

BIO-SECURITY

We are surrounded by microorganisms like bacteria, viruses and fungi. They are in the air we breathe, the food we eat and drink, and even on our bodies. In the main we are able to cope and co-exist with them.

But occasionally we succumb to them and they make us ill. This happens when our resistance is down (e.g. when we do not have sufficient sleep), or when there are too many of them and they overwhelm our body immunity system. Sometimes they mutate into something new that our body cannot handle. In the extreme case, we die.

Today, governments and researchers have seen the need to develop a field of science called "Bio-Security" that aims at minimizing and where possible, completely eliminating the risks posed by these microorganisms on human lives.

In this warfare against these microorganisms, various approaches are being studied including the use of new chemicals and drugs. Utmost care has to be exercised to ensure that the cure is not worse than the cause.

One approach is the responsible and controlled use of ozone or O₃, to safely sanitise a confined space.

Ozone is a powerful oxidiser which kills microorganisms effectively. Because it acts 2,000 times faster than chlorine, it is used to treat 600 million gallons of drinking water a day in Los Angeles, California.

In a recent test conducted in Singapore (Setsco Services FB 20438/T/2), 40 minutes of ozone treatment (concentration peaking at 14ppm) achieved the following kill of cultured microorganisms on surfaces:

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| 1. <i>Pseudomonas aeruginosa</i> | 99.98% |
| 2. <i>Listeria monocytogenes</i> | 99.97% |
| 3. <i>Candida albicans</i> | 99.91% |
| 4. <i>Salmonella typhimurium</i> | 99.91% |
| 5. <i>Escherichia coli</i> | 99.28% |
| 6. Methicillin Resistant <i>Staph. aureus</i> | 83.33% |

When presented with this report, Dr Glenn Meixell confirmed that these results are similar to the ones conducted in his

laboratory. Dr Meixell, whose post-doctoral fellowship is in pathophysiology and molecular biology, is the chief technology officer of Bio3X LLC, a leading bio-security company in the United States.

Ozone is a naturally occurring substance formed during electric storms. It is made up of 3 atoms of oxygen and is referred to as a trivalent oxygen. The air we breathe contains only 2 atoms. With 3 atoms of oxygen, ozone is an unstable gas and will readily degrade back to its stable state of 2 atoms, leaving the third atom to be free. This radical atom is highly reactive and will oxidise with practically anything, including bacteria, viruses, organic and inorganic compounds.

This means that if used uncontrollably, it can produce harmful by-products and damages. Ozone has no residual effect, which means that re-infection can occur as soon as the ozone is removed.

Bio3X LLC has produced a state-of-the-art ozonator that they have patented. It creates quality ozone based on the required concentration and time duration that are keyed into its computer-controlled generator. But what makes it special from the 250 different ozonators available around the world, is that at the end of the process it sucks back the remaining ozone and converts it back into 2 atoms of oxygen, before releasing it back into the atmosphere.

To address the issue of creating a residual barrier, Bio3X LLC has also produced a patent-pending anti-microbial solution, which, when applied directly onto walls and other surfaces, can provide control of microorganisms for long-term effectiveness, depending on its concentration. This has been tested at Nelson Laboratories in Salt Lake City and is registered with FDA for personal care use under the Master Drug File.

This means that when we combine the use of Bio3X-produced ozone with its anti-microbial solution, we have a high degree of protection against microorganisms in a sanitised environment in which we live, eat, work and play.

This truly is Bio-Security for Life.

