

DDC



UVMATIC® AIR

The **UVMATIC**® AIR purifies air through a multi-stage process. Air is drawn in and exposed to UV-C light, killing microbes, while a titanium dioxide coating triggers a reaction that destroys additional pathogens.

An activated carbon filter then absorbs odours and pollutants, and a HEPA 14 filter captures particles as small as 0.16 microns, including bacteria and viruses, ensuring purified air is released back into the environment.



THE UNDENIABLE LINK BETWEEN AIR QUALITY & PROFIT MARGIN

According to official numbers published by the **Danish Food & Agriculture Authority**, food production companies are often forced to throw away staggering amounts of their annual produce. In some cases, as much as 30%. A significant amount of this wastage is due to produce contamination caused by high numbers of microorganisms such as mould and fungus spores circulating in the air.

These spores settle directly on exposed food or alternatively, settle on working surfaces, contaminating any food that comes into contact with those surfaces. Despite the considerable financial losses resulting from produce contamination especially, in the cases when produce must be recalled from retail outlets, many food producers simply accept the status quo. Their opinion is wastage comes with the territory in food production. But, does it really have to be this way? **Is there not a solution to reduce air contamination?**



HOW DOES THE UVMATIC AIR REDUCE AIR CONTAMINATION LEVELS?

UVMATIC[®]AIR was originally designed for healthcare. Patients with weakened immune systems are vulnerable to airborne infections.

At the request of Denmark's leading hospital, Rigshospitalet, Dolphin Care developed a system to sterilise hospital air. Over seven years, engineers collaborated with Head of Infection Control, Leif Percival Andersen, to create a device that removes all organisms, including viruses like COVID.

“We had a large problem with mould in one of our departments, causing health issues for staff and patients. Among other things, several of the staff were affected by headaches. We moved two **UVMATIC**[®]AIR sterilisers into the department. 12 hours later, staff reported there was a massive improvement in air quality in the department's environment.”



Leif Percival Andersen MD
Head of Infection Control, Rigshospitalet



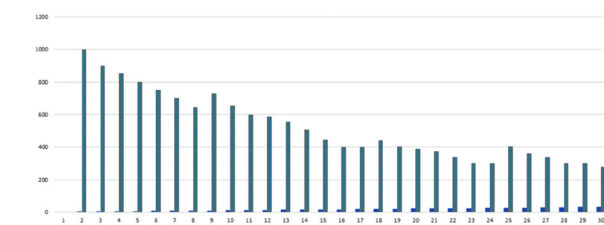
Rigshospitalet in Copenhagen, one of Denmark's leading hospitals, currently has six **UVMATIC**[®]AIR units in use in its ICU.

REPLICATING THE HOSPITAL SUCCESS IN FOOD PRODUCTION FACILITIES

During an open house event at Rigshospitalet, dairy industry supplier Chr. Hansen showed interest in testing **UVMATIC**[®]AIR against mould and fungus at their Copenhagen facilities. Details of the Chr. Hansen study are on the back page.

Following this, a mozzarella factory requested a trial to see if **UVMATIC**[®]AIR could reduce colony forming units (cfus) in their 250 m² production and packaging areas.

Initial readings showed over 1000 cfus/m³, dropping to below 300 cfus/m³ after 30 days.



The graph above shows daily readings by the Quality Assurance Manager, clearly demonstrating the decrease in airborne colony forming units.

There is no doubt that **UVMATIC**[®]AIR significantly improves air quality, but can it be proven that better air also means better profits?

BETTER AIR MEANS BETTER PROFITS THE PROOF IS WITH THE PIGS!

Part of the testing conducted by Rigshospitalet on the **UVMATIC**[®]AIR was a filter stress test. A unit was sent to a local pig farm, an environment with arguably, the worst level of air quality.

The pig farmer split his pig litter of approximately 440 in number into 2 stalls. A **UVMATIC**[®]AIR was added to one stall (active stall), whereas nothing was changed with the second (passive stall).

The stress test lasted for about one year. A microbiologist from Rigshospitalet recorded the daily air bacterial loads of both stalls, while a supervising veterinary surgeon monitored the pig's health, growth, feed consumption and medication requirement.

The test was originally designed to prove the longevity of the **UVMATIC**[®]AIR filter, it turned out to prove a lot more than expected.

50% REDUCTION IN BACTERIAL LOAD SAMPLES TAKEN IN THE ACTIVE STALL.

This level was achieved in 5 days and was maintained throughout the entirety of the study.

Cleaner air meant the pigs in the active stall coughed less, which led to lower calorie consumption and improved feed utilisation.

* According to the supervising veterinary surgeon

7%

REDUCTION IN FOOD CONSUMPTION IN THE ACTIVE STALL

A significant saving, with 12,000 kg of feed consumed during the study.

