Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 2, 13.5 cm right of patch center 10.5 cm forward from crow **Test Date:** 7/10/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	53.5	-234.9	288.4	100%
Evap	96.2	95.1	1.1	
G1-1	57.5	131.3	73.8	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	25.6%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	49.3	55.9	6.6	
G3-2	49.3	58.7	9.4	
G3-3			0	
G3-4			0	
SS-3			0	5.5%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	108.2	172.2	64	22.2%
B3			0	0.0%
B4			0	0.0%
B5	109.5	109.5	0	0.0%
B6			0	0.0%
DS in-1	41.2	45.6	4.4	
DS in-2			0	1.5%
DS out-1	64.9	114.6	49.7	
DS out-2			0	
DS out-3			0	
DS out-4			0	17.2%
Other			0	0.0%
		Total Collected	207.9	72.1%

Total Input (g)	288.4
Total Collected (g)	207.9
Difference (g)	**-80.5**
	-28%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	1.1
% Evaporation	**3.86%**

Mass Flow Rate	
Test Duration (min)	60.05
Flow Rate (g/min)	4.80

Reference Towel Mass	
Initial Mass (g)	7.932
Final Mass (g)	7.867
Difference (g)	-0.07

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (^{o}C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.1	23	P-IN-BDST	853
2-HUM/TMP-BDST	90.4	22.9		
Final Conditions	RH (%)	Temperature (^{o}C)		Atm. P. (mbar)
1-HUM/TMP-BDST	90.2	23.9	P-IN-BDST	847
2-HUM/TMP-BDST	85.4	24.3		

SN-M&O-SCI-043-V2, pages 136-137

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 2, 13.5 cn right of center, 33 **Test Date:** 7/3/02

	Initial	Final	Difference	% of Input
Water Input	740.3	432.3	308	100%
Evap	101.2	101.0	0.2	
G1-1	56.6	78.3	21.7	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	7.0%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.7	287.2	179.5	58.3%
B2-2	48.3	99.0	50.7	16.5%
B4			0	0.0%
B5	109.2	110.1	0.9	0.3%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	56.8	68.4	11.6	
DS out-2			0	
DS out-3			0	
DS out-4			0	3.8%
Other			0	0.0%
		Total Collected	264.4	85.8%

Total Input	308.0
Total Collected	264.4
Difference	**-43.6**
	-14%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.2
% Evaporation	**0.58%**

Mass Flow Rate	
Test Duration, min	60
Flow Rate, g/min	5.13

Reference Towel Mass	
Initial Mass (g)	7.808
Final Mass (g)	8.066
Difference (g)	0.26

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.4	26.3	P-IN-BDST	858
2-HUM/TMP-BDST	90.7	25.8		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.5	27.9	P-IN-BDST	867
2-HUM/TMP-BDST	94.6	27.6		

SN-M&O-SCI-043-V2, pages 114-115

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 2, Centerline, 33 7/3/02

	Initial	Final	Difference	% of Input
Water Input	705.7	398.3	307.4	100%
Evap	103.0	102.7	0.3	
G1-1	64.1	80.5	16.4	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	5.3%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.4	350.9	243.5	79.2%
B3			0	0.0%
B4	107.3	107.6	0.3	0.1%
B5	109.2	109.8	0.6	0.2%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.8	75.1	10.3	
DS out-2			0	
DS out-3			0	
DS out-4			0	3.4%
Other			0	0.0%
		Total Collected	271.1	88.2%

Total Input	307.4
Total Collected	271.1
Difference	**-36.3**
	-12%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.3
% Evaporation	**0.83%**

Mass Flow Rate	
Test Duration, min	60
Flow Rate, g/min	5.12

Reference Towel Mass	
Initial Mass (g)	7.648
Final Mass (g)	8.239
Difference (g)	0.59

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	86.8	26.3	P-IN-BDST	862
2-HUM/TMP-BDST	89.3	26.2		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.1	27.5	P-IN-BDST	873
2-HUM/TMP-BDST	94.2	27.2		

SN-M&O-SCI-043-V2, pages 112-113

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch2, 13.5 cm right of centerline, 16.5 7/3/02

	Initial	Final	Difference	% of Input
Water Input	767.1	460.6	306.5	100%
Evap	99.5	99.4	0.1	
G1-1	64.2	144.0	79.8	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	26.0%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	42.1	42.3	0.2	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.1%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.6	232.4	124.8	40.7%
B3			0	0.0%
B4	99.7	99.7	0	0.0%
B5	109.2	111.1	1.9	0.6%
B6	109.8	110.4	0.6	0.2%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	63.8	105.6	41.8	
DS out-2			0	
DS out-3			0	
DS out-4			0	13.6%
Other			0	0.0%
		Total Collected	249.1	81.3%

Total Input	306.5
Total Collected	249.1
Difference	**-57.4**
	-19%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.1
% Evaporation	**0.30%**

Mass Flow Rate	
Test Duration, min	60
Flow Rate, g/min	5.11

Reference Towel Mass	
Initial Mass (g)	7.631
Final Mass (g)	7.839
Difference (g)	0.21

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.4	27.4	P-IN-BDST	860
2-HUM/TMP-BDST	90.4	27.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	93.2	29	P-IN-BDST	861
2-HUM/TMP-BDST	94.1	28.5		

SN-M&O-SCI-043-V2, pages 118-119

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4, 13.5 cm right of patch center, 16.5°

Test Date: 7/8/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	28.4	-275.6	304	100%
Evap	113.9	113.8	0.1	
G1-1	64.4	147.6	83.2	
G1-2	41.7	45.4	3.7	
G1-3			0	
G1-4			0	
SS-1			0	28.6%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	41.8	42.5	0.7	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.2%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.6	108.2	0.6	0.2%
B3			0	0.0%
B4	107.2	239.3	132.1	43.5%
B5	109.1	109.8	0.7	0.2%
B6	109.8	110.8	1	0.3%
DS in-1	40.9	42.1	1.2	
DS in-2			0	0.4%
DS out-1	63.6	99.1	35.5	
DS out-2			0	
DS out-3			0	
DS out-4			0	11.7%
Other			0	0.0%
		Total Collected	258.7	85.1%

Total Input (g)	304.0
Total Collected (g)	258.7
Difference (g)	**-45.3**
	-15%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.1
% Evaporation	**0.22%**

Mass Flow Rate	
Test Duration (min)	60.38
Flow Rate (g/min)	5.03

Reference Towel Mass	
Initial Mass (g)	7.719
Final Mass (g)	8.28
Difference (g)	0.56

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	82.6	23.9	P-IN-BDST	855
2-HUM/TMP-BDST	87.6	23.7		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.8	28.4	P-IN-BDST	852
2-HUM/TMP-BDST	93.5	28.3		

SN-M&O-SCI-043-V2, pages 124-125

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4,centerline, 16.5°

Test Date: 7/9/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	-18.3	-320.0	301.7	100%
Evap	88.5	88.0	0.5	
G1-1	42.5	42.6	0.1	
G1-2	41.5	45.8	4.3	
G1-3			0	
G1-4			0	
SS-1			0	1.5%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3	41.7	42.1	0.4	0.1%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1	105.9	106.2	0.3	0.1%
B2	107.6	107.9	0.3	0.1%
B3			0	0.0%
B4	107.4	307.3	199.9	66.3%
B5	109.1	109.4	0.3	0.1%
B6	109.8	110.2	0.4	0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.5	92.1	27.6	
DS out-2			0	
DS out-3			0	
DS out-4			0	9.1%
Other			0	0.0%
		Total Collected	233.6	77.4%

Total Input (g)	301.7
Total Collected (g)	233.6
Difference (g)	**-68.1**
	-23%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.5
% Evaporation	**2.40%**

Mass Flow Rate	
Test Duration (min)	60
Flow Rate (g/min)	5.03

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.1	20.5	P-IN-BDST	853
2-HUM/TMP-BDST	89.2	20.3		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.9	24.1	P-IN-BDST	856
2-HUM/TMP-BDST	92.8	23.8		

SN-M&O-SCI-043-V2, pages 126-127

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4,centerline, crown

Test Date: 7/9/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	87.8	-213.6	301.4	100%
Evap	86.8	86.0	0.8	
G1-1	50.2	50.3	0.1	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	0.0%
G2-1	41.2	41.2	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	49.1	70.2	21.1	
G3-2	48.0	61.4	13.4	
G3-3			0	
G3-4			0	
SS-3			0	11.4%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1	106.0	106.1	0.1	0.0%
B2	107.7	107.9	0.2	0.1%
B3			0	0.0%
B4	107.4	279.1	171.7	57.0%
B5			0	0.0%
B6	109.9	110.1	0.2	0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.3	84.2	19.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	6.6%
Other			0	0.0%
		Total Collected	226.7	75.2%

Total Input (g)	301.4
Total Collected (g)	226.7
Difference (g)	**-74.7**
	-25%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.8
% Evaporation	**4.19%**

Mass Flow Rate	
Test Duration (min)	61.58
Flow Rate (g/min)	4.89

Reference Towel Mass	
Initial Mass (g)	7.721
Final Mass (g)	7.87
Difference (g)	0.15

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.2	23.3	P-IN-BDST	849
2-HUM/TMP-BDST	89.8	23.1		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.1	25.4	P-IN-BDST	853
2-HUM/TMP-BDST	91.2	25.3		

SN-M&O-SCI-043-V2, pages 128-129

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4, 13.5 cm right of patch center, crown - Test#1 **Test Date:** 7/9/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	16.7	-275.5	292.2	100%
Evap	85.8	85.4	0.4	
G1-1	85.8	85.4	-0.4	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	-0.1%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.8	108.0	0.2	0.1%
B3			0	0.0%
B4	107.4	149.8	42.4	14.5%
B5			0	0.0%
B6	110.1	111.8	1.7	0.6%
DS in-1	48.8	132.4	83.6	
DS in-2	48.2	50.8	2.6	29.5%
DS out-1			0	
DS out-2			0	
DS out-3			0	
DS out-4			0	0.0%
Other			0	0.0%
		Total Collected	130.1	44.5%

