

Sample: 3
Operator:
Submitter:
File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz...\\HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Summary Report

Surface Area

BET Surface Area: 1,9077 m²/gt-Plot Micropore Area: 2,1572 m²/gt-Plot external surface area: -0,2495 m²/g

DFT Pore Size

Volume in Pores	<	1,559 nm	0,00047 cm ³ /g
Total Volume in Pores	<=	18,466 nm	0,00135 cm ³ /g
Area in Pores	>	18,466 nm	0,000 m ² /g
Total Area in Pores	>=	1,559 nm	0,256 m ² /g

Horvath-Kawazoe

Maximum pore volume at p/p° = 0,160176127: 0,000738 cm³/g

Median pore width: 1,2341 nm

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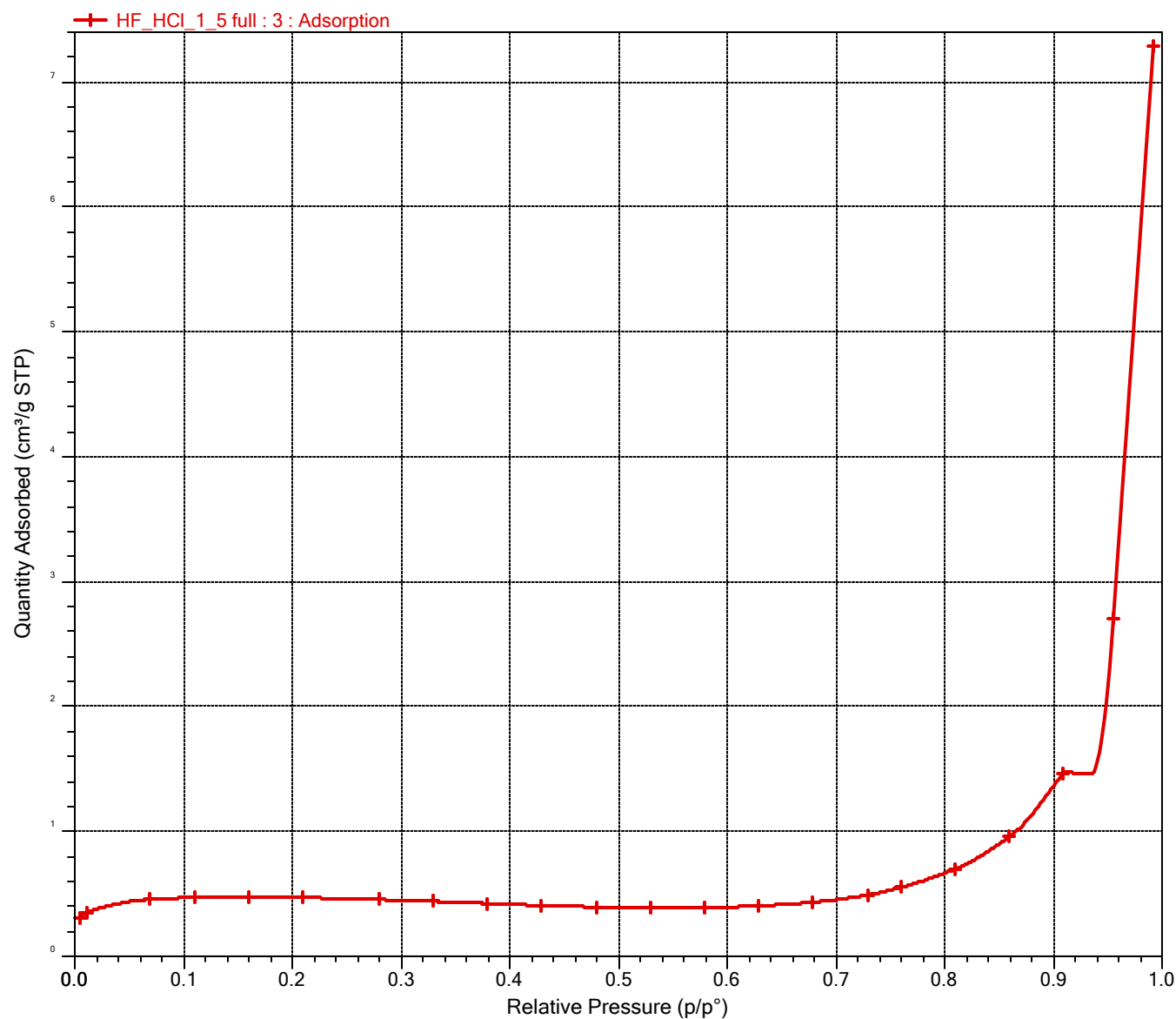
Isotherm Tabular Report

Relative Pressure (p/p°)	Absolute Pressure (kPa)	Quantity Adsorbed (cm ³ /g STP)	Elapsed Time (h:min)	Saturation Pressure (kPa)
			04:55	100.2687386
0.004895409	0.4914087	0.3074	05:46	100.3815385
0.011879389	1.1969640	0.3543	08:49	100.7597302
0.068780674	6.9307945	0.4553	08:54	100.7665981
0.110187080	11.1044889	0.4713	08:59	100.7785031
0.160176127	16.1423103	0.4771	09:05	100.7785031
0.210073747	21.1745982	0.4707	09:10	100.7960228
0.279699920	28.1930697	0.4543	09:16	100.7975607
0.329641066	33.2297863	0.4404	09:21	100.8059666
0.379558307	38.2659456	0.4238	09:26	100.8170416
0.429521030	43.3069507	0.4062	09:32	100.8261473
0.479447541	48.3438057	0.3951	09:37	100.8323154
0.529290347	53.3832890	0.3888	09:42	100.8582329
0.579408470	58.4288592	0.3897	09:48	100.8422592
0.629204958	63.4554774	0.4039	09:53	100.8502501
0.679060436	68.4930241	0.4331	09:58	100.8644010
0.728900737	73.5293298	0.4914	10:04	100.8770139
0.759956353	76.6563764	0.5522	10:09	100.8694461
0.809493260	81.6601653	0.6972	10:15	100.8781287
0.859298858	86.6884395	0.9547	10:20	100.8827588
0.908466611	91.6691101	1.4607	10:26	100.9053156
0.955545704	96.4310243	2.7056	10:34	100.9172287
0.991562018	100.0833371	7.2854	10:50	100.9350251
0.883962968	89.2391743	1.3495	10:59	100.9535213
0.779196363	78.6635930	0.6903	11:05	100.9547744
0.676659019	68.3232463	0.4739	11:11	100.9714560
0.575989587	58.1641551	0.4012	11:16	100.9812615
0.475699850	48.0388380	0.3723	11:22	100.9856068
0.375315229	37.9096394	0.3787	11:27	101.0074638
0.275360309	27.8137937	0.4102	11:32	101.0087251
0.175285583	17.7061835	0.4222	11:38	101.0133471
0.130405626	13.1720328	0.4167	11:43	101.0081636

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Automatic degas:	No		

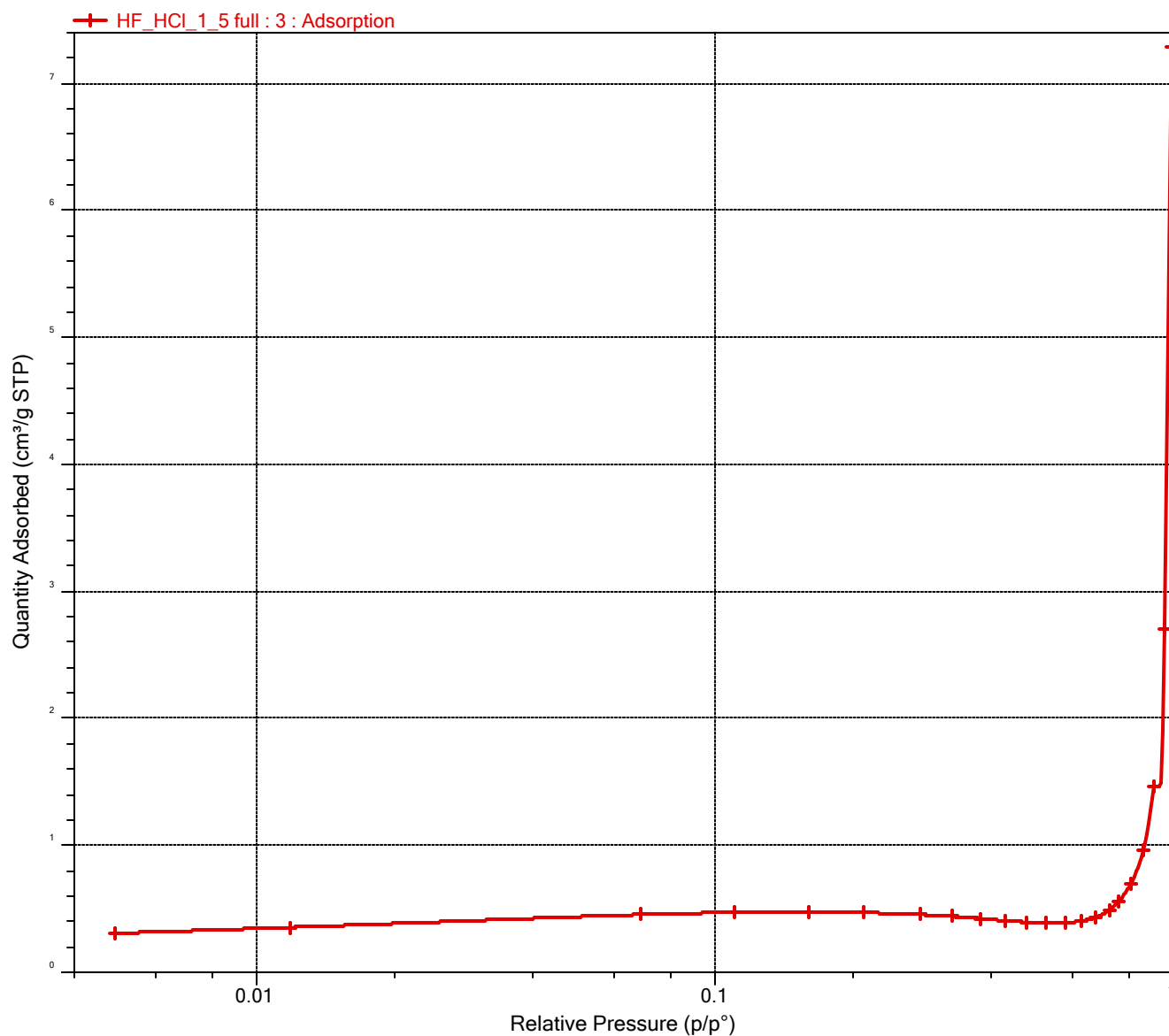
Isotherm Linear Plot



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Isotherm Log Plot



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Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

