THE GREEN TECHNOLOGY THAT ELIMINATES BACTERIA, VIRUSES, PATHOGENS BUOYANT IN THE AIR & WATER
OBESS HELPS TO PROTECT THE ENVIRONMENT AND REDUCE CROSS INFECTION

OBESS™

O_3 Bacteria Eliminator Sterilizing System

For products support, please contact your local distributor/s

Manufactured By

OBESS Air Solutions
23, Jalan Tasik Selatan 3, (3/146), Metro Centre,
Bandar Tasik Selatan, 57000 Kuala Lumpur, Malaysia
Sales & Marketing Tel +60 16 293 5088
E-mail:- obessiaqc@gmail.com

Distributed By

FM91708
AN ISO 9001:2000

OBESS™

Air / Water Sterilizing System
Model OG-20

An innovative product provides high mobility & versatility for room sterilization
Patent No. PI2010003347

What is OBESS?

OBESS is the abbreviation of O3Tek Bacteria Eliminator Sterilizing System.

OBESS is the smart integration of the following technology

1. Unique designed high density Trioxide (O_3) Oxidizing Element fumigation sterilizing complete with decomposing technique;
2. Built-in bactericidal radiation technique;
3. Extremely micronized filtration system;
4. Unique designed built-in sterilizing chamber;
5. High speed air interchange technique
6. CPU control air sterilizing processing technique
7. Inbuilt 90-min default sterilizing clock
8. One touch button Preprogrammed sterilizing process
9. In-built venturi system for water sterilization

Functionality

The invention of OBESS is to provide an effective and convenient procedure to hospitals managers ; clinicians and laboratory scientists to efficiently control infections & cross infection rate ; air decontamination & sterilization.

OBESS eliminates broad spectrum of bacteria, virus, pathogens, fungus, microorganism that buoyant in the air or in the water by ways of oxidation, radiation and filtration processes.

OBESS is a highly effective disinfectant sterilizer:-

1. It has a high oxidation capability, and good permeability through bacterial cell membrane and cell walls ;
2. Unlike other disinfectants, OBESS very quickly kills not just bacteria but also viruses, surface and airborne pathogens, fungus, yeasts.

OBESS applies the most efficient, Natural, Broad-Spectrum Microbiological control substance and very reactive sterilization agent. Dual layer sterilization process, the Trioxide oxidation and radiation, destroy any Bacteria, Viruses, Cysts and Pathogens in a very short duration when it comes into contact in our special designed pressurized sterilizing chamber.

Specification

Output Method	Trioxide (O_3) Generator up to 480g/hr; variably Controllable
Trioxide Concentration	Up to 8,800PPM subject to flow rate & pressure setting
Extractor Noise Level	35dB @ 3 meter
Output Control	0% to 100% Variably Control
Oxygen Input	Oxygen extractor @ 95% +/- 3% purity
Oxygen Pressure Control	User define and exclusive moisture removal system installed
Medical Therapy Connection	Interface Installed . Therapy application kits are optional subject to local regulation
Filtration System Method	1. Pleated pre-barrier filters 2. Hospital grade High Volume 0.3 micron HEPA filter 3. Hospital grade 0.125 micronized ULPA filter
Filtration efficiency	99.97% and 99.99% at 0.3 micron filtration capability
Ultraviolet Radiation Method	2 x UV tubes @254nm wavelength radiation
Safety Control	Safety Interlock Switch
Disinfection Efficiency	• 99.999% 1 hour period at up to 8,800PPM of Trioxide Concentration, @Humidity ≥ 75% and at ≤ 25°C room Temp. • 99.9% 70 min period 254nM Ultraviolet Radiation
Disinfection capability	140m^3 per hour (5,000 ft^3 per hour)
Default sterilization timer	90 min ; Selectable 120 , 180, 240min
Type of application	• Air & Fumigation Sterilization • Water Sterilization • Mistigation Sterilization
Method of application	Trioxide Oxidation / UV Radiation / HEPA/ULPA Filtration
Operation Control	Manual and Remote Both
Remote Controller Output	4-20ma & 1-5volt
Dimension	W750 x D1000 x H1100 (mm)
Weight	App. 150kg
Current Draw	7.0 Amps@230 VAC
Electrical Approval Standard	UL-60601-1 / CE-0459
Power Requirement	220 /240 +/-10% VAC, 50/60Hz

