

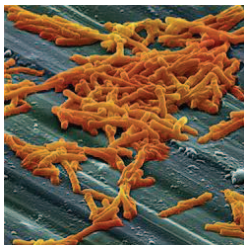
# Advanced Oxidation Test Results 2009-2011



UVAIRx products employ a proprietary enhancement of the Advanced Oxidation Technology (AOT) developed more than 20 years ago. Today, more than 1 million products using AOT are in service globally, with AOT-employing instrumentation chosen for use aboard the International Space Station. AOT technology similar to that used in UVAIRx products has been licensed for use in medical, food, military, residential, commercial, marine and hospitality applications. Moreover, AOT-based products have been tested and/or approved or registered by:

- UL, ETL, TUV, EU, EPA & CSA
- U.S. Military
- Electric Power Research Institute
- Chinese Government
- Japanese Government (TV Commercials)
- Canadian Government
- U.S. Government - GSA
- European Union
- USDA & FSIS

In addition, products using AOT devices have been specified in the Norovirus & MRSA protection plan of some of America's largest restaurant chains, hotel chains, theme parks, cruise lines, public schools and hospitals. UVAIRx products use Photohydroionization AOT cells (PHI-Cell®). The following is a summary of some of the testing and studies performed by third party independent labs and universities.

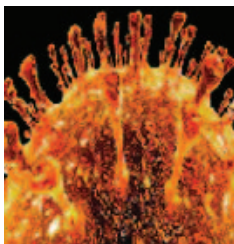
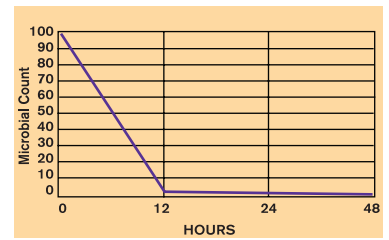


### Clostridium difficile (C. diff)

Recent studies show the C. diff bacterium may well eclipse “super-bug” MRSA (Methicillin-resistant Staphylococcus aureus) as the foremost concern among nosocomial (hospital-spread) infections. C. diff infection can result in life-threatening inflammation of the colon and is particularly common among those receiving broad-spectrum antibiotic medications. The Centers for Disease Control and Prevention estimate that of the

165,000 patients acquiring the infection annually, some 9,000 deaths will result and \$1.3 billion in excess costs will accrue. Photohydroionization tests using AOT technology conducted by the Food Science Institute demonstrate a 99+% inactivation of C. difficile on a stainless steel surface. The published report confirms: “Based on this initial study, the technology has applications for controlling Clostridium difficile on surfaces in health care environments.”

-Tested by Food Science Institute. Inactivation rate 99+%

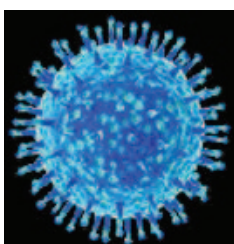
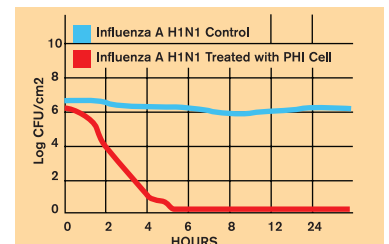


### H1N1 (Swine Flu)

Kansas State University has completed preliminary testing on Advanced Oxidation Technology cells called Photohydroionization (PHI-Cell®) and Reflective Electromagnetic Energy (REME® Cell) technologies with a 99+% inactivation of H1N1 Swine Flu on a stainless steel surface. Further tests are scheduled. 2009 H1N1 (referred to as “swine flu” early on) is a new influenza virus causing illness in people. The new virus was first detected in the

United States in April 2009. This virus is spreading from person-to-person worldwide. On June 11, 2009, the World Health Organization (WHO) signaled that a pandemic of 2009 H1N1 flu was underway. Spread of the 2009 H1N1 virus is thought to occur in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing by people with influenza. Sometimes people may become infected by touching items – such as a surface or object with flu viruses on it and then touching their mouth or nose.