BET Report

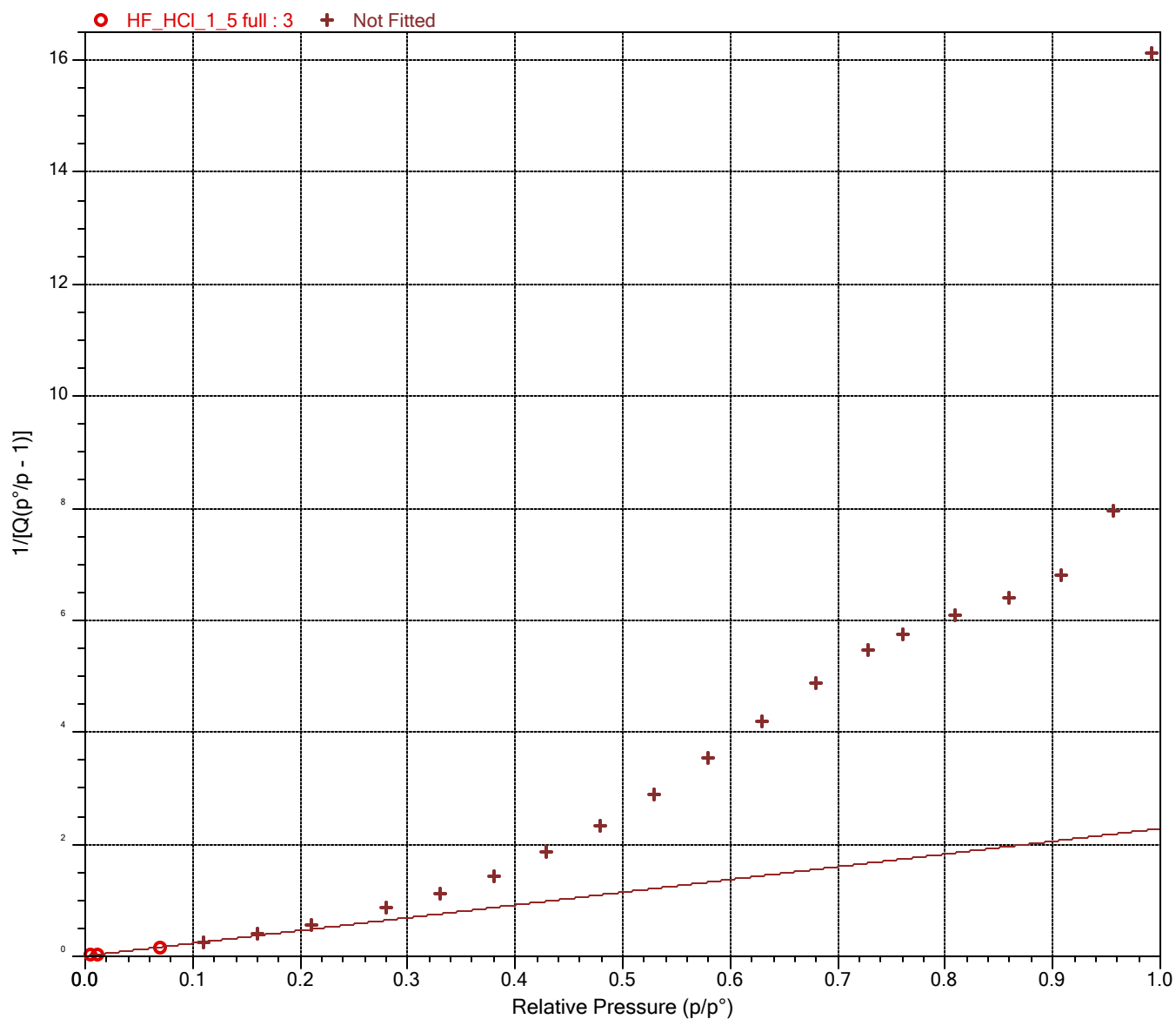
BET surface area: 1,9077 ± 0,0244 m²/g
Slope: 2,275810 ± 0,029114 g/cm³ STP
Y-intercept: 0,005820 ± 0,001176 g/cm³ STP
C: 392,061854
Qm: 0,4383 cm³/g STP
Correlation coefficient: 0,9999182
Molecular cross-sectional area: 0,1620 nm²

Relative Pressure (p/p°)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p°/p - 1)]
0.004895409	0.3074	0.016004
0.011879389	0.3543	0.033929
0.068780674	0.4553	0.162234

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Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

BET Surface Area Plot



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Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

t-Plot Report

Micropore volume:	0,000830 cm ³ /g
Micropore area:	2,1572 m ² /g
External surface area:	-0,2495 m ² /g
Slope:	-0,161323 ± 0,083095 cm ³ /g·nm STP
Y-intercept:	0,536773 ± 0,035418 cm ³ /g STP
Correlation coefficient:	-0,808285
Surface area correction factor:	1,000
Density conversion factor:	0,0015468
Total surface area (BET):	1,9077 m ² /g
Thickness range:	0,35000 to 0,50000 nm
Thickness equation:	Carbon Black STSA

Thickness Curve

$$t = 2.98 + 6.45 (p/p^\circ) + 0.88 (p/p^\circ)^2$$

t-Plot Report - Data

Relative Pressure (p/p°)	Statistical Thickness (nm)	Quantity Adsorbed (cm ³ /g STP)	Fitted
0.068780674	0.34278	0.4553	
0.110187080	0.37014	0.4713	
0.160176127	0.40357	0.4771	
0.210073747	0.43738	0.4707	
0.279699920	0.48529	0.4543	
0.329641066	0.52018	0.4404	
0.379558307	0.55549	0.4238	
0.429521030	0.59128	0.4062	
0.479447541	0.62747	0.3951	
0.529290347	0.66405	0.3888	
0.579408470	0.70126	0.3897	
0.629204958	0.73868	0.4039	
0.679060436	0.77657	0.4331	

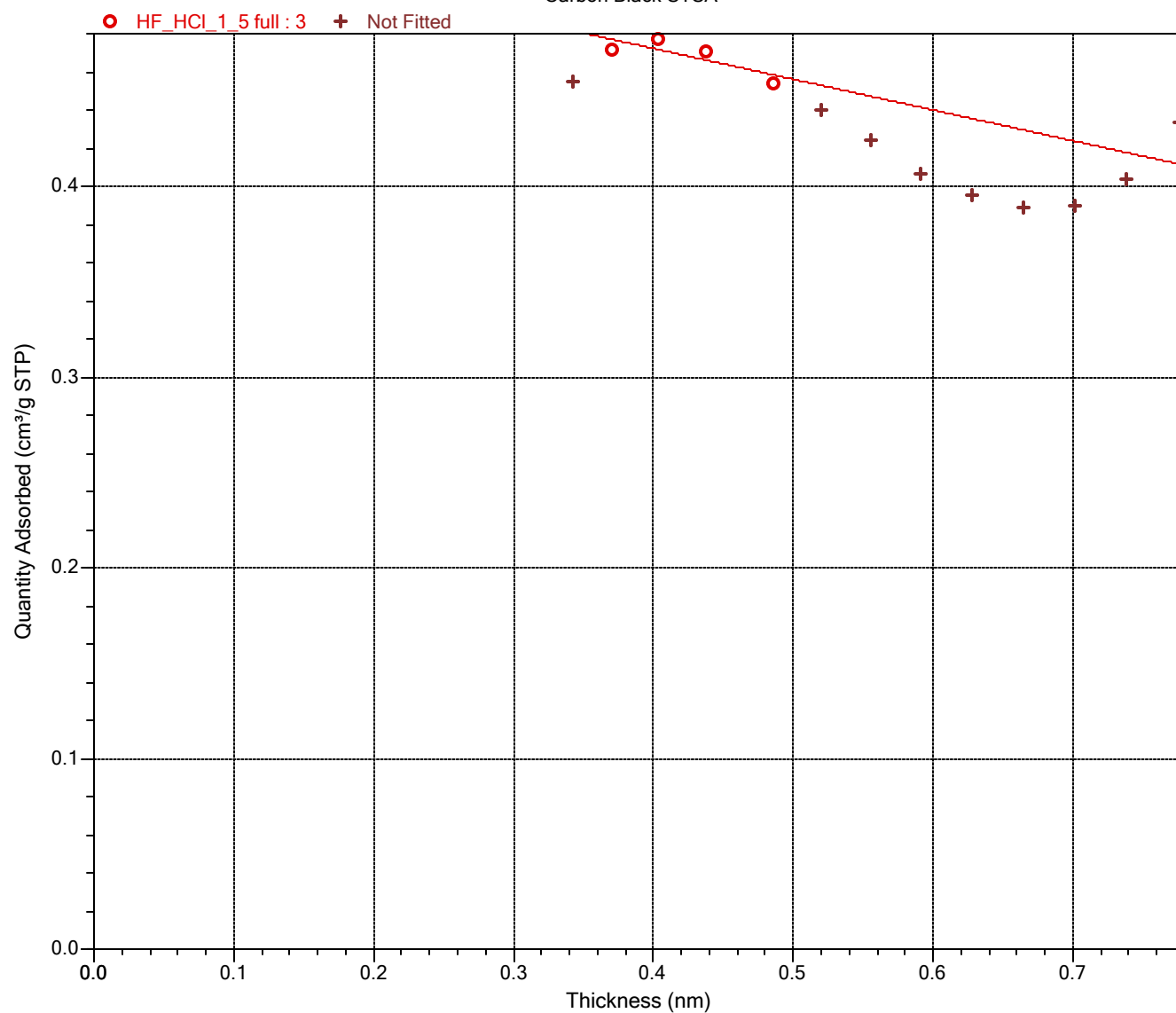
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Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

t-Plot

Carbon Black STSA



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Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Horvath-Kawazoe Report