Total Input (g)	292.2
Total Collected (g)	130.1
Difference (g)	**-162.1**
	-55%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.4
% Evaporation	**2.21%**

Mass Flow Rate	
Test Duration (min)	60.22
Flow Rate (g/min)	4.85

Reference Towel Mass	
Initial Mass (g)	7.842
Final Mass (g)	8.11
Difference (g)	0.27

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	90.1	25.6	P-IN-BDST	
2-HUM/TMP-BDST	87.9	25.8		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	93.8	28.1	P-IN-BDST	
2-HUM/TMP-BDST	91.5	28.1		

SN-M&O-SCI-043-V2, pages 130-131

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4,13.5 cm right of patch center, crown - Test#2 **Test Date:** 7/9/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	47.1	-242.3	289.4	100%
Evap	85.3	84.7	0.6	
G1-1	49.7	166.2	116.5	
G1-2	49.2	74.0	24.8	
G1-3			0	
G1-4			0	
SS-1			0	48.8%
G2-1	41.3	41.4	0.1	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	49.3	74.7	25.4	
G3-2	56.8	73.2	16.4	
G3-3			0	
G3-4			0	
SS-3			0	14.4%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.8	108.0	0.2	0.1%
B3			0	0.0%
B4	106.1	106.8	0.7	0.2%
B5			0	0.0%
B6	110.1	111.7	1.6	0.6%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.7	107.5	42.8	
DS out-2			0	
DS out-3			0	
DS out-4			0	14.8%
Other			0	0.0%
		Total Collected	228.5	79.0%

Total Input (g)	289.4
Total Collected (g)	228.5
Difference (g)	**-60.9**
	-21%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.6
% Evaporation	**3.41%**

Mass Flow Rate	
Test Duration (min)	60.02
Flow Rate (g/min)	4.82

Reference Towel Mass	
Initial Mass (g)	7.895
Final Mass (g)	8.090
Difference (g)	0.20

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (^oC)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.2	27.5	P-IN-BDST	854
2-HUM/TMP-BDST	81.1	28		
Final Conditions	RH (%)	Temperature (^oC)		Atm. P. (mbar)
1-HUM/TMP-BDST	94	28.9	P-IN-BDST	862
2-HUM/TMP-BDST	91.6	28.9		

SN-M&O-SCI-043-V2, pages 132-133

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4, 13.5 cm right of patch center 33°

Test Date: 7/11/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	-124.6	-270.8	146.2	100%
Evap	86.9	86.2	0.7	
G1-1	64.3	149.2	84.9	
G1-2	55.5	64.7	9.2	
G1-3			0	
G1-4			0	
SS-1			0	64.4%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	108.0	108.1	0.1	0.1%
B3			0	0.0%
B4	106.2	107.5	1.3	0.9%
B5			0	0.0%
B6			0	0.0%
DS in-1	47.9	61.3	13.4	
DS in-2			0	9.2%
DS out-1	49.3	53.9	4.6	
DS out-2			0	
DS out-3			0	
DS out-4			0	3.1%
Other			0	0.0%
		Total Collected	113.5	77.6%

Total Input (g)	146.2
Total Collected (g)	113.5
Difference (g)	**-32.7**
	-22%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.7
% Evaporation	**3.65%**

Mass Flow Rate	
Test Duration (min)	30.08
Flow Rate (g/min)	4.86

Reference Towel Mass	
Initial Mass (g)	7.897
Final Mass (g)	7.994
Difference (g)	0.10

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	90.3	21.6	P-IN-BDST	858
2-HUM/TMP-BDST	87	22.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.7	23.5	P-IN-BDST	848
2-HUM/TMP-BDST	92.8	23.3		

SN-M&O-SCI-043-V2, pages 144-145

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 4, centerline, 33 **Test Date:** 7/2/02

	Initial	Final	Difference	% of Input
Water Input	863.8	320.9	542.9	100%
Evap	99.1	98.4	0.7	
G1-1	49.5	87.0	37.5	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	6.9%
G2-1	41.5	41.9	0.4	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.1%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	107.2	510.3	403.1	74.2%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	65.1	80.7	15.6	
DS out-2			0	
DS out-3			0	
DS out-4			0	2.9%
Other			0	0.0%
		Total Collected	456.6	84.1%

Total Input	542.9
Total Collected	456.6
Difference	**-86.3**
	-16%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.7
% Evaporation	**2.16%**

Mass Flow Rate	
Test Duration, min	120
Flow Rate, g/min	4.52

Reference Towel Mass	
Initial Mass (g)	7.492
Final Mass (g)	7.934
Difference (g)	0.44

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	83	27.4	P-IN-BDST	857
2-HUM/TMP-BDST	83.2	27.4		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	93.8	29.8	P-IN-BDST	874
2-HUM/TMP-BDST	91.8	29.5		

SN-M&O-SCI-043-V2, pages 110-111

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 5, 13.5 cm left of patch center, 16.5°

Test Date: 7/8/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	-1.3	-342.2	340.9	100%
Evap	117.6	117.7	-0.1	
G1-1	71.3	313.9	242.6	
G1-2	48.6	58.0	9.4	
G1-3			0	
G1-4			0	
SS-1			0	73.9%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1 (SS)	48.6	50.3	1.7	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.5%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.5	108.1	0.6	0.2%
B3			0	0.0%
B4			0	0.0%
B5	109.2	111.7	2.5	0.7%
B6	109.7	111.0	1.3	0.4%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	56.3	83.3	27	
DS out-2			0	
DS out-3			0	
DS out-4			0	7.9%
Other			0	0.0%
		Total Collected	285.1	83.6%

Total Input (g)	340.9
Total Collected (g)	285.1
Difference (g)	**-55.8**
	-16%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	-0.1
% Evaporation	**-0.20%**

Mass Flow Rate	
Test Duration (min)	65.20
Flow Rate (g/min)	5.23

Reference Towel Mass	
Initial Mass (g)	7.639
Final Mass (g)	8.13
Difference (g)	0.49

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.3	26.3	P-IN-BDST	864
2-HUM/TMP-BDST	93.4	26.1		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	95.7	28.3	P-IN-BDST	869
2-HUM/TMP-BDST	94.6	28.2		

SN-M&O-SCI-043-V2, pages 120-121

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 5, 13.5 cm left of patch center, crown **Test Date:** 7/10/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	67.9	-231.2	299.1	100%
Evap	94.7	94.2	0.5	
G1-1	63.8	200.6	136.8	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	45.7%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	49.6	96.5	46.9	
G3-2	48.1	62.5	14.4	
G3-3			0	
G3-4			0	
SS-3			0	20.5%
G4-1	41.0	41.2	0.2	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.1%
B1			0	0.0%
B2	108.3	108.4	0.1	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.5	115.4	5.9	2.0%
B6	110.6	112.3	1.7	0.6%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	65.5	109.0	43.5	
DS out-2			0	
DS out-3			0	
DS out-4			0	14.5%
Other			0	0.0%
		Total Collected	249.5	83.4%

Total Input (g)	299.1
Total Collected (g)	249.5
Difference (g)	**-49.6**
	-17%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.5
% Evaporation	**1.85%**

Mass Flow Rate	
Test Duration (min)	61.88
Flow Rate (g/min)	4.83

Reference Towel Mass	
Initial Mass (g)	7.92
Final Mass (g)	8.25
Difference (g)	0.33

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	90.4	24.7	P-IN-BDST	856
2-HUM/TMP-BDST	88.9	24.9		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.1	26.6	P-IN-BDST	846
2-HUM/TMP-BDST	90.1	26.9		

SN-M&O-SCI-043-V2, pages 138-139

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 5, centerline, crown **Test Date:** 7/10/02

	Initial	Final	Difference	% of Input
Water Input	42.2	-245.5	287.7	100%
Evap	92.2	91.8	0.4	
G1-1	49.6	66.3	16.7	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	5.8%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	48.3	111.9	63.6	
G3-2	48.4	67.6	19.2	
G3-3			0	
G3-4			0	
SS-3			0	28.8%
G4-1	40.9	42.0	1.1	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.4%
B1			0	0.0%
B2	107.7	108.3	0.6	0.2%
B3	105.9	106.5	0.6	0.2%
B4			0	0.0%
B5			0	0.0%
B6	110.3	111.4	1.1	0.4%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	63.3	117.7	54.4	
DS out-2			0	
DS out-3			0	
DS out-4			0	18.9%
Other			0	0.0%
		Total Collected	157.3	54.7%

Total Input	287.70
Total Collected	157.3
Difference	**-130.4**
	-45%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.4
% Evaporation	**1.57%**

Mass Flow Rate	
Test Duration, min	60
Flow Rate, g/min	4.80

Reference Towel Mass	
Initial Mass (g)	7.568
Final Mass (g)	8.22
Difference (g)	0.65

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	83	24	P-IN-BDST	855
2-HUM/TMP-BDST	83.2	24		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.2	26.9	P-IN-BDST	854
2-HUM/TMP-BDST	92.3	26.9		

SN-M&O-SCI-043-V2, pages 140-141

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 5, 13.5 cm right of patch center, 33°

Test Date: 7/11/02

	Initial	Final	Difference	% of Input
Water Input	58.4	-108.2	166.6	100%
Evap	87.8	87.3	0.5	
G1-1	63.7	179.1	115.4	
G1-2	55.4	67.0	11.6	
G1-3			0	
G1-4			0	
SS-1			0	76.2%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	108.0	108.0	0	0.0%
B3			0	0.0%
B4			0	0.0%
B5	112.2	113.8	1.6	1.0%
B6			0	0.0%
DS in-1	41.2	41.8	0.6	
DS in-2			0	0.4%
DS out-1	63.7	68.6	4.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	2.9%
Other			0	0.0%
		Total Collected	134.1	80.5%

