

Sample: toyin\_B

Operator:

File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34	Analysis adsorptive: N2
Completed: 12/07/2018 13:35:14	Analysis bath temp.: -195.855 °C
Report time: 12/07/2018 13:59:46	Thermal correction: No
Sample mass: 0.2051 g	Warm free space: 20.6774 cm <sup>3</sup> Measured
Cold free space: 62.0895 cm <sup>3</sup>	Equilibration interval: 10 s
Low pressure dose: 3.0000 cm <sup>3</sup> /g STP	Sample density: 1.000 g/cm <sup>3</sup>
Automatic degas: No	

### Summary Report

No summary reports could be produced.

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 Sample mass: 0.2051 g  
 Cold free space: 62.0895 cm<sup>3</sup>  
 Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
 Automatic degas: No  
 Analysis adsorptive: N2  
 Analysis bath temp.: -195.855 °C  
 Thermal correction: No  
 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

## Isotherm Tabular Report

Relative Pressure (P/Po)	Absolute Pressure (mbar)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	Elapsed Time (h:min)	Saturation Pressure (mbar)
0.000000629	0.000635	2.9021	01:21	1008.196130
0.000001588	0.001603	5.8162	01:58	1009.554661
0.000002578	0.002601	8.7301	02:28	1009.262855
0.000003606	0.003637	11.6360	03:07	1008.930363
0.000004683	0.004720	14.5485	03:53	1008.637337
0.000005821	0.005863	17.4489	04:45	1008.016538
0.000007034	0.007080	20.3516	05:42	1007.316482
0.000008365	0.008416	23.2553	06:43	1006.608451
0.000009841	0.009899	26.1515	07:47	1006.090427
0.000011464	0.011529	29.0511	08:51	1005.879262
0.000013511	0.013591	31.9485	10:05	1005.668993
0.000018157	0.018267	34.8399	11:27	1005.865103
0.000023826	0.023970	37.7111	11:51	1006.075291
0.000032926	0.033124	40.5682	12:22	1006.066503
0.000067920	0.068329	43.4043	13:10	1006.010355
0.000218334	0.219645	46.1433	13:59	1006.012715
0.000714630	0.718967	48.6430	14:17	1006.003113
0.001830731	1.841940	50.7754	14:36	1006.069758
0.003586344	3.608088	52.5675	14:58	1006.122244
0.005825670	5.859801	54.0858	15:14	1006.062841
0.008582934	8.634183	55.3276	15:31	1005.858756
0.011839249	11.909011	56.3118	15:46	1005.971133
0.019550461	19.663903	57.9089	15:57	1005.892364
0.029365674	29.539023	59.4498	16:12	1005.802527
0.039395795	39.624342	60.7538	16:31	1005.903105
0.051950532	52.253705	62.1968	16:47	1005.801307
0.058395021	58.732971	62.9082	17:00	1005.835809
0.069354368	69.750811	64.0459	17:08	1005.787310
0.079277356	79.736417	65.0192	17:19	1005.716190
0.089167905	89.678447	65.9254	17:28	1005.790565
0.099075104	99.649482	66.7819	17:35	1005.725629
0.118289891	118.977985	68.2674	17:43	1005.797401
0.138425837	139.226060	69.6785	17:50	1005.817012
0.158545642	159.469904	70.9545	17:57	1005.780882
0.178681702	179.707675	72.1203	18:04	1005.829625
0.198809953	199.958700	73.2084	18:09	1005.741904
0.229282738	230.588716	74.7084	18:14	1005.778115
0.259961263	261.446130	76.1412	18:19	1005.695928
0.290905156	292.568048	77.5147	18:24	1005.711877
			18:28	1005.716271

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 Cold free space: 62.0895 cm<sup>3</sup>  
 Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
 Automatic degas: No  
 Analysis adsorptive: N2  
 Analysis bath temp.: -195.855 °C  
 Thermal correction: No  
 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

## Isotherm Tabular Report

Relative Pressure (P/Po)	Absolute Pressure (mbar)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	Elapsed Time (h:min)	Saturation Pressure (mbar)
0.300745930	302.465369	77.9718	18:31	1005.717248
0.310610415	312.378619	78.4080	18:34	1005.692673
0.320331248	322.153981	78.8308	18:37	1005.690150
0.330240561	332.125189	79.2594	18:40	1005.706832
0.340386075	342.335858	79.6977	18:43	1005.728152
0.349206830	351.180145	80.0783	18:46	1005.650847
0.359145983	361.162399	80.4972	18:49	1005.614473
0.369191447	371.294665	80.9224	18:52	1005.696823
0.379173387	381.319925	81.3410	18:55	1005.661100
0.389328973	391.566237	81.7697	18:58	1005.746461
0.399330866	401.589341	82.1899	19:01	1005.655648
0.409190268	411.544660	82.6088	19:04	1005.753784
0.419298150	421.713260	83.0396	19:07	1005.759887
0.429303132	431.711626	83.4570	19:10	1005.610242
0.439156851	441.665725	83.8783	19:13	1005.712935
0.449227540	451.772929	84.3031	19:16	1005.666145
0.459094157	461.705911	84.7209	19:19	1005.688930
0.469268152	471.940993	85.1481	19:22	1005.695765
0.479218250	481.968939	85.5719	19:25	1005.739951
0.489148873	491.954733	85.9963	19:28	1005.736208
0.499374127	502.207676	86.4280	19:31	1005.674201
0.509250021	512.128046	86.8480	19:34	1005.651498
0.519341698	522.298436	87.2806	19:37	1005.693243
0.529363027	532.402018	87.7167	19:40	1005.740846
0.539150175	542.279179	88.1449	19:43	1005.803585
0.549300676	552.477235	88.5839	19:46	1005.782916
0.559366592	562.591030	89.0250	19:49	1005.764444
0.569410851	572.680169	89.4698	19:53	1005.741578
0.579252052	582.566890	89.9100	19:56	1005.722618
0.589364447	592.761326	90.3576	19:59	1005.763631
0.599182171	602.598044	90.7963	20:02	1005.700892
0.609229624	612.725184	91.2558	20:05	1005.737672
0.619228168	622.769607	91.7135	20:08	1005.719119
0.629089700	632.707350	92.1765	20:11	1005.750611
0.639230053	642.900606	92.6510	20:14	1005.742148
0.649150205	652.889818	93.1297	20:17	1005.760783
0.659299448	663.074245	93.6231	20:20	1005.725466
0.669492089	673.332925	94.1236	20:23	1005.736940
0.679181391	683.077040	94.6186	20:26	1005.735801
0.689482599	693.506848	95.1465	20:29	1005.836623

