



Silica Alumina Reference Material

TriStar II 3020 3.02

TriStar II 3020 Version 3.02
Serial # 2183 Unit 1 Port 3

Page 1

Sample: 2106031355/CNT
Operator: xu
Submitter:
File: D:\实验室\3020数据\指南针\2106031355\CNT.SMP

Started: 2021/6/5 15:11:18	Analysis Adsorptive: N2
Completed: 2021/6/5 19:22:57	Analysis Bath Temp.: -195.800 °C
Report Time: 2021/6/6 18:31:49	Thermal Correction: No
Sample Mass: 0.1456 g	Warm Free Space: 10.0230 cm ³ Measured
Cold Free Space: 30.2922 cm ³	Equilibration Interval: 5 s
Low Pressure Dose: None	Sample Density: 1.000 g/cm ³
Automatic Degas: No	

Summary Report

Surface Area

Single point surface area at $p/p^\circ = 0.295532524$: 118.0356 m²/g

BET Surface Area: 118.9917 m²/g

BJH Adsorption cumulative surface area of pores
between 1.7000 nm and 300.0000 nm diameter: 130.657 m²/g

BJH Desorption cumulative surface area of pores
between 1.7000 nm and 300.0000 nm diameter: 135.5152 m²/g

Pore Volume

BJH Adsorption cumulative volume of pores
between 1.7000 nm and 300.0000 nm diameter: 0.444940 cm³/g

BJH Desorption cumulative volume of pores
between 1.7000 nm and 300.0000 nm diameter: 0.447211 cm³/g

Pore Size

BJH Adsorption average pore diameter (4V/A): 13.6216 nm

BJH Desorption average pore diameter (4V/A): 13.2003 nm

D-H Adsorption average pore diameter (4V/A): 14.0026 nm

D-H Desorption average pore diameter (4V/A): 13.4695 nm



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Low Pressure Dose: None
Automatic Degas: No
Analysis Adsorptive: N2
Analysis Bath Temp.: -195.800 °C
Thermal Correction: No
Warm Free Space: 10.0230 cm³ Measured
Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

Isotherm Tabular Report

Relative Pressure (p/p°)	Absolute Pressure (mmHg)	Quantity Adsorbed (cm ³ /g STP)	Elapsed Time (h:min)	Saturation Pressure (mmHg)
0.010279775	7.697826	23.1006	00:35	748.770020
0.028537567	21.372234	24.8578	00:48	748.832153
0.063233705	47.356483	26.5582	00:50	748.915771
0.079263329	59.361519	27.2207	00:52	748.912048
0.099832964	74.770180	28.0345	00:53	748.915283
0.119773086	89.701393	28.8312	00:55	748.952820
0.139664147	104.594551	29.6537	00:56	748.927795
0.159509176	119.453018	30.5197	00:58	748.900513
0.179320992	134.283371	31.4449	00:59	748.878662
0.199100840	149.085953	31.4449	01:01	748.843567
0.245247870	183.635315	32.4347	01:02	748.796204
0.295532524	221.287842	35.0749	01:04	748.774353
0.344979493	258.307922	38.4951	01:06	748.776611
0.399395321	299.018799	42.2129	01:09	748.763123
0.448721121	335.948334	46.1909	01:12	748.678772
0.498014343	372.825653	49.5338	01:14	748.679565
0.547553258	409.905975	52.7359	01:16	748.624329
0.597461642	447.262360	56.0622	01:19	748.613892
0.646947407	484.271881	59.7104	01:21	748.604309
0.696294883	521.194824	63.8792	01:23	748.549072
0.745453984	558.002563	68.8814	01:27	748.526001
0.794092110	594.391418	75.0030	01:30	748.540588
0.850666113	636.674988	82.6940	01:34	748.516968
0.897794530	671.899475	95.0911	01:41	748.442871
0.952222562	712.709412	112.0564	01:48	748.388916
0.974151966	729.016113	161.5053	02:03	748.469360
0.984566499	736.704407	218.4931	02:19	748.359741
0.978706240	732.307983	273.2903	02:36	748.252563
0.955957858	715.585510	268.5131	02:38	748.240845
0.905861201	678.169250	216.0036	02:53	748.553406
0.831433259	622.632629	129.1686	03:18	748.645874
0.805888551	603.545105	93.2385	03:28	748.866638
0.746439506	559.092529	87.0935	03:33	748.918823
0.688982124	516.051270	76.4379	03:38	749.012512
0.656383447	491.702393	68.9701	03:43	749.005310
0.604240043	452.698639	65.5990	03:46	749.108459
0.552550166	414.015411	61.0182	03:48	749.203308
0.502686183	376.696930	57.1734	03:51	749.281128
0.453683414	339.991608	53.8251	03:53	749.367981
0.401583507	300.970490	50.3267	03:56	749.402771
0.352034385	263.842316	46.5884	03:58	749.459290
		42.9586	04:00	749.478821



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Cold Free Space: 30.2922 cm³	Equilibration Interval: 5 s
Low Pressure Dose: None	Sample Density: 1.000 g/cm³
Automatic Degas: No	