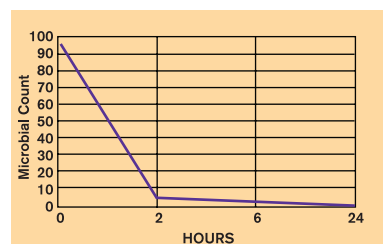
-Tested by Kansas State University. Inactivation rate 99+%

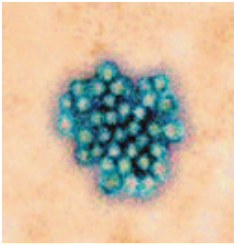


### Avian Influenza (Bird Flu)

Avian influenza is an infection caused by avian (bird) influenza (flu) viruses. These influenza viruses occur naturally among birds. Of the few avian influenza viruses that have crossed the species barrier to infect humans, H5N1 has had the largest number of detected cases of severe disease and death in humans. Source: Center for Disease Control (CDC)

-Tested by Kansas State University. Inactivation rate 99+%



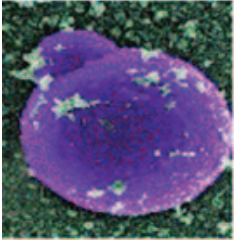
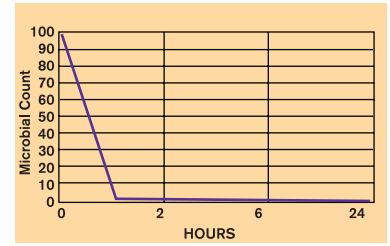


### Norwalk Virus

Noroviruses are a group of related, single-stranded RNA, non-enveloped viruses that cause acute gastroenteritis in humans. Noroviruses are highly contagious and as few as 10 viral particles may be sufficient to infect an individual. 50% of all food-borne outbreaks of gastroenteritis can be attributed to noroviruses.

Source: CDC

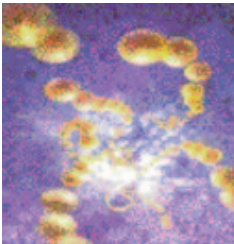
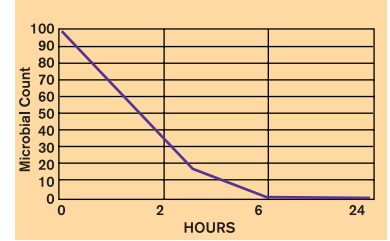
-Tested by Midwest Research Institute Inactivation Rate 99+%



### Methicillin Resistant Staphylococcus Aureus

Methicillin-resistant Staphylococcus aureus (MRSA) is a type of bacteria that is resistant to certain antibiotics. The antibiotics include methicillin and other more common antibiotics such as oxacillin, penicillin and amoxicillin. Source: CDC

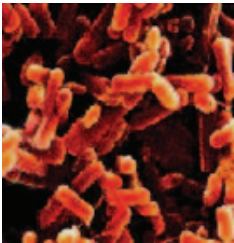
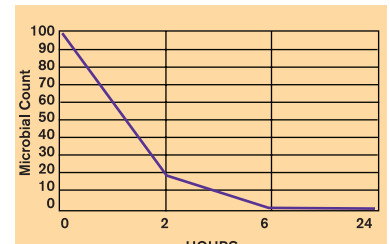
-Tested by Kansas State University. Inactivation rate 99+%



### Streptococcus Sp.

Infections caused by group A streptococci (GAS) bacterium range from common (e.g., strep throat) to life-threatening (e.g., toxic shock and necrotizing fasciitis or "flesh-eating disease"). Secondary infections include rheumatic fever, impetigo, cellulitis, erysipelas and scarlet fever. Source: CDC

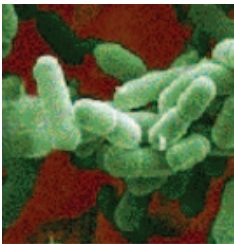
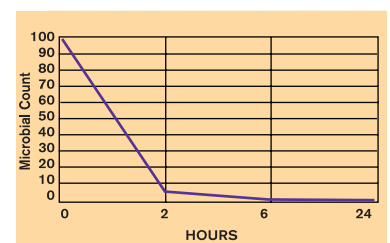
Tested by Kansas State University; Inactivation Rate 96+%



### Pseudomonas Sp.

The bacterial genus Pseudomonas includes plant pathogenic bacteria such as P. syringae, the opportunistic human pathogen P. aeruginosa, the ubiquitous soil bacterium P. putida, and some special species known to cause spoilage of unpasteurized milk and other dairy products.

