 3.331
RMS Error: 0.0003 mL/g