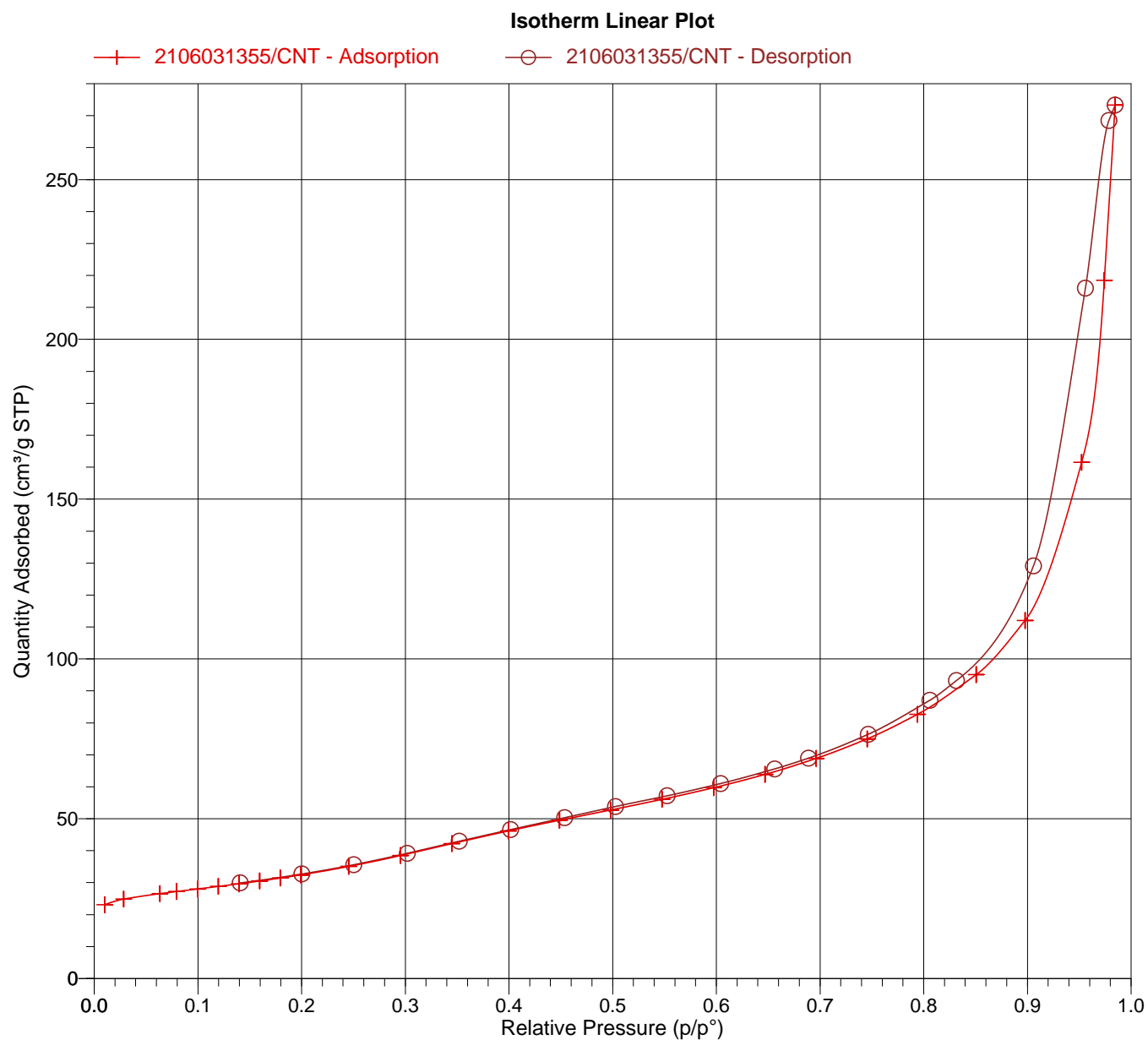
Isotherm Tabular Report

Relative Pressure (p/p°)	Absolute Pressure (mmHg)	Quantity Adsorbed (cm³/g STP)	Elapsed Time (h:min)	Saturation Pressure (mmHg)
0.301995365	226.336273	39.1857	04:03	749.469360
0.250450941	187.730789	35.6046	04:05	749.571106
0.200332524	150.179123	32.7058	04:07	749.649231
0.140860002	105.604843	29.9144	04:08	749.714905

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Sample Mass: 0.1456 g
Cold Free Space: 30.2922 cm³
Low Pressure Dose: None
Automatic Degas: No

Analysis Adsorptive: N₂
Analysis Bath Temp.: -195.800 °C
Thermal Correction: No
Warm Free Space: 10.0230 cm³ Measured
Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³



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Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

BET Report

BET Surface Area: 118.9917 ± 1.4200 m²/g
Slope: 0.036218 ± 0.000430 g/cm³ STP
Y-Intercept: 0.000361 ± 0.000074 g/cm³ STP
C: 101.452452
Qm: 27.3382 cm³/g STP
Correlation Coefficient: 0.9994363
Molecular Cross-Sectional Area: 0.1620 nm²