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 Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
 Automatic degas: No  
 Analysis adsorptive: N2  
 Analysis bath temp.: -195.855 °C  
 Thermal correction: No  
 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

### Isotherm Tabular Report

Relative Pressure (P/Po)	Absolute Pressure (mbar)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	Elapsed Time (h:min)	Saturation Pressure (mbar)
0.699092495	703.139441	95.6516	20:32	1005.788856
0.709420511	713.540118	96.2008	20:35	1005.807003
0.719106230	723.250015	96.7416	20:38	1005.762410
0.729417518	733.581606	97.3168	20:41	1005.708785
0.739448554	743.672494	97.9051	20:43	1005.712284
0.749193142	753.501522	98.4938	20:46	1005.750692
0.759252516	763.699741	99.1194	20:49	1005.857373
0.769240291	773.732122	99.7616	20:52	1005.839308
0.779350836	783.879890	100.4249	20:55	1005.811316
0.789588920	794.208633	101.1340	20:58	1005.850782
0.799312746	804.019596	101.8434	21:01	1005.888620
0.809111730	813.890043	102.5775	21:04	1005.905627
0.819457639	824.316922	103.3680	21:07	1005.929877
0.829009524	833.947643	104.1595	21:10	1005.956649
0.839682049	844.723370	105.0358	21:13	1006.003845
0.849000188	854.085640	105.8984	21:16	1005.989930
0.859790617	864.919224	106.8676	21:19	1005.964949
0.869439199	874.690802	107.8443	21:22	1006.040219
0.879121636	884.455545	108.8546	21:25	1006.067317
0.888892717	894.313542	110.0172	21:29	1006.098401
0.899408136	904.882988	111.3365	21:32	1006.087172
0.909141339	914.732033	112.7607	21:36	1006.149423
0.919173302	924.846031	114.2855	21:40	1006.171556
0.928729727	934.471788	116.0187	21:45	1006.182704
0.939297810	945.075248	118.2312	21:51	1006.150806
0.949167427	954.988579	120.7716	21:57	1006.132904
0.983654622	989.758840	137.4309	22:24	1006.205652
0.995100039	1001.253258	144.6230	22:35	1006.183518
0.984485384	990.603009	143.4859	22:39	1006.214033
0.960413254	966.275007	141.2510	22:44	1006.103365
0.948600144	954.423684	135.1293	22:57	1006.139088
0.936606337	942.354036	129.7504	23:09	1006.136728
0.918983443	924.624940	123.7113	23:21	1006.138844
0.903245484	908.742372	119.7844	23:29	1006.085707
0.883352324	888.758984	116.0892	23:37	1006.120616
0.861945652	867.129899	113.0815	23:44	1006.014587
0.840405932	845.502685	110.7187	23:49	1006.064631
0.819359453	824.369571	108.7983	23:53	1006.114676
0.798531418	803.424511	107.1435	23:57	1006.127614
0.778005528	782.811211	105.6906	24:01	1006.176927



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 Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
 Automatic degas: No

Analysis adsorptive: N2  
 Analysis bath temp.: -195.855 °C  
 Thermal correction: No  
 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

### Isotherm Tabular Report

Relative Pressure (P/Po)	Absolute Pressure (mbar)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	Elapsed Time (h:min)	Saturation Pressure (mbar)
0.757659858	762.329818	104.4021	24:04	1006.163663
0.737411935	741.966335	103.2050	24:07	1006.176194
0.717140431	721.563386	102.0703	24:10	1006.167488
0.697110515	701.407893	101.0195	24:14	1006.164558
0.676887688	681.073786	100.0032	24:17	1006.184332
0.656701409	660.775280	99.0307	24:20	1006.203536
0.636790441	640.702707	98.0973	24:23	1006.143726
0.616679808	620.476298	97.1807	24:26	1006.156339
0.596776577	600.470980	96.2894	24:29	1006.190598
0.576731257	580.286316	95.4056	24:32	1006.164151
0.556691590	560.060517	94.5315	24:35	1006.051693
0.536682603	539.921096	93.6649	24:38	1006.034279
0.516454928	519.581699	92.8004	24:42	1006.054297
0.488598665	491.522395	91.5270	24:45	1005.983909
0.472106385	474.952709	88.1683	24:57	1006.028990
0.451089308	453.796404	85.4993	25:05	1006.001241
0.427841442	430.439555	84.1683	25:09	1006.072606
0.406548359	409.000924	83.1564	25:12	1006.032652
0.378138862	380.409518	81.9277	25:16	1006.004822
0.356449774	358.622039	81.0141	25:19	1006.094170
0.327986682	329.989011	79.8319	25:23	1006.104911
0.306420754	308.288683	78.9232	25:26	1006.095960
0.277828442	279.524786	77.7193	25:30	1006.105725
0.256299597	257.862073	76.7789	25:34	1006.096286
0.228103255	229.504250	75.5134	25:38	1006.141936
0.206326005	207.595362	74.4795	25:43	1006.152189
0.178151439	179.240937	73.0598	25:48	1006.115571
0.156646231	157.610356	71.8851	25:54	1006.154793
0.136431195	137.268203	70.6875	26:00	1006.135019
0.110361548	111.034819	68.9682	26:07	1006.100598
0.091467197	92.020632	67.5580	26:14	1006.050635
0.074214151	74.658876	66.1249	26:22	1005.992453

