



## THE AEROVEX SYSTEMS STANDARD

For two decades, Aerovex Systems has been dedicated to the health of our customers. We continuously look for improved ways to purify and ventilate the air in nail, hair, and lash salons. We are uniquely positioned to offer products that we know are developed with modern, proprietary technologies proven to capture and kill airborne pathogens, bacteria and viruses.

Individuals concerned about maintaining safe home and office environments can also benefit from the same advancements that we focus upon for our salon-owner customers at affordable prices.

## SO, HOW DO WE TACKLE COVID-19?

With so many “new” air-filtering products flooding the market because of global health concerns, it is understandable that there is confusion in the marketplace about which products are most effective.

Let’s start with this clarification: COVID-19 is NOT a **virus**. It is a contagious, respiratory **disease** caused by becoming infected with the virus SARS-Cov-2--a specific type of coronavirus which *can* be killed. “The testing data conducted by independent Food and Drug Administration-compliant laboratory, MRIGlobal, established a 99.98% surface kill rate of live SARS-Cov-2 virus in seven hours.”<sup>1</sup>

The article below provides comprehensive FAQ about specific technologies that are built into Aerovex Systems air purifiers.

The ActivePure® technology alone is the only technology used in the Hydroxyl Blaster that was used in the Sars-Cov-2 surface reduction test. This is the same ActivePure® technology and device we use to supplement The One That Works™ with PCO air purifier. It offers continuous, whole room disinfection 24/7/365 (on indoor surfaces and indoor air), minimizing contamination.

ActivePure Technology quickly, proactively and continuously minimizes the number of contaminants on all indoor surfaces and in the air.<sup>2</sup>

### How ActivePure® Technology is Different

Air purifiers generally fall into two categories: active or capture-based. As the name suggests, ActivePure Technology is an active-based disinfection solution, which enables devices with ActivePure Technology to not only disinfect and purify the air but surfaces as well. The technology uses free oxygen and water molecules and converts them into powerful oxidizers, known as ActivePure Molecules, that are released back into the room, filling the interior space. ActivePure Molecules continuously seek out and destroy the room’s pathogens and contaminants in real time, 24 hours a day.<sup>3</sup>

Capture-based air purifiers do not work in real time and are only effective against the contaminants that are captured and killed through a HEPA filter, carbon or ultraviolet light. These units, by design, are only partially effective at reducing some of the airborne pathogens and are not effective at treating pathogens on surfaces.<sup>4</sup>

Give yourself peace of mind by knowing that your purchase from Aerovex Systems has been well researched and well-engineered for your well-being.

## **ACTIVEPURE® TECHNOLOGY** Safe, Effective, Proven, Certified

ActivePure® is an exclusive environmental technology that can solve many everyday indoor air and surface contamination problems. Traditional passive technologies, such as HEPA, use filtration or electrostatic systems, which remove contaminants only if they travel through the purification unit. These traditional filtration systems can help reduce air pollution to a degree, but they do not reduce surface contamination at all, and do not adequately reduce airborne contaminants. ActivePure® Technology actively targets contaminants in the air and on surfaces, eliminating them on contact.

ActivePure® Technology is derived from NASA Technology as used on the International Space Station. It is the only Certified Space Technology in the world in its class. ActivePure® Technology utilizes a proprietary hydrophilic photo catalytic coating, consisting of non-nano titanium dioxide with a proprietary combination of additional transition elements to enhance efficiency. Activated by a specific wavelength of ultraviolet light, oxygen and humidity are extracted from the air to create a host of powerful oxidizers that target air and surface pollution. These oxidizers are extremely effective at destroying bacteria, volatile organic compounds (VOCs) and other environmental contaminants. This method does not create harmful chemicals, but instead uses oxidizers found naturally occurring in the environment. These oxidizers are not harmful to humans, pets or plants and are complete safe for indoor use.

