micromeritics®

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

Summary Report

Surface Area

Single point surface area at P/Po = 0.199793458:	6.6888 m²/g
BET Surface Area:	6.9477 m²/g
Langmuir Surface Area:	9.6318 m²/g
t-Plot Micropore Area:	0.6959 m²/g
t-Plot External Surface Area:	6.2518 m²/g
BJH Adsorption cumulative surface area of pores between 17.000 Å and 3000.000 Å diameter:	5.425 m²/g
BJH Desorption cumulative surface area of pores between 17.000 Å and 3000.000 Å diameter:	6.2060 m²/g

Pore Volume

Single point adsorption total pore volume of pores less than 1270.427 Å diameter at P/Po = 0.984524433:	0.032261 cm³/g
Single point desorption total pore volume of pores less than 637.989 Å diameter at P/Po = 0.968723870:	0.029220 cm³/g
t-Plot micropore volume:	0.000255 cm³/g
BJH Adsorption cumulative volume of pores between 17.000 Å and 3000.000 Å diameter:	0.034768 cm³/g
BJH Desorption cumulative volume of pores between 17.000 Å and 3000.000 Å diameter:	0.034885 cm³/g

Pore Size

Adsorption average pore width (4V/A by BET):	185.7375 Å
Desorption average pore width (4V/A by BET):	168.2291 Å
BJH Adsorption average pore diameter (4V/A):	256.359 Å
BJH Desorption average pore diameter (4V/A):	224.847 Å