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Report time: 12/07/2018 13:59:46

Sample mass: 0.2051 g

Cold free space: 62.0895 cm<sup>3</sup>

Low pressure dose: 3.0000 cm<sup>3</sup>/g STP

Automatic degas: No

Analysis adsorptive: N<sub>2</sub>

Analysis bath temp.: -195.855 °C

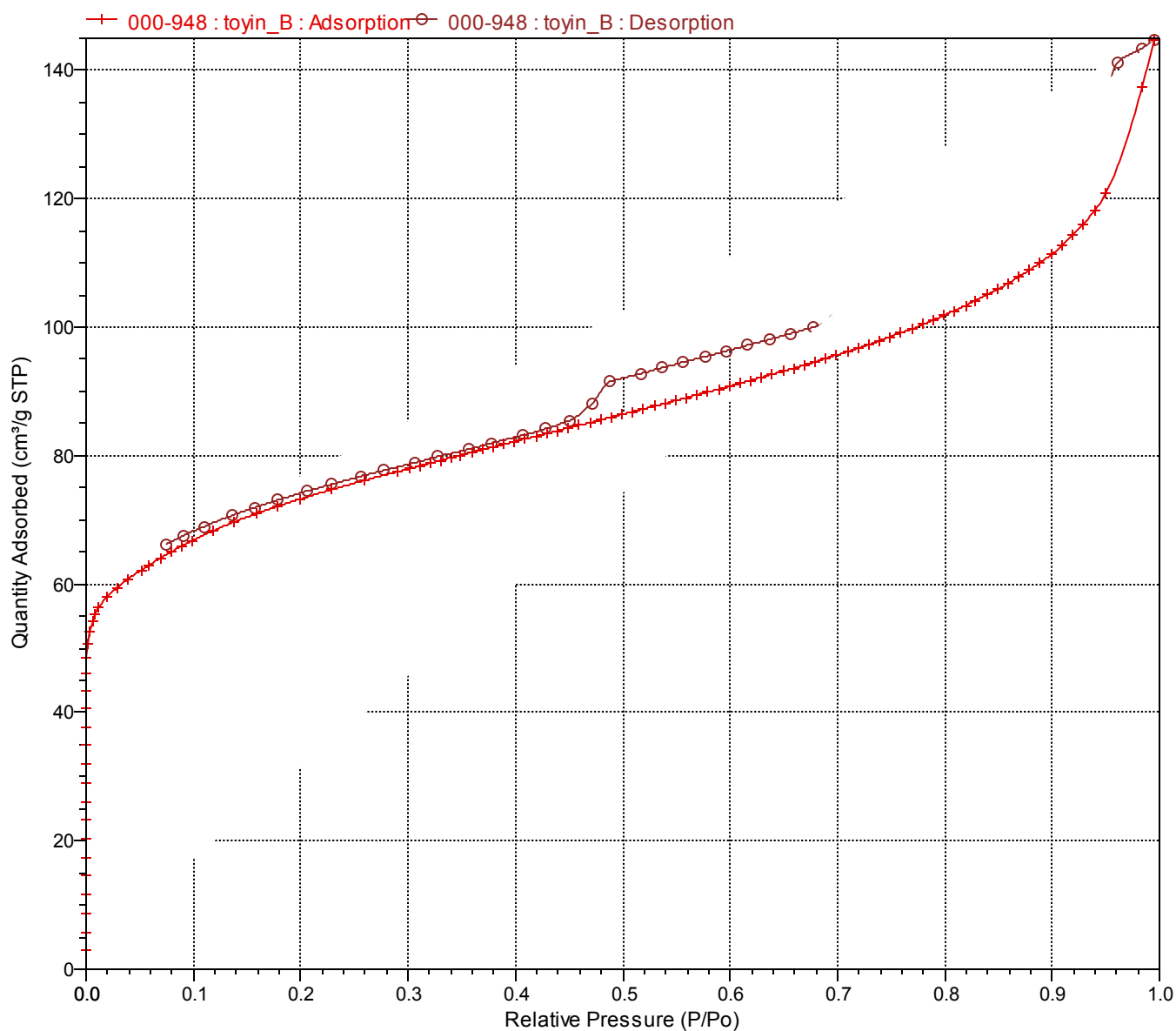
Thermal correction: No

Warm free space: 20.6774 cm<sup>3</sup> Measured

Equilibration interval: 10 s

Sample density: 1.000 g/cm<sup>3</sup>

### Isotherm Linear Plot



Sample: toyin\_B

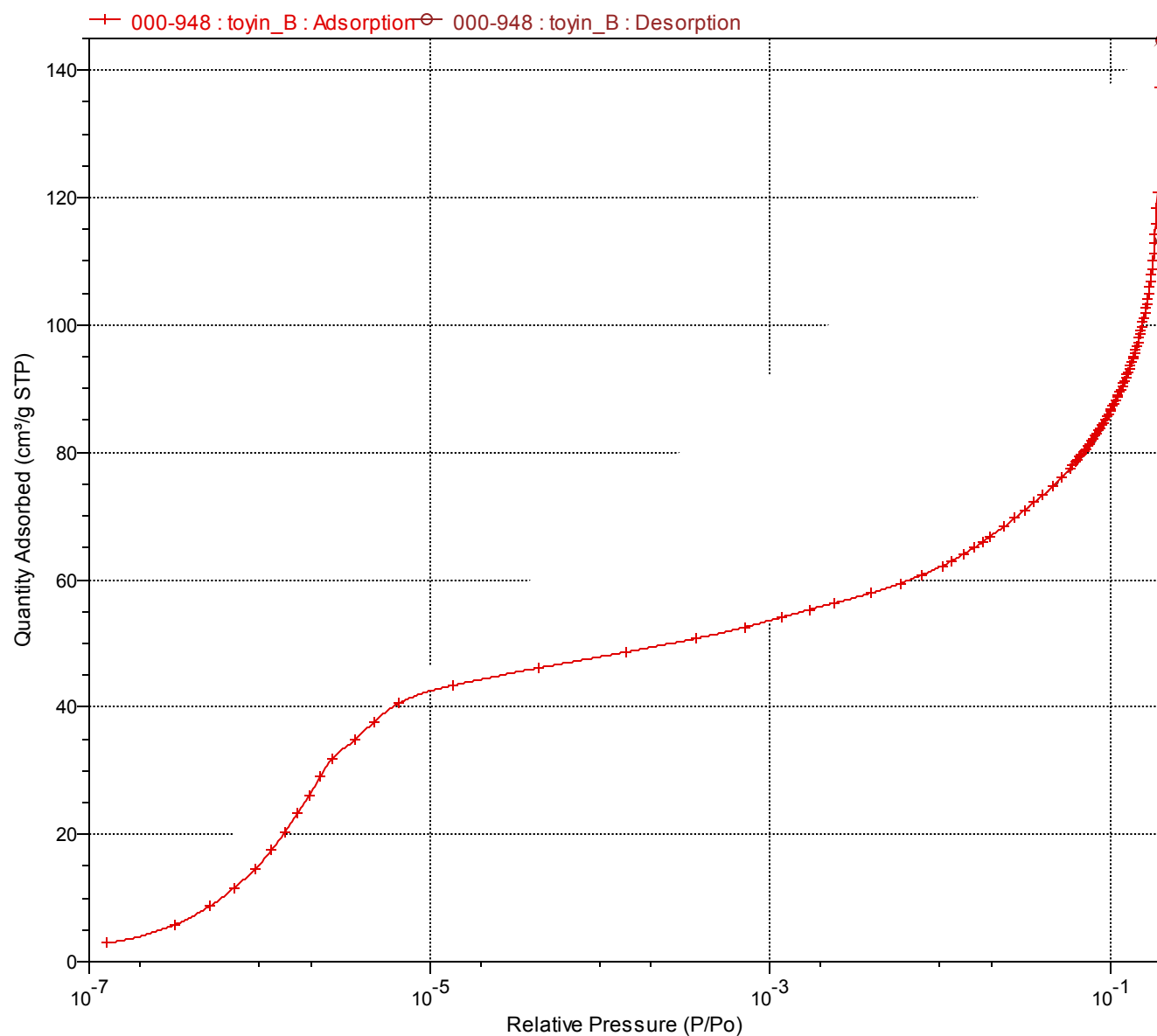
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Automatic degas: No

Analysis adsorptive: N<sub>2</sub>  
Analysis bath temp.: -195.855 °C  
Thermal correction: No  
Warm free space: 20.6774 cm<sup>3</sup> Measured  
Equilibration interval: 10 s  
Sample density: 1.000 g/cm<sup>3</sup>

### Isotherm Log Plot



Sample: toyin\_B

Operator:

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Completed: 12/07/2018 13:35:14	Analysis bath temp.: -195.855 °C
Report time: 12/07/2018 13:59:46	Thermal correction: No
