

# AP3000

Did you know that each of us consumes more air every day than anything else in the world? It's true. We each breathe in over 3,000 gallons of air every day. And don't we all want to breathe pure, fresh air? Unfortunately the air outside can be bad, and indoors where we spend most of our time, the air can be much worse. In fact according to the Environmental Protection Agency (EPA), indoor air levels of many pollutants may be 2-5 times, and sometimes, more than 100 times higher than outdoor levels. Without some method of control, airborne contaminants can be breathed in or eventually settle on exposed surfaces. But whether you suffer from allergies or not, there is something you can do about it. AP3000 combines five nature-based processes into one unique, proven, active technology system that helps clean the air you breathe and the surfaces you touch.



## About Indoor Air

One alarmingly simple fact to consider: if you don't use an air purifier, you are the air purifier. The EPA says the average adult breathes over 3,000 gallons of air each day and spends a significant amount of time, up to 90%, indoors. The Asthma and Allergy Foundation of America (AAFA) reports that one in four Americans currently suffer from asthma and allergies. And while the human respiratory system has several built-in defenses to prevent substances from entering the lungs, utilizing air purification to remove or reduce the amount of airborne pollution in the breathing space can potentially ease the burden of contamination in the body and help maintain overall wellness.

Those common household airborne pollutants can potentially include:

- Dust which is generally comprised of dead skin, dust mites and dust mite feces, insect parts, and more.
- Smoke emanating from tobacco, wood-burning fireplaces, fuel-burning heaters, and cooking.
- Chemicals from spray cleaners, perfumed deodorizers, carpets, and other building materials.
- Various microscopic bacteria and viruses.

All of these will continue to be of concern as modern building methods and the energy efficiency improvements of retrofitting existing structures continue to seal pollutants within indoor spaces. Such buildings tend to have decreased ventilation rates, higher concentrations of indoor-emitted pollutants, and more occupants reporting health problems.

## Exposed Surfaces

Contamination on surfaces isn't limited to visible dust - there are numerous other types of contaminants that generally get spread where people live. Whether from sneezing and coughing or just everyday handling, door knobs, counter tops, and almost any exposed surface can become a potential staging ground. It's also interesting to note that, by legal definition, disinfectants must be capable of reducing the level of pathogenic bacteria by 99.999% during a time frame of less than 10 minutes. Yet, as widely accepted as chemical disinfectants are, they may have little or no effect once removed from a surface due to lack of contact exposure. Because of this, some type of surface contaminant reduction between cleanings or disinfection may be desirable and beneficial as part of a regular regimen.

### 2017 Space Technology Hall of Fame

We're honored to announce the induction of our proprietary ActivePure® Technology into the Space Technology Hall of Fame. ActivePure Technology is one of only 75 technologies that have been inducted into the Space Technology Hall of Fame in the past 30 years.

The Space Foundation program exists to increase public awareness of the benefits of space exploration and encourage further innovation of NASA-adapted technologies to improve the quality of life for humanity.



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## Dust Mites

It has been reported that up to 80% of U.S. homes have large dust mite infestations, which may not be surprising considering as many as 40,000 dust mites can live in a single ounce of dust. These pests are second only to pollen in causing allergic reactions, mostly from airborne dust mite feces, ranging from itchy noses and eyes to severe asthma attacks. Along with keeping a low relative humidity between 30 – 50%, one of the most obvious methods of controlling dust mites may be to just reduce the amount of dust. An air purifier that works to continuously remove particulate from the air, combined with a thorough cleaning regimen that includes vacuuming can be an effective, simple strategy to minimize the aggravations of airborne dust.