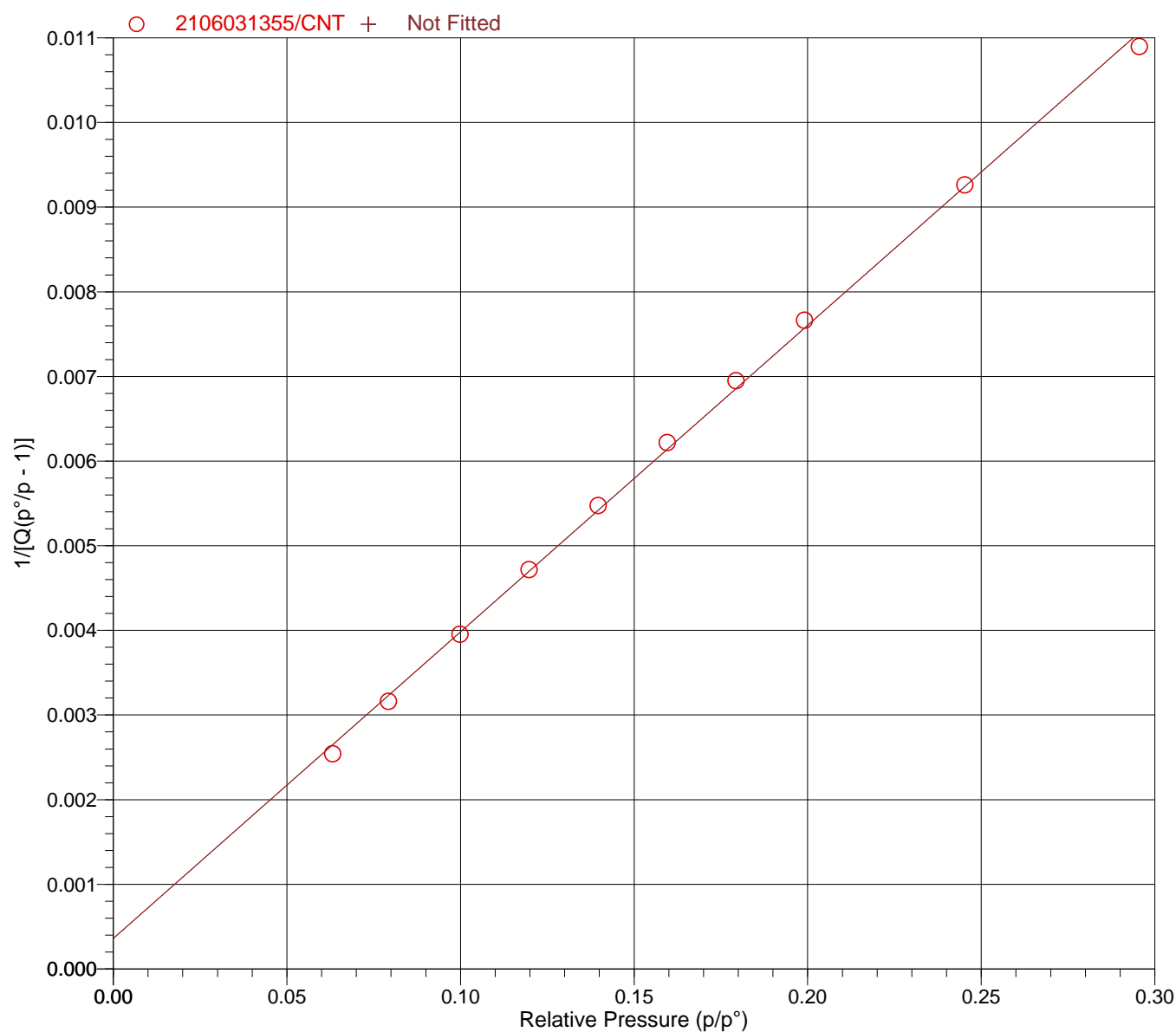
Relative Pressure (p/p °)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p°/p - 1)]
0.063233705	26.5582	0.002542
0.079263329	27.2207	0.003163
0.099832964	28.0345	0.003956
0.119773086	28.8312	0.004720
0.139664147	29.6537	0.005474
0.159509176	30.5197	0.006218
0.179320992	31.4449	0.006949
0.199100840	32.4347	0.007665
0.245247870	35.0749	0.009264
0.295532524	38.4951	0.010898

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BET Surface Area Plot





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Warm Free Space: 10.0230 cm³ Measured
Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

BJH Adsorption Pore Distribution Report

Standard
User-Defined

Reference Curve: SIO2OH.THK

Diameter Range: 1.7000 nm to 300.0000 nm
Adsorbate Property Factor: 0.95300 nm
Density Conversion Factor: 0.0015500
Fraction of Pores Open at Both Ends: 0.00

Pore Diameter Range (nm)	Average Diameter (nm)	Incremental Pore Volume (cm ³ /g)	Cumulative Pore Volume (cm ³ /g)	Incremental Pore Area (m ² /g)	Cumulative Pore Area (m ² /g)
122.3 - 78.0	91.3	0.096325	0.096325	4.219	4.219
78.0 - 42.0	50.3	0.098514	0.194838	7.836	12.055
42.0 - 20.4	24.0	0.094717	0.289555	15.761	27.817
20.4 - 14.2	16.1	0.032378	0.321933	8.020	35.836
14.2 - 10.5	11.7	0.024215	0.346148	8.247	44.083
10.5 - 8.6	9.3	0.015090	0.361238	6.481	50.564
8.6 - 7.2	7.8	0.012028	0.373267	6.199	56.763
7.2 - 6.2	6.6	0.009830	0.383097	5.926	62.689
6.2 - 5.4	5.8	0.007888	0.390985	5.464	68.154
5.4 - 4.8	5.1	0.006794	0.397779	5.340	73.493
4.8 - 4.3	4.5	0.006122	0.403901	5.404	78.898
4.3 - 3.9	4.1	0.006103	0.410004	6.005	84.902
3.9 - 3.5	3.7	0.007080	0.417084	7.725	92.627
3.5 - 3.1	3.3	0.009406	0.426489	11.417	104.045
3.1 - 2.8	3.0	0.009012	0.435502	12.130	116.175
2.8 - 2.6	2.7	0.006814	0.442316	10.155	126.329
2.6 - 2.3	2.4	0.002624	0.444940	4.327	130.657

Sample: 2106031355/CNT

Operator: xu

Submitter:

