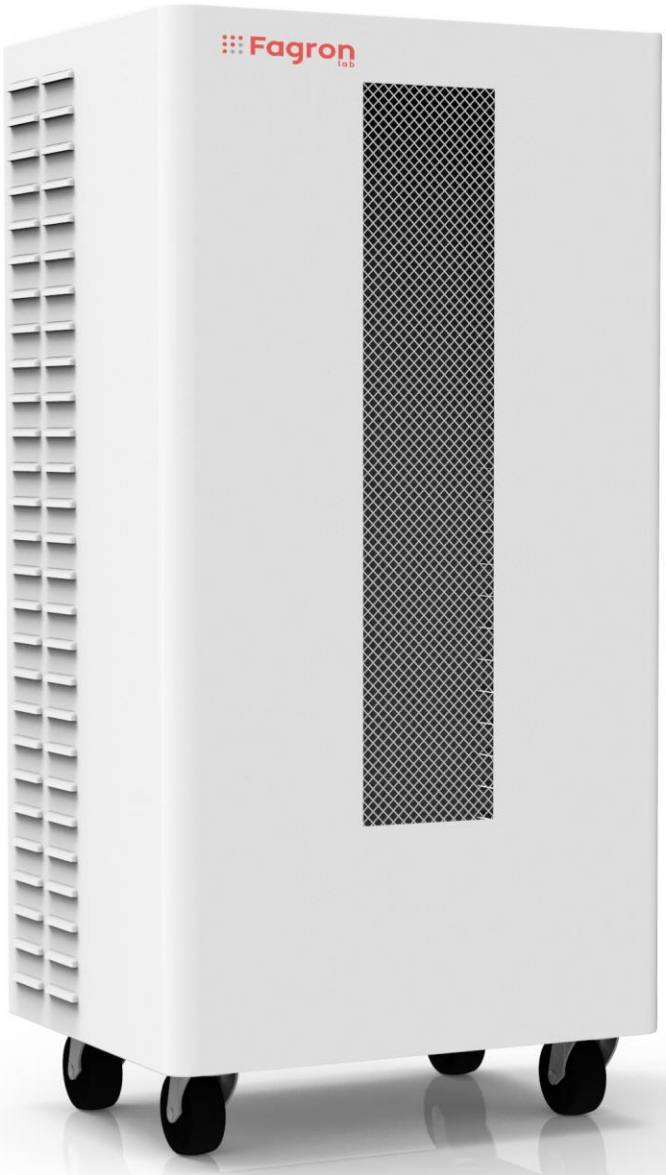

FagronLab™ UVGI-80

Test Reports

Fagron lab

1 Inspection Reports for FagronLab™ UVGI-80 Air Sterilizer

Test Based on

Sterilization Technical Specifications (2002 edition) 2.1.5.4, 2.1.3.

Evaluation basis

Sterilization Technical Specifications (2002 edition).

Equipment

- ST-512 ultraviolet radiation illuminance meter (sensitivity: 1μW/cm^2; Center wavelength: 254nm);
- Sterilization equipment: ultraviolet tube for ultraviolet air sterilizer.

Sample No.: JKK20020101

Sample name	Ultraviolet Air Sterilizer	Number of samples	1 set
Production date or batch number	-	Sample properties	Device
Production unit	-	Date of sample acceptance	21-02-2020
Test item	UV radiation intensity	Date of test completion	05-03-2020

Method

- The radiation illuminance value of the Ultraviolet Air Sterilizer is 147μW/cm2;
- The Ultraviolet Air Sterilizer's efficiency is above 90.00% in terms of decay rate of the indigenous air bacteria examined in a controlled environment (air-locked room without human presence) after operating the device for 120 minutes, as proved by the average reached from the three field tests performed;
- The results showed that the ultraviolet radiation illuminance of the ultraviolet tube is 147μW/cm2 (See Table 1).

Test item		**Test results**	
	Unit	Test No.	Radiance value
Ultraviolet radiation	μW/cm^2	1	146
		2	147
		3	147
		Average value	147

Table 1. Test data of ultraviolet radiation illuminance.

Conclusion

The ultraviolet radiation illuminance value is 147μW/cm^2 (measured as per aforementioned method) and the sterilization effect complies with the requirements of Sterilization Technical Specification (2002 edition).

2 Inspection Report of Decay Rate for *Staphylococcus albus*

Equipment

- Test cabin: 20m^3;
- Strain of *Staphylococcus albus* 8032; culture media: nutrient agar medium; sampler: six-stage mesh air impactor sampler;
- Sterilization equipment: Ultraviolet air sterilizer.