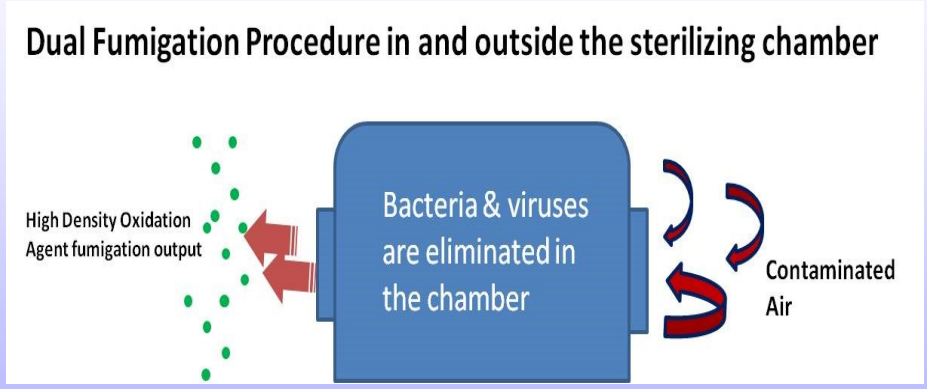
Sterilizing Chamber enclosure was constructed to facilitate the lab test

All eggs were pre-sterilized before the test

Microorganism was inoculated onto egg

Inoculated eggs were placed inside the sterilizing chamber for test

PRINCIPLE OF OPERATION



Contaminated air is being extracted into the sterilizing chamber for cleaning and decontamination process . Buoyant particles size down to 0.3µm is also filtered in the process

The Application

Method #1`, press “Air-mode”, apply in any room, whether vacated or occupied, OBESS can be simply wheeled into the room, by a single internal cycle button, the sterilization process begins according to preprogrammed default . The contaminated air is extracted into the sterilizing chamber. The air is then treated through multiple sterilization process. Eventually, The sterilized clean air is delivered back to the room .

Trioxide Oxidizing Therapy (TOT) connection is made ready and available for invasive illness treatment (Optional)

Method #2, press “Fume-Mode” button, apply only in a vacated rooms and armed using a pre-programmed remote control unit.

The room needs to be properly air sealed, the conditions inside the room are monitored while the vaporized oxidation agent fumigates and penetrates all hard surfaces, soft furnishings and critically, the atmosphere itself.

The process is highly effective against airborne pathogens like Rotavirus, Norovirus and Influenza.

ECOLOGICAL — The most effective commercially available technology alternative to chlorine based sanitizers

UNIQUE — Applying cutting edge advanced oxidation technology

PROVEN — Derived from years of clinical trials and operating experience

EFFECTIVE — Eradicates a broad spectrum of bacteria, viruses, moulds and yeasts including S.Enteritidis, , S. Typhimirium; Pseudomonas and Escherichia Coli

OBESS is applicable to the hospital compound especially in the Operating Theatres. It can also be applied in Nursing Homes, , Patient Rooms, ICU's, Micro & Pathological laboratories and etc

OBESS uses the most efficient, Natural, Broad-Spectrum Microbiological control substance and very reactive sterilization agent. It destroys any Bacteria, Viruses, Cysts and Pathogens in a very short duration when it comes into contact with air.

No Disruption

Its fast deployment and 90-min cycle means OBESS can be incorporated into existing ward routines without major disruption. Whether used for routine or emergency de-contamination, nursing staff no longer have to closely supervise cleaners to ensure the optimum levels of cleanliness and hygiene.

Cutting Edge

Maximum bed availability: 90-min decontamination without chemical residue means rapid re-occupancy.
Proven power:- 99.99% kill rate against pathogens, viruses and bacteria.
No superbug resistance:- reducing background contamination levels.
Wheel-in and walk-away:- fully mobile, fully automated decontamination procedure
Best use of resources:- cutting infection rates means less abuse of antibiotics

THE TEST

Clinical test was carried out at Institute for Medical Research (IMR) and University Putra Malaysia (UPM) , the renown and highly reputable Medical Research Institution in Malaysia.