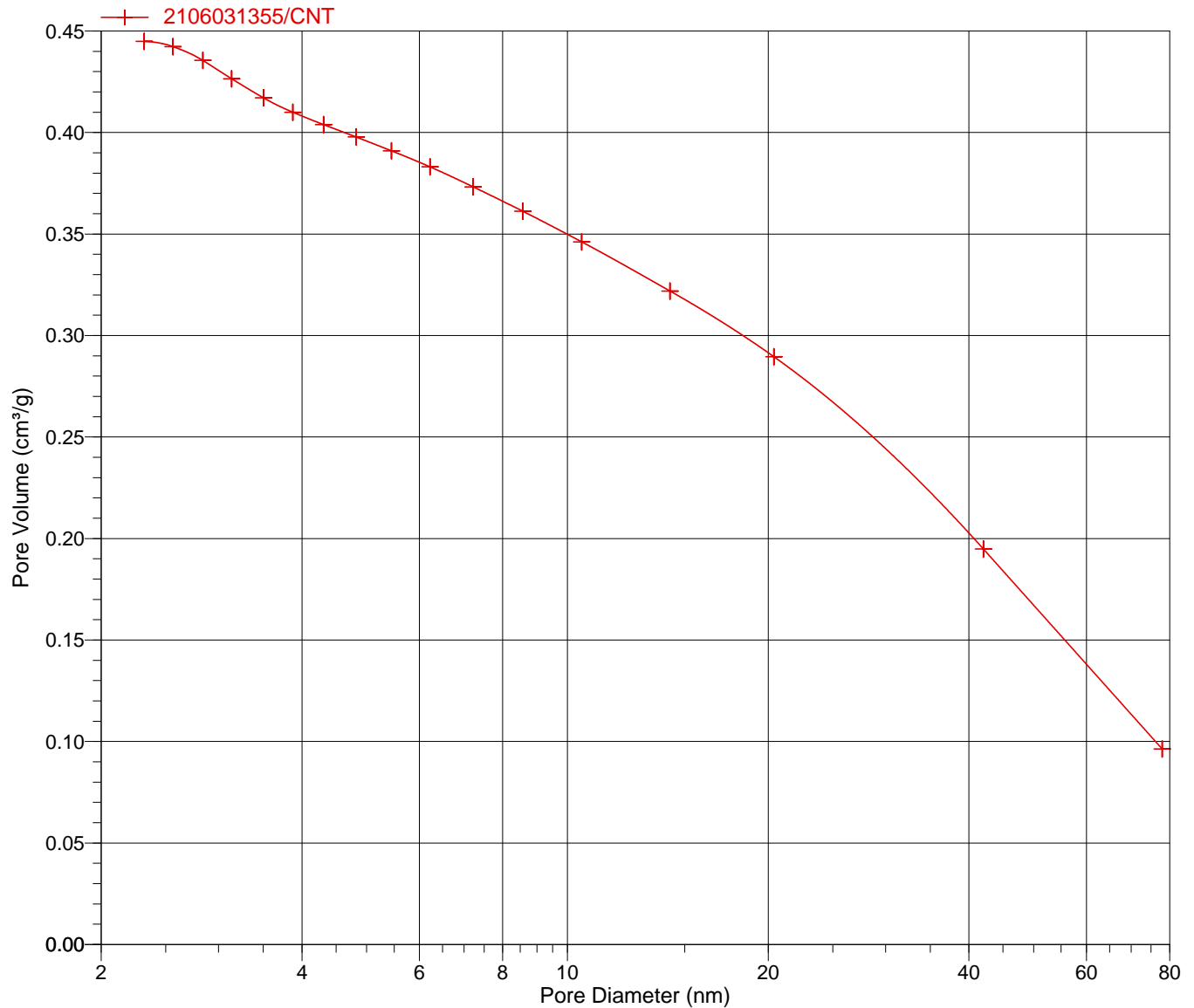
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Low Pressure Dose: None
Automatic Degas: No

Analysis Adsorptive: N₂
Analysis Bath Temp.: -195.800 °C
Thermal Correction: No
Warm Free Space: 10.0230 cm³ Measured
Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

BJH Adsorption Cumulative Pore Volume (Larger)