Sample mass: 0.2051 g	Warm free space: 20.6774 cm <sup>3</sup> Measured
Cold free space: 62.0895 cm <sup>3</sup>	Equilibration interval: 10 s
Low pressure dose: 3.0000 cm <sup>3</sup> /g STP	Sample density: 1.000 g/cm <sup>3</sup>
Automatic degas: No	

**BET Report**

BET surface area: 263.4682 ± 0.7606 m<sup>2</sup>/g  
Slope: 0.016503 ± 0.000048 g/cm<sup>3</sup> STP  
Y-intercept: 0.000018 ± 0.000003 g/cm<sup>3</sup> STP  
C: 930.803583  
Qm: 60.5315 cm<sup>3</sup>/g STP  
Correlation coefficient: 0.9999542  
Molecular cross-sectional area: 0.1620 nm<sup>2</sup>

Relative Pressure (P/Po)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	1/[Q(Po/P - 1)]
0.003586344	52.5675	0.000068
0.005825670	54.0858	0.000108
0.008582934	55.3276	0.000156
0.011839249	56.3118	0.000213
0.019550461	57.9089	0.000344
0.029365674	59.4498	0.000509
0.039395795	60.7538	0.000675
0.051950532	62.1968	0.000881
0.058395021	62.9082	0.000986
0.069354368	64.0459	0.001164
0.079277356	65.0192	0.001324
0.089167905	65.9254	0.001485
0.099075104	66.7819	0.001647

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 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

