



Case Study

Produce Distribution Facility Del Monte Fresh Produce - Atlanta, GA

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:

Clinical tests were conducted at the Del Monte Fresh Produce Company's Atlanta distribution facility to measure the effect of *AiroCide PPT* in reducing ethylene gas and airborne mold/fungi.

Ethylene Gas

Del Monte personnel performed ethylene gas reduction tests prior to the airborne mold/fungi tests summarized in this report. Ethylene gas was reported to have been reduced from a concentration of 250 parts per million (PPM) to 0.5 PPM in 66 hours.

Mold/Fungi

The *AiroCide PPT* system reduced the amount of airborne mold in the cooler by an overall 44% after 72 hours of operation.

Protocol

The *AiroCide PPT* system used in the produce cooler consisted of one (1) ACS-100 unit.

The test period consisted of four (4) days of air sampling. Baseline air samples were taken in the cooler on Monday, 10/02/06 without the *AiroCide PPT* system operating.

Active On samples were taken after 24, 48 and 72 hours of *AiroCide PPT* use, on Tuesday 10/03/06, Wednesday, 10/04/06 and Thursday 10/05/06.

Air samples were taken with an impingement air sampler (similar to the Anderson N6 sampler) on 15 x 100 mm plastic petri dishes in accordance with procedures established by the Indoor Air Quality Association (IAQA) and the American Industrial Hygienists Association (AIHA). This type of slit air sampler is considered the most accurate method of measuring viable (live) mold and is superior to air

sampling that utilizes ambient or gravity spore capturing techniques.

Four locations were sampled for airborne yeast and mold and sent to Siliker Inc. Food Science Center, South Holland, IL for analysis.

Results:

Ethylene gas was reduced in the cooler by 99.8% in 66 hours.

The table below shows airborne **mold/fungi reduction** inside the cooler of 44% in 72 hours.

Location	Baseline	24 hrs	48 hrs	72 hrs
Cooler 1	31.5	6	12	17.5
Percent Change	N/A	-81%	-62%	-44%

In Perishable Cooler Applications:

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. *

One (1) *AiroCide PPT* air purifier model ACS-25 is designed to clean the air in enclosed areas up to 3,000 ft³ in volume 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

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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