A small enclosure sterilizing chamber and inoculated Group of bacteria included E-Coli onto the eggs shell. The preprogrammed default was conducted for 1 hour in each test. Different dosage of oxidizing agent ranging from 15ppm* to 600ppm at every test were introduced to the sterilizing chamber. All dosage of oxidizing agent were monitored by analyzer at normal room temperature 26 ~ 28 degree C and RH 50 ~ 60%

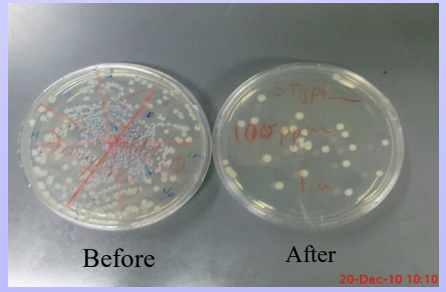
Various other group of microorganism included Salmonella; Pseudomonas Aeruginosa; Listeria were included in the study in the same procedure. The culture were done in Mac conkey / blood agar and using standard method agar for colony count.

The results were observed as follow

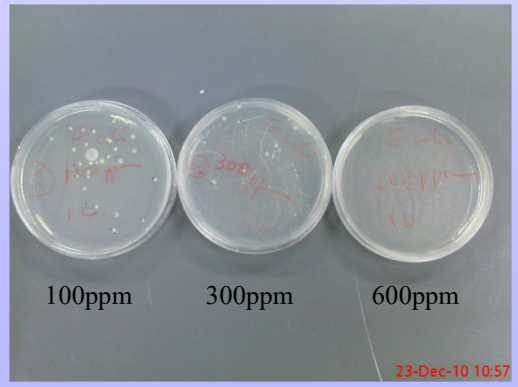
1. At the dosage of 15ppm fumigation, E-Coli remained active and multiply;
2. At the dosage of 30ppm fumigation, E-Coli remained active and multiply;
3. At the dosage of 100ppm fumigation, E-coli remained active, colony countable;
4. At the dosage of 300ppm fumigation, E-coli remained colony of 5;
5. At the dosage of 600ppm fumigation, E-coli could not be detected

Conclusion, microorganism was eliminated at a RH50 ~ 60% with 600ppm of oxidizing agent. Further test on higher RH up to 80% were conducted with lower concentration of ROE. Microorganism were eliminated at 100ppm. No growth were seen.

*Note : PPM stands for part per million. Air quantification unit per PPM is 2mg/m³
For water is 1mg/l per ppm



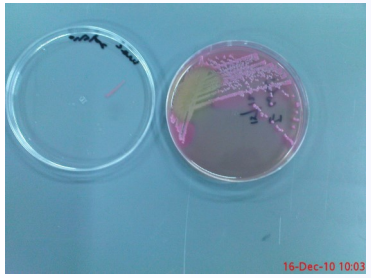
Comparison before and after fumigation test at 100ppm



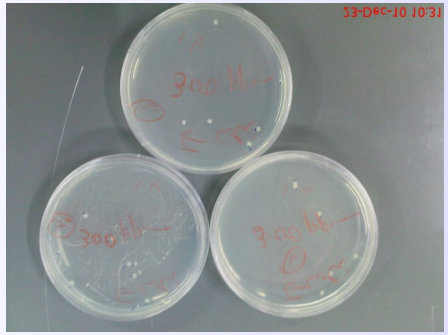
Result Comparison at 100ppm, 300ppm and 600ppm (E-Coli)

OBESS uses dual natural sterilization tools; the O_3 oxidation and Ultraviolet Radiation (UV), and built-in multilayer highly micronized filtration system to provide a dust free and zero infection environment. Sterilizing an OT, treatment rooms are nothing easier than using OBESS. It works simply by choosing the type of sterilizing. The default sterilizing timer was set at 90 minutes for a 5,000ft^3 volume size .

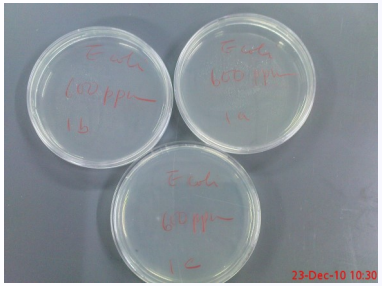
Laboratory Test and Cross Examination using different O_3 strength at a 70-min procedure, RH 60%; Temp 26°C



E Coli cultivation sample before OBESS process



E-coli microorganism were spotted at the oxidation rate of 300PPM in an hour process



E-coli microorganism were totally eliminated with the oxidation rate of 600PPM in an hour process

Other bacteria included Salmonella; Pseudomonas; Listeria were also conducted and exhibited in the same manner

The study showed that the relative humidity of air decides the effectiveness of oxidation. The higher the humidity, the lower the oxidation rate is needed to eliminate the bugs. In our test, with RH 60%, Temp 26°C, at least 600PPM per hour of O_3 process is needed in order to effectively eliminate bugs.

