

NEW CONCEPT IN AIR PURIFICATION FOR MICROBIALS

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Indoor air quality is controlled to protect occupant health and to prevent soiling of the facility indoor environment. Airborne bacterial and fungal control is essential to prevent infection, odours, volatile organic compounds, moulds and slimes. This is particularly important in food, office and health care areas. Other critical locations are those frequented by elderly, young and unwell persons.

The primary technologies used to date are filtration and separate wall mounted ultra violet lamp sources.

Filtration suffers from accumulating the larger microbial matter and thus maintaining an aggregation of live infectious material. Furthermore, as the filtration progresses with time, the filter clogs and back pressures increase, thus wasting energy and lowering air flow leading to ventilation, stuffiness and sick building syndrome complaints. Expensive electrostatic technologies are sometimes used to prolong the lifetime of filters but eventually the effect is the same – the microbes stay alive and the filters have to be changed.

Wall mounted ultraviolet lamps are limited since they cannot be of high intensity for occupant safety reasons and not all of the room air circulates effectively through them.

The ideal scenario is for a non-clogging, low back pressure filter and disinfection unit, not using volatile chemical disinfection and not exposing the

occupants, fittings, artworks or furnishings to harmful ultraviolet radiation.

British research has created a unique solution that has achieved this ideal aim.

Microgenix, distributed in Australia by Melbourne based Air Sciences Australia (www.air-sciences.com, tel 03 9572 3107, fax 03 8621 0002) have used some very clever advanced science and elegant engineering to produce patented 3 stage duct in-line or stand alone units which have demonstrated very high bacterial and fungal kill rates and are likely to lower some VOC's as well.

The science is fascinating. By coating a porous medium with molecular charged spears, passing bacteria and fungi are impaled on the spears and then electrocuted before being released and annihilated by an ultraviolet vortex. The units have been engineered to maximize the bacterial contact with the biocide coating and to prolong the duration of ultra violet exposure by swirling the air over a bank of high intensity UV lamps. The units are said to require only annual service and ozone is not generated. Different sizes are available up to 5000 cubic meters per hour.

The process has been validated by leading British and European Laboratories to achieve up to 99.997% eradication.

The prestigious UK Ministry of Defense, Evaluation and Research Agency at Porton Down has conducted studies that have led to installation of the units by the British Navy. Similar results have been validated by The Faculty of Biological Sciences, Division of Microbiology, University of Leeds.

Over 400 pathogens have been studied including anthrax simulant and e-coli as model systems. Both gram positive and gram negative species are killed. It is exciting to see Legionella and influenza on the list.

The equipment has been trialed in Hotels and hospital Operating Theatres. The Australian hospital operating theatre trials have shown that the Microgenix mobile systems have even improved HEPA filtered air by 30 – 40 %.

The Microgenix Air Steralization System warrants investigation in the quest for achieving the best Facility Ecology and organizational productivity.