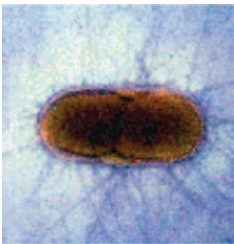
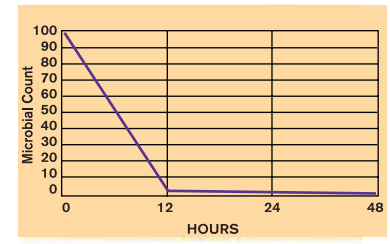
-Tested by Kansas State University. Inactivation rate 99+%



### Listeria

This is a Gram-positive bacterium, motile by means of flagella. Some studies suggest that 1 – 10% of humans may be intestinal carriers of L. monocytogenes. Source: U.S. Food and Drug Administration (FDA).

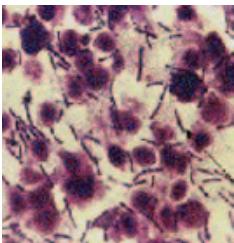
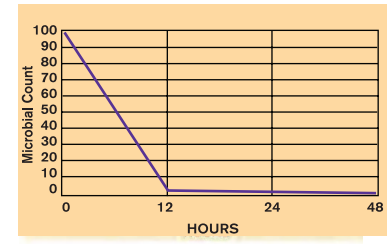
-Tested by Kansas State University, Steris Labs, KAG / Eco Labs. Inactivation rate 99+%



### Escherichia Coli

Escherichia coli, usually abbreviated E. coli, was discovered by Theodor Escherich, a German pediatrician and bacteriologist, and is one of the main species of bacteria that live in the lower intestines of mammals, known as gut flora. Source: CDC.

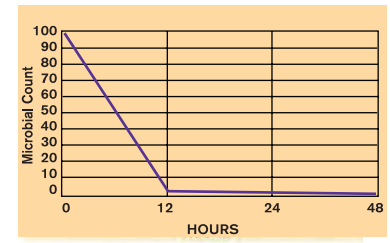
-Tested by Kansas State University. Inactivation rate 99+%

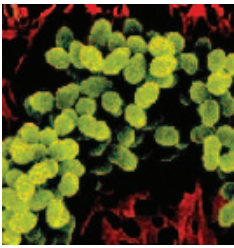


### Bacillus Globigii

Bacillus globigii lives in soils around the world and can readily be found in samplings of wind-borne dust particles. It is also known as Bacillus subtilis, its more modern name. Source: CDC.

-Tested by Kansas State University. Inactivation rate 99+%

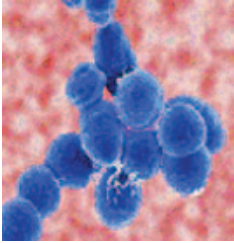
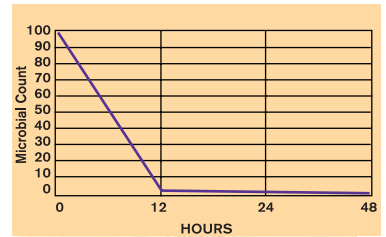




### Staphylococcus Aureus

Staphylococcus Aureus, often referred to as “staph”, is a bacteria commonly found on the skin and in the nose of people. Person-to-person transmission is the usual form of spread and occurs through contact with secretions from infected skin lesions, nasal discharge or spread via hands. Source: CDC and FDA.

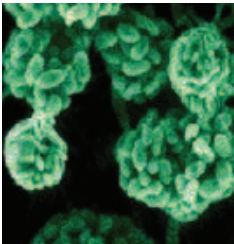
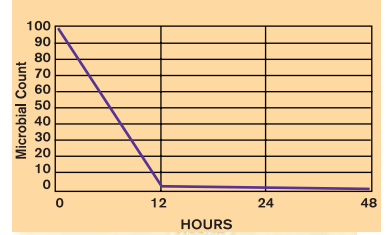
-Tested by Kansas State University. Inactivation rate 99+%



### Streptococcus Pneumoniae

S. Pneumoniae is an exclusively human pathogen and is spread from person-to-person by respiratory droplets, meaning that transmission generally occurs during coughing or sneezing to others within 6 feet of the carrier. Health experts estimate that more than 10 million mild infections (throat and skin) like these occur every year. Source: CDC