Sample No.: JKK20020101

Sample name	Ultraviolet Air Sterilizer	Date of sample acceptance	21-02-2020
Test item	Simulated field sterilization test (*S. Albus*)	Date of test completion	27-02-2020

Method

- Test based on Sterilization Technical Specification (2002 edition) 2.1.3;
- Environmental parameters: Temperature at 20-25°C and relative humidity at 50-70% RH;
- The device was set in operational mode during the test;
- Sterilization method: The test sample was placed in the cabin, while the sterilizer was operating for a period of 60 minutes;
- The test was repeated three times;
- Sampling method:
    - A sampling point was set at 1 meter from the ground in the center of the test cabin;
    - Use a six-stage mesh air impact sampler for sampling;
    - The sampling flow rate is 28.3L/min.

Samples were collected, while sterilizer was in operational mode, at minute 0 and after 60 minutes. Sample time-frame collection is as following:

- Control group 20 seconds before and after the test;
- Test group 20 seconds before and 6 minutes after the test respectively.

Results

The Ultraviolet Air Sterilizer has a disinfection effect of 99.90%, 99.92%, and 99.90% respectively in terms of decay rate of *Staphylococcus albus* after set on operational mode for 60 minutes, tests performed at temperature 20-25°C and relative humidity at 50-70% RH.

Tested strains	Operational time (min)	Test No.	Control Group			Test Group		
			No. colonies before test (CFU/m^3)	No. colonies after test (CFU/m^3)	Natural decay rate (%)	No. colonies before test (CFU/m^3)	No. colonies after test (CFU/m^3)	Natural decay rate (%)
Staphylococcus albus	60	1	8.06x10^4	6.35x10^4	21.22	8.55x10^4	65	99.90
		2	9.17x10^4	7.37x10^4	19.63	8.31x10^4	53	99.92
		3	1.10x10^5	8.36x10^4	24.00	1.06x10^5	82	99.90

Table 2. Experimental data of quantitative test air sterilization effect (S. albus).

Conclusion

The Ultraviolet Air Sterilizer has a disinfectant effect of above 99.90% in terms of decay rate of *Staphylococcus albus* after an operational time of 60 minutes. The sterilization effect complies with the requirements of Sterilization Technical Specification (2002 edition).

3 Inspection Report of Decay Rate for Indigenous Airborne Bacteria

Equipment

- Test site: air locked room 80m^3 (in human absence);
- Test strain: indigenous airborne bacteria; culture media: ordinary nutrient agar medium; sampler: six-stage mesh air impingement sampler;
- Sterilization equipment: Ultraviolet air sterilizer.

Sample No.: JKK20010022

Sample name	Ultraviolet Air Sterilizer	Date of sample acceptance	21-02-2020
Test item	On-site sterilization test	Date of test completion	02-03-2020

Method

- Testing based on Sterilization Technical Specification (2002 edition) 2.1.3;
- Environmental parameters: Temperature 22-24°C and relative humidity 60-70% RH;
- Device set on operational mode;
- Sterilization method: Test sample was placed in an air-locked room. The sterilizer was set on operational mode for 120 minutes before sampling. Sample collection was repeated three times;
- Sampling method:
    - Two sampling points were placed at 1 meter above the ground;
    - A six-stage mesh air impact sampler was used for sampling;
    - The sampling flow rate was 28.3L/min;
    - Sample time frame before sterilization settled at 5 minutes and after sterilization 10 minutes

Results

Tests performed in a controlled environment (80m^3 air-locked room without human presence), with parameters of temperature at 22-24°C and relative humidity at 60-70% RH showed that the ultraviolet air sterilizer has a disinfection effect of 90.42%, 90.56%, and 92.17% respectively (three tests performed), in terms of decay rate of the indigenous airborne bacteria, after an operational time of 120 minutes.

Tested strains	Operational time (min)	Test No.	Average No. colonies before test (CFU/m^3)	Average No. colonies after test (CFU/m^3)	Decay rate (%)
Indigenous airborne bacteria	120	1	2.40x10^3	2.30x10^2	90.42
		2	1.95x10^3	1.84x10^2	90.56
		3	2.21x10^3	1.73x10^2	92.17

Table 3. Experimental data of quantitative test of air sterilization effect (indigenous airborne bacteria).

Conclusion

The Ultraviolet Air Sterilizer has a disinfectant effect of above 90.00% in terms of decay rate of indigenous airborne bacteria, in an 80m^3 air-locked room in human absence after an operational time of 120 minutes. The sterilization effect complies with the requirements of Sterilization Technical Specification (2002 edition).

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