### BJH Adsorption Pore Distribution Report

Faas Correction

Harkins and Jura

$$t = [13.99 / (0.034 - \log(P/P_o))]^{0.5}$$

Diameter range: 0.9000 nm to 300.0000 nm

Adsorbate property factor: 0.95300 nm

Density conversion factor: 0.0015492

Fraction of pores open at both ends: 0.00

Pore Diameter Range (nm)	Average Diameter (nm)	Incremental Pore Volume (cm <sup>3</sup> /g)	Cumulative Pore Volume (cm <sup>3</sup> /g)	Incremental Pore Area (m <sup>2</sup> /g)	Cumulative Pore Area (m <sup>2</sup> /g)
391.7 - 119.0	141.3	0.011697	0.011697	0.331	0.331
119.0 - 39.4	46.7	0.029170	0.040867	2.500	2.831
39.4 - 33.2	35.7	0.004427	0.045294	0.496	3.327
33.2 - 28.4	30.4	0.003888	0.049181	0.512	3.839
28.4 - 25.1	26.6	0.003070	0.052251	0.462	4.301
25.1 - 22.4	23.6	0.002707	0.054958	0.458	4.760
22.4 - 20.3	21.3	0.002560	0.057518	0.481	5.241
20.3 - 18.5	19.3	0.002371	0.059889	0.492	5.733
18.5 - 17.0	17.7	0.002108	0.061997	0.477	6.210
17.0 - 15.8	16.3	0.001826	0.063823	0.447	6.658
15.8 - 14.7	15.2	0.001782	0.065604	0.469	7.127
14.7 - 13.7	14.1	0.001760	0.067364	0.498	7.625
13.7 - 12.9	13.2	0.001594	0.068959	0.482	8.107
12.9 - 12.1	12.4	0.001607	0.070565	0.517	8.623
12.1 - 11.4	11.7	0.001471	0.072037	0.502	9.125
11.4 - 10.8	11.1	0.001464	0.073500	0.527	9.652
10.8 - 10.3	10.5	0.001369	0.074869	0.520	10.173
10.3 - 9.8	10.0	0.001330	0.076199	0.531	10.703
9.8 - 9.3	9.6	0.001328	0.077526	0.556	11.259
9.3 - 8.9	9.1	0.001239	0.078766	0.544	11.803
8.9 - 8.5	8.7	0.001206	0.079971	0.554	12.357
8.5 - 8.2	8.3	0.001176	0.081148	0.564	12.920
8.2 - 7.9	8.0	0.001109	0.082256	0.553	13.474
7.9 - 7.6	7.7	0.001109	0.083365	0.576	14.050
7.6 - 7.3	7.4	0.001079	0.084444	0.583	14.633
7.3 - 7.0	7.1	0.001023	0.085467	0.574	15.207
7.0 - 6.7	6.9	0.001032	0.086500	0.601	15.808
6.7 - 6.5	6.6	0.000954	0.087453	0.576	16.384
6.5 - 6.3	6.4	0.000997	0.088450	0.622	17.006
6.3 - 6.1	6.2	0.000940	0.089391	0.608	17.614
6.1 - 5.9	6.0	0.000945	0.090336	0.631	18.245

Sample: toyin\_B

Operator:

File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34  
 Completed: 12/07/2018 13:35:14  
 Report time: 12/07/2018 13:59:46  
 Sample mass: 0.2051 g  
 Cold free space: 62.0895 cm<sup>3</sup>  
 Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
 Automatic degas: No  
 Analysis adsorptive: N2  
 Analysis bath temp.: -195.855 °C  
 Thermal correction: No  
 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

Pore Diameter Range (nm)	Average Diameter (nm)	Incremental Pore Volume (cm <sup>3</sup> /g)	Cumulative Pore Volume (cm <sup>3</sup> /g)	Incremental Pore Area (m <sup>2</sup> /g)	Cumulative Pore Area (m <sup>2</sup> /g)
5.9 - 5.7	5.8	0.000935	0.091271	0.646	18.891
5.7 - 5.5	5.6	0.000911	0.092182	0.649	19.540
5.5 - 5.4	5.4	0.000899	0.093081	0.661	20.201
5.4 - 5.2	5.3	0.000884	0.093965	0.670	20.871
5.2 - 5.0	5.1	0.000870	0.094835	0.680	21.550
5.0 - 4.9	5.0	0.000878	0.095713	0.706	22.257
4.9 - 4.8	4.8	0.000835	0.096548	0.691	22.948
4.8 - 4.6	4.7	0.000853	0.097401	0.727	23.675
4.6 - 4.5	4.6	0.000847	0.098248	0.742	24.417
4.5 - 4.4	4.4	0.000856	0.099104	0.770	25.187
4.4 - 4.3	4.3	0.000848	0.099952	0.785	25.972
4.3 - 4.1	4.2	0.000842	0.100794	0.801	26.773
4.1 - 4.0	4.1	0.000829	0.101623	0.810	27.583
4.0 - 3.9	4.0	0.000845	0.102468	0.847	28.430
3.9 - 3.8	3.9	0.000834	0.103302	0.859	29.289
3.8 - 3.7	3.8	0.000809	0.104111	0.854	30.143
3.7 - 3.6	3.7	0.000830	0.104941	0.900	31.043
3.6 - 3.6	3.6	0.000823	0.105764	0.915	31.958
3.6 - 3.5	3.5	0.000821	0.106585	0.937	32.895
3.5 - 3.4	3.4	0.000822	0.107407	0.961	33.856
3.4 - 3.3	3.3	0.000808	0.108216	0.969	34.825
3.3 - 3.2	3.3	0.000821	0.109036	1.008	35.834
3.2 - 3.1	3.2	0.000819	0.109855	1.032	36.865
3.1 - 3.1	3.1	0.000800	0.110655	1.032	37.898
3.1 - 3.0	3.0	0.000835	0.111490	1.104	39.002
3.0 - 2.9	3.0	0.000809	0.112299	1.096	40.098
2.9 - 2.8	2.9	0.000805	0.113104	1.117	41.215
2.8 - 2.8	2.8	0.000821	0.113924	1.168	42.383
2.8 - 2.7	2.7	0.000796	0.114720	1.160	43.543
2.7 - 2.6	2.7	0.000810	0.115530	1.210	44.753
2.6 - 2.6	2.6	0.000792	0.116322	1.212	45.965
2.6 - 2.5	2.6	0.000727	0.117049	1.139	47.104
2.5 - 2.5	2.5	0.000834	0.117883	1.336	48.440
2.5 - 2.4	2.4	0.000811	0.118694	1.331	49.771
2.4 - 2.4	2.4	0.000797	0.119490	1.340	51.111
2.4 - 2.3	2.3	0.000825	0.120316	1.422	52.533
2.3 - 2.2	2.3	0.000886	0.121202	1.566	54.099
2.2 - 2.1	2.1	0.002527	0.123729	4.709	58.808
2.1 - 1.9	2.0	0.002629	0.126358	5.305	64.113
1.9 - 1.8	1.8	0.002716	0.129074	5.950	70.063
1.8 - 1.7	1.7	0.002007	0.131080	4.714	74.777