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

Isotherm Tabular Report

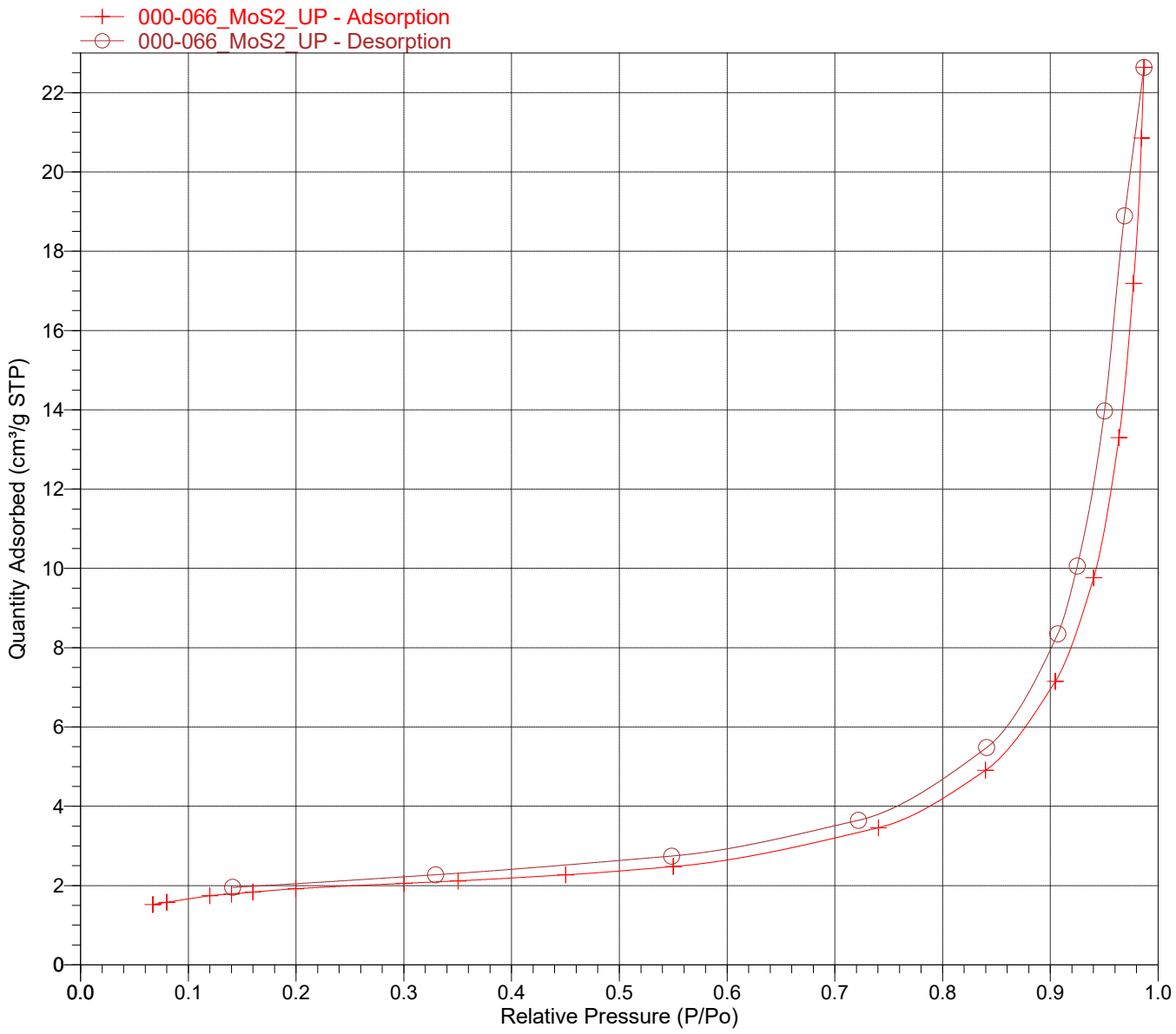
Relative Pressure (P/Po)	Absolute Pressure (mmHg)	Quantity Adsorbed (cm³/g STP)	Elapsed Time (h:min)	Saturation Pressure (mmHg)
			01:01	710.080078
0.067190372	47.710545	1.5245	01:09	
0.079987781	56.797729	1.5777	01:11	
0.119893717	85.134140	1.7426	01:12	
0.139973083	99.392097	1.7887	01:14	
0.159976141	113.595871	1.8355	01:15	
0.199793458	141.869354	1.9202	01:16	
0.300213590	213.175690	2.0556	01:18	
0.350361726	248.784882	2.1185	01:19	
0.450137107	319.633392	2.2711	01:21	
0.550088697	390.607025	2.4791	01:22	
0.740535460	525.839478	3.4588	01:25	
0.839722134	596.269958	4.9072	01:26	
0.904650973	642.374634	7.1470	01:28	
0.940036799	667.501404	9.7620	01:30	
0.963684224	684.292969	13.2982	01:32	
0.977066091	693.795166	17.1867	01:34	
0.984524433	699.091187	20.8568	01:37	
0.986742768	700.666382	22.6326	01:38	
0.968723870	687.871521	18.8907	01:41	
0.950198866	674.717285	13.9717	01:44	
0.924963589	656.798218	10.0582	01:46	
0.906885554	643.961365	8.3477	01:48	
0.840918460	597.119446	5.4794	01:49	
0.721947452	512.640503	3.6461	01:51	
0.548573434	389.531067	2.7444	01:52	
0.329555769	234.010986	2.2727	01:55	
0.141034341	100.145676	1.9539	01:59	