Cylinder Pore Geometry (Saito-Foley)

Maximum pore volume: 0,000738 cm³/g
 at Relative Pressure: 0,160176127
 Median pore width: 1,2341 nm
 Relative pressure range: 1e-09 to 0.18

Diameter of adsorptive molecule: 0,3000 nm
 Adsorptive density: 6.710e+14 molecules/cm²
 Adsorptive dispersion constant: 7.777e-59
 Diameter of sample atom: 0,3400 nm
 Sample Density: 3.845e+15 molecules/cm²
 Sample dispersion constant: 6.036e-59

Density conversion factor: 0,0015468

Absolute Pressure (kPa)	Relative Pressure (p/p°)	Quantity Adsorbed (cm ³ /g STP)	Pore Width (nm)	Cumulative Pore Volume (cm ³ /g)	Smoothed Differential Pore Volume (cm ³ /g·nm)
0.49141	0.004895409	0.30739	1.234	0.0005	0.0005
1.19696	0.011879389	0.35434	1.422	0.0005	0.0003
6.93079	0.068780674	0.45527	2.143	0.0007	0.0001
11.10449	0.110187080	0.47133	2.525	0.0007	0.0000
16.14231	0.160176127	0.47713	2.969	0.0007	0.0000

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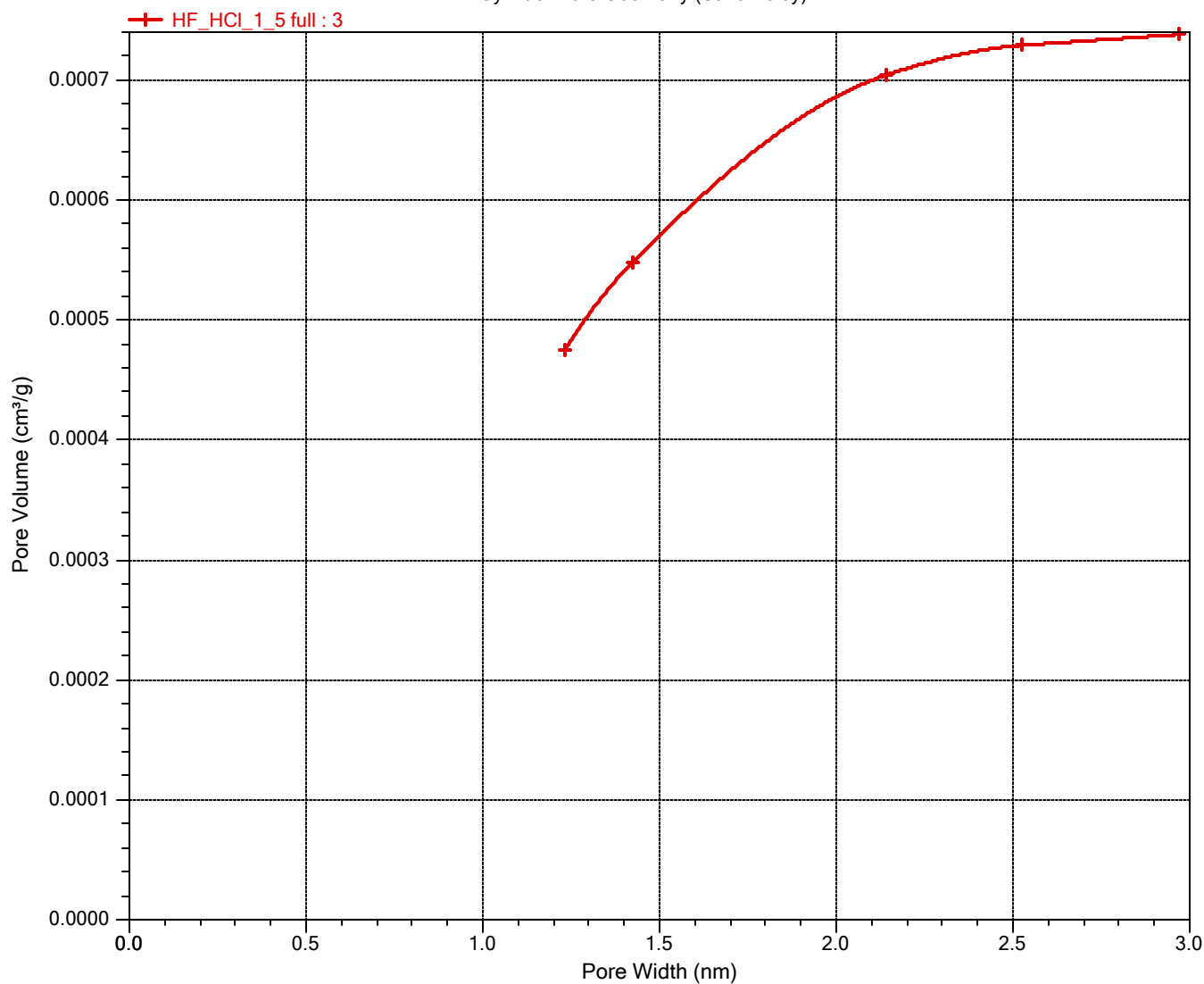
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Low pressure dose: 1,0000 cm³/g STP
Automatic degas: No

Analysis adsorptive: N₂
Analysis bath temp.: 77,300 K
Thermal correction: Yes
Ambient free space: 27,8100 cm³ Entered
Equilibration interval: 30 s
Sample density: 1,000 g/cm³

Horvath-Kawazoe Cumulative Pore Volume Plot

Cylinder Pore Geometry (Saito-Foley)

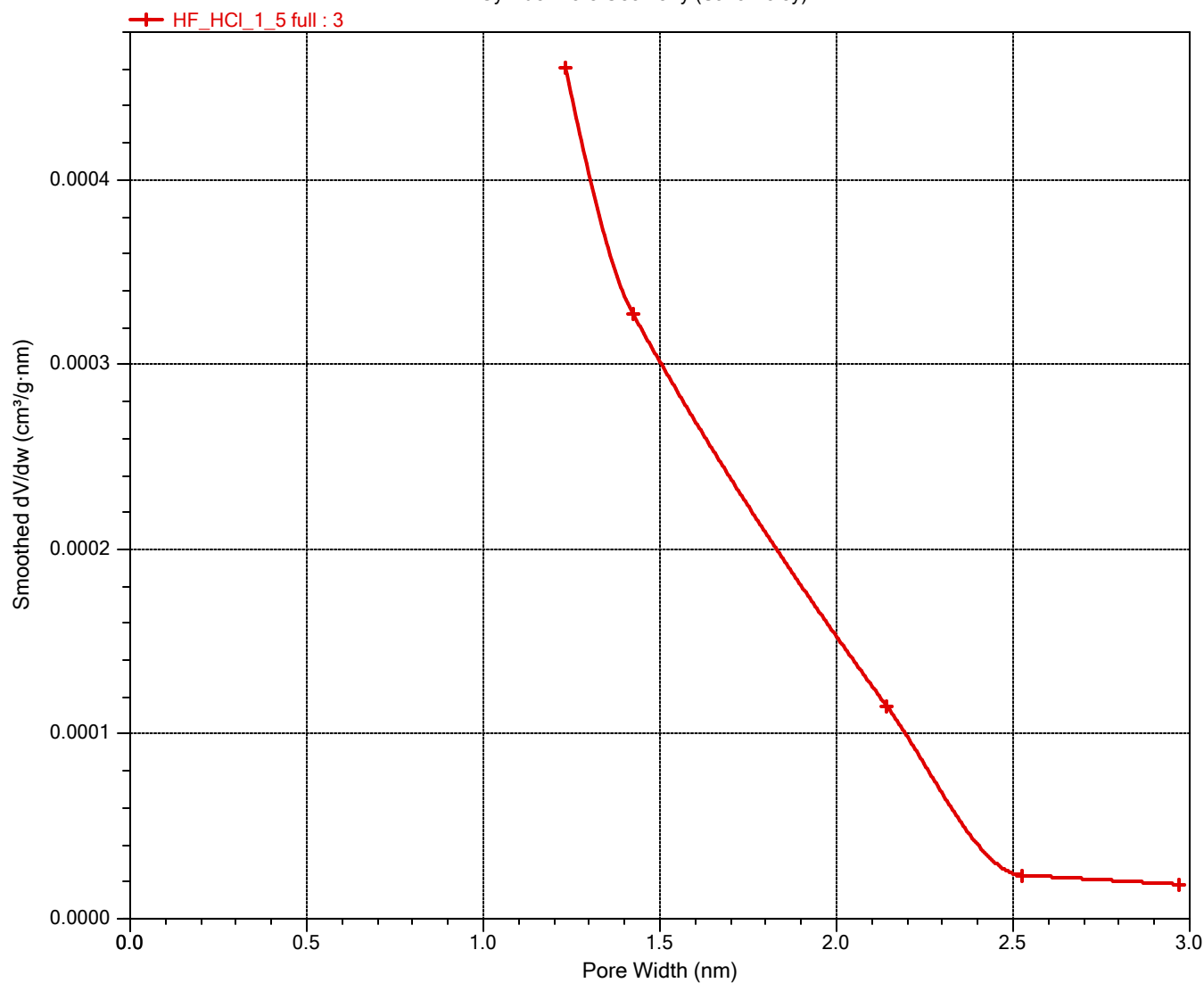


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Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Horvath-Kawazoe Differential Pore Volume Plot

Cylinder Pore Geometry (Saito-Foley)



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Porosity Distribution by
 Model: N2 - Cylindrical Pores - Oxide Surface
 Method: Non-negative Regularization: 0,01000
 Standard Deviation of Fit: 0,04562 cm³/g STP

Volume in Pores	<	1,559 nm	0,00047 cm ³ /g
Total Volume in Pores	<=	18,466 nm	0,00135 cm ³ /g
Area in Pores	>	18,466 nm	0,000 m ² /g
Total Area in Pores	>=	1,559 nm	0,256 m ² /g