Sample: toyin\_B

Operator:

File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34	Analysis adsorptive: N2
Completed: 12/07/2018 13:35:14	Analysis bath temp.: -195.855 °C
Report time: 12/07/2018 13:59:46	Thermal correction: No
Sample mass: 0.2051 g	Warm free space: 20.6774 cm <sup>3</sup> Measured
Cold free space: 62.0895 cm <sup>3</sup>	Equilibration interval: 10 s
Low pressure dose: 3.0000 cm <sup>3</sup> /g STP	Sample density: 1.000 g/cm <sup>3</sup>
Automatic degas: No	

Pore Diameter Range (nm)	Average Diameter (nm)	Incremental Pore Volume (cm <sup>3</sup> /g)	Cumulative Pore Volume (cm <sup>3</sup> /g)	Incremental Pore Area (m <sup>2</sup> /g)	Cumulative Pore Area (m <sup>2</sup> /g)
1.7 - 1.6	1.6	0.002146	0.133227	5.353	80.130
1.6 - 1.5	1.5	0.002364	0.135591	6.282	86.413
1.5 - 1.4	1.4	0.002607	0.138198	7.419	93.832
1.4 - 1.3	1.3	0.002681	0.140879	8.205	102.037
1.3 - 1.2	1.2	0.001550	0.142429	5.018	107.056
1.2 - 1.2	1.2	0.001592	0.144021	5.383	112.438
1.2 - 1.1	1.1	0.001654	0.145675	5.860	118.298
1.1 - 1.0	1.1	0.001790	0.147465	6.699	124.997
1.0 - 1.0	1.0	0.001040	0.148505	4.084	129.081
1.0 - 0.9	1.0	0.001756	0.150261	7.358	136.439

Sample: toyin\_B

Operator:

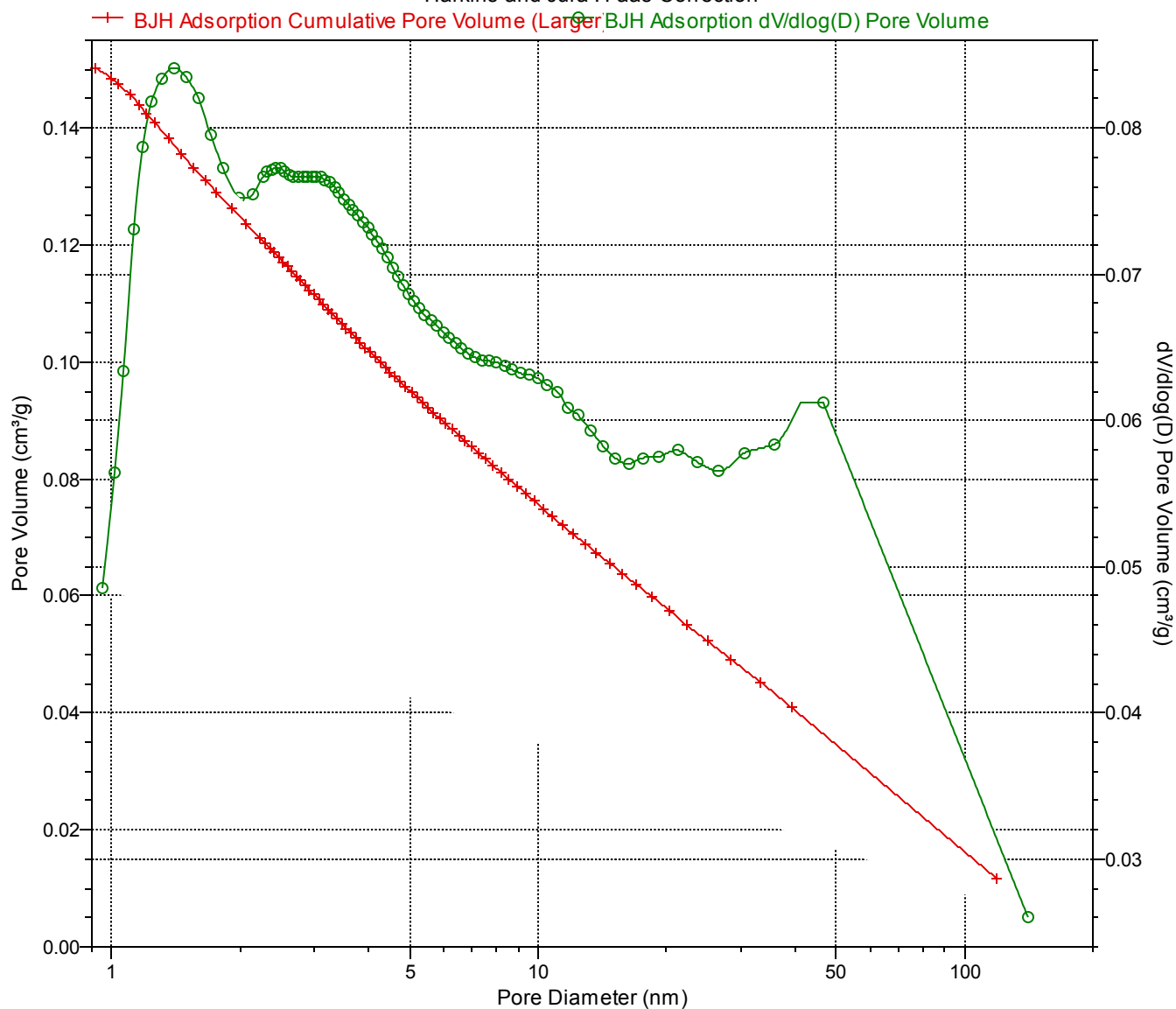
File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34  
Completed: 12/07/2018 13:35:14  
Report time: 12/07/2018 13:59:46  
Sample mass: 0.2051 g  
Cold free space: 62.0895 cm<sup>3</sup>  
Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
Automatic degas: No