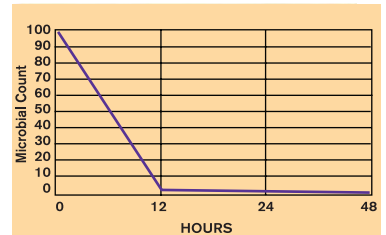
Tested by Kansas State University. Inactivation rate 99+%



### Stachybotrys Chartarum

Stachybotrys is a greenish-black fungus found worldwide that colonizes particularly well in high-cellular material, such as straw, hay, paper, dust, lint and cellulose-containing building material such as fiber board and gypsum board that become chronically moist or water damaged due to excessive humidity, water leaks, condensation or flooding. Source: Health and Industry

-Tested by Kansas State University. Inactivation rate 99+%



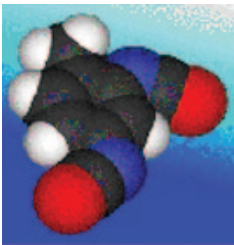
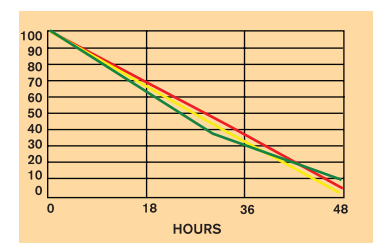
### Mold / Yeast

The purpose of this test was to evaluate the effect the AOT Cell has on mold / yeast bacteria (TPC). This test was performed utilizing a standard 2000 sq. ft. home as well as a 3000 sq. ft. simulated home.

-Tested by California Microbiology Center

Reduction %

■ Bacteria 99%    ■ Mold 97-98%    ■ Yeast 90+%



### Chemical Compounds

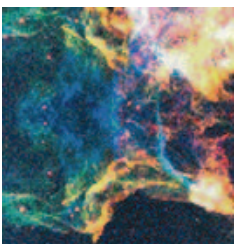
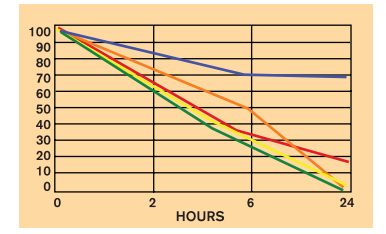
Gas Chromatograph/Mass Spectrometer test performed by Nelap Accredited Lab on airborne chemical compound reduction using RGF's AOT.

Hydrogen Sulfide	-Rotten Eggs	Butyl Acetate	-Sweet Banana
Methyl Disulfide	-Rotten Cabbage	Methyl Methacryline	-Plastic
Carbon Disulfide	-Vegetable Sulfide		

-Tested by California Microbiology Center

Reduction%

■ Hydrogen Sulfide 80%    ■ Methyl Mercaptan 100%    ■ Carbon Disulfide 30%    ■ Butyl Acetate 100%    ■ Methyl Methacryline 100%



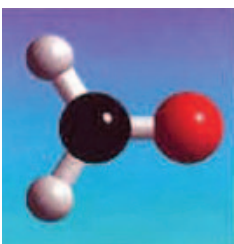
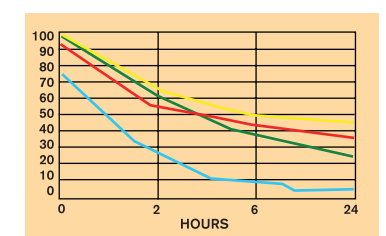
### Odors

The purpose of this test was to evaluate to what effect the AOT Cell has on cleaning chemicals, pet odors, smoke and perfume odors. This test was performed utilizing two 500 cubic foot test chambers and a ten-person odor panel. The qualitative assessments of the ten-person odor panel were then used as a means to determine the odor reduction.

-Tested by C&W Engineering (Independent PE Firm)

Reduction%

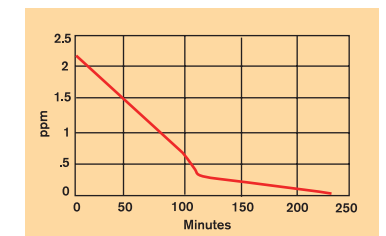
■ Cleaning Chemicals 55%    ■ Pet Odors 72%    ■ Perfume Odors 63+%    ■ Smoke Odors 70%

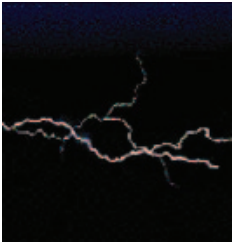


### Formaldehyde

The purpose of this test was to evaluate the effect the AOT Cell has on formaldehyde.

