



Case Study Carpet Warehouse

AiroCide™ Air Quality-Improvement™ System

AiroCide is a unique airborne pathogen killing technology that uses a patented combination of ultraviolet light and a proprietary titanium based photocatalyst. The AiroCide technology and developing product line is clinically proven and field tested to kill/remove/eliminate airborne pathogenic and non-pathogenic microorganisms in vegetative and spore states (bacteria, mold & fungi, viruses and dust mites), allergens, odors and harmful volatile organic compounds (VOC'S) in Medical/ Healthcare, Child Care, Residential, Mold Remediation, Athletic and Sports Facilities, Corrections Facilities and Food Storage and Preservation applications.

Summary

A clinical test of the *AiroCide™* system was performed inside a carpet warehouse situated underground over a thirty (30) consecutive day period. The objective of this test is to determine the level of existing bacteria and fungi in the area and compare the results with criteria of “before” and “after” the *AiroCide* treatment. It is therefore, a test to determine the *AiroCide*’s ability and efficiency in reducing environmental contamination.

The three *AiroCide* ACS-100 units installed in the room reduced the amount of airborne bacteria and fungi by **82%** and **46%** respectively over a period of thirty (30) days. These results are very significant considering the high traffic of merchandise (woven carpets) from different origins (imported), the HIGH initial level of contamination and the better air quality feeling expressed by the usual staff working inside the warehouse immediately after the treatment.

Facility

The facility consists in a three-story building. The test is conducted inside the lower undivided underground floor of approximately 1.600m³ in volume. The middle floor is situated at the street level and holds a show room and a few offices. The rest of the offices and a bigger show room are located in the upper level

The tested area has a big door at one side to provide easy access to the delivery trucks; this door is usually kept fully open during working hours, but we kept it closed during the sampling times in order to avoid more contamination entering from the outside. The flooring is made of standard ceramic tiles. During the full test the usual staff remained in the area, performing their duties. The activity is considered high.

Protocol

The test period consisted of two (2) days of air sampling and spanned a thirty (30) consecutive day timeframe. Air Samples were taken on three (3) different places within the room denominated points 1, 2 and 3. Test #1 was used as “baseline” for future comparisons with test # 2. The *AiroCide* units were not working while air samples were taken for Test #1. All three units (ACS-100) were turned on right after. Air samples for Test #2 were taken after the *AiroCide* systems had been permanently operative for a period of thirty (30) days. After sampling was completed all units were turned off.

Material:

TSA (Tryptic Soy Agar) irradiated 90mm plates
 SAB (Sabouraud Cloranfenicol) irradiated 90mm plates
 Active air monitoring system Aerotech6®
 AiroCide™ ACS-100 x 3 (BonPart Tecnología)

Method:

Baseline air samples in the room were taken at 09:00 hours (#1)
 Active air samples (#2) were taken at 09:00 hours
 TSA plates were used for bacteria incubation, count and identification.
 Incubated for 3 days at 37° C
 Airflow rate: 0.5 liters/ second
 Air volume:1000 l
 SAP plates were used for fungi incubation, count and identification.
 Incubated for 5 days
 Airflow rate: 0.5 liters/ second
 Air volume: 1.000 l

Laboratorio:

Centro Analítico Pozuelo, S.L.

Resultados

The *AiroCide™* systems performing in the carpet warehouse reduced the amount of airborne bacteria and fungi by an average of **82%** and **46%** respectively over a testing period of thirty (30) consecutive days, time of duration of our study. It was also noticed a substantial reduction of bad odors in the area and, generally speaking, “the environment felt cleaner, fresher and lighter” as mentioned by the warehouse usual staff. Considering the high and continue contamination that affects the room, due to the constant movement of merchandise from diverse origin as well as the usual heavy transit of personnel, we highly recommend the use of the *AiroCide™* to drastically eliminate the existing airborne contamination.

TABLES**BACTERIA**

Air sampling site	Baseline	30 Days	
	CFU/m ³	CFU/m ³	Change %
Point 1	10	4	60
Point 2	42	2	95
Point 3	89	8	91

MOLD

Air sampling site	Baseline	30 Days	
	CFU/m ³	CFU/m ³	Change %
Point 1	5	2	60
Point 2	14	10	30
Point 3	21	11	50