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

Isotherm Linear Plot

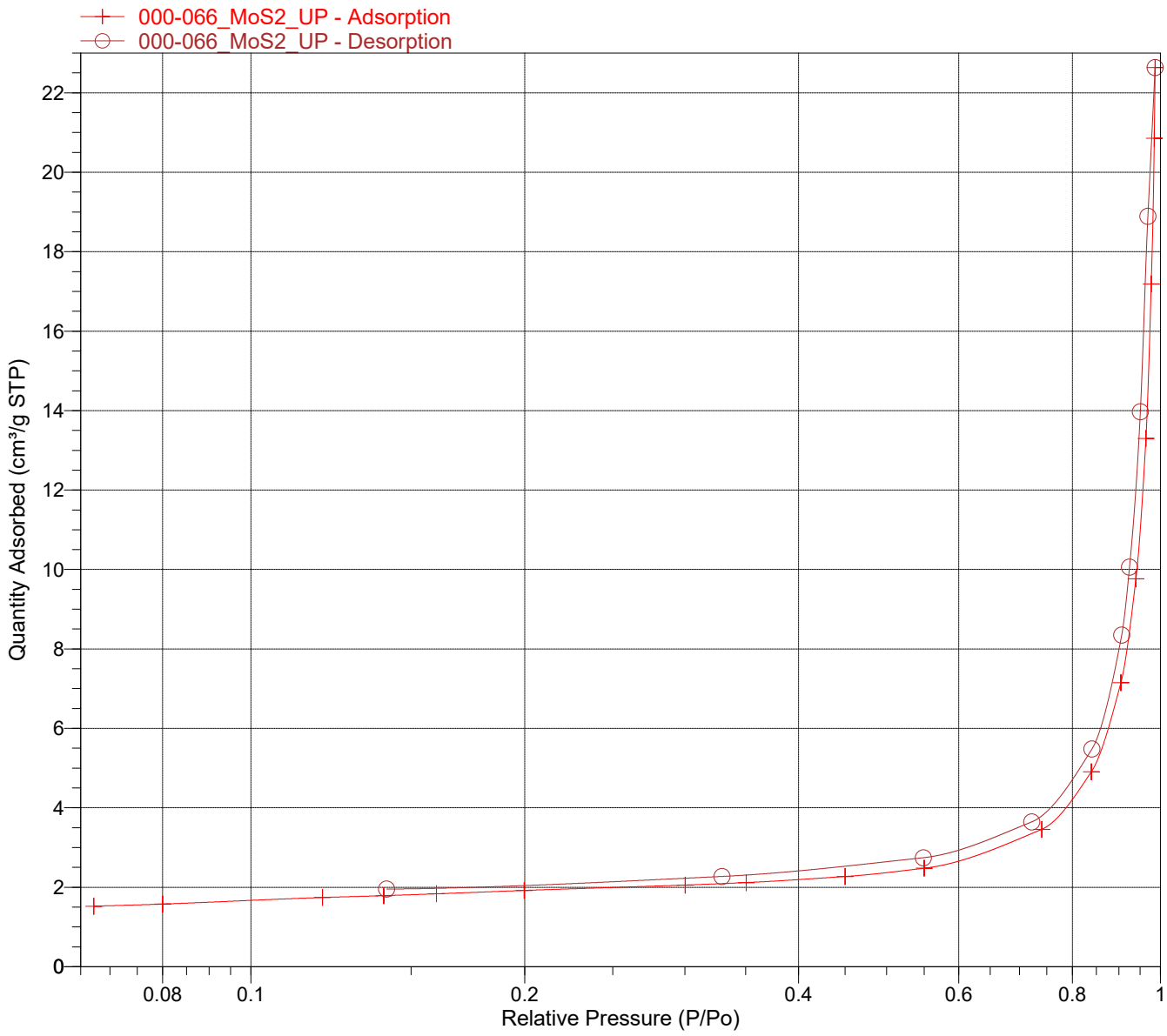


Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

Isotherm Log Plot



Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

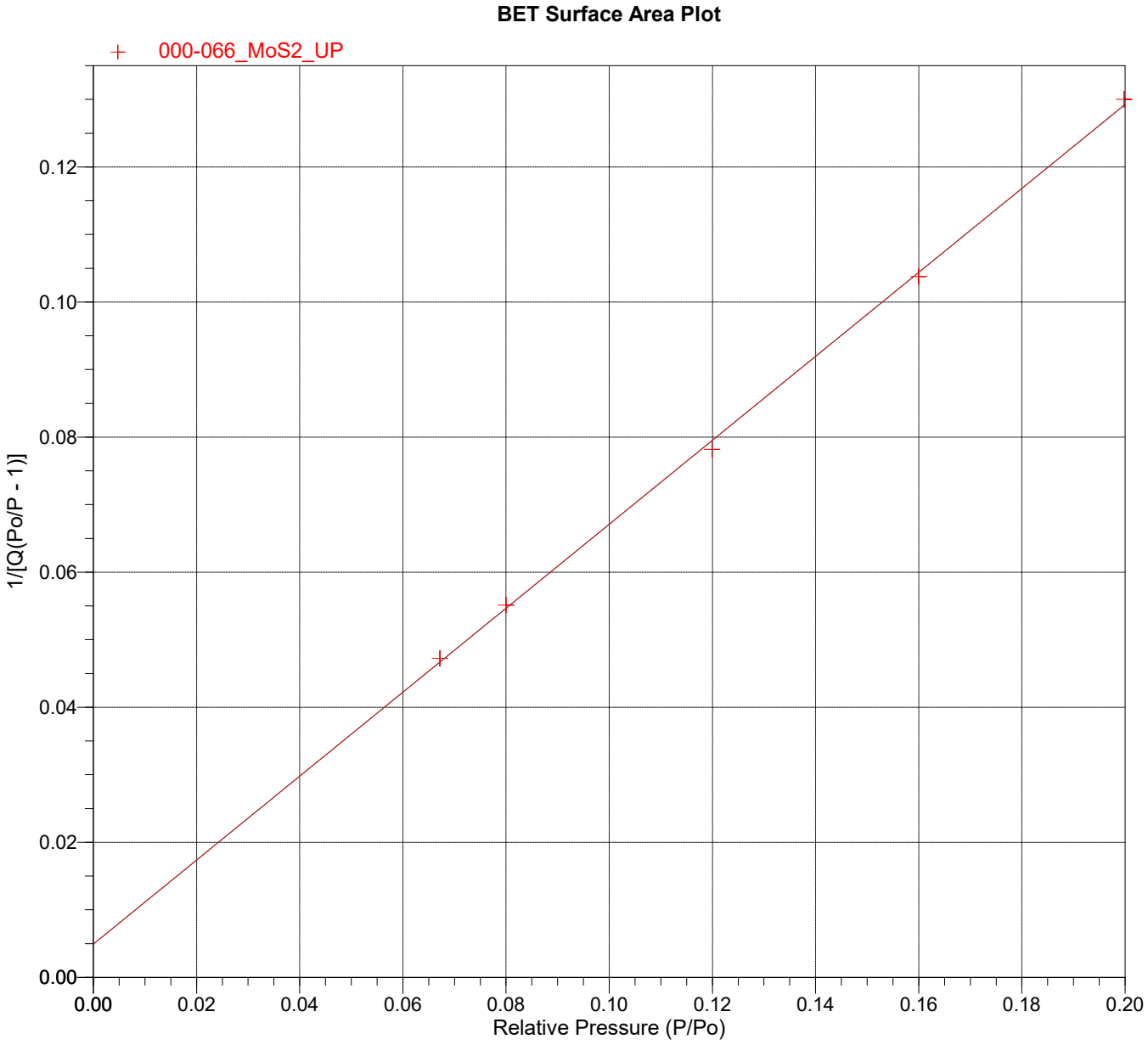
BET Surface Area Report

BET Surface Area: 6.9477 ± 0.1070 m²/g
Slope: 0.621636 ± 0.009567 g/cm³ STP
Y-Intercept: 0.004930 ± 0.001289 g/cm³ STP
C: 127.084090
Qm: 1.5960 cm³/g STP
Correlation Coefficient: 0.9996449
Molecular Cross-Sectional Area: 0.1620 nm²

Relative Pressure (P/Po)	Quantity Adsorbed (cm³/g STP)	1/[Q(Po/P - 1)]
0.067190372	1.5245	0.047248
0.079987781	1.5777	0.055108
0.119893717	1.7426	0.078176
0.159976141	1.8355	0.103758
0.199793458	1.9202	0.130029

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started:	08/11/2024 10:15:14	Analysis Adsorptive:	N2
Completed:	08/11/2024 12:30:04	Analysis Bath Temp.:	-196.371 °C
Report Time:	08/11/2024 12:30:04	Thermal Correction:	No
Sample Mass:	0.1353 g	Warm Free Space:	26.9649 cm³ Measured
Cold Free Space:	84.6974 cm³	Equilibration Interval:	5 s
Low Pressure Dose:	None	Automatic Degas:	Yes



Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

Langmuir Surface Area Report

Langmuir Surface Area: 9.6318 ± 0.1181 m²/g
Slope: 0.451959 ± 0.005541 g/cm³ STP
Y-Intercept: 10.151184 ± 0.530178 mmHg·g/cm³ STP
b: 0.044523 1/mmHg
Qm: 2.2126 cm³/g STP
Correlation Coefficient: 0.999775
Molecular Cross-Sectional Area: 0.1620 nm²