Analysis adsorptive: N2  
Analysis bath temp.: -195.855 °C  
Thermal correction: No  
Warm free space: 20.6774 cm<sup>3</sup> Measured  
Equilibration interval: 10 s  
Sample density: 1.000 g/cm<sup>3</sup>

### BJH Adsorption Cumulative Pore Volume (Larger)

Harkins and Jura : Faas Correction





Sample: toyin\_B

Operator:

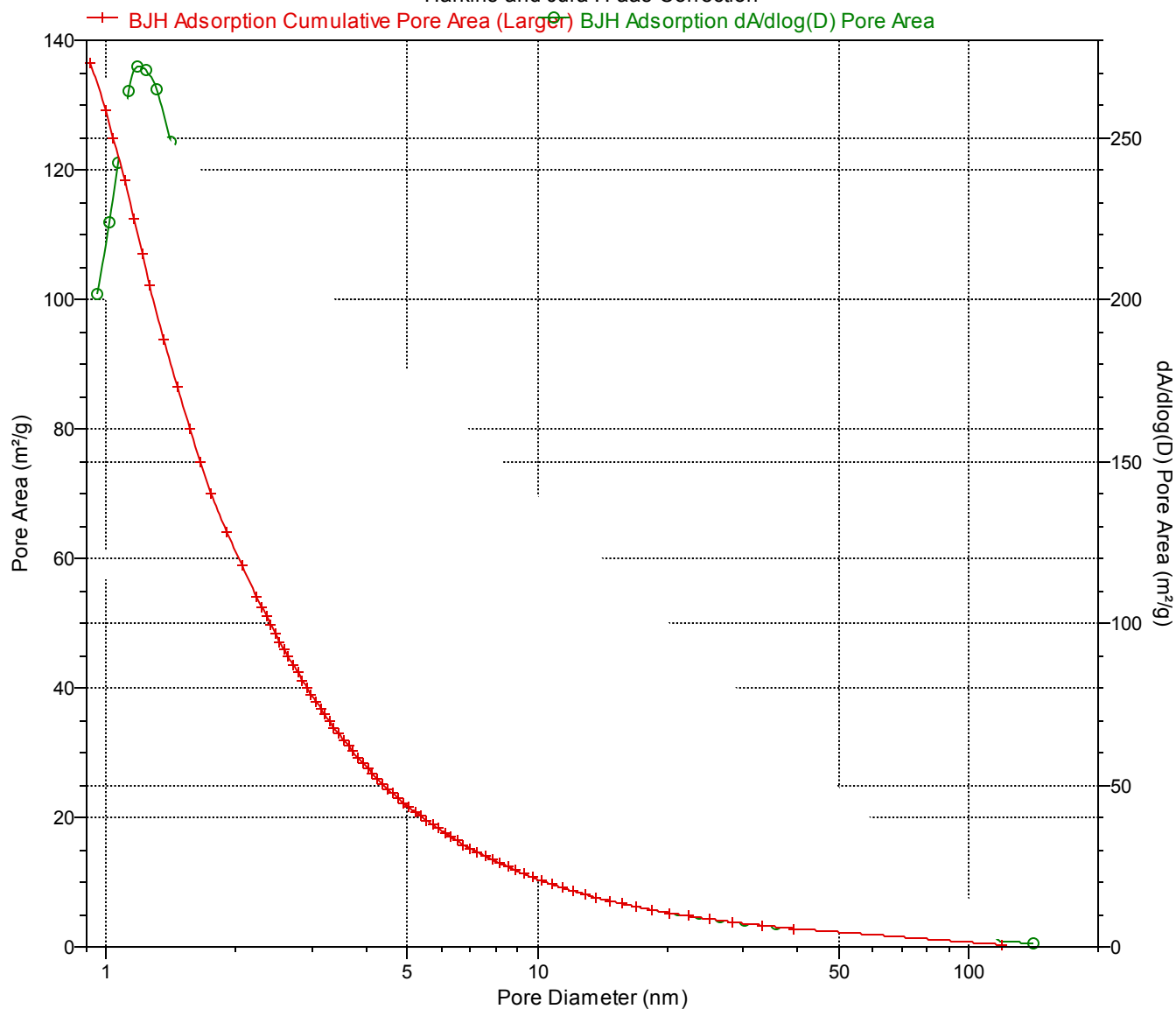
File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34  
Completed: 12/07/2018 13:35:14  
Report time: 12/07/2018 13:59:46  
Sample mass: 0.2051 g  
Cold free space: 62.0895 cm<sup>3</sup>  
Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
Automatic degas: No

Analysis adsorptive: N<sub>2</sub>  
Analysis bath temp.: -195.855 °C  
Thermal correction: No  
Warm free space: 20.6774 cm<sup>3</sup> Measured  
Equilibration interval: 10 s  
Sample density: 1.000 g/cm<sup>3</sup>