Total Input	166.6
Total Collected	134.1
Difference	**-32.5**
	-20%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.5
% Evaporation	**2.37%**

Mass Flow Rate	
Test Duration, min	34.03
Flow Rate, g/min	4.90

Reference Towel Mass	
Initial Mass (g)	7.956
Final Mass (g)	7.97
Difference (g)	0.01

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.5	21.3	P-IN-BDST	848
2-HUM/TMP-BDST	93.9	21		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.9	22.4	P-IN-BDST	859
2-HUM/TMP-BDST	92.9	22.3		

SN-M&O-SCI-043-V2, pages 142-143

Single Patch q(film) Test Summary and Mass Balance - Rough Surface

Test: Patch 5, Centerline, 16.5 **Test Date:** 7/3/02

	Initial	Final	Difference	% of Input
Water Input	739.2	434.0	305.2	100%
Evap	100.5	100.3	0.2	
G1-1	50.1	60.5	10.4	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	3.4%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	41.2	41.4	0.2	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.1%
G4-1	42.1	42.6	0.5	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.2%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.4	320.1	210.7	69.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	63.9	101.6	37.7	
DS out-2			0	
DS out-3			0	
DS out-4			0	12.4%
Other			0	0.0%
		Total Collected	259.5	85.0%

Total Input	305.2
Total Collected	259.5
Difference	**-45.7**
	-15%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.2
% Evaporation	**0.59%**

Mass Flow Rate	
Test Duration, min	60
Flow Rate, g/min	5.09

Reference Towel Mass	
Initial Mass (g)	7.595
Final Mass (g)	7.858
Difference (g)	0.26

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.1	27	P-IN-BDST	863
2-HUM/TMP-BDST	88.9	26.9		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.3	28.6	P-IN-BDST	864
2-HUM/TMP-BDST	94.4	28.2		

SN-M&O-SCI-043-V2, pages 116-117

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 81 cm left of DS center, crown **Test Date:** 7/11/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	29.4	-262.8	292.2	100%
Evap	85.9	85.2	0.7	
G1-1	57.1	131.8	74.7	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	25.6%
G2-1	41.0	41.9	0.9	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.3%
G3-1	49.0	82.6	33.6	
G3-2	56.0	70.4	14.4	
G3-3			0	
G3-4			0	
SS-3			0	16.4%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1	106.2	164.8	58.6	20.1%
B2			0	0.0%
B3			0	0.0%
B4	106.4	106.7	0.3	0.1%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	63.9	101.9	38	
DS out-2			0	
DS out-3			0	
DS out-4			0	13.0%
Other			0	0.0%
		Total Collected	220.5	75.5%

Total Input (g)	292.2
Total Collected (g)	220.5
Difference (g)	**-71.7**
	-25%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.7
% Evaporation	**3.85%**

Mass Flow Rate	
Test Duration (min)	61.07
Flow Rate (g/min)	4.78

Reference Towel Mass	
Initial Mass (g)	7.9
Final Mass (g)	7.8
Difference (g)	-0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (^{o}C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.6	23.9	P-IN-BDST	856
2-HUM/TMP-BDST	92.3	24		
Final Conditions	RH (%)	Temperature (^{o}C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.4	24.4	P-IN-BDST	855
2-HUM/TMP-BDST	89.6	24.4		

SN-M&O-SCI-043-V2, pages 149-150

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 27 cm left of DS center, crown

Test Date: 7/11/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	68.5	-220.0	288.5	100%
Evap	85.1	84.4	0.7	
G1-1	64.2	130.2	66	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	22.9%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	48.9	115.2	66.3	
G3-2	56.0	76.6	20.6	
G3-3			0	
G3-4			0	
SS-3			0	30.1%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.9	112.2	4.3	1.5%
B3			0	0.0%
B4	106.6	111.9	5.3	1.8%
B5			0	0.0%
B6	110.1	113.5	3.4	1.2%
DS in-1	41.0	45.1	4.1	
DS in-2			0	1.4%
DS out-1	64.2	115.0	50.8	
DS out-2			0	
DS out-3			0	
DS out-4			0	17.6%
Other			0	0.0%
		Total Collected	220.8	76.5%

Total Input (g)	288.5
Total Collected (g)	220.8
Difference (g)	**-67.7**
	-23%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.7
% Evaporation	**4.02%**

Mass Flow Rate	
Test Duration (min)	60.22
Flow Rate (g/min)	4.79

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	7.8
Difference (g)	0.0

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.3	24.2	P-IN-BDST	854
2-HUM/TMP-BDST	86.8	24.6		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	90.6	24.9	P-IN-BDST	848
2-HUM/TMP-BDST	86.3	25.5		

SN-M&O-SCI-043-V2, pages 151-152

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 27 cm right of DS center, crown **Test Date:** 7/12/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	41.5	-252.6	294.1	100%
Evap	107.0	106.7	0.3	
G1-1	72.1	206.8	134.7	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	45.8%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	56.2	100.9	44.7	
G3-2	48.9	67.6	18.7	
G3-3			0	
G3-4			0	
SS-3			0	21.6%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	108.0	108.3	0.3	0.1%
B3			0	0.0%
B4			0	0.0%
B5	109.5	109.7	0.2	0.1%
B6	110.1	113.3	3.2	1.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	63.6	110.6	47	
DS out-2			0	
DS out-3			0	
DS out-4			0	16.0%
Other			0	0.0%
		Total Collected	248.8	84.6%

Total Input (g)	294.1
Total Collected (g)	248.8
Difference (g)	**-45.3**
	-15%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.3
% Evaporation	**0.76%**

Mass Flow Rate	
Test Duration (min)	60.95
Flow Rate (g/min)	4.83

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	8.0
Difference (g)	0.2

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (^oC)		Atm. P. (mbar)
1-HUM/TMP-BDST	88.9	19.8	P-IN-BDST	861
2-HUM/TMP-BDST	92	19.6		
Final Conditions	RH (%)	Temperature (^oC)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.4	21.4	P-IN-BDST	858
2-HUM/TMP-BDST	89.9	22.7		

SN-M&O-SCI-043-V2, pages 155-156

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 81 cm right of DS center, crown **Test Date:** 7/12/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	78.7	-211.3	290	100%
Evap	106.3	105.5	0.8	
G1-1	71.8	220.8	149	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	51.4%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	56.2	98.2	42	
G3-2	56.5	71.4	14.9	
G3-3			0	
G3-4			0	
SS-3			0	19.6%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4	41.0	46.7	5.7	2.0%
B1			0	0.0%
B2			0	0.0%
B3	107.0	107.2	0.2	0.1%
B4			0	0.0%
B5	109.6	110.6	1	0.3%
B6	110.3	110.2	-0.1	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.3	103.2	38.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	13.4%
Other			0	0.0%
		Total Collected	251.6	86.8%

Total Input (g)	290.0
Total Collected (g)	251.6
Difference (g)	**-38.4**
	-13%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.8
% Evaporation	**2.07%**

Mass Flow Rate	
Test Duration (min)	60.65
Flow Rate (g/min)	4.78

Reference Towel Mass	
Initial Mass (g)	8.0
Final Mass (g)	7.9
Difference (g)	-0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.3	22.3	P-IN-BDST	863
2-HUM/TMP-BDST	88.5	22.8		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.3	24.1	P-IN-BDST	858
2-HUM/TMP-BDST	89.5	24.4		

SN-M&O-SCI-043-V2, pages 157-158

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 81 cm right of DS center, 16.5°

Test Date: 7/12/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	16.9	-265.9	282.8	100%
Evap	105.3	104.7	0.6	
G1-1	64.9	257.3	192.4	
G1-2	41.1	45.9	4.8	
G1-3			0	
G1-4			0	
SS-1			0	69.7%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1(SS)	41.6	42.2	0.6	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.2%
G4-1(SS)	41.2	45.6	4.4	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	1.6%
B1			0	0.0%
B2			0	0.0%
B3	108.1	108.9	0.8	0.3%
B4			0	0.0%
B5	109.4	110.2	0.8	0.3%
B6	110.1	110.3	0.2	0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.3	91.0	26.7	
DS out-2			0	
DS out-3			0	
DS out-4			0	9.4%
Other			0	0.0%
		Total Collected	230.7	81.6%

Total Input (g)	282.8
Total Collected (g)	230.7
Difference (g)	**-52.1**
	-18%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.6
% Evaporation	**1.60%**

Mass Flow Rate	
Test Duration (min)	60.03
Flow Rate (g/min)	4.71

Reference Towel Mass	
Initial Mass (g)	7.9
Final Mass (g)	8.1
Difference (g)	0.2

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89	24.9	P-IN-BDST	858
2-HUM/TMP-BDST	89.2	24.7		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	93.9	26.9	P-IN-BDST	867
2-HUM/TMP-BDST	93.1	26.7		

SN-M&O-SCI-043-V2, pages 159-160

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 27 cm right of DS center, 16.5 **Test Date:** 7/15/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	824.2	507.4	316.8	100%
Evap	107.0	105.6		
G1-1	65.0	259.2	194.2	
G1-2	56.3	72.5	16.2	
G1-3			0	
G1-4			0	
SS-1			0	66.4%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	49.3	49.7	0.4	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.1%
G4-1	41.4	41.4	0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	106.8	106.8	0	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.0	109.4	0.4	0.1%
B6	109.8	109.5	-0.3	-0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.3	82.1	17.8	
DS out-2			0	
DS out-3			0	
DS out-4			0	5.6%
Other			0	0.0%
		Total Collected	228.7	72.2%