The key oxidizers created by ActivePure® Technology are the following:

- Hydrogen Peroxide ( $H_2O_2$ )
- Hydroxyls ( $OH^-$ )
- Hydroxyl Radicals ( $^{\circ}OH$ )
- Super Oxides ( $O^-$ )

### Hydrogen Peroxide

A major oxidizer created by ActivePure® Technology is hydrogen peroxide ( $H_2O_2$ ), which has proven to be effective against indoor pollutants and contaminants on surfaces and in the air. ActivePure® Technology produces hydrogen peroxide molecules from the oxygen and humidity already present in the air. The hydrogen peroxide molecules are then carried throughout the indoor environment, neutralizing pollutants and contaminants in places that other technologies and filtration systems can't reach. Because hydrogen peroxide molecules have both positive and negative charges, they are drawn to pollutants and contaminants by the process of electrostatic attraction. Contaminants are then safely broken down into oxygen ( $O_2$ ) and water ( $H_2O$ ) vapor. Hydrogen peroxide is odorless, colorless and safe to use in occupied spaces. According to the Occupational Health and Safety Administration (OSHA), exposure to one part per million (1.0~ ppm) of hydrogen peroxide is considered safe throughout the day. ActivePure® Technology produces only 0.02 ~ 0.04 ppm, well below the OSHA limit.

## Hydroxyls

Another important oxidizer created by ActivePure® Technology is hydroxyls. Hydroxyls (OH-) are safe, naturally occurring, powerful oxidizers that quickly and safely neutralize many airborne and surface contaminants, odor-causing bacteria and chemical VOCs. As part of the ActivePure® process, hydroxyls are formed when an ultraviolet light of specific wavelengths is absorbed by the unit's proprietary coating. The coating strips the hydrogen (H) atoms from water molecules (H<sub>2</sub>O) in the ambient air, forming negative hydroxyls (OH-). These hydroxyls break down carbon and hydrogen-based VOCs and other organic contaminants, converting them into harmless carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O) vapor.

While extremely effective at destroying odors, bacteria, VOCs and other contaminants, hydroxyls are completely safe for human, animal and plant exposure indoors. The hydroxyls produced by ActivePure® Technology are the same as those produced naturally in the earth's atmosphere by the reaction of UV rays and water vapor, and function to safely and naturally "scrub" and decontaminate indoor environments.

## Hydroxyl Radicals

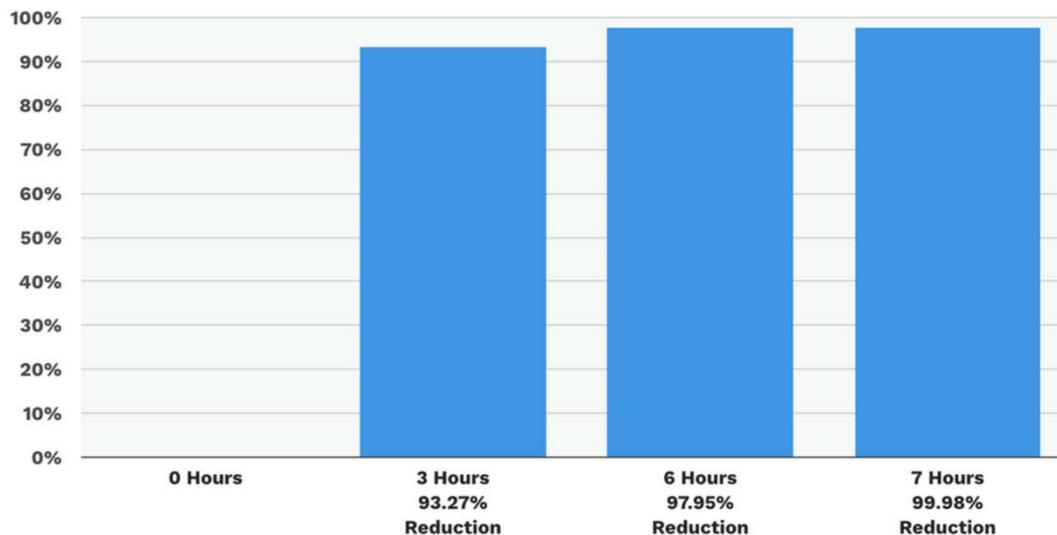
The hydroxyl radical, •OH, is the neutral form of the hydroxyl ion (OH-). Hydroxyl radicals are diatomic molecules that are highly reactive, so reactive that they are instantly neutralized when they contact organic compounds such as fungi, bacteria, viruses and many chemical VOC's by cracking the molecular bonds. Like the Hydroxyl ion, Hydroxyl radicals are formed by the reaction of UV light disassembling water vapor (H<sub>2</sub>O) to get a hydrogen atom (H) and oxygen (O<sub>2</sub>) which are combined to form the hydroxyl radical (\*OH). Hydroxyl molecules are so small that 10 billion of them would fit into one raindrop and because they are so quickly reactive, they are completely safe for human, animal, and plant exposure indoors.