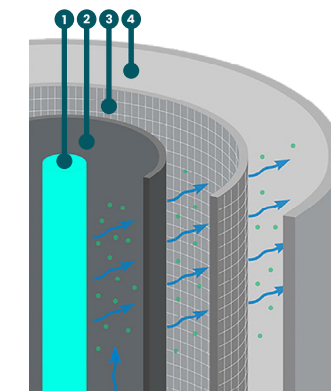
5.4%

INCREASE IN PIG GROWTH IN THE ACTIVE STALL

Achieved despite the pigs in the active stall consuming less feed.

The pigs not only grew bigger whilst consuming less feed, they were also healthier and the medication requirement was a lot less in the active stall, than it was in the passive stall.

HOW THE UVMATIC[®]AIR SYSTEM WORKS



- 1 Air is drawn into the cartridge from the bottom of the unit and exposed to UV-C light
- 2 UV-C light is also radiated on to Titanium dioxide coated fibres, which causes a photo catalytic reaction. Strong oxidizing hydroxyl radicals are formed, and will destroy the cell walls of microbes present.
- 3 Air then passes through an activated carbon filter that absorbs odours and other particulate pollutants.
- 4 Finally, air is pushed through large amounts of HEPA 14 filter which captures particles as small as 0.16 microns, including bacteria and viruses.



Removing the outer cover of the unit reveals the cartridge mounted on the powerful air intake assembly.

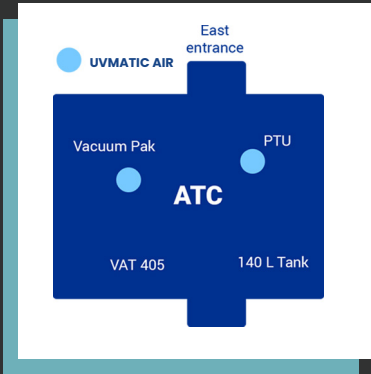
The large quantity of HEPA 14 filter means the cartridge will last for minimum 2 months.

The large air intake assembly allows for the **UVMATIC**[®]AIR to operate effectively in larger food production areas.

THE CHR. HANSEN CASE STUDY

CHR. Hansen is a global, differentiated bioscience company that develops natural ingredient solutions for the food, nutritional, pharmaceutical and agricultural industries. At the beginning of 2023, they kindly agreed to participate in a trial to assess the impact a **UVMATIC®AIR** would have on their air quality levels. The trial took place in their **Application & Technology Centre (1)**, located at the **CHR. Hansen Innovation Campus (2)**. Photo (3) shows one of the **UVMATIC®AIR** in operation during the trial.

1



2



3



Customer Review

“ We first discovered the **UVMATIC®AIR** Steriliser from Dolphin Care at an event organised by Rigshospitalet, which showcased their infection prevention innovations. We believed the technology would also be effective in reducing mould and fungus at our Application & Technology Centre in Denmark.

Our assumptions were correct, and the results exceeded our expectations, with significant reductions in sampled organisms from our facility.

Knowing Rigshospitalet was deeply involved in the development and testing of the **UVMATIC®AIR** as an effective solution against COVID and other airborne viruses gave us confidence in the equipment. The added assurance of using hospital-grade devices, endorsed by Denmark’s largest hospital, brings us peace of mind that we’re protecting what matters most—our staff’s health.



Allan Jensen
ATC Supervisor, Dairy Application Engineer Global Application and Technology Centre

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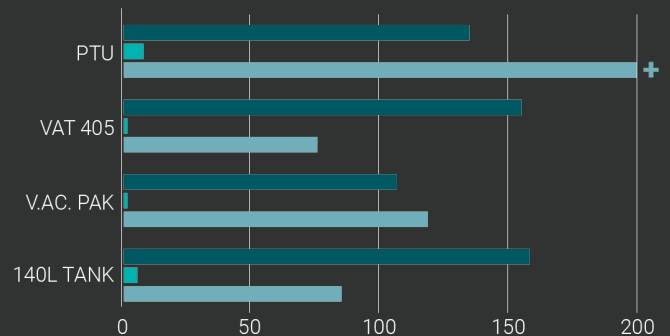
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THE CHR. HANSEN TRIAL RESULTS

Measurements were taken of the total count of colony forming units and specifically, the number of yeast & mould units per cubic metre of air before and during installation of 2 x **UVMATIC®AIR**

Below, is a snapshot of the measurements at 3 significant periods: ■ Week before trial commenced, ■ weeks into trial and ■ week after the **UVMATIC®AIR** had been switched off.

TOTAL COUNT CFU/m3



YEAST & MOULD CFU/m3