Total Input (g)	316.8
Total Collected (g)	228.7
Difference (g)	**-88.1**
	-28%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0
% Evaporation	**0.00%**

Mass Flow Rate	
Test Duration (min)	60
Flow Rate (g/min)	5.28

Reference Towel Mass	
Initial Mass (g)	7.9
Final Mass (g)	7.9
Difference (g)	0.0

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (^{o}C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.7	26	P-IN-BDST	854
2-HUM/TMP-BDST	90.9	25.7		
Final Conditions	RH (%)	Temperature (^{o}C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.9	26.8	P-IN-BDST	865
2-HUM/TMP-BDST	92.8	26.6		

SN-M&O-SCI-043-V2, pages 161-162

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 27 cm left of DS center, 16.5 **Test Date:** 7/15/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	769.6	460.0	309.6	100%
Evap	104.8	104.5	0.3	
G1-1	64.5	241.8	177.3	
G1-2	56.1	100.2	44.1	
G1-3			0	
G1-4			0	
SS-1			0	71.5%
G2-1	41.4	41.5	0.1	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	41.7	42.1	0.4	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.1%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	106.6	107.1	0.5	0.2%
B3			0	0.0%
B4	105.8	106.3	0.5	0.2%
B5	109.0	109.5	0.5	0.2%
B6	109.8	110.5	0.7	0.2%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.8	88.4	23.6	
DS out-2			0	
DS out-3			0	
DS out-4			0	7.6%
Other			0	0.0%
		Total Collected	247.7	80.0%

Total Input (g)	309.6
Total Collected (g)	247.7
Difference (g)	**-61.9**
	-20%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.3
% Evaporation	**0.81%**

Mass Flow Rate	
Test Duration (min)	60
Flow Rate (g/min)	5.16

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.0
Difference (g)	0.3

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (^oC)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.9	26.1	P-IN-BDST	859
2-HUM/TMP-BDST	87.4	25.9		
Final Conditions	RH (%)	Temperature (^oC)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.9	27.6	P-IN-BDST	864
2-HUM/TMP-BDST	92.8	27.2		

SN-M&O-SCI-043-V2, pages 163-164

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 81 cm left of DS center, 16.5 **Test Date:** 7/15/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	731.1	488.5	242.6	100%
Evap	103.5	103.4	0.1	
G1-1	64.8	230.7	165.9	
G1-2	8.0	8.5	0.5	
G1-3			0	
G1-4			0	
SS-1			0	68.6%
G2-1	41.2	44.4	3.2	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	1.3%
G3-1	41.5	42.8	1.3	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.5%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1	107.6	108.3	0.7	0.3%
B2			0	0.0%
B3			0	0.0%
B4	105.9	106.8	0.9	0.4%
B5			0	0.0%
B6	7.6	7.6	0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.8	99.6	34.8	
DS out-2			0	
DS out-3			0	
DS out-4			0	14.3%
Other			0	0.0%
		Total Collected	207.3	85.4%

Total Input (g)	242.6
Total Collected (g)	207.3
Difference (g)	**-35.3**
	-15%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.1
% Evaporation	**0.28%**

Mass Flow Rate	
Test Duration (min)	60
Flow Rate (g/min)	4.04

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.5
Difference (g)	0.8

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	85.2	25.7	P-IN-BDST	860
2-HUM/TMP-BDST	86.6	25.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	94.7	28.3	P-IN-BDST	866
2-HUM/TMP-BDST	94.6	27.9		

SN-M&O-SCI-043-V2, pages 165-166

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 81 cm left of DS center, 33 **Test Date:** 7/16/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	636.9	530.1	106.8	100%
Evap	102.0	101.4	0.6	
G1-1	64.3	145.2	80.9	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	75.7%
G2-1	41.3	41.3	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	106.0	106.0	0	0.0%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	49.9	51.8	1.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	1.8%
Other			0	0.0%
		Total Collected	82.8	77.5%

Total Input (g)	106.8
Total Collected (g)	82.8
Difference (g)	**-24**
	-22%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.6
% Evaporation	**1.75%**

Mass Flow Rate	
Test Duration (min)	30
Flow Rate (g/min)	3.56

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	7.8
Difference (g)	0.0

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	83.1	25.7	P-IN-BDST	854
2-HUM/TMP-BDST	84.6	25.6		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	83.4	26.1	P-IN-BDST	847
2-HUM/TMP-BDST	83.8	26		

SN-M&O-SCI-043-V2, pages 173-174

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 27 cm left of DS center, 33 **Test Date:** 7/16/02

	Initial (g)	Final (g)	Difference (g)	% of Input
Water Input	676.1	568.8	107.3	100%
Evap	103.0	102.9	0.1	
G1-1	64.1	152.9	88.8	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	83.1%
G2-1	41.1	41.1	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	106.1	106.4	0.3	0.3%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	49.8	52.5	2.7	
DS out-2			0	
DS out-3			0	
DS out-4			0	2.5%
Other			0	0.0%
		Total Collected	91.8	86.0%

Total Input (g)	107.3
Total Collected (g)	91.8
Difference (g)	**-15.5**
	-14%

Evaporation	
Evap Pan Tare Wt (g)	67.7
Evaporation (g)	0.1
% Evaporation	**0.28%**

Mass Flow Rate	
Test Duration (min)	30
Flow Rate (g/min)	3.58

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.2
Difference (g)	0.5

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	84.2	25.3	P-IN-BDST	857
2-HUM/TMP-BDST	86	25.2		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.8	27.4	P-IN-BDST	853
2-HUM/TMP-BDST	93.3	27.1		

SN-M&O-SCI-043-V2, pages 171-172

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 27 cm right of DS center, 33 **Test Date:** 7/16/02

	Initial	Final	Difference	% of Input
Water Input	690.9	582.5	108.4	100%
Evap	104.0	103.5	0.5	
G1-1	65.1	152.0	86.9	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	80.2%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1	41.1	41.1	0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.4	109.7	0.3	0.3%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	50.6	52.1	1.5	
DS out-2			0	
DS out-3			0	
DS out-4			0	1.4%
Other			0	0.0%
		Total Collected	88.7	81.8%

Total Input	108.4
Total Collected	88.7
Difference	**-19.7**
	-18%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.5
% Evaporation	**1.34%**

Mass Flow Rate	
Test Duration, min	30
Flow Rate, g/min	3.61

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.0
Difference (g)	0.3

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	86.7	25.1	P-IN-BDST	854
2-HUM/TMP-BDST	86.1	25.1		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.1	26.4	P-IN-BDST	864
2-HUM/TMP-BDST	91.5	26.4		

SN-M&O-SCI-043-V2, pages 169-170

Multiple Patch Test Summary and Mass Balance - Rough Surface

Test: 81 cm right of DS center, 33 **Test Date:** 7/16/02

	Initial	Final	Difference	% of Input
Water Input	652.0	542.6	109.4	100%
Evap	105.9	105.0	0.9	
G1-1	65.1	149.7	84.6	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	77.3%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1	41.3	41.6	0.3	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.3%
B1			0	0.0%
B2			0	0.0%
B3	107.7	107.8	0.1	0.1%
B4			0	0.0%
B5	109.3	109.5	0.2	0.2%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	56.9	58.3	1.4	
DS out-2			0	
DS out-3			0	
DS out-4			0	1.3%
Other			0	0.0%
		Total Collected	86.6	79.2%

Total Input	109.4
Total Collected	86.6
Difference	**-22.8**
	-21%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.9
% Evaporation	**2.30%**

Mass Flow Rate	
Test Duration, min	30.03
Flow Rate, g/min	3.64

Reference Towel Mass	
Initial Mass (g)	7.9
Final Mass (g)	7.8
Difference (g)	-0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	86	25.1	P-IN-BDST	860
2-HUM/TMP-BDST	85.1	25.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	88.6	25.9	P-IN-BDST	864
2-HUM/TMP-BDST	88.4	25.4		

SN-M&O-SCI-043-V2, pages 167-168

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 54 cm left of DS center, Crown

Test Date 7/19/02

	Initial	Final	Difference	% of Input
Water Input	813.0	482.3	330.7	100%
Evap	100.4	100.0	0.4	
G1-1	42.5	42.6	0.1	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	0.0%
G2-1	41.2	41.5	0.3	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.1%
G3-1	64.1	113.7	49.6	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	15.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	107.4	301.3	193.9	58.6%
B5			0	0.0%
B6	102.2	102.9	0.7	0.2%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	71.8	111.1	39.3	
DS out-2			0	
DS out-3			0	
DS out-4			0	11.9%
Other			0	0.0%
		Total Collected	283.9	85.8%

Total Input	330.7
Total Collected	283.9
Difference	**-46.8**
	-14%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.4
% Evaporation	**1.19%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	33.07

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	7.9
Difference (g)	0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	84.4	24.8	P-IN-BDST	863
2-HUM/TMP-BDST	85	25		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	90.3	25.4	P-IN-BDST	861
2-HUM/TMP-BDST	90.8	25.2		

SN-M&O-SCI-043-V2, pages 194-195

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 54 cm left of DS Center, Crown

Test Date 7/23/02

	Initial	Final	Difference	% of Input
Water Input	695.4	577.3	118.1	100%
Evap	88.7	86.3	2.4	
G1-1	66.8	122.4	55.6	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	47.1%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	41.9	43.5	1.6	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3	49.7	50.9	1.2	2.4%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1	106.4	106.1	0	0.0%
B2	108.2	107.1	0	0.0%
B3			0	0.0%
B4	108.4	107.5	0	0.0%
B5			0	0.0%
B6	110.4	110.1	0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	66.8	69.0	2.2	
DS out-2			0	
DS out-3			0	
DS out-4			0	1.9%
Other			0	0.0%
		Total Collected	60.6	51.3%

