

Chick This Out . Odor-Free Animal Facilities



Application: Odor Control

Key Highlights

Problem: Odor and dander caused by thousands of chicks

Solution: CosaTron Series 1000

Results: An odor-free laboratory and work environment free of airborne bacteria

Molecular Genetic Resources (MGR) has been playing an important part in the medical world for over thirty years while facing its own uncommon problems. Located in an industrial park in Rome, GA, MGR has a unique problem not faced by many office tenants in the world. Odor. From baby chicks - thousands of baby chicks. Molecular Genetics Resources, founded by Dr. G.E. Houts in 1983, is the leading supplier of AMV Reverse Transcriptase which forms the basis of modern RNA research. Once a week approximately two thousand male baby chicks are delivered to MGR. These cockerels (young roosters) are not in demand in today's world and are routinely sold to cat food manufacturers, fertilizer manufacturers and alligator farms.

The chicks are housed in stacked wire cages. Each shelf in the cage holds 100 chicks and has its own heating element, water and feed supply. These baby chicks are a perfect host for virus growth. The virus propagates in these chicks much like corn grows in the soil. Parasites need a place to grow in or on - viruses are parasites and these chicks provide the perfect soil. No other biological system produces such copious amounts of virus. When they are one day old, the chicks are injected with an agent that causes a form of leukemia. Within seven to eight days they show signs of the disease and begin to die. The virus containing blood is then withdrawn before the chick dies and a biological reagent is purified from the virus.



The biggest problems associated with handling birds (of any age) are dust and odor. Baby chicks generate tremendous amounts of dander and feed dust. Feed dust carries odor. The chick's droppings are full of urea that decomposes to ammonia. This ammonia odor can plate out on various surfaces in the facility, including the clothing of the lab technicians. Once there, it remains there. Dr. Houts speaks from experience regarding ammonia odor. The odor at his previous facility was so bad that the doors had to remain closed to contain the odor and to satisfy complaints from neighbors. The lab technicians would change their clothing before going home, or immediately upon arriving home, so they would not be offensive to their families. According to Dr. Houts, the ammonia levels were so high that he could moisten a piece of pH paper and watch it turn alkaline in less than ten seconds. Such high concentrations of ammonia cause throat irritation.

In 1983, prior to establishing an independent business, Dr. Houts discussed the unique odor problem at MGR with an acquaintance. He learned about a product that would allow him to locate MGR in one facility rather than the two he had planned - one in the country for housing the chicks and one in the city for research and product manufacturing. That product was CosaTron. CosaTron is a unique system for the control of indoor air pollution. CosaTron installed a number of Series 1000 units to

address the lab's unique problems. The system was designed for a space designated for 500 chicks per week. Over the last 30 years, MGR has continued to grow in size resulting in increased space - all of which is handled by the original CosaTron installation. The CosaTron system, sized for 500 chicks per week in 1983, is handling over 2,000 chicks per week today. At times there are up to 4,000 chicks in the building due to the overlapping delivery schedule.

In this 100% re-circulated system, there is no make-up air. And, no air is exhausted. The 40% pre-filters are dry vacuumed every week due to a tendency to face load with dander and feed dust. The 90-95% final cell filters are changed every six months. The primary air return is a return air filter grill over the cage area. The system, originally designed for 30 air changes per hour, is operating at 16-18 air changes per hour.

CosaTron provides a cleaner lab that results in a cleaner product, an absolute essential in genetic engineering work. Besides a squeaky clean product, there is an added benefit to the employees. Because of CosaTron, respiratory discomfort and olfactory rejection are minimized. There is also no further need to change before going home and the office park neighbors no longer complain.