Efficacy of AirDoctor 3000 on Bioaerosols

(Bacteria, Mold, Viruses, Endospores)

Bioaerosols consist of airborne particles that contain living organisms, such as bacteria, fungi and viruses or parts of living organisms, such as plant pollen, spores and endotoxins from bacterial cells or mycotoxins from fungi. As such, they are found in the natural environment. The airborne particles that makeup bioaerosols are extremely small and are not visible to the naked eye as they range in size from around 0.02 to 100 micrometers in diameter. The size, density and shape of a bioaerosol will affect its behavior, survivability and ultimately its dispersion in the atmosphere. The behavior and the ability of the bioaerosol to survive are dependent on the shape, density and size of the bioaerosols.

Risks

Exposure to bioaerosols has been identified with links between respiratory and gastrointestinal illnesses, and Aspergillosis, caused by exposure to Aspergillus fumigatus spores, has been reported to give rise to long-term chronic respiratory conditions.

Test

The testing involved releasing bioaerosols into a 30m³ environmental test chamber under controlled conditions. First, the equipment is placed in the test chambers, the doors were closed and the HEPA filter system was then turned on. The environment temperature was between 23 and 25 degrees Celcius with between 50 and 70 percent humidity. The chamber environmental control system was turned off. Staphylococcus albus, Staphylococcus aureus, Escherichia coli, Candida albicans, Serratia marcescens, P. Aeruginosa, and Aspergillus niger were introduced into the room, and then the ceiling fan was turned on for 10 minutes, and then stopped for 15 minutes. The aerosols were collected by a six-stage sieve sampler. The air purifier was then adjusted to the highest air cleaning mode setting for the test. Bacteria aerosols were collected at 60 minutes. The test was run three times, and the mean was the final result.

Results

AirDoctor 3000 was able to reduce the concentrations of bacteria, viruses, mold, and endospores in the air by more than 99.99%.

Read Full Report
AirDoctor 3000