Total Input	118.1
Total Collected	60.6
Difference	**-57.5**
	-49%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	2.4
% Evaporation	**10.91%**

Mass Flow Rate	
Test Duration, min	300.1
Flow Rate, g/min	0.39

Reference Towel Mass	
Initial Mass (g)	8.2
Final Mass (g)	7.8
Difference (g)	-0.4

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	101.7	26.9	P-IN-BDST	854
2-HUM/TMP-BDST	92.7	26.2		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	88.4	27.2	P-IN-BDST	858
2-HUM/TMP-BDST	91.2	26.6		

SN-M&O-SCI-043-V2, pages 210-211

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 27 cm left of DS center, Crown

Test Date 7/19/02

	Initial	Final	Difference	% of Input
Water Input	788.1	459.5	328.6	100%
Evap	99.8	99.4	0.4	
G1-1	64.7	197.6	132.9	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	40.4%
G2-1	41.5	41.5	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	63.9	144.8	80.9	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	24.6%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	7.6	10.5	2.9	0.9%
B3			0	0.0%
B4	99.7	100.3	0.6	0.2%
B5			0	0.0%
B6	109.9	112.2	2.3	0.7%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	72.0	127.9	55.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	17.0%
Other			0	0.0%
		Total Collected	275.5	83.8%

Total Input	328.6
Total Collected	275.5
Difference	**-53.1**
	-16%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.4
% Evaporation	**1.21%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	32.86

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	8.0
Difference (g)	0.2

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89	24.8	P-IN-BDST	855
2-HUM/TMP-BDST	86.4	25		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	92.2	25.9	P-IN-BDST	857
2-HUM/TMP-BDST	92.2	25.2		

SN-M&O-SCI-043-V2, pages 196-197

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 27 cm left of DS Center, Crown

Test Date 7/23/02

	Initial	Final	Difference	% of Input
Water Input	815.2	701.9	113.3	100%
Evap	89.1	88.9	0.2	
G1-1	58.0	71.5	13.5	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	11.9%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	42.2	53.9	11.7	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3	49.6	56.5	6.9	16.4%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.1	108.6	1.5	1.3%
B3			0	0.0%
B4	107.5	108.8	1.3	1.1%
B5			0	0.0%
B6	110.0	111.6	1.6	1.4%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	65.8	91.7	25.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	22.9%
Other			0	0.0%
		Total Collected	62.4	55.1%

Total Input	113.3
Total Collected	62.4
Difference	**-50.9**
	-45%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.2
% Evaporation	**0.89%**

Mass Flow Rate	
Test Duration, min	302.5
Flow Rate, g/min	0.37

Reference Towel Mass	
Initial Mass (g)	7.9
Final Mass (g)	8.5
Difference (g)	0.6

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.3	21	P-IN-BDST	852
2-HUM/TMP-BDST	93.4	20.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	110	28.1	P-IN-BDST	849
2-HUM/TMP-BDST	95.6	27.7		

SN-M&O-SCI-043-V2, pages 208-209

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 27 cm right of DS center, Crown

Test Date 7/19/02

	Initial	Final	Difference	% of Input
Water Input	744.2	437.6	306.6	100%
Evap	99.0	98.5	0.5	
G1-1	64.7	229.9	165.2	
G1-2	49.3	55.4	6.1	
G1-3			0	
G1-4			0	
SS-1			0	55.9%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	64.0	112.4	48.4	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	15.8%
G4-1	41.0	41.1	0.1	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	99.1	99.2	0.1	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.1	109.4	0.3	0.1%
B6	109.8	112.4	2.6	0.8%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	71.7	110.8	39.1	
DS out-2			0	
DS out-3			0	
DS out-4			0	12.8%
Other			0	0.0%
		Total Collected	261.9	85.4%

Total Input	306.6
Total Collected	261.9
Difference	**-44.7**
	-15%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.5
% Evaporation	**1.55%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	30.66

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	7.8
Difference (g)	0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.5	24	P-IN-BDST	856
2-HUM/TMP-BDST	81.4	25		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91	25.9	P-IN-BDST	852
2-HUM/TMP-BDST	91.3	25.4		

SN-M&O-SCI-043-V2, pages 198-199

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: low flow, 27 cm right of DS center, Crown

Test Date 7/22/02

	Initial	Final	Difference	% of Input
Water Input	744.8	674.0	70.8	100%
Evap	96.2	95.1	1.1	
G1-1	66.0	95.1	29.1	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	41.1%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	50.0	52.6	2.6	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3	49.3	51.0	1.7	6.1%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	111.6	110.4	0	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.6	109.9	0.3	0.4%
B6	111.5	110.5	0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	65.5	69.4	3.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	5.5%
Other			0	0.0%
		Total Collected	37.6	53.1%

Total Input	70.8
Total Collected	37.6
Difference	**-33.2**
	-47%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	1.1
% Evaporation	**3.73%**

Mass Flow Rate	
Test Duration, min	301.1
Flow Rate, g/min	0.24

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	8.2
Difference (g)	0.4

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.1	27.4	P-IN-BDST	846
2-HUM/TMP-BDST	87.1	27.4		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	99	29.9	P-IN-BDST	874
2-HUM/TMP-BDST	94.2	29.5		

SN-M&O-SCI-043-V2, pages 206-207

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 54 cm left of DS center, 16.5 **Test Date** 7/18/02

	Initial	Final	Difference	% of Input
Water Input	756.0	427.8	328.2	100%
Evap	98.7	98.4	0.3	
G1-1	49.7	60.7	11	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	3.4%
G2-1	48.6	49.0	0.4	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.1%
G3-1	41.5	42.6	1.1	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.3%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	107.7	305.6	197.9	60.3%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	71.6	130.9	59.3	
DS out-2			0	
DS out-3			0	
DS out-4			0	18.1%
Other			0	0.0%
		Total Collected	269.7	82.2%

Total Input	328.2
Total Collected	269.7
Difference	**-58.5**
	-18%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.3
% Evaporation	**0.94%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	32.82

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	7.8
Difference (g)	0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	84.8	24	P-IN-BDST	859
2-HUM/TMP-BDST	85	24		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.6	24.4	P-IN-BDST	850
2-HUM/TMP-BDST	89	24.3		

SN-M&O-SCI-043-V2, pages 190-191

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 54 cm left of DS Center, 16.5 **Test Date** 7/18/02

	Initial	Final	Difference	% of Input
Water Input	627.0	532.6	94.4	100%
Evap	98.2	97.7	0.5	
G1-1	42.4	42.6	0.2	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	0.2%
G2-1	41.2	41.2	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	41.6	41.6	0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	107.3	164.5	57.2	60.6%
B5			0	0.0%
B6	102.2	102.3	0.1	0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	56.7	59.1	2.4	
DS out-2			0	
DS out-3			0	
DS out-4			0	2.5%
Other			0	0.0%
		Total Collected	59.9	63.5%

Total Input	94.4
Total Collected	59.9
Difference	**-34.5**
	-37%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.5
% Evaporation	**1.59%**

Mass Flow Rate	
Test Duration, min	300
Flow Rate, g/min	0.31

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.7
Difference (g)	1.0

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	86.7	23.8	P-IN-BDST	858
2-HUM/TMP-BDST	84.3	24.4		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	108.5	27.7	P-IN-BDST	852
2-HUM/TMP-BDST	90.7	28.1		

SN-M&O-SCI-043-V2, pages 192-193

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 27 cm left of DS Center, 16.5 **Test Date** 7/18/02

	Initial	Final	Difference	% of Input
Water Input	790.8	468.7	322.1	100%
Evap	99.7	99.0	0.7	
G1-1	64.5	244.2	179.7	
G1-2	63.0	89.9	26.9	
G1-3			0	
G1-4			0	
SS-1			0	64.1%
G2-1	41.1	41.1	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	41.7	43.7	2	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.6%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.4	108.1	0.7	0.2%
B3			0	0.0%
B4	107.5	108.8	1.3	0.4%
B5	101.6	101.8	0.2	0.1%
B6	110.2	110.5	0.3	0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	71.9	124.8	52.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	16.4%
Other			0	0.0%
		Total Collected	264	82.0%

Total Input	322.1
Total Collected	264
Difference	**-58.1**
	-18%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.7
% Evaporation	**2.12%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	32.21

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	7.8
Difference (g)	0.0

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	88.1	24.2	P-IN-BDST	860
2-HUM/TMP-BDST	85	24.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	88.5	24.4	P-IN-BDST	862
2-HUM/TMP-BDST	88.7	24.4		

SN-M&O-SCI-043-V2, pages 188-189

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 27 cm left of DS Center, 16.5 **Test Date** 7/24/02

	Initial	Final	Difference	% of Input
Water Input	795.6	679.6	116	100%
Evap	80.8	80.5	0.33	
G1-1	66.4	156.2	89.8	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1	42.0	42.1	0.1	77.5%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3	40.5	40.5	0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.0	107.8	0.8	0.7%
B3			0	0.0%
B4	107.5	107.9	0.4	0.3%
B5	109.4	109.9	0.5	0.4%
B6	110.1	110.4	0.3	0.3%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	63.8	66.9	3.1	
DS out-2			0	
DS out-3			0	
DS out-4			0	2.7%
Other			0	0.0%
		Total Collected	95	81.9%

Total Input	116.0
Total Collected	95
Difference	**-21**
	-18%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.33
% Evaporation	**2.34%**

Mass Flow Rate	
Test Duration, min	300.2
Flow Rate, g/min	0.39

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.5
Difference (g)	0.8

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	86.7	20.9	P-IN-BDST	843
2-HUM/TMP-BDST	92.4	20.4		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	96.3	28.1	P-IN-BDST	852
2-HUM/TMP-BDST	95	27.6		