Pore Table				
Pore Width (nm)	Cumulative Pore Volume (cm ³ /g)	Incremental Pore Volume (cm ³ /g)	Cumulative Pore Area (m ² /g)	Incremental Pore Area (m ² /g)
1.559	0.00047	0.00000	0.000	0.000
1.594	0.00047	0.00000	0.000	0.000
1.630	0.00047	0.00000	0.000	0.000
1.666	0.00047	0.00000	0.000	0.000
1.702	0.00047	0.00000	0.000	0.000
1.737	0.00047	0.00000	0.000	0.000
1.773	0.00047	0.00000	0.000	0.000
1.809	0.00047	0.00000	0.000	0.000
1.844	0.00047	0.00000	0.000	0.000
1.880	0.00047	0.00000	0.000	0.000
1.916	0.00047	0.00000	0.000	0.000
1.952	0.00047	0.00000	0.000	0.000
1.987	0.00047	0.00000	0.000	0.000
2.023	0.00047	0.00000	0.000	0.000
2.059	0.00047	0.00000	0.000	0.000
2.095	0.00047	0.00000	0.000	0.000
2.130	0.00047	0.00000	0.000	0.000
2.166	0.00047	0.00000	0.000	0.000
2.238	0.00047	0.00000	0.000	0.000
2.309	0.00047	0.00000	0.000	0.000
2.381	0.00047	0.00000	0.000	0.000
2.452	0.00047	0.00000	0.000	0.000
2.524	0.00047	0.00000	0.000	0.000
2.595	0.00047	0.00000	0.000	0.000
2.667	0.00047	0.00000	0.000	0.000
2.738	0.00047	0.00000	0.000	0.000
2.810	0.00047	0.00000	0.000	0.000
2.881	0.00047	0.00000	0.000	0.000
2.953	0.00047	0.00000	0.000	0.000
3.024	0.00047	0.00000	0.000	0.000
3.096	0.00047	0.00000	0.000	0.000

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Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Pore Width (nm)	Cumulative Pore Volume (cm ³ /g)	Pore Table		
		Incremental Pore Volume (cm ³ /g)	Cumulative Pore Area (m ² /g)	Incremental Pore Area (m ² /g)
3.167	0.00047	0.00000	0.000	0.000
3.239	0.00047	0.00000	0.000	0.000
3.310	0.00047	0.00000	0.000	0.000
3.382	0.00047	0.00000	0.000	0.000
3.453	0.00047	0.00000	0.000	0.000
3.525	0.00047	0.00000	0.000	0.000
3.596	0.00047	0.00000	0.000	0.000
3.668	0.00047	0.00000	0.000	0.000
3.739	0.00047	0.00000	0.000	0.000
3.811	0.00047	0.00000	0.000	0.000
3.882	0.00047	0.00000	0.000	0.000
3.954	0.00047	0.00000	0.000	0.000
4.025	0.00047	0.00000	0.000	0.000
4.096	0.00047	0.00000	0.000	0.000
4.168	0.00047	0.00000	0.000	0.000
4.239	0.00047	0.00000	0.000	0.000
4.311	0.00047	0.00000	0.000	0.000
4.382	0.00047	0.00000	0.000	0.000
4.454	0.00047	0.00000	0.000	0.000
4.525	0.00047	0.00000	0.000	0.000
4.597	0.00047	0.00000	0.000	0.000
4.668	0.00047	0.00000	0.000	0.000
4.740	0.00047	0.00000	0.000	0.000
4.811	0.00047	0.00000	0.000	0.000
4.883	0.00047	0.00000	0.000	0.000
4.954	0.00047	0.00000	0.000	0.000
5.026	0.00047	0.00000	0.000	0.000
5.205	0.00047	0.00000	0.000	0.000
5.491	0.00047	0.00000	0.000	0.000
5.777	0.00047	0.00000	0.000	0.000
6.098	0.00047	0.00000	0.000	0.000
6.420	0.00047	0.00000	0.000	0.000
6.742	0.00047	0.00000	0.000	0.000
7.099	0.00047	0.00000	0.000	0.000
7.457	0.00047	0.00000	0.000	0.000
7.850	0.00047	0.00000	0.000	0.000
8.279	0.00047	0.00000	0.000	0.000
8.708	0.00047	0.00000	0.000	0.000
9.137	0.00047	0.00000	0.000	0.000
9.637	0.00047	0.00000	0.000	0.000
10.138	0.00048	0.00001	0.004	0.004

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Automatic degas:	No		

Pore Width (nm)	Cumulative Pore Volume (cm ³ /g)	Pore Table		
		Incremental Pore Volume (cm ³ /g)	Cumulative Pore Area (m ² /g)	Incremental Pore Area (m ² /g)
10.638	0.00053	0.00005	0.023	0.019
11.210	0.00059	0.00005	0.042	0.019
11.782	0.00067	0.00008	0.070	0.028
12.390	0.00074	0.00007	0.092	0.021
13.033	0.00081	0.00007	0.113	0.022
13.676	0.00089	0.00008	0.138	0.025
14.391	0.00099	0.00010	0.164	0.026
15.106	0.00107	0.00009	0.188	0.024
15.893	0.00121	0.00013	0.221	0.034
16.715	0.00132	0.00011	0.248	0.027
17.573	0.00135	0.00003	0.256	0.008
18.466	0.00135	0.00000	0.256	0.000

Sample: 3
Operator:
Submitter:
File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Porosity Distribution by
Model: N2 - Cylindrical Pores - Oxide Surface
Method: Non-negative Regularization: 0,01000
Standard Deviation of Fit: 0,04562 cm³/g STP

Isotherm Table				
Relative Pressure (p/p°)	Experimental Quantity Adsorbed (cm ³ /g STP)	Fitted Quantity Adsorbed (cm ³ /g STP)	Absolute Residual (cm ³ /g STP)	Relative Residual
0.005011868	0.3085	0.3656	-0.0572	-0.185336
0.006309579	0.3200	0.3677	-0.0477	-0.148992
0.007943276	0.3332	0.3698	-0.0366	-0.109929
0.010000000	0.3465	0.3720	-0.0255	-0.073532
0.012355640	0.3557	0.3740	-0.0183	-0.051547
0.015186320	0.3636	0.3761	-0.0125	-0.034291
0.018485530	0.3725	0.3781	-0.0056	-0.014928
0.022294740	0.3824	0.3801	0.0023	0.006039
0.026653420	0.3930	0.3820	0.0110	0.028052
0.031598160	0.4043	0.3840	0.0203	0.050257
0.037162240	0.4158	0.3859	0.0299	0.071930
0.043374470	0.4272	0.3879	0.0393	0.092092
0.050259210	0.4379	0.3898	0.0481	0.109731
0.057835260	0.4471	0.3918	0.0553	0.123736
0.066115920	0.4539	0.3936	0.0602	0.132680
0.075109080	0.4582	0.3955	0.0628	0.136987
0.084815920	0.4628	0.3972	0.0656	0.141649
0.095232370	0.4672	0.3990	0.0682	0.146011
0.106348200	0.4706	0.4007	0.0699	0.148532
0.118147500	0.4727	0.4025	0.0702	0.148515
0.130609100	0.4749	0.4044	0.0705	0.148444
0.143706600	0.4767	0.4064	0.0703	0.147429
0.157410500	0.4771	0.4085	0.0686	0.143879
0.171685500	0.4763	0.4106	0.0657	0.137992
0.186492100	0.4747	0.4127	0.0621	0.130742
0.201792100	0.4723	0.4148	0.0576	0.121931
0.217539500	0.4690	0.4169	0.0522	0.111250
0.233689500	0.4654	0.4190	0.0465	0.099845
0.250196100	0.4616	0.4211	0.0406	0.087849
0.267011800	0.4575	0.4232	0.0344	0.075107
0.284089500	0.4531	0.4253	0.0278	0.061448
0.301380300	0.4486	0.4274	0.0212	0.047169
0.318838200	0.4437	0.4295	0.0142	0.031919
0.336417100	0.4382	0.4317	0.0066	0.015045
0.354071100	0.4324	0.4338	-0.0014	-0.003157

Sample: ³
 Operator:
 Submitter:
 File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
 Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0.6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