OBESS produces more than 400g of concentrated O_3 in an hour period inside the primary sterilizing chamber. It is therefore capable of removing bugs even in low humidity environment in a 70-min process.

A New Routine

OBESS makes whole room decontamination possible as a routine process for hospitals. It gives managers and clinicians a new and powerful force to cut infection rates.

By achieving a 70-min decontamination cycle, this innovative equipment ,OBESS, can be used regularly – not just for emergency deployment – and therefore tackles background contamination.

In this way, OBESS uniquely facilitates a more pro-active policy of infection control than was previously feasible

Benefits

The primary reward of routine whole room decontamination is a measurable and dramatic reduction in the level of infections and cross infections. As a consequence, with fewer patients requiring treatment for healthcare acquired infections, bed space is optimized and resources can be re-targeted towards new admissions.

OBESS also delivers practical advantages in the workplace. It is quick and simple to deploy, requiring no specialist training, and as such it can be integrated into existing protocols without disruption.

The Science

OBESS decontamination is evidenced to achieve a 99.999% kill rate against both airborne and surface pathogens, viruses and bacteria. And since the oxidizing process actually destroys bugs through cell lysine, the risk of resistant strains associated with chemical-based decontamination is eliminated.

The Advantages

Unlike conventional surface decontamination which relies on chemicals such as hydrogen peroxide or chlorine, the OBESS process does not leave any toxic residue and does not depend on the diligence of cleaning staff.

In comparison with conventional decontamination, the OBESS system does not require highly trained staff to operate the unit and does not leave any residue behind.

OBESS OG-20 is a portable decontamination & sterilizing unit which can be deployed in hospital rooms; Operating Theatres; Laboratories; open or enclosure areas on a routine basis.

In an unrivalled 70-min sterilizing cycle, the equipment kills airborne viruses, bacteria and pathogens including hospital superbugs.

OBESS has dual function applicability, kills microorganism in the air and eliminates pathogens in the water.

WHAT IT DOES

During the treatment of air, OBESS extracts contaminated air into the system and simultaneously generate radiation and an extremely high concentrated O_3 vapor which rapidly permeates all elements inside the sterilizing chamber. The cleaned air is then transfer through our unique filtration system back into the room for healthy environment, leaving the room for immediate occupation.

In the removal of microorganism in the pool or hydro-treatment pool in the rehab, concentrated ROE is injected into the water via the circulation system in OBESS. Pool can be reoccupied after decontamination process

OPERATION

OBESS can be wheeled into any contaminated room and activated by janitorial staff using a simple touch control.

The room/s can be left vacant or occupied. Only cleaned fresh air is delivered during the process.

The entire process requires minimal supervision while the intelligent control system constantly monitors room conditions and alerts staff when decontamination is complet-

AREA OF APPLICATION

1. Any enclosure that air was contaminated with highly infectious bacteria and viruses;
2. Any open area in the premise that needs to be kept hygienic;
3. Any pond and pool that water treatment is needed non-chemically;
4. For vegetables, fruits, and livestock sanitizing and residual free requirement.

By adopting whole room decontamination as routine practice, nursing staff can dramatically reduce the incidence of healthcare acquired infections and at the same time, offer patients an unprecedented level of reassurance.

90-MIN STERILIZING PROCESS

OBESS has developed a unique O_3 sterilizing and decontamination system which takes only 90-min but still achieves a 99.999% kill-rate of bugs.

Without the use of hazardous chemicals, the hospital rooms are safe for immediate reoccupation, optimizing bed availability and minimizing the number of delayed discharges.

WHEEL-IN AND WALK-AWAY DEPLOYMENT

OBESS is a portable unit which is pre-programmed to identify and decontaminate any room in the hospital.

Without complex training, OBESS can be activated by a single button. The intelligent control unit then monitors the sterilizing process while staff carry out other tasks.

MAINTAINANCE

Minimum service is required as little as maintaining a vacuum cleaner. However, it is recommended OBESS is serviced on a regular basis by qualified engineers to ensure optimum performance and safety, especially on the disposal of a contaminated filtration system inside the sterilizing chamber.

Between these service intervals, the equipment is self-contained and mainte-