SN-M&O-SCI-043-V2, pages 212-213

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 27 cm right of DS center, 16.5 **Test Date** 7/18/02

	Initial	Final	Difference	% of Input
Water Input	759.3	445.4	313.9	100%
Evap	100.3	99.9	0.4	
G1-1	64.1	236.4	172.3	
G1-2	63.1	97.9	34.8	
G1-3			0	
G1-4			0	
SS-1			0	66.0%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1	48.9	50.3	1.4	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.4%
G4-1	41.0	41.2	0.2	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.1%
B1			0	0.0%
B2	106.8	107.6	0.8	0.3%
B3			0	0.0%
B4			0	0.0%
B5	109.3	110.4	1.1	0.4%
B6	8.4	8.6	0.2	0.1%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	64.0	121.6	57.6	
DS out-2			0	
DS out-3			0	
DS out-4			0	18.3%
Other			0	0.0%
		Total Collected	268.4	85.5%

Total Input	313.9
Total Collected	268.4
Difference	**-45.5**
	-14%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.4
% Evaporation	**1.19%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	31.39

Reference Towel Mass	
Initial Mass (g)	7.6
Final Mass (g)	7.9
Difference (g)	0.3

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	83.6	24.7	P-IN-BDST	875
2-HUM/TMP-BDST	85.7	24.7		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.7	25.5	P-IN-BDST	861
2-HUM/TMP-BDST	92.8	25.5		

SN-M&O-SCI-043-V2, pages 186-187

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 27 cm right of DS Center, 16.5 **Test Date** 7/24/02

	Initial	Final	Difference	% of Input
Water Input	667.4	547.7	119.7	100%
Evap	80.4	79.4	1	
G1-1	61.2	158.2	97	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1	40.2	40.2	0	81.0%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3	40.9	40.9	0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.7	107.8	0.1	0.1%
B3			0	0.0%
B4			0	0.0%
B5	109.9	110.0	0.1	0.1%
B6	110.4	110.4	0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	62.8	63.7	0.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	0.8%
Other			0	0.0%
		Total Collected	98.1	82.0%

Total Input	119.7
Total Collected	98.1
Difference	**-21.6**
	-18%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	1
% Evaporation	**7.30%**

Mass Flow Rate	
Test Duration, min	301.7
Flow Rate, g/min	0.40

Reference Towel Mass	
Initial Mass (g)	8.1
Final Mass (g)	8.2
Difference (g)	0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	95.2	28.3	P-IN-BDST	862
2-HUM/TMP-BDST	94.5	27.7		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	98	29.7	P-IN-BDST	868
2-HUM/TMP-BDST	94.9	29.2		

SN-M&O-SCI-043-V2, pages 214-215

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 54 cm left of DS center, 33 **Test Date** 7/17/02

	Initial	Final	Difference	% of Input
Water Input	776.1	446.0	330.1	100%
Evap	103.1	102.9	0.2	
G1-1	49.5	85.2	35.7	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	10.8%
G2-1	41.0	41.5	0.5	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.2%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	106.0	311.0	205	62.1%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	49.1	71.6	22.5	
DS out-2			0	
DS out-3			0	
DS out-4			0	6.8%
Other			0	0.0%
		Total Collected	263.7	79.9%

Total Input	330.1
Total Collected	263.7
Difference	**-66.4**
	-20%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.2
% Evaporation	**0.55%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	33.01

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	8.0
Difference (g)	0.3

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.2	24.7	P-IN-BDST	856
2-HUM/TMP-BDST	89.3	24.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89.9	25.1	P-IN-BDST	860
2-HUM/TMP-BDST	90.9	24.9		

SN-M&O-SCI-043-V2, pages 178-179

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 54 cm left of DS center, 33 **Test Date** 7/16/02

	Initial	Final	Difference	% of Input
Water Input	682.2	559.1	123.1	100%
Evap	101.3	100.3	1	
G1-1	42.2	42.4	0.2	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	0.2%
G2-1	41.1	41.1	0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4	106.2	159.4	53.2	43.2%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	41.4	42.5	1.1	
DS out-2			0	
DS out-3			0	
DS out-4			0	0.9%
Other			0	0.0%
		Total Collected	54.5	44.3%

Total Input	123.1
Total Collected	54.5
Difference	**-68.6**
	-56%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	1
% Evaporation	**2.89%**

Mass Flow Rate	
Test Duration, min	300
Flow Rate, g/min	0.41

Reference Towel Mass	
Initial Mass (g)	8.0
Final Mass (g)	8.3
Difference (g)	0.3

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	89	27.2	P-IN-BDST	852
2-HUM/TMP-BDST	89.9	26.9		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	97	27.7	P-IN-BDST	875
2-HUM/TMP-BDST	86.5	28.7		

SN-M&O-SCI-043-V2, pages 176-177

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 27 cm left of DS center, 33 **Test Date** 7/17/02

	Initial	Final	Difference	% of Input
Water Input	798.7	459.5	339.2	100%
Evap	102.5	102.2	0.3	
G1-1	63.9	256.2	192.3	
G1-2	62.5	104.3	41.8	
G1-3			0	
G1-4			0	
SS-1			0	69.0%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.0	107.0	0	0.0%
B3			0	0.0%
B4	107.5	107.6	0.1	0.0%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	56.4	74.3	17.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	5.3%
Other			0	0.0%
		Total Collected	252.1	74.3%

Total Input	339.2
Total Collected	252.1
Difference	**-87.1**
	-26%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.3
% Evaporation	**0.84%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	33.92

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	7.8
Difference (g)	0.0

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	82	24.7	P-IN-BDST	849
2-HUM/TMP-BDST	83.3	25.4		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	84.8	24.6	P-IN-BDST	848
2-HUM/TMP-BDST	85.7	24.5		

SN-M&O-SCI-043-V2, pages 180-181

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 27 cm left of DS center, 33 **Test Date** 7/25/02

	Initial	Final	Difference	% of Input
Water Input	798.5	682.7	115.8	100%
Evap	84.0	83.7	0.3	
G1-1	74.3	169.1	94.8	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1	40.2	41.0	0.8	82.6%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	107.0	108.0	1	0.9%
B3			0	0.0%
B4	107.6	108.0	0.4	0.3%
B5			0	0.0%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	69.4	71.3	1.9	
DS out-2			0	
DS out-3			0	
DS out-4			0	1.6%
Other			0	0.0%
		Total Collected	98.9	85.4%

Total Input	115.8
Total Collected	98.9
Difference	**-16.9**
	-15%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.3
% Evaporation	**1.73%**

Mass Flow Rate	
Test Duration, min	303.85
Flow Rate, g/min	0.38

Reference Towel Mass	
Initial Mass (g)	7.8
Final Mass (g)	8.6
Difference (g)	0.8

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	87.9	20.4	P-IN-BDST	850
2-HUM/TMP-BDST	92.7	20		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	99.8	27.9	P-IN-BDST	850
2-HUM/TMP-BDST	95.2	27.5		

SN-M&O-SCI-043-V2, pages 216-217

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: High flow rate, 27 cm right of DS center, 33

Test Date 7/17/02

	Initial	Final	Difference	% of Input
Water Input	803.2	472.9	330.3	100%
Evap	102.0	101.7	0.3	
G1-1	63.8	248.3	184.5	
G1-2	62.7	111.6	48.9	
G1-3			0	
G1-4			0	
SS-1			0	70.7%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2	106.9	107.0	0.1	0.0%
B3			0	0.0%
B4	107.5	107.6	0.1	0.0%
B5	109.3	110.5	1.2	0.4%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	56.5	73.2	16.7	
DS out-2			0	
DS out-3			0	
DS out-4			0	5.1%
Other			0	0.0%
		Total Collected	251.5	76.1%

Total Input	330.3
Total Collected	251.5
Difference	**-78.8**
	-24%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.3
% Evaporation	**0.85%**

Mass Flow Rate	
Test Duration, min	10
Flow Rate, g/min	33.03

Reference Towel Mass	
Initial Mass (g)	7.7
Final Mass (g)	7.8
Difference (g)	0.1

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	86.1	24.3	P-IN-BDST	854
2-HUM/TMP-BDST	86.1	24.6		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	88	24.8	P-IN-BDST	853
2-HUM/TMP-BDST	89.3	24.8		

SN-M&O-SCI-043-V2, pages 182-183

Bounding Flow Test Summary and Mass Balance - Rough DS Surface

Test: Low flow rate, 27 cm right of DS center, 33 **Test Date** 7/17/02

	Initial	Final	Difference	% of Input
Water Input	661.7	549.4	112.3	100%
Evap	101.7	101.4	0.3	
G1-1	64.3	140.5	76.2	
G1-2			0	
G1-3			0	
G1-4			0	
SS-1			0	67.9%
G2-1			0	
G2-2			0	
G2-3			0	
G2-4			0	
SS-2			0	0.0%
G3-1			0	
G3-2			0	
G3-3			0	
G3-4			0	
SS-3			0	0.0%
G4-1			0	
G4-2			0	
G4-3			0	
G4-4			0	
SS-4			0	0.0%
B1			0	0.0%
B2			0	0.0%
B3			0	0.0%
B4			0	0.0%
B5	109.7	110.5	0.8	0.7%
B6			0	0.0%
DS in-1			0	
DS in-2			0	0.0%
DS out-1	49.2	52.2	3	
DS out-2			0	
DS out-3			0	
DS out-4			0	2.7%
Other			0	0.0%
		Total Collected	80	71.2%