User-Defined : Standard



Sample: 2106031355/CNT

Operator: xu

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Sample Mass: 0.1456 g

Cold Free Space: 30.2922 cm³

Low Pressure Dose: None

Automatic Degas: No

Analysis Adsorptive: N₂

Analysis Bath Temp.: -195.800 °C

Thermal Correction: No

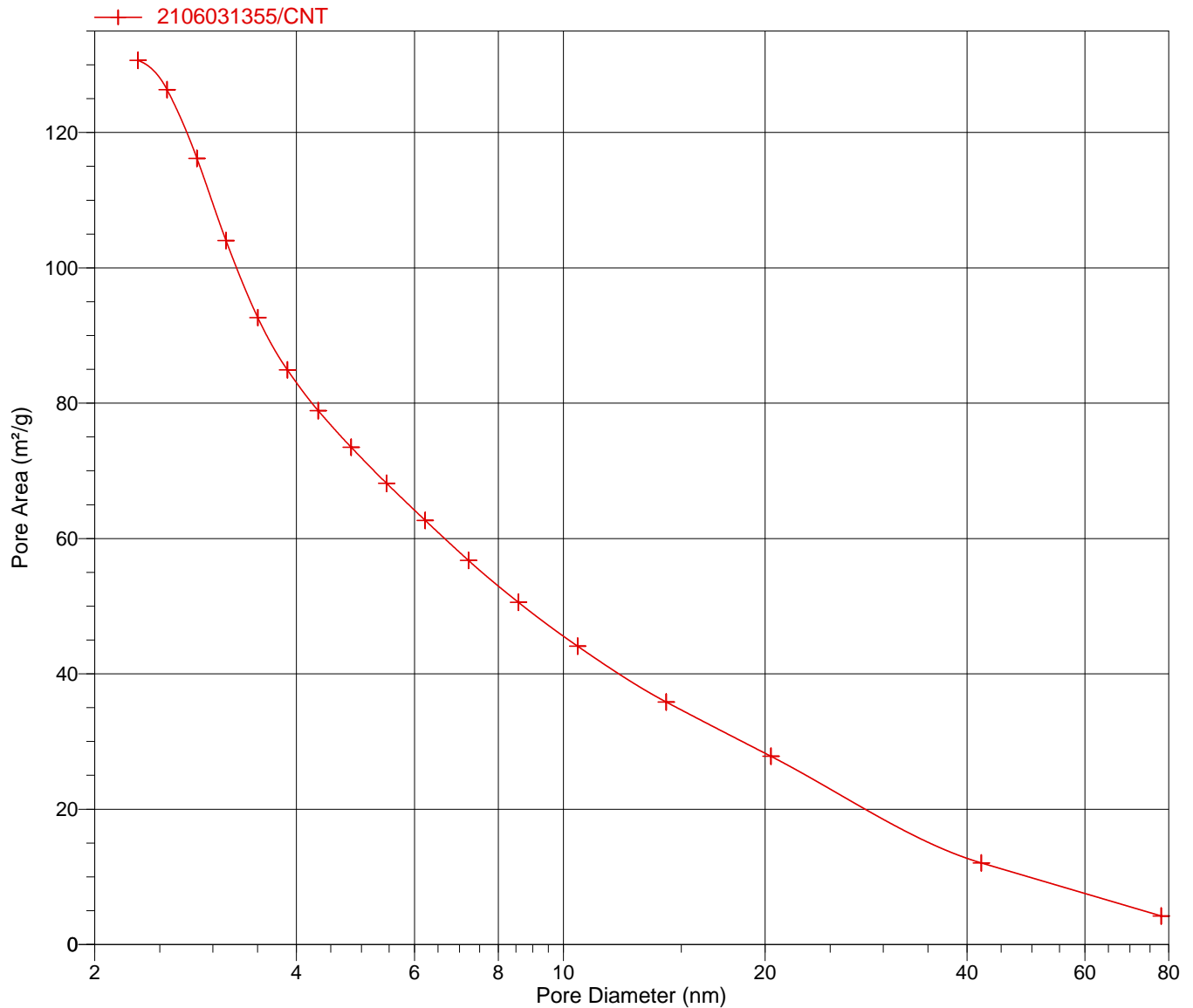
Warm Free Space: 10.0230 cm³ Measured

Equilibration Interval: 5 s

Sample Density: 1.000 g/cm³

BJH Adsorption Cumulative Pore Area (Larger)

User-Defined : Standard



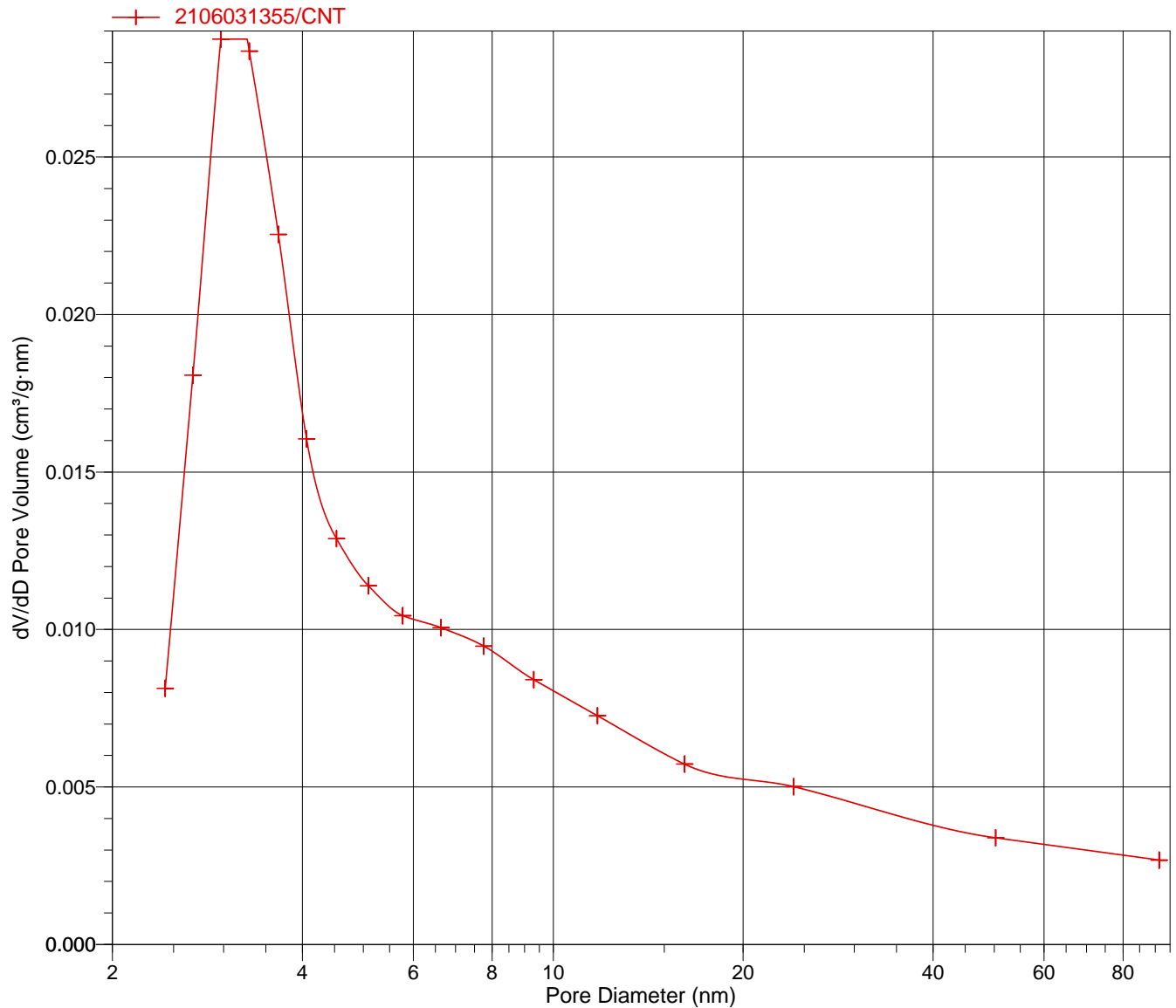
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Automatic Degas: No

Analysis Adsorptive: N₂
Analysis Bath Temp.: -195.800 °C
Thermal Correction: No
Warm Free Space: 10.0230 cm³ Measured
Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

BJH Adsorption dV/dD Pore Volume

User-Defined : Standard



Sample: 2106031355/CNT

Operator: xu

Submitter:

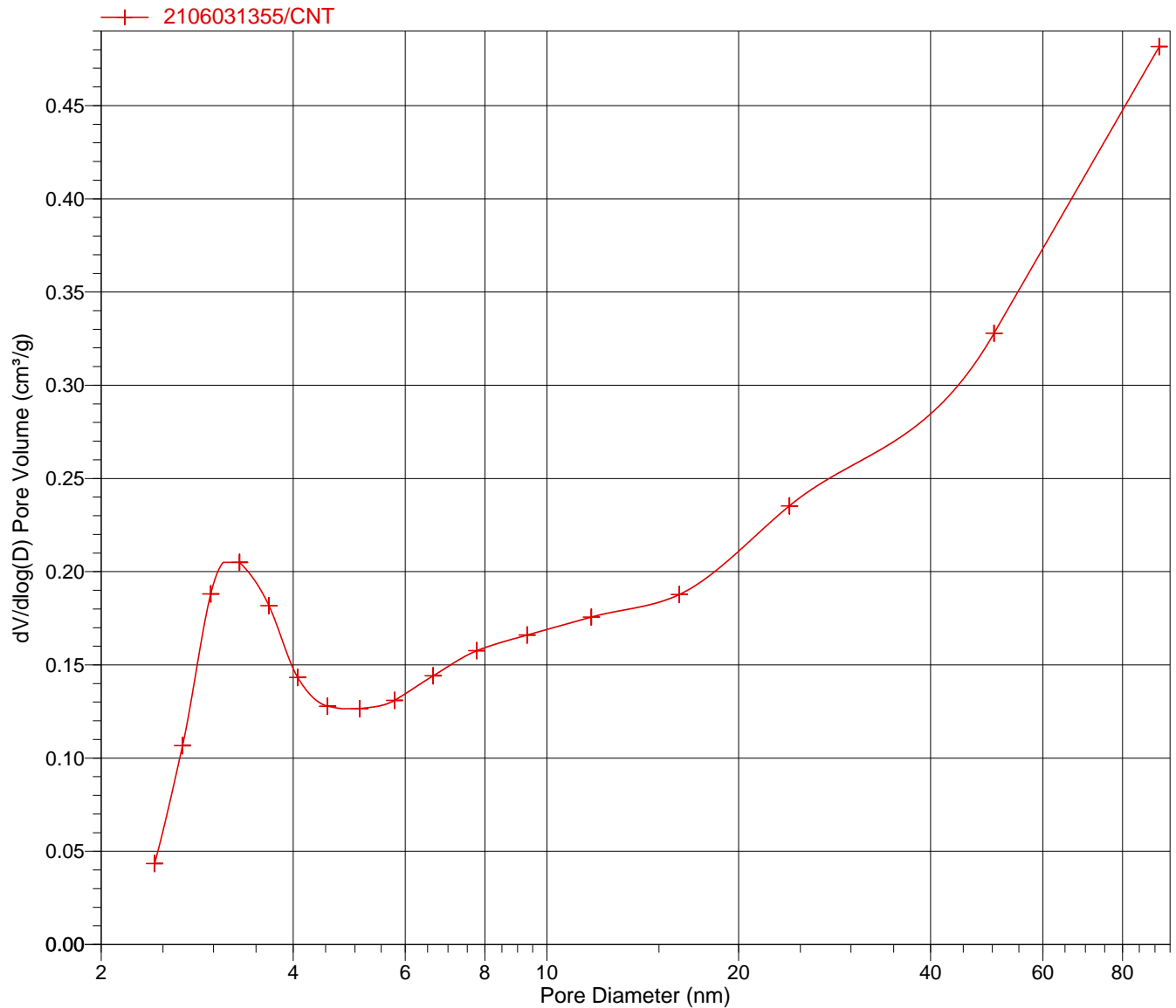
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Analysis Adsorptive: N₂
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BJH Adsorption $dV/d\log(D)$ Pore Volume

User-Defined : Standard





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Cold Free Space: 30.2922 cm³	Equilibration Interval: 5 s
Low Pressure Dose: None	Sample Density: 1.000 g/cm³
Automatic Degas: No	

BJH Desorption Pore Distribution Report

Standard

User-Defined

Reference Curve: SIO2OH.THK

Diameter Range: 1.7000 nm to 300.0000 nm

Adsorbate Property Factor: 0.95300 nm

Density Conversion Factor: 0.0015500

Fraction of Pores Open at Both Ends: 0.00

Pore Diameter Range (nm)	Average Diameter (nm)	Incremental Pore Volume (cm³/g)	Cumulative Pore Volume (cm³/g)	Incremental Pore Area (m²/g)	Cumulative Pore Area (m²/g)
122.3 - 94.2	106.1	0.008297	0.008297	0.313	0.313
94.2 - 45.8	55.1	0.094824	0.103121	6.888	7.201
45.8 - 22.0	26.0	0.164942	0.268063	25.411	32.612
22.0 - 12.7	14.8	0.072909	0.340973	19.697	52.310
12.7 - 11.1	11.8	0.011154	0.352126	3.786	56.096
11.1 - 8.6	9.5	0.019792	0.371918	8.338	64.434
8.6 - 7.1	7.7	0.013471	0.385389	7.043	71.477
7.1 - 6.4	6.7	0.005752	0.391141	3.441	74.918
6.4 - 5.5	5.9	0.007512	0.398653	5.096	80.014
5.5 - 4.9	5.2	0.006010	0.404663	4.658	84.671
4.9 - 4.4	4.6	0.005031	0.409693	4.393	89.064
4.4 - 3.9	4.1	0.006258	0.415952	6.094	95.159
3.9 - 3.5	3.7	0.007245	0.423196	7.851	103.010
3.5 - 3.2	3.3	0.007467	0.430663	8.970	111.980
3.2 - 2.9	3.0	0.008133	0.438796	10.800	122.780
2.9 - 2.6	2.7	0.006365	0.445161	9.375	132.155
2.6 - 2.3	2.4	0.002050	0.447211	3.360	135.515