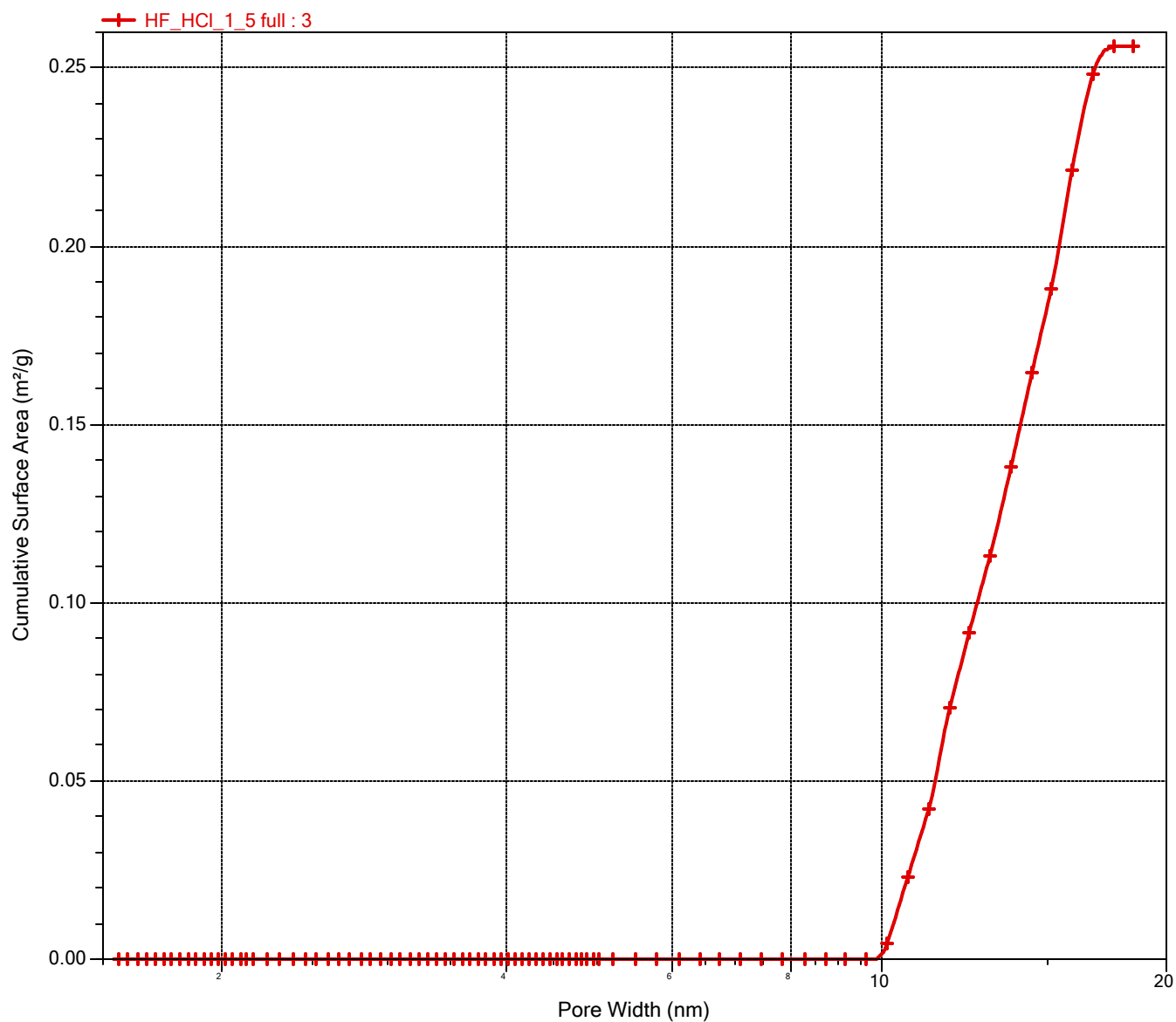
Isotherm Table				
Relative Pressure (p/p°)	Experimental Quantity Adsorbed (cm ³ /g STP)	Fitted Quantity Adsorbed (cm ³ /g STP)	Absolute Residual (cm ³ /g STP)	Relative Residual
0.371757900	0.4264	0.4359	-0.0095	-0.022259
0.389435500	0.4204	0.4381	-0.0177	-0.042165
0.407065800	0.4140	0.4402	-0.0262	-0.063391
0.424610500	0.4078	0.4424	-0.0346	-0.084925
0.442034200	0.4025	0.4447	-0.0421	-0.104676
0.459305300	0.3987	0.4469	-0.0482	-0.120817
0.476393400	0.3957	0.4492	-0.0535	-0.135264
0.493271100	0.3929	0.4515	-0.0586	-0.149109
0.509911800	0.3908	0.4539	-0.0631	-0.161479
0.526293400	0.3891	0.4563	-0.0672	-0.172720
0.542394700	0.3888	0.4587	-0.0699	-0.179807
0.558200000	0.3888	0.4612	-0.0724	-0.186131
0.573690800	0.3891	0.4637	-0.0746	-0.191613
0.588853900	0.3911	0.4661	-0.0751	-0.191918
0.603677600	0.3949	0.4686	-0.0738	-0.186852
0.618153900	0.3998	0.4711	-0.0714	-0.178564
0.632272400	0.4051	0.4737	-0.0685	-0.169159
0.646028900	0.4117	0.4762	-0.0645	-0.156733
0.659417100	0.4195	0.4787	-0.0592	-0.141111
0.672435500	0.4283	0.4813	-0.0530	-0.123630
0.685081600	0.4380	0.4838	-0.0458	-0.104557
0.697355300	0.4502	0.4864	-0.0362	-0.080519
0.709256600	0.4643	0.4890	-0.0247	-0.053247
0.720789500	0.4797	0.4917	-0.0119	-0.024885
0.731953900	0.4961	0.4944	0.0017	0.003387
0.742756600	0.5155	0.5014	0.0142	0.027485
0.753200000	0.5373	0.5234	0.0139	0.025940
0.763289500	0.5594	0.5475	0.0119	0.021299
0.773030300	0.5797	0.5835	-0.0038	-0.006637
0.782430300	0.6007	0.5857	0.0149	0.024835
0.791496100	0.6251	0.6151	0.0101	0.016081
0.800232900	0.6553	0.6466	0.0087	0.013309
0.808648700	0.6928	0.6844	0.0084	0.012162
0.816752600	0.7347	0.7273	0.0074	0.010008
0.824552600	0.7750	0.7680	0.0070	0.009075
0.832053900	0.8138	0.8288	-0.0150	-0.018430
0.839267100	0.8511	0.8296	0.0215	0.025301
0.846200000	0.8870	0.8811	0.0059	0.006635
0.852860500	0.9214	0.8970	0.0244	0.026435
0.859257900	0.9545	0.8974	0.0571	0.059792

Sample: ³
Operator:
Submitter:

File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Cumulative Surface Area vs. Pore Width



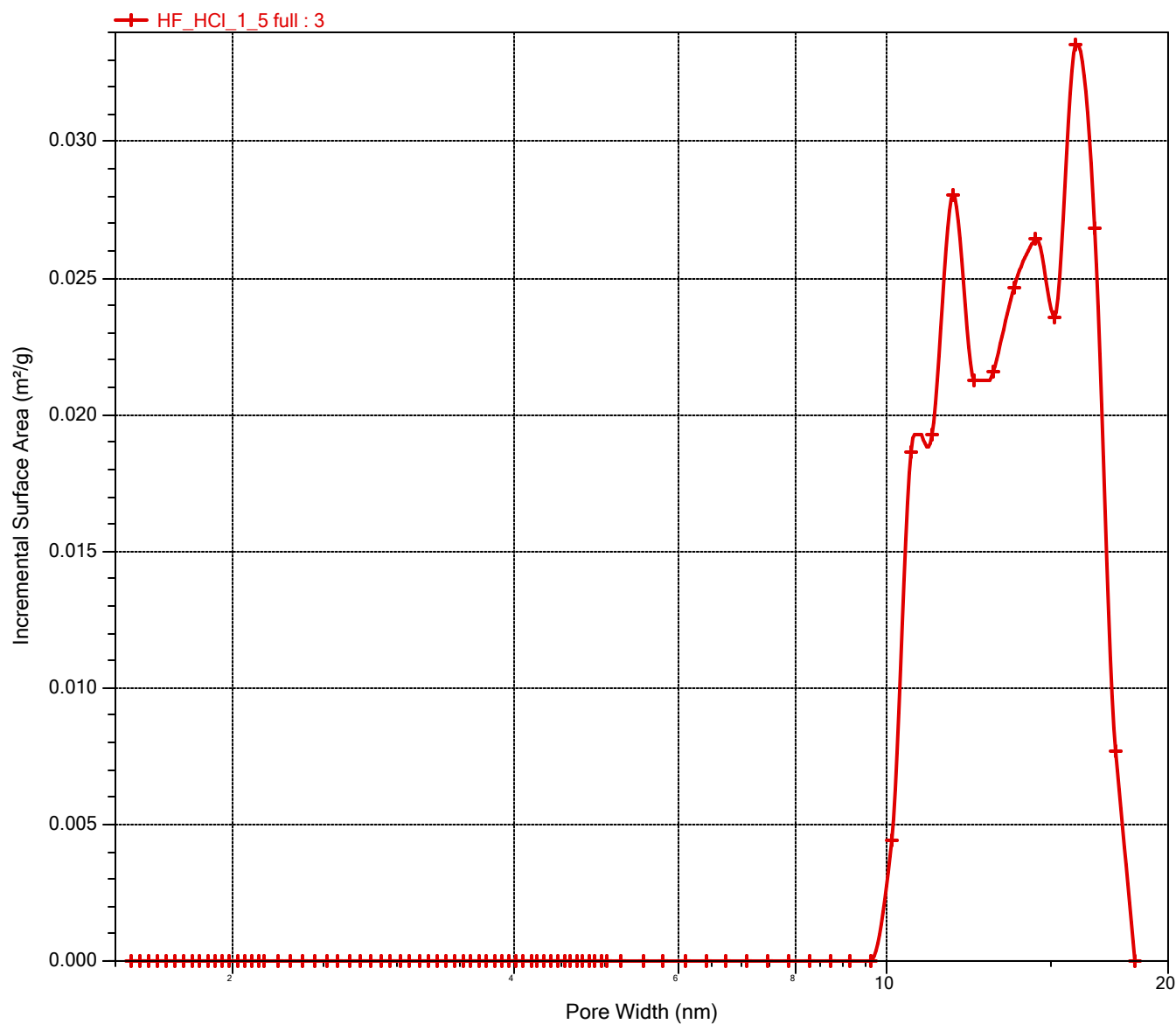
Sample: ³
Operator:
Submitter:

File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started: 14.03.2023 14:41:36
Completed: 15.03.2023 02:52:01
Report time: 19.10.2023 09:09:01
Sample mass: 0,6009 g
Analysis free space: 81,8645 cm³
Low pressure dose: 1,0000 cm³/g STP
Automatic degas: No

Analysis adsorptive: N₂
Analysis bath temp.: 77,300 K
Thermal correction: Yes
Ambient free space: 27,8100 cm³ Entered
Equilibration interval: 30 s
Sample density: 1,000 g/cm³