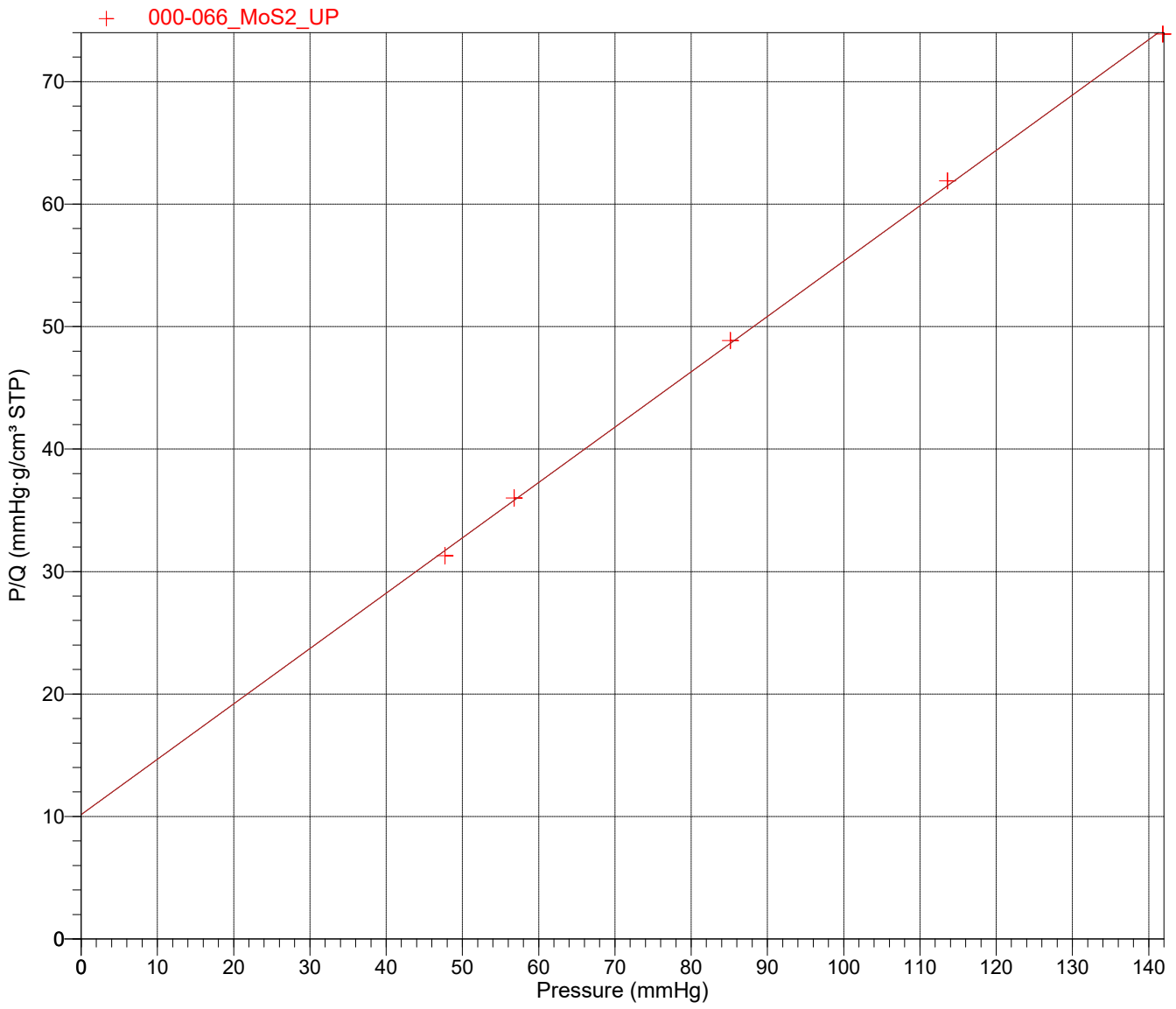
Pressure (mmHg)	Quantity Adsorbed (cm³/g STP)	P/Q (mmHg·g/cm³ STP)
47.710545	1.5245	31.295
56.797729	1.5777	36.001
85.134140	1.7426	48.856
113.595871	1.8355	61.890
141.869354	1.9202	73.884