## Super Oxides

Super oxides are oxygen molecules that arise when free hydrogen atoms (H) combine with ozone (O<sub>3</sub>) and are created in small amounts by nature in the air. When combined, they form the powerful oxidizers oxygen (O) and hydroxyls (OH-). ActivePure® Technology utilizes a UVC light source, naturally occurring ozone (O<sub>3</sub>), humidity and a photo catalyst to create powerful super oxides that eliminate bacteria, viruses, mold and other contaminants. This technology is not only safe for human exposure but is significantly more effective at destroying contaminants than simple UV technology alone. In the process of creating super oxides, ActivePure® actually reduces the amount of ozone (O) that naturally exists in the air.

Super oxides have been utilized for decades in food processing plants, hospitals, and dental and doctor's offices to control environmental contamination and disinfect safely without chemicals.

Average Percent SARS-CoV-2 Reduction on Surfaces



## Phi-X147 bacteriophage DNA Virus

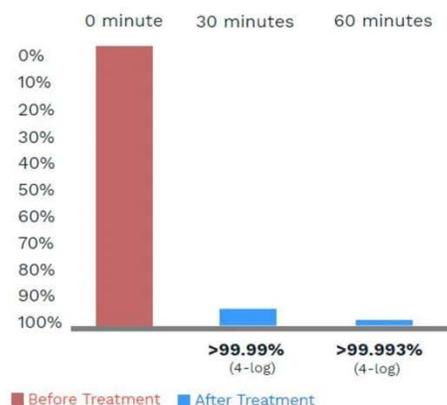
Reduction of Airborne Contaminants



## NEW ACTIVEPURE® MEDICAL UNIT TESTING

Complying with FDA Protocols in a FDA Certified Compliant Laboratory Net Log  
Reduction Phi-X147 of Bacteriophage Virus Bioaerosol

Average Percent DNA Virus Reduction



ActivePure® Technology has consistently proven its ability to safely control and neutralize contaminants such as viruses, bacteria, mold, fungi and VOCs in numerous tests and studies, without harm to humans, animals, and plant life. Extensive laboratory testing conducted at Kansas State University showed ActivePure® Technology to be effective against H1N1, H5N8, MRSA, Staph, Streptococcus, E-Coli, Listeria, Bacillus spp, Stachybotrys Chartarum and more. These university studies have shown that ActivePure® can reduce at least 96.4% and as much as 99.99% of surface and airborne contaminants within the first 24 hours.

Further testing was commissioned at the University of Cincinnati Center for Health-Related Aerosol Studies to investigate ActivePure® Technology's kill rate for airborne bio-contaminants. These tests established the extraordinary effectiveness of ActivePure® Technology in safely destroying contaminants. In the tests, 90% of the airborne pathogens measured were reduced in only 30 minutes, a rate 50 times more effective than normal filtration.

No Ozone

Ozone (O<sub>3</sub>) is created naturally by nature and is present in our air and can also be created by man-made technologies. The EPA has determined that ozone at levels in excess of 0.07 ppm may be damaging to health. The state of California has implemented even tighter ozone levels at 0.05 ppm. ActivePure® Technology has been proven not to create ozone as it operates and can actually help lower naturally occurring ozone, as it creates safe super oxides (O<sup>-</sup>) which in turn eliminate harmful pathogens.

## Space Foundation - Technology Certified

The Space Foundation has recognized ActivePure® for utilizing technologies originally invented for use in space programs to eliminate VOCs and other contaminants and adapting these technologies for everyday use. ActivePure® Technology is based on a variation of technology originally developed for use by NASA on the International Space Station and is recognized globally as the only Certified Space Technology in its class.

## Applications

ActivePure® Technology has been successfully and safely used in hospitals, homes, doctor's offices, professional sports facilities, and other applications across the world.

