Class 1 Air

WHEN THOSE UNDER YOUR CARE REQUIRE THE CLEANEST AIR

Gillware, Inc.

1802 Wright Street
Madison, WI 53704

Test Reports

November, 2018

6579 N. Sidney Place - P.O. Box 090527
Milwaukee, WI 53209
Phone: (414) 228-1213 Fax: (414) 228-9626

Class 1 Air

WHEN THOSE UNDER YOUR CARE REQUIRE THE CLEANEST AIR

Gillware, Inc.

1802 Wright Street
Madison, WI 53704

Laminar s/n: 9811024 - Hood #1

Purpose: To determine if the cleanzone meets ISO Class 5 in the "at rest" mode in accordance with ISO 14644.1:2015

Procedure: A zone classification of ISO Class 5 is desired in this area. The air being supplied to this area is of a non-unidirectional pattern. The minimum number of sample locations required for classification was determined by the area and Table A.1.

$$A = \frac{6.000}{10.76}\ ft^2 = 0.558\ m^2$$

Table A.1: 1 Location(s)

No fewer than one location shall be sampled and at least three samples shall be taken for any cleanzone. Sample locations shall be uniformly spaced except as limited by equipment within the cleanzone. Sample volume will be taken at a minimum of two liters and a minimum sample time of one minute.

Statistical Analysis: 0.5µ particle size/m^3

Average Particle Concentrations:
Location #: 1) 0
2) 0

Mean of the Averages: **0**

Standard Deviation: **0**

Compliance Determination: Since the average particle concentration at each location is less than 3,520 particles per m^3, the air sample is verified as complying with airborne cleanliness ISO Class 5 at 0.5µ in accordance with ISO 14644.1:2015

Testing Technician(s): Erik Thompson Date: 11/5/2018

Particle Counter: TSI Model #: 9310-02 Serial #: 93101737002 Cal. Due: 10/9/2019

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Madison, WI 53704

Laminar s/n: 9811024 - Hood #1

Inst Model	9310-02
Serial #	93101737002

Sample 1 of 4	
Sample # 151	
Date/Time	11/5/2018,11:35:48AM
Zone	PEC 2CYCLE
Location	Location01
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 2 of 4	
Sample # 152	
Date/Time	11/5/2018,11:36:48AM
Zone	PEC 2CYCLE
Location	Location01
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 3 of 4	
Sample # 153	
Date/Time	11/5/2018,11:38:03AM
Zone	PEC 2CYCLE
Location	Location02
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 4 of 4	
Sample # 154	
Date/Time	11/5/2018,11:39:03AM
Zone	PEC 2CYCLE
Location	Location02
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

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Class 1 Air

WHEN THOSE UNDER YOUR CARE REQUIRE THE CLEANEST AIR

Gillware, Inc.

1802 Wright Street
Madison, WI 53704

Laminar s/n: 204670538 - Hood #2

Purpose: To determine if the cleanzone meets ISO Class 5 in the "at rest" mode in accordance with ISO 14644.1:2015

Procedure: A zone classification of ISO Class 5 is desired in this area. The air being supplied to this area is of a non-unidirectional pattern. The minimum number of sample locations required for classification was determined by the area and Table A.1.

$$A = \frac{6.000}{10.76}\ ft^2 = 0.558\ m^2$$

Table A.1: 1 Location(s)

No fewer than one location shall be sampled and at least three samples shall be taken for any cleanzone. Sample locations shall be uniformly spaced except as limited by equipment within the cleanzone. Sample volume will be taken at a minimum of two liters and a minimum sample time of one minute.

Statistical Analysis: 0.5µ particle size/m^3

Average Particle Concentrations:
Location #: 1) 0
2) 0

Mean of the Averages: 0

Standard Deviation: 0

Compliance Determination: Since the average particle concentration at each location is less than 3,520 particles per m^3, the air sample is verified as complying with airborne cleanliness ISO Class 5 at 0.5µ in accordance with ISO 14644.1:2015

Testing Technician(s): Erik Thompson Date: 11/5/2018

Particle Counter: TSI Model #: 9310-02 Serial #: 93101737002 Cal. Due: 10/9/2019

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Gillware, Inc.

1802 Wright Street
Madison, WI 53704

Laminar s/n: 204670538 - Hood #2

Inst Model	9310-02
Serial #	93101737002

Sample 1 of 4
Sample # 143

Date/Time	11/5/2018,11:24:01AM
Zone	PEC 2CYCLE
Location	Location01
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 2 of 4
Sample # 144

Date/Time	11/5/2018,11:25:01AM
Zone	PEC 2CYCLE
Location	Location01
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 3 of 4
Sample # 145

Date/Time	11/5/2018,11:26:46AM
Zone	PEC 2CYCLE
Location	Location02
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 4 of 4
Sample # 146

Date/Time	11/5/2018,11:27:46AM
Zone	PEC 2CYCLE
Location	Location02
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

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Class 1 Air

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Gillware, Inc.

1802 Wright Street
Madison, WI 53704

Laminar - Hood #3

Purpose: To determine if the cleanzone meets ISO Class 5 in the "at rest" mode in accordance with ISO 14644.1:2015

Procedure: A zone classification of ISO Class 5 is desired in this area. The air being supplied to this area is of a non-unidirectional pattern. The minimum number of sample locations required for classification was determined by the area and Table A.1.

$$A = \frac{22.430}{10.76}\ ft^2 = 2.085\ m^2$$

Table A.1: 2 Location(s)

No fewer than one location shall be sampled and at least three samples shall be taken for any cleanzone. Sample locations shall be uniformly spaced except as limited by equipment within the cleanzone. Sample volume will be taken at a minimum of two liters and a minimum sample time of one minute.

Statistical Analysis: 0.5µ particle size/m^3

Average Particle Concentrations:
Location #: 1) 0
2) 0

Mean of the Averages: **0**

Standard Deviation: **0**

Compliance Determination: Since the average particle concentration at each location is less than 3,520 particles per m^3, the air sample is verified as complying with airborne cleanliness ISO Class 5 at 0.5µ in accordance with ISO 14644.1:2015

Testing Technician(s): Erik Thompson Date: 11/5/2018

Particle Counter: TSI Model #: 9310-02 Serial #: 93101737002 Cal. Due: 10/9/2019

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Madison, WI 53704

Laminar - Hood #3

Inst Model	9310-02
Serial #	93101737002

Sample 1 of 4

Sample #	147
Date/Time	11/5/2018.11:29:28AM
Zone	PEC 2CYCLE
Location	Location01
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 2 of 4

Sample #	148
Date/Time	11/5/2018.11:30:28AM
Zone	PEC 2CYCLE
Location	Location01
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 3 of 4

Sample #	149
Date/Time	11/5/2018.11:32:27AM
Zone	PEC 2CYCLE
Location	Location02
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

Sample 4 of 4

Sample #	150
Date/Time	11/5/2018.11:33:27AM
Zone	PEC 2CYCLE
Location	Location02
Recipe	PEC2CYCLE
Sample Time	00:01:00
Volume	28.3 L
Flow	OK
Laser	OK

Particles / m3:

Size	Cumul	Alarm
0.3	0	
0.5	0	
1.0	0	
5.0	0	

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