



Case Study

Two Floral Coolers
Equiflor Corporation - Miami, FL

AiroCide® PPT Photocatalytic Air Purifying Technology

AiroCide PPT photocatalytic air purifiers contain the same NASA-developed technology used in a variety of AiroCide air purifying product lines. In addition to serving the floral and perishable preservation and food safety industry, the technology is has been developed 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 air in a variety of commercial, government, and residential applications including the medical healthcare industry (AiroCide air purifiers are FDA Class II listed medical devices).

Summary:

A clinical study of the AiroCide PPT photocatalytic air purifying technology was conducted in the floral coolers of Equiflor Corporation, a leading floral growing, distributing and marketing company in Miami, FL. The data supports the hypothesis that airborne mold levels would be lowered after 48 hours of continuous operation of the AiroCide PPT air purifying system. The results show an average airborne mold **reduction** inside the coolers of 78.5% in 48 hours.

Protocol

The floral coolers used in this study were both approximately 94,600 ft³ in volume. The system in the study consisted of two (2) ACS-100 units, one in each of the two floral coolers. This configuration was deliberately designed to challenge the AiroCide air purifying units in rooms that were nearly twice the size of the recommended utilization.

The test period consisted of two (2) days of air sampling in November 2004. A baseline air sample was taken in each test location in the coolers without the units operating and was compared to Active On samples taken in the same locations after 48 hours of use. Air samples were taken for comparison in the Receiving Area.

Air samples were taken with a slit air sampler (similar to the Anderson N6 sampler) on 15 x 100 mm plastic petri dishes. All samples were cultured on Potato Dextrose

Agar plate by Aerotech Laboratories in Phoenix, AZ, and the results were measured in colony forming units (CFU) per cubic meter of air. All agar plates were exposed to 28.3 l/m of air for 3 minutes.

Results:

The table below shows airborne mold **reduction** inside the coolers of 79.9% and 75.1%, or an average of 78.5% in 48 hours.

Mold Spores	No AiroCide		AiroCide "On"	
	Baseline CFU/m ³	48-hr CFU/m ³	48-hr CFU/m ³	48-hr Change
Cooler 1 - 1 ACS-100	294	59		- 79.93%
Cooler 2 - 1 ACS-100	141	35		- 75.17%

Average Reduction - 78.5%

This dramatic decrease is particularly significant considering the size of the area in which the AiroCide units were installed.

One (1) AiroCide PPT air purifier model ACS-100 is designed to clean the air in enclosed areas up to 50,000 ft³ in volume (1,415 m³) under standard operating conditions. *

One (1) AiroCide PPT air purifier model ACS-50 is designed to clean the air in enclosed areas up to 25,000 ft³ in volume (707 m³) under standard operating conditions. *

*AiroCide PPT air purifier specification requirements may vary according to the temperature and design of enclosure as well as the sensitivity of its contents to airborne mold, bacteria and ethylene gas. In order to obtain a target airborne pathogen reduction of 90% or greater within 48 hours, KES recommends adhering to the defined specifications.

Copies of tests mentioned in this paper can be obtained by writing KesAir, Research & Development, 3625 Kennesaw N. Ind. Pkwy., Kennesaw, GA 30144.

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