<sup>1,2,3,4</sup> The Sars-Cov-2 Surface Reduction Test announcement, BUSINESS WIRE September 30, 2020 02:10 PM Eastern Daylight Time

## HEALTHYAIR® PATENTED TECHNOLOGY

HealthyAir® couples advanced eHEPA® technology with proven Enhanced Carbon Catalytic Filtration to filter contaminated air in a multi-stage process that collects potentially harmful ultra-fine airborne particles and gaseous pollutants.

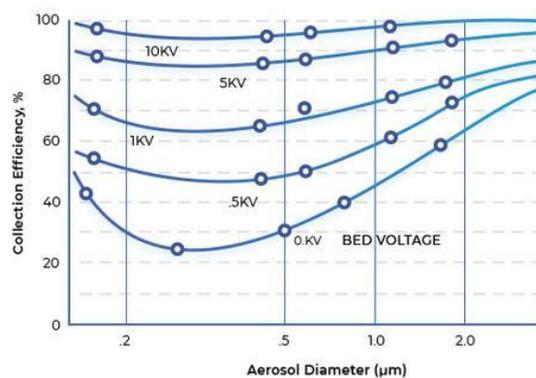
Innovatively integrating a high energy field with traditional HEPA filtration, eHEPA® technology successfully overcomes limitations and inefficiencies associated with standard filters. The result is a truly effective air purification process that collects particles at 0.3 micro, and smaller, with high efficiency and at low pressure drop.

Furthermore, by applying a high energy field that generates active species that permeate through the filter media, eHEPA® collects and deactivates airborne contaminants.



Laboratory data - EFB Collection of DOP Aerosols

Massachusetts Institute of Technology Dept. of Electrical Engineering



The same energetic principle is utilized in eHEPA® technology, whereby a specially designed HEPA filter is sandwiched between an active and passive electrode that applies an energy field that bombards the filter with active species, which permeate the filter to polarize the smallest fibers in the filter media. This effect significantly enhances the capture efficiency of the filter for the smallest particles (>0.1 microns), and the energy field also effectively deactivates potentially harmful contaminants, as indicated by independent laboratory testing and experiments.

## eHEPA VS. STANDARD HEPA

**Particle Capture** for eHEPA® is efficient at 0.3 microns. Standard HEPA does not reach that level of efficiency.

**Captured Pollutants** for both eHEPA® and Standard HEPA include dust, pollens, and pet dander. In addition, only eHEPA® captures dust mite by-products.

**Micro Organisms** captured with eHEPA® technology are viruses, bacteria, mold & fungi spores and airborne germs. Standard HEPA captures none of these.

With the use of Enhanced Carbon Catalytic Filtration following the eHEPA® energization process, capture efficiency is further increased and oxidation of gaseous compounds, such as VOCs, eliminates the presence of these toxic gases and the odor associated with them.

## eHEPA BENEFITS

### Low Air Flow Restriction

Less dense than other HEPA filters, the eHEPA® main filter is initially 85% efficient at 0.3-micron particle size. However, with the application of the systems high energy field, filtration efficiency is effectively raised to 99% at 0.3-micron particle size.

Because of its lower media density, the eHEPA® filter does not restrict airflow like traditional HEPA filters.

By enabling higher airflow, the overall eHEPA® filtration process is more efficient.

An additional benefit of this design feature is that the lower pressure drop enables the machine to operate more quietly, as the motor and blower do not have to work as hard to push the air through the filter media.

## Higher Filter Loading Capacity

The lower relative density of the eHEPA® filter media results in it having 4x greater loading capacity than similarly sized conventional HEPA filters.

With true filter monitoring by pressure indication of when the filter has reached its maximum loading capacity is accurate.

The eHEPA® main filter incorporates Spun Sealed Technology, ensuring that every filter is 100% sealed and that the entire systems functions to deliver optimal and reliable performance.

## Captures and Deactivates Microorganisms

Developed with a focus on capturing and deactivating microorganisms, eHEPA® solves a problem that is common in conventional HEPA systems.

While other systems effectively capture microorganisms, they do not deactivate them--thereby enabling these species to reproduce and proliferate while contained in the system.

By applying 10kV of energy to the filter media, eHEPA® technology creates an uninhabitable environment for microorganisms and reduces the probability of reproduction.