Total Input	112.3
Total Collected	80
Difference	**-32.3**
	-29%

Evaporation	
Evap Pan Tare Wt, g	66.7
Evaporation, g	0.3
% Evaporation	**0.86%**

Mass Flow Rate	
Test Duration, min	304
Flow Rate, g/min	0.37

Reference Towel Mass	
Initial Mass (g)	8.0
Final Mass (g)	8.4
Difference (g)	0.4

Test Chamber Environment				
Initial Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	91.6	25.9	P-IN-BDST	857
2-HUM/TMP-BDST	92.8	25.5		
Final Conditions	RH (%)	Temperature (°C)		Atm. P. (mbar)
1-HUM/TMP-BDST	109.6	28.6	P-IN-BDST	863
2-HUM/TMP-BDST	95.1	28.4		

SN-M&O-SCI-043-V2, pages 184-185

APPENDIX C:
Rivulet Spread Data

Test Description: Q (film) – Rivulet Flow
Patch 5, center, crown
Pages 116 and 117 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical**
Maximum (cm)	-28.0	-45.5	-54.0
Minimum (cm)	0	0	0

Test Description: Q (film) – Rivulet Flow
Patch 5, 4 cm left of center, crown
Pages 118 and 119 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical**
Maximum (cm)	21	Not Recorded	Not Recorded
Minimum (cm)	Not Recorded	Not Recorded	Not Recorded

Test Description: Q (film) – Rivulet Flow
Patch 4, center, crown
Pages 120 and 121 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical**
Right (cm)	26.5	19.0	Not Visible at Test End
Left (cm)	11.0	14.0	47.0

Test Description: Q (film) – Rivulet Flow
Patch 4, 8 cm right of center, crown
Pages 122 and 123 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** Top of Patch 40.5 cm from Trans
Right (cm)	28.5	36.5	45
Left (cm)	15.0	24	19

Test Description: Q (film) – Rivulet Flow
Patch 4, 8 cm right of center, 16.5º
Pages 124 and 125 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	5.5	13.5	15
Left (West) (cm)	3.5	N/A	N/A

Test Description: Q (film) – Rivulet Flow
Patch 2, center, 16.5º
Pages 126 and 127 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	7.5	19.5	19.0
Left (West) (cm)	4.5	22.0	27.0

Test Description: Q (film) – Rivulet Flow
Patch 2, 15 cm right of center, 16.5º
Pages 128 and 129 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	11.5	18.0	18.0
Left (West) (cm)	9.0	15.0	18.0

Test Description: Q (film) – Rivulet Flow
Patch 5, 4 cm left of center, 16.5º
Pages 131 and 132 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	8.5	N/A enter breach	N/A enter breach
Left (West) (cm)	8.5	N/A enter breach	N/A enter breach

Test Description: Q (film) – Rivulet Flow
Patch 2, 15 cm right of center, 33º
Pages 133 and 134 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	13.0	14.5
Left (West) (cm)	N/A	11.5	12.0

Test Description: Q (film) – Rivulet Flow
Patch 2, center, 33º
Pages 135 and 136 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	Vertical (Top of patch on vertical)
Right (East) (cm)	N/A	9.0	6.0
Left (West) (cm)	N/A	10.5	18.0

Test Description: Q (film) – Rivulet Flow
Patch 4, 8 cm right of center, 33º
Pages 137 and 138 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	14.5 top of patch 4	N/A enter breach
Left (West) (cm)	N/A	9.5 top of patch 4	N/A enter breach

Test Description: Multiple Patch Tests, Smooth DS Surface
81 cm left of DS center, 33º
Pages 142 and 143 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	14 cm	15 cm
Left (West) (cm)	N/A	12 cm	18 cm

Test Description: Multiple Patch Tests, Smooth DS Surface
27 cm left of DS center, 33º
Pages 144 and 145 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	11 cm	16 cm
Left (West) (cm)	N/A	9cm	14 cm

Test Description: Multiple Patch Tests, Smooth DS Surface
27 cm right of DS center, 33º
Pages 146 and 147 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	10 cm	8 cm
Left (West) (cm)	N/A	13 cm	15 cm

Test Description: Multiple Patch Tests, Smooth DS Surface
81 cm right of DS center, 33º
Pages 148 and 149 of SN-M&O-SCI-043-V1

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	10 cm	22 cm
Left (West) (cm)	N/A	10 cm	10 cm

Test Description: Multiple Patch Tests, Smooth DS Surface
27 cm right of drip shield center (Patch 6 center), crown
Pages 9 and 10 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	29.0	Enter B5	Enter B5
Left (West) (cm)	13.0	19.0	23.0

Test Description: Multiple Patch Tests, Smooth DS Surface
27 cm left of drip shield center, crown
Pages 15 and 16 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	21.5	29.0	30.0
Left (West) (cm)	21.0	Enter B4	Enter B4

Test Description: Multiple Patch Tests, Smooth DS Surface
81 cm left of drip shield center, crown
Pages 17 and 18 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	23.5	Enter B4	Enter B4
Left (West) (cm)	17.0	11.5	35.5

Test Description: Multiple Patch Tests, Smooth DS Surface
81 cm left of drip shield center, 16.5°
Pages 19 and 20 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	4.5	Enter B4	Enter B4
Left (West) (cm)	6.5	14.0	Not Visible, Dry

Test Description: Multiple Patch Tests, Smooth DS Surface
27 cm left of drip shield center, 16.5°
Pages 21 and 22 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	7.0	13.0	20.0
Left (West) (cm)	5.5	15.0	14.5

Test Description: Multiple Patch Tests, Smooth DS Surface
27 cm right of drip shield center, 16.5°
Pages 25 and 26 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	6.0	15.5	24.0
Left (West) (cm)	11.0	27.5	31.0

Test Description: Multiple Patch Tests, Smooth DS Surface
81 cm right of drip shield center, crown
Pages 200 and 201 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	18.0	17.0	29.0
Left (West) (cm)	20.0	21.0	32.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
7 cm right of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 32-33

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	13.5	8.5	25.5
Left (West) (cm)	20.0	28.0	36.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
27 cm right of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 36-37

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	16.5	29.0	45.0
Left (West) (cm)	24.0	37.0	39.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
27 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 38-39

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	8.0	13.0	20.0
Left (West) (cm)	10.0	23.0	24.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
27 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 40-41

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	19	27	34
Left (West) (cm)	24	32	21

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
54 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 42-43

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	30.0	54.0	63.0
Left (West) (cm)	10.5	15.0	15.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
54 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 44-45

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	32.0	44.0	56.0
Left (West) (cm)	22.0	30.0	35.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
54 cm left of drip shield center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 46-47

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	31.0	35.0	35.0
Left (West) (cm)	46.0	46.0	45.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
54 cm left of drip shield center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 48-49

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	8.5	19.0	24.0
Left (West) (cm)	10.0	27.0	30.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
27 cm left of drip shield center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 50-51

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	6.0	17.0	24.0
Left (West) (cm)	8.0	16.0	20.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
27 cm left of drip shield center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 52-53

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	18.0	22.0	25.0
Left (West) (cm)	24.0	19.0	21.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
27 cm right of drip shield center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 54-55

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	13.0	14.0	19.0
Left (West) (cm)	27.0	23.0	24.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
27 cm right of drip shield center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 56-57

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	12.0	16.0	20.0
Left (West) (cm)	17.0	19.0	28.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
27 cm left of drip shield center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 58-59

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	4.0	11.0	26.0
Left (West) (cm)	3.0	17.0	18.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
27 cm right of drip shield center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 60-61

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	5.0	15.0	28.0
Left (West) (cm)	5.0	17.0	17.0

Test Description: High Flow Rate (20.0 m^3/yr nominal), Smooth DS Surface
54 cm left of drip shield center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 62-63

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	4.0	17.0	18.0
Left (West) (cm)	4.0	17.0	20.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
54 cm left of drip shield center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 64-65

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	NA	NA	NA
Left (West) (cm)	NA	NA	NA

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
27 cm left of drip shield center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 66-67

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	NA	9.0	Enter B4
Left (West) (cm)	NA	9.5	8.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Smooth DS Surface
27 cm right of drip shield center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 68-69

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	NA	8.5	12.0
Left (West) (cm)	NA	10.0	8.0

Test Description: Single Patch q(splash) Tests, Rough DS Surface
Patch 6, 20 cm left of patch center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 93-94

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	16.0	9.5	19.0
Left (West) (cm)	14.0	12.5	12.5

Test Description: Single Patch q(splash) Tests, Rough DS Surface
Patch 6 center, 15 cm below crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 95-96

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	6.0	9.0	11.0
Left (West) (cm)	10.0	9.5	10.5

Test Description: Single Patch q(splash) Tests, Rough DS Surface
Patch 6, patch center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 97-98

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	13.0	43.0	39.0
Left (West) (cm)	8.0	39.0	38.0

Test Description: Single Patch q(splash) Tests, Rough DS Surface
Patch 5, 20 cm left of patch center, 16.5°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 99-100

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	29.0	2.0	4.0
Left (West) (cm)	27.0	40.0	34.0

Test Description: Single Patch q(splash) Tests, Rough DS Surface
Patch 5, 20 cm left of patch center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 101-102

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	3.0	3.0	3.0
Left (West) (cm)	1.0	16.0	18.0

Test Description: Single Patch q(splash) Tests, Rough DS Surface
Patch 4, 27 cm right of patch center, 33°
Scientific Notebook SN-M&O-SCI-043-V2, pp. 103-104

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	3.0	17.0	16.0
Left (West) (cm)	3.0	11.5	10.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 4, centerline, 33°
Pages 110 and 111 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	3.0	23.0	18.0
Left (West) (cm)	2.0	20.0	22.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 2, center, 33°
Pages 112 and 113 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	2.0	2.0	4.0
Left (West) (cm)	2.0	9.0	8.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 2, 13.5 cm right of center, 33°
Pages 114 and 115 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	2.0	10.0	10.0
Left (West) (cm)	2.0	1.0	3.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 5, centerline, 16.5°
Pages 116 and 117 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	16.5	18.0	19.0
Left (West) (cm)	27.0	22.0	22.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 2, 13.5 cm right of centerline, 16.5°
Pages 118 and 119 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	14.0	25.0	20.0
Left (West) (cm)	12.0	14.0	12.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 5, 13.5 cm left of patch center, 16.5°
Pages 120 and 121 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	20.5	N/A	N/A
Left (West) (cm)	15.0	15.0	15.5