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:04
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

Langmuir Surface Area Plot



Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started:	08/11/2024 10:15:14	Analysis Adsorptive:	N2
Completed:	08/11/2024 12:30:04	Analysis Bath Temp.:	-196.371 °C
Report Time:	08/11/2024 12:30:05	Thermal Correction:	No
Sample Mass:	0.1353 g	Warm Free Space:	26.9649 cm³ Measured
Cold Free Space:	84.6974 cm³	Equilibration Interval:	5 s
Low Pressure Dose:	None	Automatic Degas:	Yes

Freundlich Reports

Primary Data
4057- At least two data points are needed for Freundlich calculations.
Primary Data
4057- At least two data points are needed for Freundlich calculations.

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started:	08/11/2024 10:15:14	Analysis Adsorptive:	N2
Completed:	08/11/2024 12:30:04	Analysis Bath Temp.:	-196.371 °C
Report Time:	08/11/2024 12:30:05	Thermal Correction:	No
Sample Mass:	0.1353 g	Warm Free Space:	26.9649 cm³ Measured
Cold Free Space:	84.6974 cm³	Equilibration Interval:	5 s
Low Pressure Dose:	None	Automatic Degas:	Yes

Temkin Reports

Primary Data
4058- At least two data points are needed for Temkin calculations.
Primary Data
4058- At least two data points are needed for Temkin calculations.

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:05
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

t-Plot Report

Micropore Volume: 0.000255 cm³/g
Micropore Area: 0.6959 m²/g
External Surface Area: 6.2518 m²/g
Slope: 0.404175 ± 0.039205 cm³/g·Å STP
Y-Intercept: 0.165163 ± 0.155507 cm³/g STP
Correlation Coefficient: 0.995329
Surface Area Correction Factor: 1.000
Density Conversion Factor: 0.0015468
Total Surface Area (BET): 6.9477 m²/g
Thickness Range: 3.5000 Å to 5.0000 Å
Thickness Equation: Harkins and Jura

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

Relative Pressure (P/Po)	Statistical Thickness (Å)	Quantity Adsorbed (cm³/g STP)
0.079987781	3.5171	1.5777
0.139973083	3.9693	1.7887
0.199793458	4.3675	1.9202
0.300213590	5.0136	2.0556
0.450137107	6.0624	2.2711