- Tests were conducted in a Class II Bio test chamber by Kansas State University





### Electrical / Ozone / EMF

All UVAIRx PHI Cell® devices have been thoroughly tested for electrical safety, ozone / electromagnetic frequency (EMF) and have passed Federal Safety Standards.

Tested by: TUV, ETL, UL, CSA, NEI China, RDF Labs, The Japanese Government, GSA, and Electrical Power Research Institute.

*Note: Many household appliances emit some ozone and EMF in low levels such as fluorescent lights, motors, computers, copy machines, refrigerators, blenders, electronic air filters, air conditioners, electric fans, microwave ovens, etc.*

### Sneeze Test – UVAIRx PHI Cell®

A testing protocol concept was used which included a “Sneeze Simulation Machine” and “Sneeze” chamber. A sneeze can travel at up to 100 mph, so we had to consider lung capacity, sneeze pressure and liquid volume to properly simulate a human sneeze. This was accomplished and the test proceeded with outstanding results. An average of 78% reduction of microbials was achieved with PHI-Cell® devices in a double blind test at three feet from the sneeze source. This is clearly not a medically supervised test or protocol. However, from a practical point it was definitely providing some kill at the source and will provide some level of protection.



*-Simulated Sneeze Lab Test at three feet in a 250 cubic foot Bio Test Chamber. An independent PE double blind study.*

### SAFETY

It is a normal reaction to question the long-term safety of any product that is effective and uses new or “breakthrough” technology. This type of question has become common as our litigious society has taught us to question things that significantly outperform existing methods or products.

The UVAIRx Photohydroionization technologies that produced the results found on the pages of this report certainly fall into the category of breakthrough technology. This is evident by its outstanding test results across the entire range of microbes.

The breakthrough in the UVAIRx Photohydroionization technologies is not found in the final product (hydroperoxides) but rather in the method by which they are produced. The active ingredient created by the UVAIRx products is a group of oxidants known as hydroperoxides. Hydroperoxides have been a common part of our environment for over 3.5 billion years. Hydroperoxides are created in our atmosphere whenever three components are present: unstable oxygen molecules, water vapor and energy (electromagnetic).

Hydroperoxides are very effective (as demonstrated by the test results in this book) at destroying harmful microbials. As oxidants, they do this by either destroying the microbe through a process known as cell lysing or by changing its molecular structure and rendering it harmless (which is the case in VOCs and odors). The amount of hydroperoxides required to accomplish this task in a conditioned space is well below the level that is constantly in our outside air. The advanced photohydroionization technology found in the UVAIRx products has brought the oxidants found in the outside air into the conditioned space.

There is no known case of hydroperoxides ever creating a health risk. Considering we have been exposed to hydroperoxides in nature since the first day man stepped on the planet, it is a reasonable assumption that hydroperoxides do not constitute a health risk. Over the last 20 years more than 1 million advanced oxidation products similar to the PHI Cell® used in UVAIRx devices have been successfully used worldwide.

### GREEN TECHNOLOGY

UVAIRx is committed to the environment by using low voltage technology to power our devices, designing our products with durability, refurbishment and reuse in mind, and packaging with recycled materials. Preference is shown to vendors that share these values.

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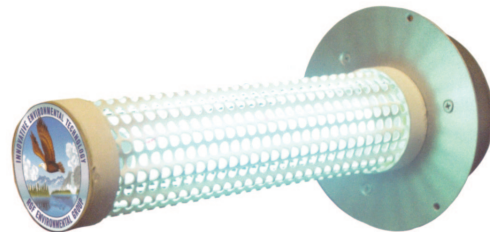


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#### Disclaimer:

*All of the above tests were performed on UVAIRx AOT products with advanced oxidation plasma of less than .02 ppm. They were conducted by independent accredited labs and university studies. They were funded and conducted to assure credibility.*

PHI Cell is a registered Trademark of RGF Environmental Group, Inc.



### UVAIRx PHI Cell®

A UVAIRx Advanced Oxidation Technology (AOT) PHI Cell®

Effective on gases, odors and microbials.