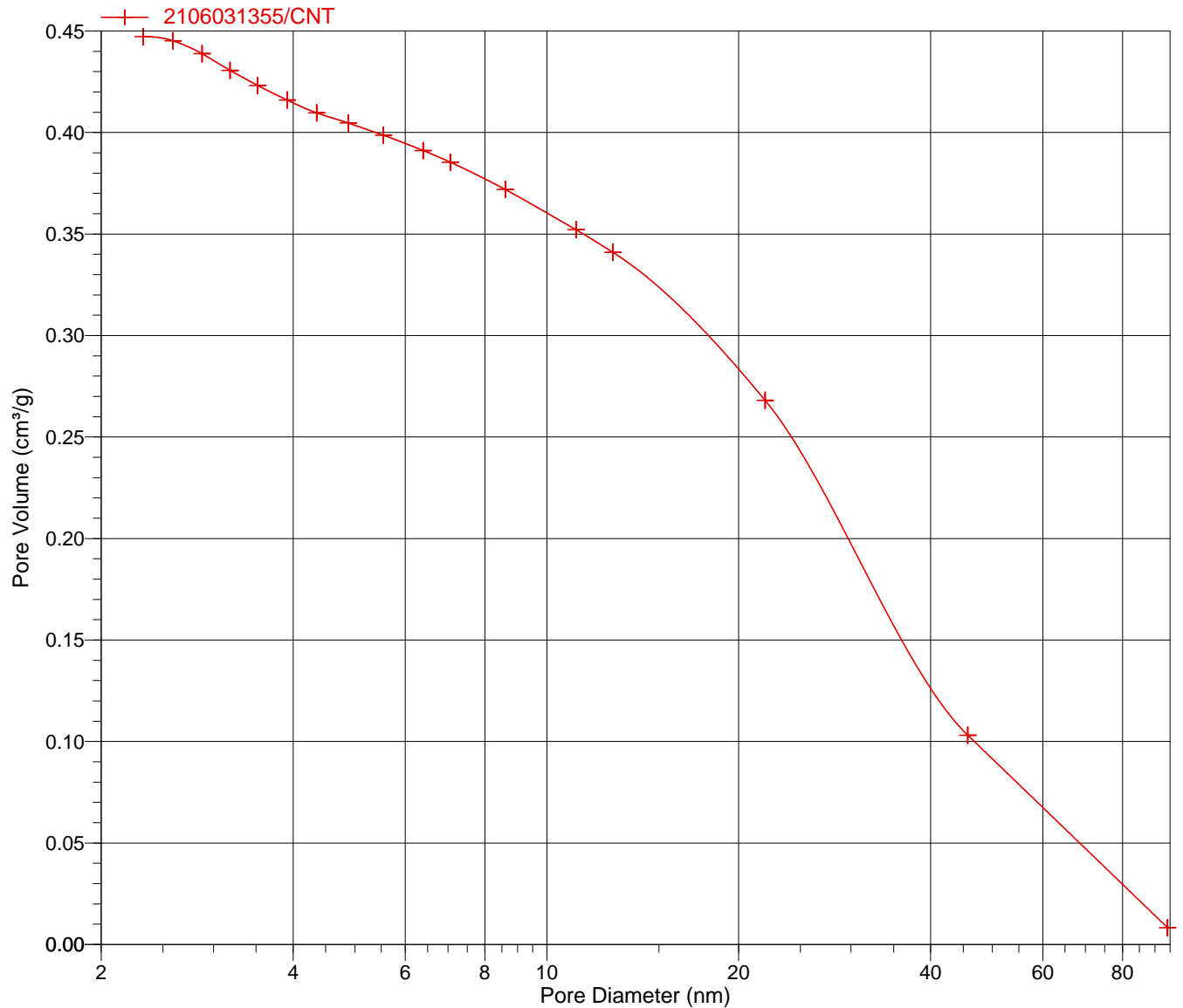
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Sample Density: 1.000 g/cm³

BJH Desorption Cumulative Pore Volume (Larger)

User-Defined : Standard



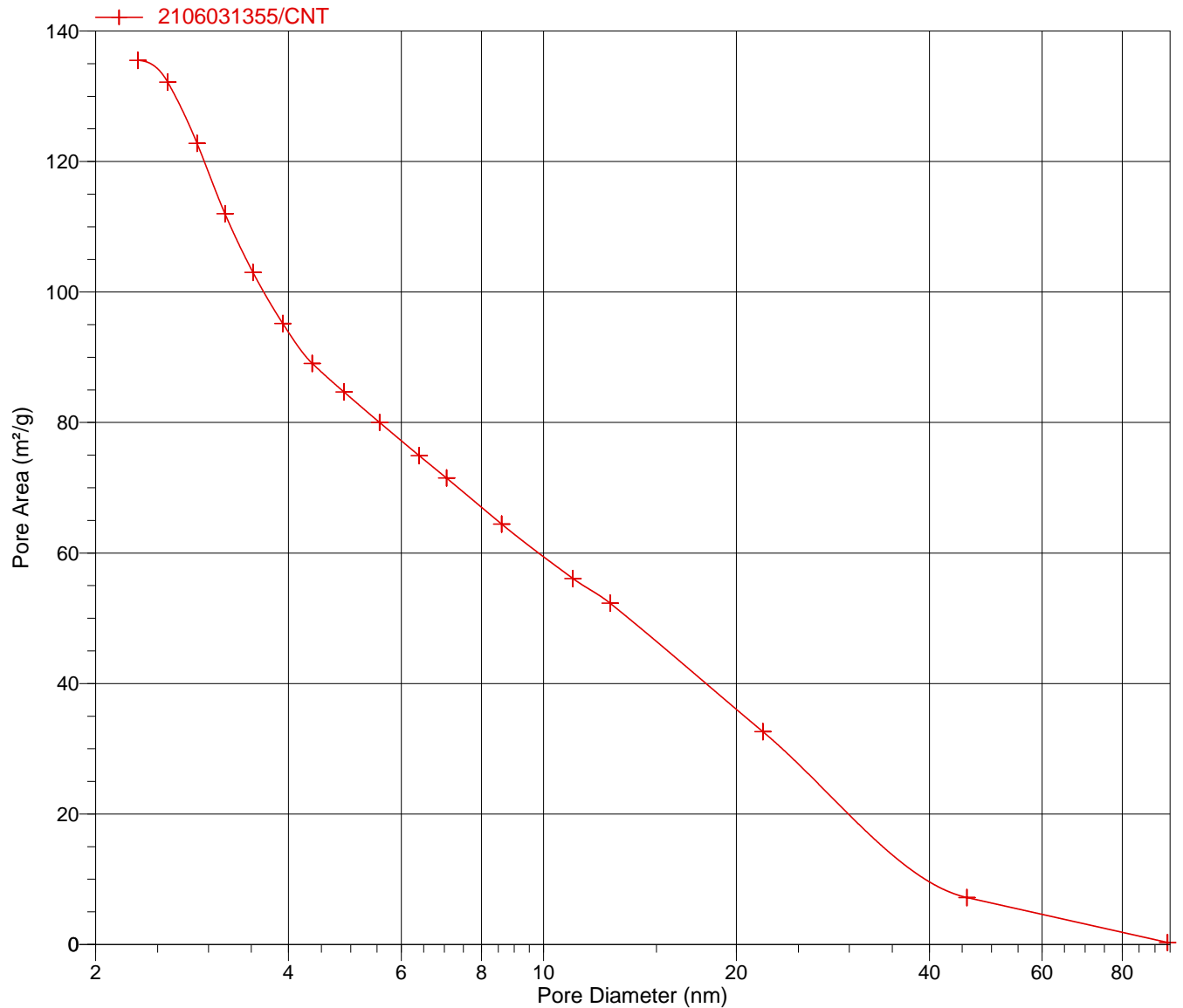
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Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