Incremental Surface Area vs. Pore Width



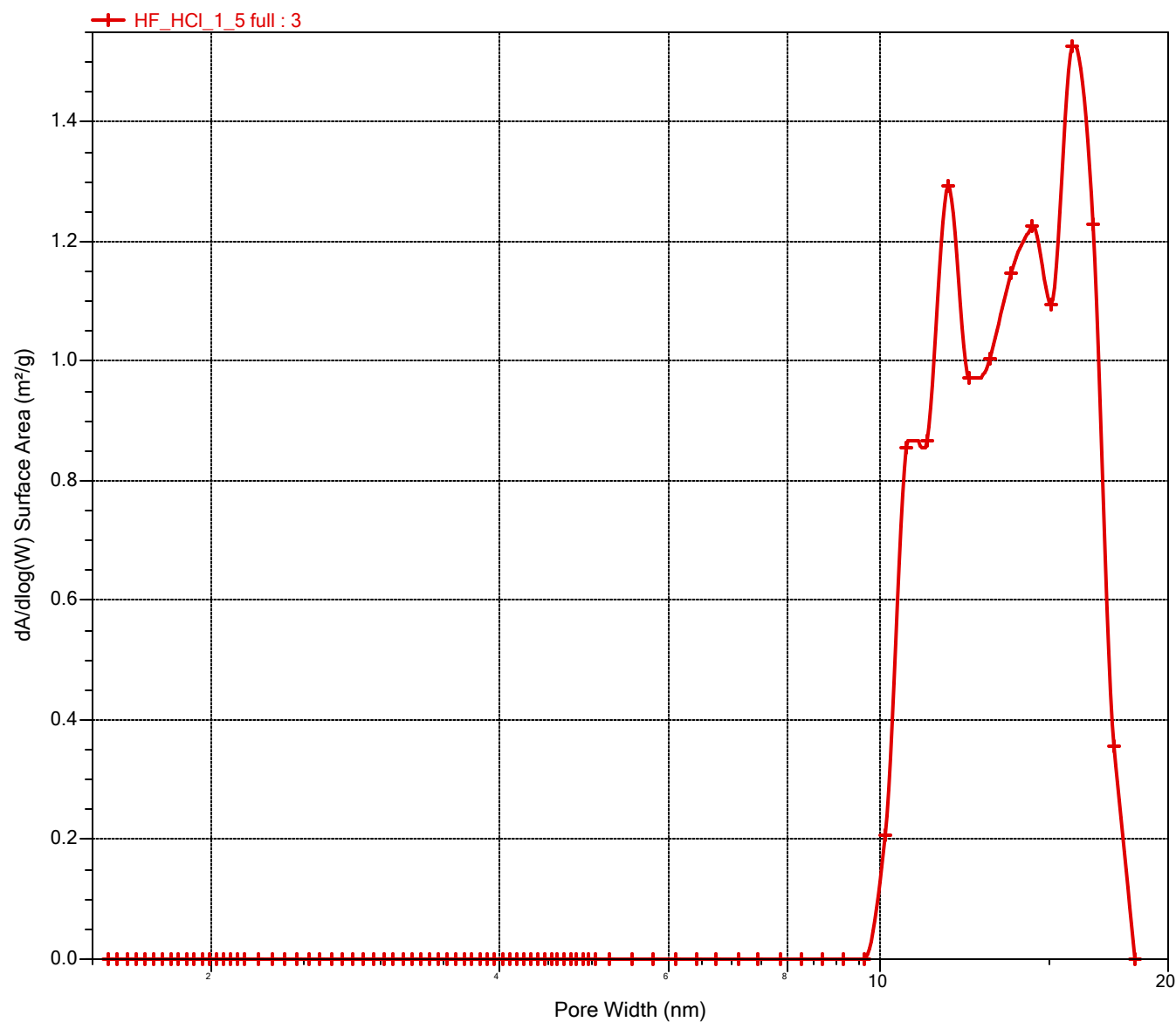
Sample: ³
Operator:
Submitter:

File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started: 14.03.2023 14:41:36
Completed: 15.03.2023 02:52:01
Report time: 19.10.2023 09:09:01
Sample mass: 0,6009 g
Analysis free space: 81,8645 cm³
Low pressure dose: 1,0000 cm³/g STP
Automatic degas: No

Analysis adsorptive: N₂
Analysis bath temp.: 77,300 K
Thermal correction: Yes
Ambient free space: 27,8100 cm³ Entered
Equilibration interval: 30 s
Sample density: 1,000 g/cm³

dA/dlog(W) Surface Area vs. Pore Width



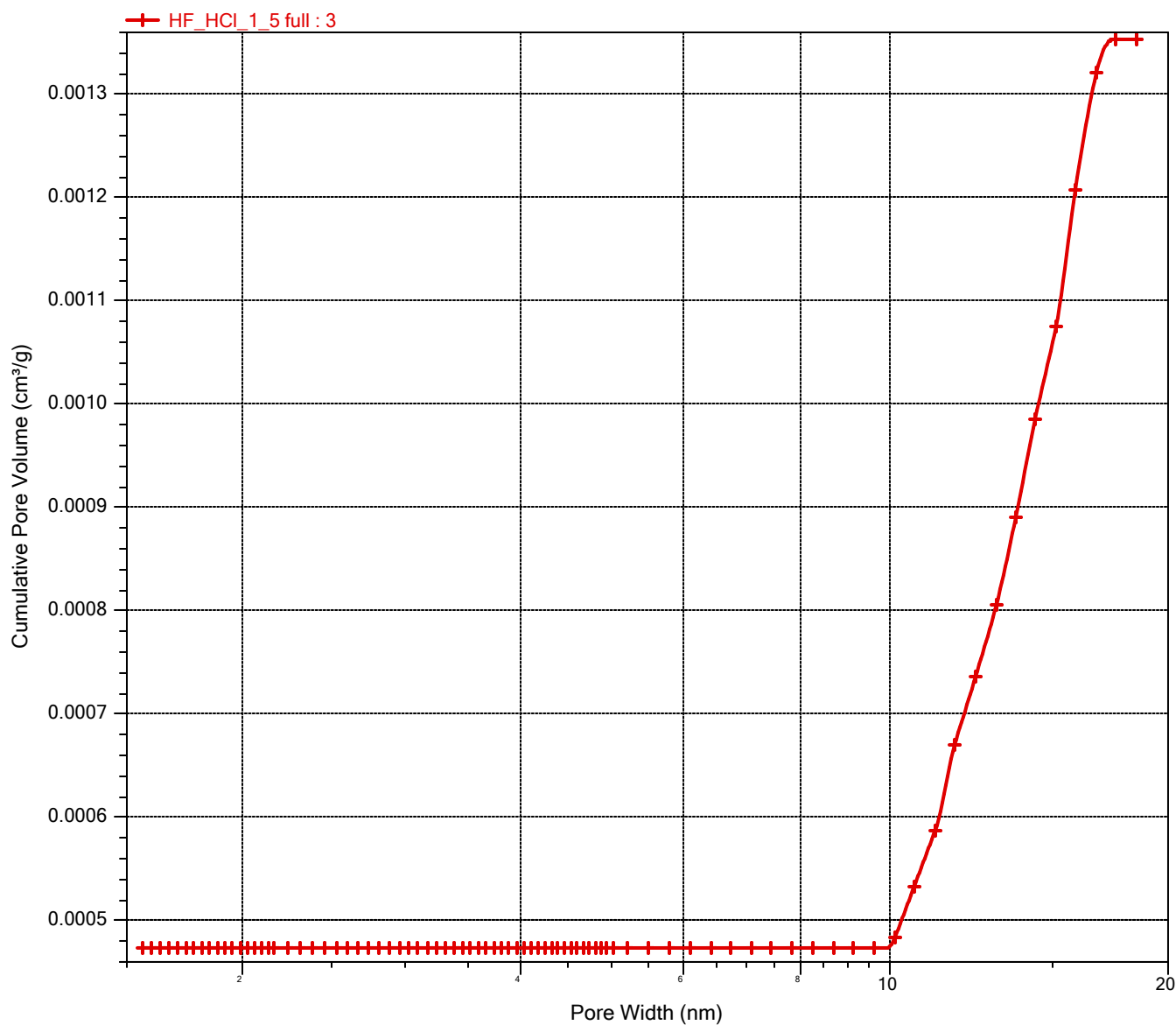
Sample: ³
Operator:
Submitter:

File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started: 14.03.2023 14:41:36
Completed: 15.03.2023 02:52:01
Report time: 19.10.2023 09:09:01
Sample mass: 0,6009 g
Analysis free space: 81,8645 cm³
Low pressure dose: 1,0000 cm³/g STP
Automatic degas: No

Analysis adsorptive: N₂
Analysis bath temp.: 77,300 K
Thermal correction: Yes
Ambient free space: 27,8100 cm³ Entered
Equilibration interval: 30 s
Sample density: 1,000 g/cm³

Cumulative Pore Volume vs. Pore Width



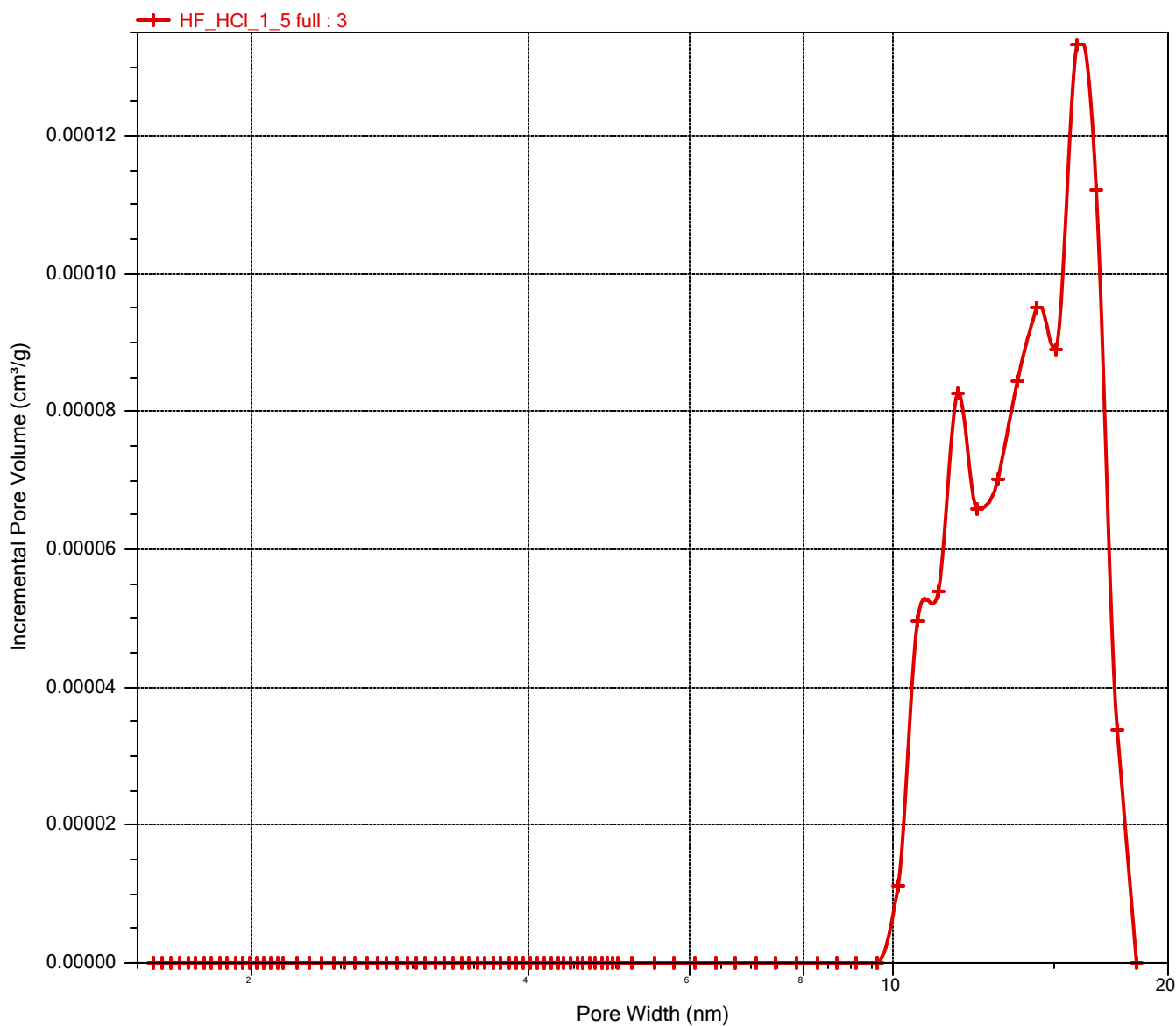
Sample: ³
Operator:
Submitter:

File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started: 14.03.2023 14:41:36
Completed: 15.03.2023 02:52:01
Report time: 19.10.2023 09:09:01
Sample mass: 0,6009 g
Analysis free space: 81,8645 cm³
Low pressure dose: 1,0000 cm³/g STP
Automatic degas: No

Analysis adsorptive: N₂
Analysis bath temp.: 77,300 K
Thermal correction: Yes
Ambient free space: 27,8100 cm³ Entered
Equilibration interval: 30 s
Sample density: 1,000 g/cm³

Incremental Pore Volume vs. Pore Width



Sample: ³

Operator:

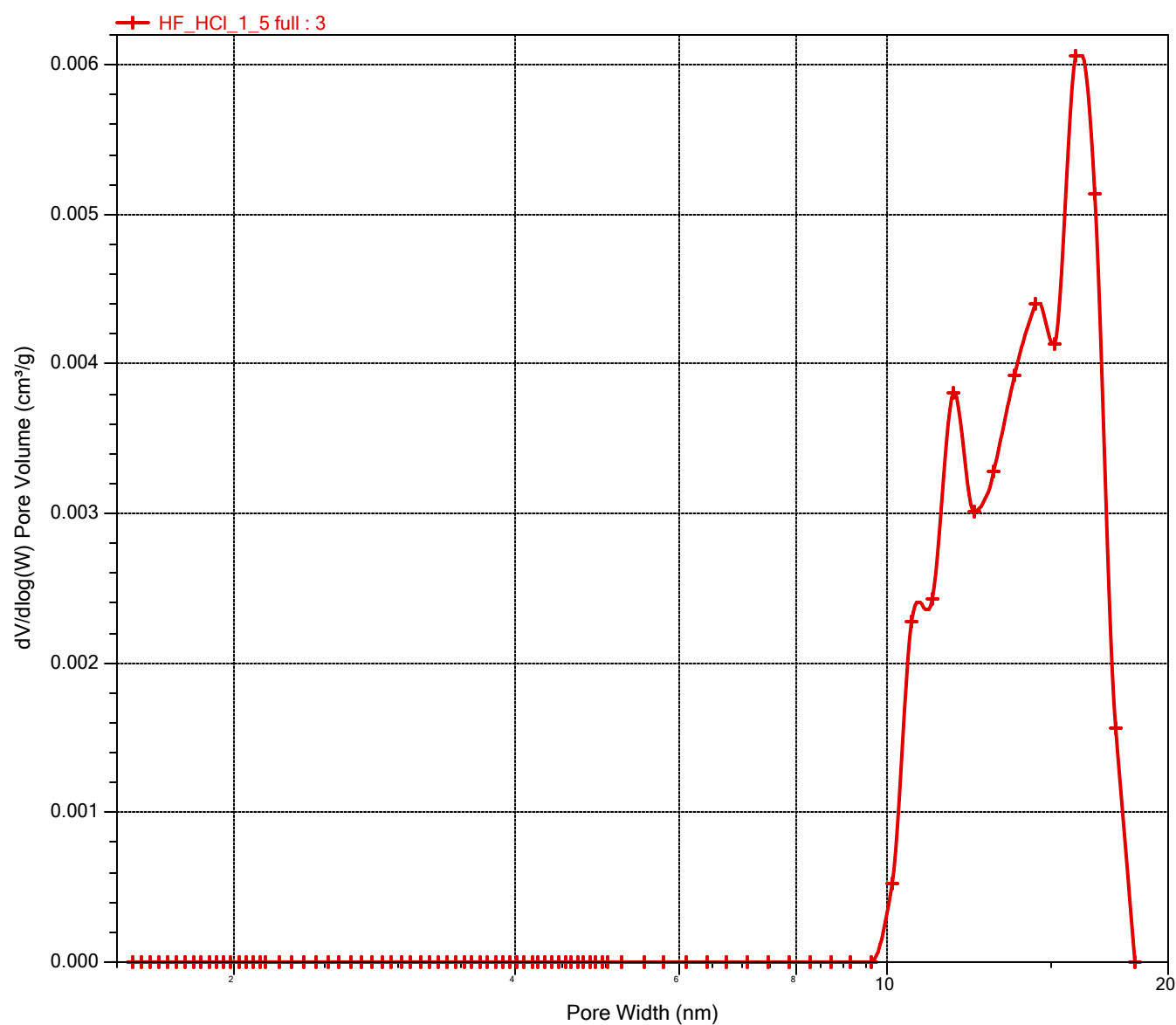
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File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
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Started: 14.03.2023 14:41:36
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 Report time: 19.10.2023 09:09:01
 Sample mass: 0,6009 g
 Analysis free space: 81,8645 cm³
 Low pressure dose: 1,0000 cm³/g STP
 Automatic degas: No

Analysis adsorptive: N₂
 Analysis bath temp.: 77,300 K
 Thermal correction: Yes
 Ambient free space: 27,8100 cm³ Entered
 Equilibration interval: 30 s
 Sample density: 1,000 g/cm³

dV/dlog(W) Pore Volume vs. Pore Width



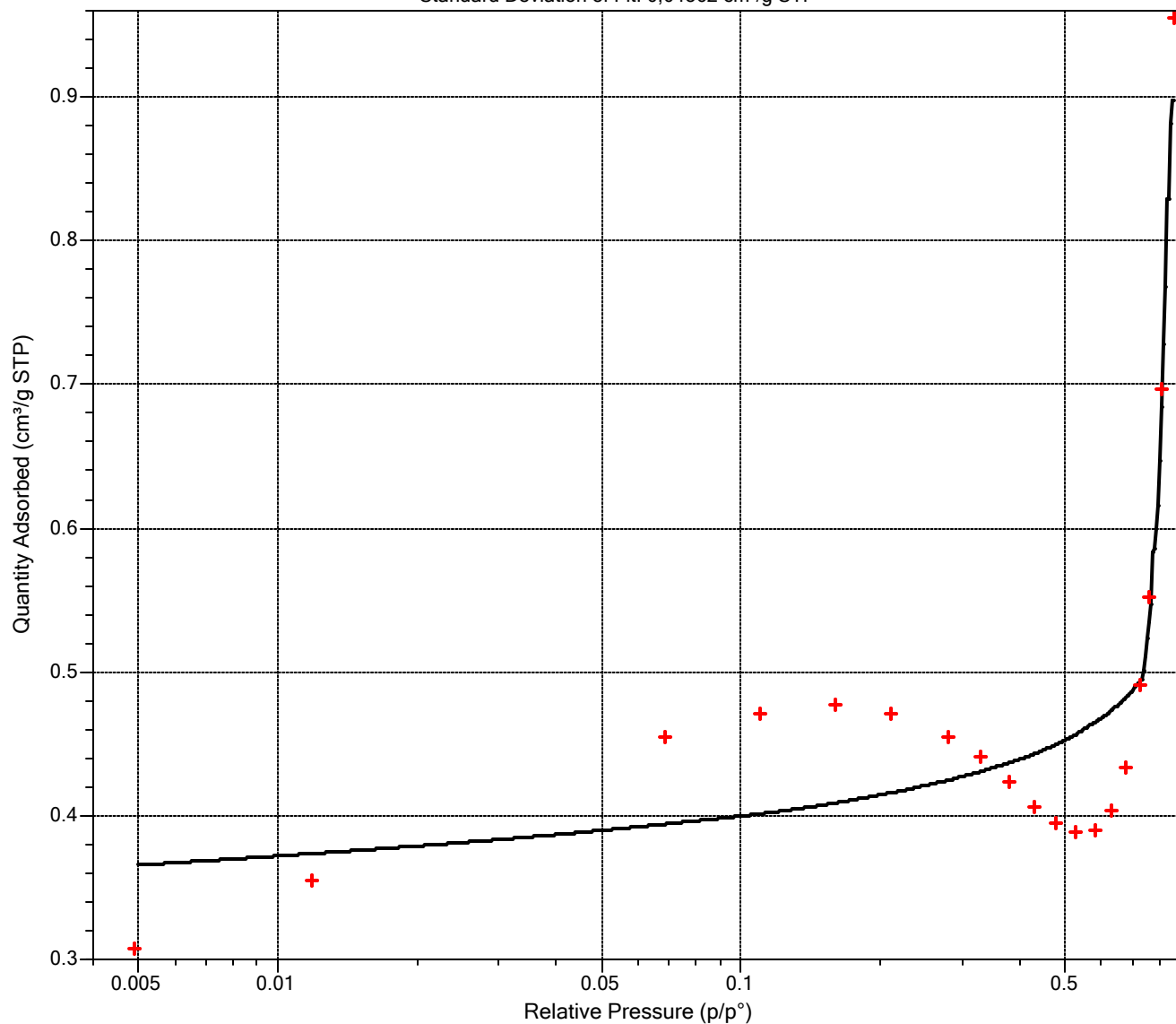
Sample: ³
Operator:
Submitter:

