

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 test of the *AiroCide PPT* air purifying system was conducted in a tomato ripening room/cooler at a major tomato repacking facility in Riverview, FL to measure the reduction in airborne mold and airborne bacteria. The system reduced the amount of airborne mold in the cooler by an average of 90.5% after a 72-hour period. Airborne bacteria were found to be present at sufficiently low levels to be considered insignificant.

Protocol:

The ripening room/cooler (R2), where the test took place, is approximately 28,500 ft³ in volume (or 33' x 41' x 20'). The test period consisted of four (4) days of air sampling in February 2005. A baseline air sample was taken in one location in R2 on Monday, 2/07/05 without the *AiroCide PPT* air purifying system operating. After the baseline air sample, the system was turned on in R2. Active On samples were taken after 24, 48 and 72 hours of system use, on Tuesday, 2/08/05; Wednesday, 2/09/05 and Thursday 2/10/05. Air samples were taken for comparison in the Main Sorting and Packing 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 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 90.% in 72 hours. This is significant compared to the area just outside the cooler where airborne mold levels increased..

	No AiroCide		AiroCide Operating		
	2/07/05	2/08/05	2/09/05	2/10/05	
Mold Spores	Baseline CFU/m ³	24-hr CFU/m ³	48-hr CFU/m ³	72-hr CFU/m ³	72-hr Change
Test Site – R2	3,845	3,204	2,674	365	- 90.5%
Main Area P1 – NO AiroCide	4,798	4,865	4,794	4,888	+ 1.9%

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.