BJH Desorption Cumulative Pore Area (Larger)

User-Defined : Standard



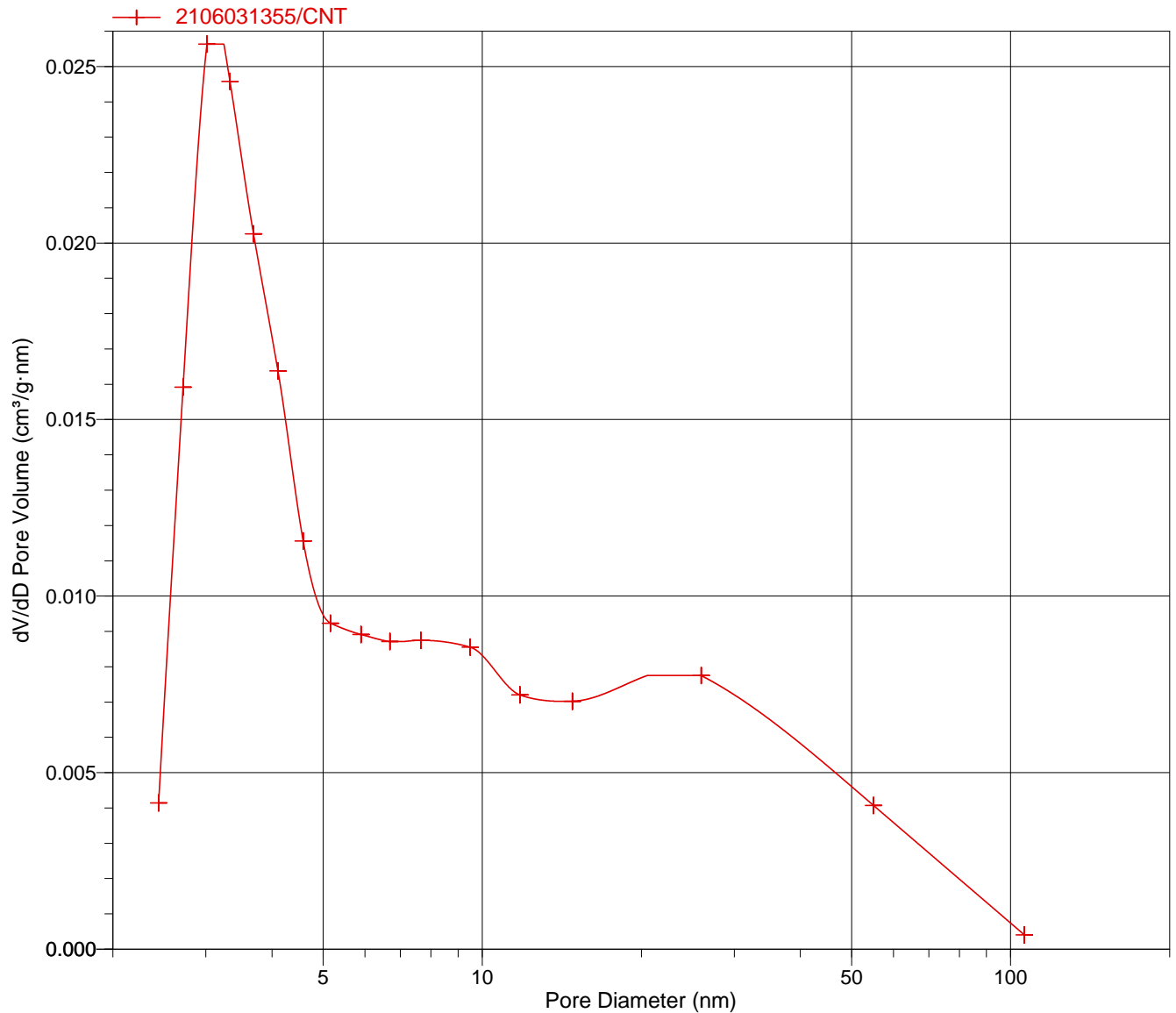
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Thermal Correction: No
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Equilibration Interval: 5 s
Sample Density: 1.000 g/cm³

BJH Desorption dV/dD Pore Volume

User-Defined : Standard



Sample: 2106031355/CNT

Operator: xu

Submitter:

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BJH Desorption dV/dlog(D) Pore Volume

User-Defined : Standard