File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Goodness of Fit

Standard Deviation of Fit: 0,04562 cm³/g STP



Sample: ³
Operator:
Submitter:

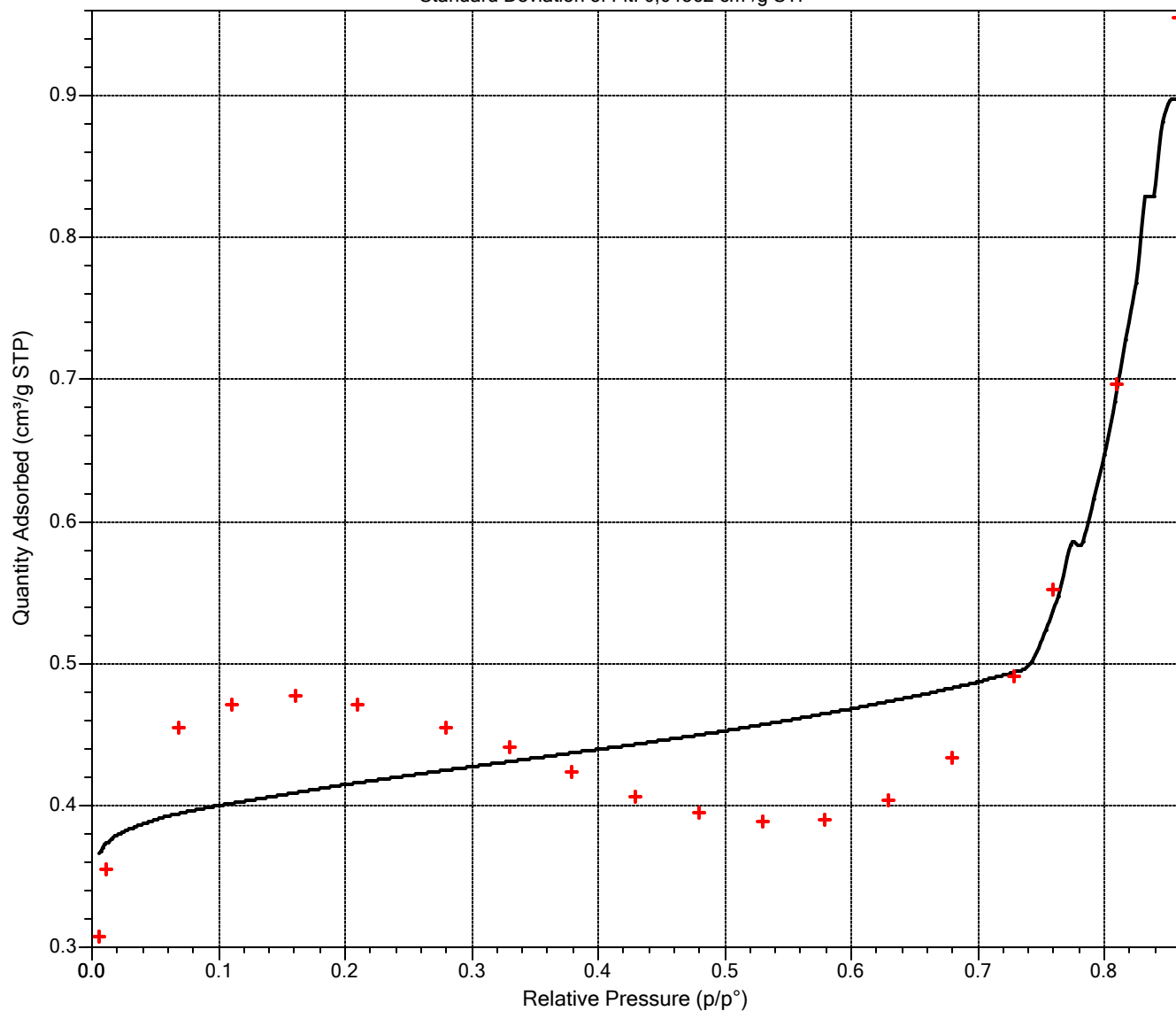
File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz... \HF_HCl_1_5 full.SMP

Started: 14.03.2023 14:41:36
Completed: 15.03.2023 02:52:01
Report time: 19.10.2023 09:09:01
Sample mass: 0,6009 g
Analysis free space: 81,8645 cm³
Low pressure dose: 1,0000 cm³/g STP
Automatic degas: No

Analysis adsorptive: N₂
Analysis bath temp.: 77,300 K
Thermal correction: Yes
Ambient free space: 27,8100 cm³ Entered
Equilibration interval: 30 s
Sample density: 1,000 g/cm³

Goodness of Fit

Standard Deviation of Fit: 0,04562 cm³/g STP



Sample: ³
 Operator:
 Submitter:
 File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
 Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Sample Information

Method: FULL- N2@77K- ADS/DES
 Sample: ³
 Operator:
 Submitter:
 Mass type: Entered
 Sample mass: 0,6009 g
 Density: 1,000 g/cm³
 Type of data: Automatically collected
 Instrument type: 2460
 Original instrument type: 2460
 Comments:

Sample Tube

Sample tube: W1
 Ambient free space: 1,0000 cm³
 Analysis free space: 1,0000 cm³
 Non-ideality factor: 0,0000620
 Use isothermal jacket: Yes
 Use filler rod: No
 Vacuum seal type: None

Degas Conditions

Degas conditions: FULL- N2@77K- ADS/DES

Smart VacPrep evacuation
 Backfill sample tube: Automatic
 Evacuation rate: 0,27 kPa/s
 Unrest. evacuation from: 0,27 kPa
 Vacuum level: 7e-02 kPa
 Evacuation time: 60 min
 Temperature ramp rate: 10,0 K/min
 Target temperature: 363 K
 Hold pressure: 13,3 kPa

Heating Phase

Sample prep: Stage	Temperature (K)	Ramp Rate (K/min)	Time (min)
1	523	10,0	720

Analysis Conditions

Sample: ³
 Operator:
 Submitter:
 File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
 Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Analysis conditions: FULL- N2@77K- ADS/DES
 Isotherm collection: Target Pressure
 Absolute pressure dosing: No

Pressure Table		
Starting Pressure (p/p°)	Pressure Increment (p/p°)	Ending Pressure (p/p°)
0,000000000		0,010000000
0,010000000	0,050000000	0,995000000
0,995000000	0,100000000	0,150000000

Preparation

Fast evacuation: No
 Evacuation rate: 0,27 kPa/s
 Unrestricted evacuation from: 0,27 kPa
 Vacuum setpoint: 1,3 Pa
 Evacuation time: 4,00 h

Leak test: No
 Use TranSeal: No

Free Space

Entered

Ambient free space: 27,8100 cm³
 Analysis free space: 81,8645 cm³

p° and Temperature

p° type: Measured in Psat tube for each point
 Temperature type: Entered
 Temperature: 77,300 K

Dosing

Use first pressure fixed dose: No
 Use maximum volume increment: No
 Target tolerance: 5.0% or 0,6666 kPa
 Low pressure dosing: Yes
 Dose amount: 1,0000 cm³/g STP
 Minimum equilibration delay: 0,50 h
 Maximum equilibration delay: 2,00 h
 Maximum number of decants: ⁶

Sample: ³
 Operator:
 Submitter:
 File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
 Szcz... \HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

	Equilibration Relative Pressure (p/p°)	Equilibration Interval (s)
1	1,000000000	30

Minimum equilibration delay at p/p° >= 0.995: 600 s

Sample Backfill

Backfill at start of analysis: Yes
 Backfill at end of analysis: Yes
 Backfill gas: N2

Adsorptive Properties

Adsorptive: Nitrogen @ 77.35 K (N2)
 Non-condensing adsorptive: No
 Maximum manifold pressure: 123,323 kPa
 Therm. tran. hard-sphere diameter: 0,38600 nm
 Molecular cross-sectional area: 0,162 nm²
 Adsorbate molecular weight: 28,01
 Thermal conductivity: 1,00
 Non-ideality factor: 0,0000620
 Density conversion factor: 0,0015468
 Dosing method: Normal

Psat vs. Temperature Table

	Saturation Pressure (kPa)	Temperature (K)
1	80,0192	75,40
2	84,5947	75,85
3	89,9104	76,35
4	96,0481	76,90
5	98,9411	77,15
6	101,3028	77,35
7	103,7071	77,55
8	107,3945	77,85
9	113,7597	78,35
10	120,4064	78,85

Report Options

Inside diameter of sample tube: 9,53 mm

Sample: ³
Operator:
Submitter:
File: C:\Users\barto\OneDrive - Zachodniopomorski Uniwersytet Technologiczny w
Szcz...\\HF_HCl_1_5 full.SMP

Started:	14.03.2023 14:41:36	Analysis adsorptive:	N2
Completed:	15.03.2023 02:52:01	Analysis bath temp.:	77,300 K
Report time:	19.10.2023 09:09:01	Thermal correction:	Yes
Sample mass:	0,6009 g	Ambient free space:	27,8100 cm ³ Entered
Analysis free space:	81,8645 cm ³	Equilibration interval:	30 s
Low pressure dose:	1,0000 cm ³ /g STP	Sample density:	1,000 g/cm ³
Automatic degas:	No		

Sample Log

Date	Time	Log Message
14.03.2023	14:41:36	Starting a sample analysis for C:\ASAP 2460\data\2023\Bartek\3full.SMP on port 3.
14.03.2023	19:47:35	Low pressure data collection started
14.03.2023	23:24:42	Standard data collection started.
15.03.2023	02:28:45	Termination started.
15.03.2023	02:52:01	Finished a sample analysis for C:\ASAP 2460\data\2023\Bartek\3full.SMP on port 3.