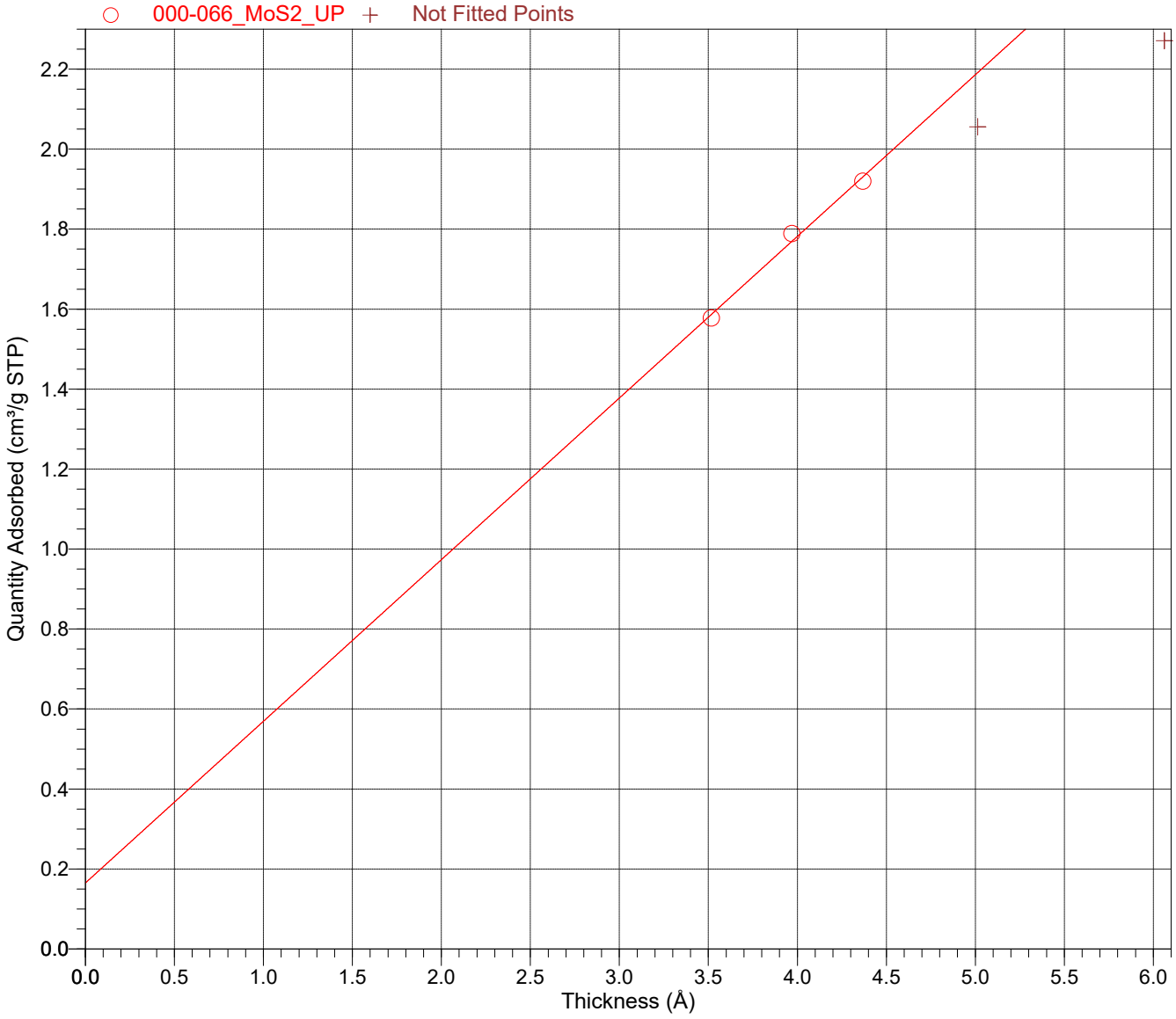
Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started: 08/11/2024 10:15:14
Completed: 08/11/2024 12:30:04
Report Time: 08/11/2024 12:30:05
Sample Mass: 0.1353 g
Cold Free Space: 84.6974 cm³
Low Pressure Dose: None

Analysis Adsorptive: N2
Analysis Bath Temp.: -196.371 °C
Thermal Correction: No
Warm Free Space: 26.9649 cm³ Measured
Equilibration Interval: 5 s
Automatic Degas: Yes

t-Plot

Harkins and Jura



Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started:	08/11/2024 10:15:14	Analysis Adsorptive:	N2
Completed:	08/11/2024 12:30:04	Analysis Bath Temp.:	-196.371 °C
Report Time:	08/11/2024 12:30:05	Thermal Correction:	No
Sample Mass:	0.1353 g	Warm Free Space:	26.9649 cm³ Measured
Cold Free Space:	84.6974 cm³	Equilibration Interval:	5 s
Low Pressure Dose:	None	Automatic Degas:	Yes

Alpha-S Method

Primary Data
4029- At least two fitted data points are needed for Alpha-S calculations.
4029- At least two fitted data points are needed for Alpha-S calculations.

Sample: 000-066_MoS2_UP
Operator: Danilo Janes
Submitter: Raphaella Ilum
File: C:\2020\DATA\000-066.SMP

Started:	08/11/2024 10:15:14	Analysis Adsorptive:	N2
Completed:	08/11/2024 12:30:04	Analysis Bath Temp.:	-196.371 °C
Report Time:	08/11/2024 12:30:05	Thermal Correction:	No
Sample Mass:	0.1353 g	Warm Free Space:	26.9649 cm³ Measured
Cold Free Space:	84.6974 cm³	Equilibration Interval:	5 s
Low Pressure Dose:	None	Automatic Degas:	Yes

f-Ratio Method

Primary Data
A reference file has not been chosen.