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 2, centerline, 16.5°
Pages 122 and 123 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	32.0	32.0	41.0
Left (West) (cm)	20.0	20.0	18.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 4, centerline, 16.5°
Pages 126 and 127 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	11.0	N/A	N/A
Left (West) (cm)	23.5	25.0	26.5

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 4, centerline, crown
Pages 128 and 129 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	1.0	N/A	N/A
Left (West) (cm)	26.0	27.0	26.5

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 4, 13.5 cm right of patch center, crown
Pages 132 and 133 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	21.0	22.0	23.0
Left (West) (cm)	11.5	N/A	N/A

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 2, centerline 10.5 cm forward from crown, Patch 6 covered
Pages 134 and 135 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	20.0 ends	12.0	13.5
Left (West) (cm)	11.5	11.5	12.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 2, 13.5 cm left of center, 10.5 cm forward from crown
Pages 136 and 137 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	25.0	22.0	23.0
Left (West) (cm)	20.0	19.0	Not visible beyond transition

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 5, 13.5 cm left of patch center, crown
Pages 138 and 139 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	22.0	N/A	N/A
Left (West) (cm)	8.0	11.5	11.5

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 5, 13.5 cm left of patch center, 33°
Pages 142 and 143 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	N/A	N/A
Left (West) (cm)	N/A	9.0	9.0

Test Description: Single Patch q(film) Rivulet Flow Tests: Rough DS Surface
Patch 4, 13.5 cm right of patch center, 33°
Pages 144 and 145 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	9.0	11.0
Left (West) (cm)	N/A	N/A	N/A

Test Description: Multiple Patch Tests, Rough DS Surface
81 cm left of drip shield center, Crown
Pages 149 and 150 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	17.5	Enter Breach	Enter Breach
Left (West) (cm)	32.5	30.0	32.0

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm left of drip shield center, Crown
Pages 151 and 152 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	18.0	18.0	18.5
Left (West) (cm)	21.5	Enter B4	Enter B4

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm right of drip shield center, Crown
Pages 153 and 154 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	10.0	7.5	9.5
Left (West) (cm)	10.0	10.0	Rivulet ends, 4.0 next

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm right of drip shield center, Crown
Pages 155 and 156 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	None	None	None
Left (West) (cm)	1.0	1.0	0.5

Test Description: Multiple Patch Tests, Rough DS Surface
81 cm right of drip shield center, Crown
Pages 157 and 158 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	*34.0	*32.0	25.0
Left (West) (cm)	17.0	Enter B5	Enter B5

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm right of drip shield center, 16.5°
Pages 161 and 162 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	12.0	8.0	7.0
Left (West) (cm)	8.0	6.0	6.0

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm left of drip shield center, 16.5°
Pages 163 and 164 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	19.0	13.0	13.0
Left (West) (cm)	21.0	12.0	10.0

Test Description: Multiple Patch Tests, Rough DS Surface
81 cm left of drip shield center, 16.5°
Pages 165 and 166 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	22.0	12.0	13.0
Left (West) (cm)	16.0	14.0	9.0

Test Description: Multiple Patch Tests, Rough DS Surface
81 cm right of drip shield center, 33°
Pages 167 and 168 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	2.0	1.5
Left (West) (cm)	N/A	2.0	2.0

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm right of drip shield center, 33°
Pages 169 and 170 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	1.0	1.0
Left (West) (cm)	N/A	3.0	2.5

Test Description: Multiple Patch Tests, Rough DS Surface
27 cm left of drip shield center, 33°
Pages 171 and 172 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	1.0	1.5
Left (West) (cm)	N/A	2.0	4.0

Test Description: Multiple Patch Tests, Rough DS Surface
81 cm left of drip shield center, 33°
Pages 173 and 174 of Scientific Notebook SN-M&O-SCI-043-V2

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	4.0	2.0
Left (West) (cm)	N/A	3.0	1.0

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm left of drip shield center, 33^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 180-181

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	9	14	10
Left (West) (cm)	6	8	2.5

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, 33^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 182-183

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	3	11	11
Left (West) (cm)	5	12	13

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, 33^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 184-185

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	2.5	3
Left (West) (cm)	N/A	2.5	5

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, 16.5^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 186-187

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	15	10	10
Left (West) (cm)	16	17	20

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm left of drip shield center, 16.5^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 188-189

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	32	34	23
Left (West) (cm)	26	13	12

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
54 cm left of drip shield center, 16.5^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 190-191

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	20	19	21
Left (West) (cm)	25	26	26

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
54 cm left of drip shield center, 16.5^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 192-193

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	6	N/A	N/A
Left (West) (cm)	3	N/A	N/A

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
54 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 194-195

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	None	N/A	N/A
Left (West) (cm)	2	N/A	N/A

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 196-197

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	15	15	15
Left (West) (cm)	15	14	10

Test Description: High Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 198-199

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	6	3	4
Left (West) (cm)	6	3	2

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 204-205

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	16.0	Enter B5	Enter B5
Left (West) (cm)	50.0	53.0	52.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 206-207

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	1.0	N/A	N/A
Left (West) (cm)	N/A	4.0	3.5

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 208-209

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	12.0	16.0	18.0
Left (West) (cm)	25.5	Enter B4	Enter B4

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
54 cm left of drip shield center, crown
Scientific Notebook SN-M&O-SCI-043-V2, pp. 210-211

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	0	4.5	5.0
Left (West) (cm)	0	N/A	N/A

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm left of drip shield center, 16.5^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 212-213

Position relative to drip impact	**33º**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	2.0	0	2.5
Left (West) (cm)	3.0	1.0	1.0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm right of drip shield center, 16.5^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 214-215

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	0	0	0
Left (West) (cm)	0	0	0

Test Description: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
27 cm left of drip shield center, 33^0
Scientific Notebook SN-M&O-SCI-043-V2, pp. 216-217

Position relative to drip impact	**33°**	**Transition** (Curved to vertical)	**Vertical** (Top of patch on vertical)
Right (East) (cm)	N/A	4.5	4.5
Left (West) (cm)	N/A	6.0	9.5

APPENDIX D:
Water Temperature Data

Date: 7/22/02
Test: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 204-205

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
Input Water	28.5	111.1	9:11
Input Water	33.4	113.0	13:52
DS Beaker Water	32.1	112.4	13:56

Date: 7/22/02
Test: Low Flow Rate (0.2 m3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 206-207

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
Input Water	31.2	112.1	14:47
DS Beaker Water	30.5	111.3	14:58
DS Surface Water	31.9	112.4	20:01
DS Beaker Water	31.6	112.4	20:06
Input Water	33.9	113.2	20:04

Date: 7/23/02
Test: Low Flow Rate (0.2 m3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 208-209

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
Input Water	23.9	109.3	7:08
DS Beaker Water	22.1	108.4	7:14
DS Beaker Water	29.4	111.4	12:06
DS Surface Water	30.1	111.7	12:23
Input Water	30.0	111.7	12:27

Date: 7/23/02
Test: Low Flow Rate (0.2 m3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 210-211

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
Input Water	30.4	111.8	12:53
DS Beaker Water	29.8	111.6	12:54
DS Beaker Water	28.3	111.0	18:02
Input Water	31.5	112.3	18:06
DS Surface Water	30.1	111.7	18:12

Date: 7/24/02
Test: Low Flow Rate (0.2 m3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 212-213

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
DS Beaker Water	21.2	108.3	7:04
Input Water	23.1	109.0	7:06
DS Surface Water	30.7	112.0	12:23
DS Beaker Water	29.8	111.6	12:28
Input Water	29.9	111.7	12:36

Date: 7/24/02
Test: Low Flow Rate (0.2 m3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 214-215

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
Input Water	30.2	111.7	12:51
DS Beaker Water	30.0	111.7	12:53
Air Temperature	30.3	111.8	12:59
Air Temperature	31.9	112.4	18:00
DS Beaker Water	31.6	112.3	18:02
DS Surface Water	32.1	112.4	18:06
Input Water	33.5	113.0	18:12

Date: 7/25/02
Test: Low Flow Rate (0.2 m^3/yr nominal), Rough DS Surface
Scientific Notebook SN-M&O-SCI-043-V2, pp. 216-217

RTD Used: DS-RTD-01with Fluke 702 multimeter in RTD temperature mode (See Page 203 of SN-M&0-SCI-043-V2)			
Measurement	Temperature (^oC)	Ohms	Time
Input Water	22.6	108.8	7:28
DS Beaker Water	22.2	108.6	7:36
Air Temperature	23.6	109.1	7:38
Air Temperature	30.2	111.8	12:37
DS Surface Water	30.0	111.7	12:42
DS Beaker Water	29.5	111.5	12:48
Input Water	29.3	111.4	12:50

Description of Measurement Types

Input Water: Injection source water in beaker located on Analytical Balance PM4000 (see page 3 of SN-M&O-SCI-043-V2) inside the test chamber. RTD probe submerged in water and reading was taken after 30 sec.

DS Beaker Water: Water in glass beaker placed in contact with the DS surface throughout the test. RTD probe is placed below water surface in beaker and reading was taken after 30 sec.

DS Surface Water: Water film remaining on the DS following a test. RTD probe is placed in contact with the DS. The probe is not submerged in water, and in most cases only a thin film is present. Reading is taken after 30 sec.

Air Temperature: RTD probe is mounted so that it is not in contact with DS any other surface. Reading is taken after 30 sec.