### BJH Adsorption Cumulative Pore Area (Larger)

Harkins and Jura : Faas Correction



Sample: toyin\_B

Operator:

File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34  
 Completed: 12/07/2018 13:35:14  
 Report time: 12/07/2018 13:59:46  
 Sample mass: 0.2051 g  
 Cold free space: 62.0895 cm<sup>3</sup>  
 Low pressure dose: 3.0000 cm<sup>3</sup>/g STP  
 Automatic degas: No  
 Analysis adsorptive: N2  
 Analysis bath temp.: -195.855 °C  
 Thermal correction: No  
 Warm free space: 20.6774 cm<sup>3</sup> Measured  
 Equilibration interval: 10 s  
 Sample density: 1.000 g/cm<sup>3</sup>

### Horvath-Kawazoe Report

Cylinder Pore Geometry (Saito-Foley)

Maximum pore volume: 0.111729 cm<sup>3</sup>/g  
 at Relative Pressure: 0.178681702  
 Median pore width: 0.6450 nm  
 Relative pressure range: 6.288e-007 to 1.787e-001

Diameter of adsorptive molecule: 0.3000 nm  
 Adsorptive density: 6.710e+014 molecules/cm<sup>3</sup>  
 Adsorptive dispersion constant: 7.777e-059  
 Diameter of sample atom: 0.2760 nm  
 Sample Density: 1.310e+015 molecules/cm<sup>3</sup>  
 Sample dispersion constant: 8.957e-059

Density conversion factor: 0.0015492

Absolute Pressure (mbar)	Relative Pressure (P/Po)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	Pore Width (nm)	Cumulative Pore Volume (cm <sup>3</sup> /g)	Smoothed Differential Pore Volume (cm <sup>3</sup> /g·nm)
0.00063	0.000000629	2.90207	0.533	0.0045	0.1506
0.00160	0.000001588	5.81622	0.558	0.0090	0.2654
0.00260	0.000002578	8.73013	0.572	0.0135	0.3875
0.00364	0.000003606	11.63603	0.583	0.0180	0.4926
0.00472	0.000004683	14.54848	0.591	0.0225	0.5806
0.00586	0.000005821	17.44892	0.598	0.0270	0.6508
0.00708	0.000007034	20.35164	0.605	0.0315	0.7044
0.00842	0.000008365	23.25529	0.611	0.0360	0.7260
0.00990	0.000009841	26.15151	0.617	0.0405	0.7001
0.01153	0.000011464	29.05109	0.622	0.0450	0.6464
0.01359	0.000013511	31.94852	0.629	0.0495	0.5726
0.01827	0.000018157	34.83994	0.640	0.0540	0.4352
0.02397	0.000023826	37.71108	0.651	0.0584	0.3432
0.03312	0.000032926	40.56823	0.665	0.0628	0.2456
0.06833	0.000067920	43.40428	0.699	0.0672	0.0844
0.21964	0.000218334	46.14330	0.765	0.0715	0.0518
0.71897	0.000714630	48.64295	0.850	0.0754	0.0399
1.84194	0.001830731	50.77539	0.939	0.0787	0.0358
3.60809	0.003586344	52.56751	1.019	0.0814	0.0339
5.85980	0.005825670	54.08582	1.089	0.0838	0.0319
8.63418	0.008582934	55.32761	1.155	0.0857	0.0266
11.90901	0.011839249	56.31176	1.217	0.0872	0.0226
19.66390	0.019550461	57.90890	1.334	0.0897	0.0206

Sample: toyin\_B

Operator:

File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34	Analysis adsorptive: N2
Completed: 12/07/2018 13:35:14	Analysis bath temp.: -195.855 °C
Report time: 12/07/2018 13:59:46	Thermal correction: No
Sample mass: 0.2051 g	Warm free space: 20.6774 cm <sup>3</sup> Measured
Cold free space: 62.0895 cm <sup>3</sup>	Equilibration interval: 10 s
Low pressure dose: 3.0000 cm <sup>3</sup> /g STP	Sample density: 1.000 g/cm <sup>3</sup>
Automatic degas: No	

Absolute Pressure (mbar)	Relative Pressure (P/Po)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	Pore Width (nm)	Cumulative Pore Volume (cm <sup>3</sup> /g)	Smoothed Differential Pore Volume (cm <sup>3</sup> /g·nm)
29.53902	0.029365674	59.44984	1.453	0.0921	0.0198
39.62434	0.039395795	60.75384	1.556	0.0941	0.0193
52.25371	0.051950532	62.19682	1.671	0.0964	0.0200
58.73297	0.058395021	62.90823	1.726	0.0975	0.0200
69.75081	0.069354368	64.04591	1.816	0.0992	0.0193
79.73642	0.079277356	65.01919	1.895	0.1007	0.0188
89.67845	0.089167905	65.92539	1.970	0.1021	0.0182
99.64948	0.099075104	66.78189	2.044	0.1035	0.0173
118.97799	0.118289891	68.26740	2.186	0.1058	0.0156
139.22606	0.138425837	69.67852	2.331	0.1079	0.0143
159.46990	0.158545642	70.95454	2.477	0.1099	0.0128
179.70767	0.178681702	72.12026	2.623	0.1117	0.0120

Sample: toyin\_B

Operator:

File: C:\3Flex\data\Remi Castaing\000-948.SMP

Started: 11/07/2018 09:49:34  
Completed: 12/07/2018 13:35:14  
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Automatic degas: No

Analysis adsorptive: N<sub>2</sub>  
Analysis bath temp.: -195.855 °C  
Thermal correction: No  
Warm free space: 20.6774 cm<sup>3</sup> Measured  
Equilibration interval: 10 s  
Sample density: 1.000 g/cm<sup>3</sup>

### Horvath-Kawazoe Cumulative Pore Volume Plot

