

AiroCide PPT™ Perishables Preservation Technology

AiroCide PPT™ contains the same NASA-developed technology that is used in a variety of *AiroCide* product lines. In addition to serving the floral and perishable preservation and food safety industry, the *AiroCide* 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 market applications including the medical healthcare industry (*AiroCide* is listed as an FDA Class II Medical Device).

Summary:

A clinical study of the *AiroCide PPT* airborne pathogen killing technology was conducted in the refrigerated walk-in cooler of Return to Eden, an independent organic grocery store in Atlanta, GA. The data supports the hypothesis that airborne mold and bacteria levels would be lowered after 48 hours of continuous operation of the *AiroCide PPT* system. The results show an average airborne mold **reduction** inside the coolers of 89% in 48 hours, and an airborne bacteria reduction of 67% in the same time frame.

Protocol

The coolers used in this study was approximately 1,300 ft³ in volume. The *AiroCide PPT* system in the study consisted of one (1) ACS-25 unit located in the center of the room.

The test period consisted of two (2) days of air sampling in May 2005. A baseline air sample was taken in the cooler without the *AiroCide* unit operating and was compared to Active On samples taken in the same location after 48 hours of *AiroCide* use. Air samples were taken for comparison in the Perpetration Area just outside the cooler.

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 cooler of 89% in 48 hours.

Mold	No AiroCide	AiroCide	
	Baseline CFU/m ³	48-hr CFU/m ³	48-hr Change
Inside Cooler	214	24	-89%
Prep Room (no AC)	548	226	-59%

The table below shows airborne **bacteria reduction** inside the cooler of 67% in 48 hours.

Bacteria	No AiroCide	AiroCide	
	Baseline CFU/m ³	48-hr CFU/m ³	48-hr Change
Inside Cooler	36	12	-67%
Prep Room (no AC)	202	190	-6%

In Perishable Cooler Applications:

One (1) *AiroCide PPT* 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* 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. *

One (1) *AiroCide PPT* model ACS-50 is designed to clean the air in enclosed areas up to 3,000 ft³ in volume under standard operating conditions. *

**AiroCide PPT* 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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