

AiroCide PPT™ Air Quality-Improvement™ Systems

AiroCide PPT™ contains the same NASA-developed *AiroCide™ Air Quality-Improvement™* technology that is used in a variety of *AiroCide* product lines. In addition to serving the 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 study was conducted in a refrigerated cooler inside an organic produce distribution center warehouse in British Columbia, Canada to determine if the *AiroCide* technology would reduce the amount of airborne mold and bacteria. Results inside the cooler were compared to the outer warehouse area where no *AiroCide* system was utilized.

The *AiroCide* system reduced the amount of airborne mold and bacteria inside the cooler by 26% and 6%, respectively, in 24 hours, while the warehouse area showed a 172% **increase** in airborne mold and no change in airborne bacteria in the same time frame.

Facility

The subject was a certified organic perishable warehouse. The test cooler was a 15,840 ft³ tomato storage area constructed as a partition off the main warehouse and divided into an enclosure with flexible plastic sheeting to form two walls in the corner of the warehouse. The plastic sheeting was secured using construction tape, with plastic airstrips as the only closure for the doorway and was ripped near the floor, creating several openings where air could escape or enter. There was only one (1) small evaporator to cool this storage room, creating less air movement than found in most cold storage facilities. The temperature in the main warehouse averaged 44° F during the test.

Immediately outside the cooler door is the re-packing station where tomatoes are divided by grade and moldy product is washed. The test cooler is used for storage of both new deliveries and re-packed product, with clean tomatoes placed next to moldy tomatoes.

Copies of tests mentioned in this paper can be obtained by writing KesAir, Research & Development, 3625 Kennesaw N. Ind.Pkwy., Kennesaw, GA 30144. AiroCide, KesAir & KesAir Technologies, and Air Quality-Improvement are trademarks of KesAir Technologies, LLC www.kesair.com 800-627-4913

Protocol

The test period consisted of two (2) consecutive days of air sampling. A baseline reading, with no *AiroCide* system operating, was conducted for comparison to the “Active On” test. After the *AiroCide* system was operating for 24 hours, air samples were taken again the next day at the same sites and times of day. Each air sample measured two types of microbes, airborne bacteria and airborne mold. Samples were taken inside the cooler and directly outside in the warehouse area.

Results

The *AiroCide* system that was installed in the cooler reduced the amount of airborne mold and bacteria by 26% and 6%, respectively, in 24 hours, while the warehouse area showed a 172% increase in airborne mold and no change in airborne bacteria in the same time frame. Since the cooler walls were not airtight, a 6% decrease in mold compared to a 172% increase directly outside the cooler shows an exceptional mold killing ability of the *AiroCide* system. A 26% decrease in bacteria in the cooler compared to no change in the warehouse area is also significant.

Mold

Test Site	Baseline CFU/m ³	24 hrs.	
		CFU/m ³	% Change*
Subject Cooler	1,095	1,025	- 6%
Warehouse Area	1,967	5,359	+ 172%

Bacteria

Test Site	Baseline CFU/m ³	24 hrs.	
		CFU/m ³	% Change*
Subject Cooler	47	35	- 26%
Warehouse Area	118	118	N/C