## The Advantage of ActivePure®

With an end result similar to traditional filtration, ActivePure's active technology will clear the air of dust and floating particles, but unlike filters, it works out in the indoor environment, using air from the unit to carry "scrubber" ions and oxidizers through the air and to surfaces where they may be needed most. ActivePure® makes extensive use of five nature-based processes:

- **Ozone-Free** – provides completely ozone-free\* technology while giving you the benefits of our exclusive Certified Space Technology.
- **Sunlight** – for germicidal UV light
- **Rain and thunderstorms** – to generate ionization
- **Photocatalysis** – for hydro peroxides and oxide ions
- **Wind** – to distribute these properties into the environment

## Utilizing Lights and Metals

To create oxide ions and powerful oxidizers, the ActivePure® cell located inside the AP3000 utilizes an advanced form of photocatalytic process known as radiant catalytic ionization. This proprietary cell technology incorporates short wave UVC germicidal light as a catalyst to react with a formulated titanium dioxide and a proprietary blend of transition metals coating a target honeycomb matrix. The strong germicidal capabilities of the cell ensure any contaminants passing through the AP3000 are inactivated and rendered harmless.

## Ionization Reduces Airborne Particulate

AP3000 includes a dual polarity ionization system designed to bring about the agglomeration of airborne dust particles, odors, smoke, and contaminants to effectively cause them to cluster together and drop from the air. This airborne particulate can contain both pollen and dust along with its various constituents including dust mites, dust mite feces, and insect parts. Tobacco, cooking, and other types of smoke are also removed from the air by ionization through a similar process.

## The Power of Activated Oxygen

To eliminate difficult odors as well as odor-causing bacteria at the source, AP3000 offers an adjustable, optional purification function to produce activated oxygen, otherwise known as O<sub>3</sub> or ozone. A naturally occurring oxidizer with a very short half-life, activated oxygen works to break down all forms of odors and many types of air pollutants before breaking down itself to basic oxygen, allowing it to be used in unoccupied spaces for odor remediation and dust mite control as well as for everyday low level odor and contaminant control purposes as desired.

## Scientifically Studied

Testing at Kansas State University was conducted to determine the potential use of ActivePure® (RCI) Technology for the inactivation of Staph (Staphylococcus aureus), MRSA (Antibiotic Resistant Staph), E. coli (Escherichia coli), Bacillus spp., Streptococcus spp., Pseudomonas aeruginosa, Listeria monocytogenes, Candida albicans, and black mold on stainless steel surfaces at diverse contact times in a controlled airflow cabinet. Further testing was conducted at the University of Cincinnati Center for Health-Related Aerosol Studies to investigate the novel air purification technique combining aerosol/bioaerosol control mechanisms of unipolar ion emission and photocatalytic oxidation promoted by the ActivePure® (RCI) technique. These tests validated the effectiveness of the ActivePure® Technology in controlling contaminants.

## An Earth Friendly Value

Active Technology air purifiers like AP3000 with ActivePure® offer opportunities to contribute to an earth friendly lifestyle by continuously working to reduce biological contaminants on surfaces which may lessen the amount and impact of chemicals needed for cleaning and deodorizing, potentially saving money and resulting in fewer empty containers going into the trash. By evaluating based on total area covered and suggested retail pricing, we have calculated that AP3000 costs less per square foot of coverage when compared to popular brands of simple HEPA filters.

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\*\*\*When used with available Ozone-free cell.

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## Unique Features of AP3000

- Uses super oxide ions and hydro peroxides created by ActivePure® Technology to remove contaminants.
- Alternating positive and negative charged ions remove microscopic particles from the air to reduce harmful airborne pollutants.
- Features high intensity UVC light to make use of the same oxidation and ionizing properties as naturally occurring sunlight.
- Certified Space Technology™ ([www.spacefoundation.org](http://www.spacefoundation.org))
- Normal Mode uses exclusive ActivePure® (RCI) Technology to produce safe, low-level, oxidizers and super oxide ions for basic, everyday applications.
- Includes a remote control for easy operation.
- AP3000 model comes with an ActivePure® Cell that allows for operation without creating ozone\*\*\*.
- Optional prefilter available for harsh or dust-prone environments.
- Improves the quality of air in an environment up to 3,000 sq. feet.
- Alerts for normal maintenance or when service is required

## Who Should Use

Without exception, everyone breathes, so it's really a matter of having the knowledge and understanding of what else is being absorbed from the air when it is inhaled. And, unlike other purifiers, AP3000 controls surface contaminants that can affect your health. AP3000 is suitable for anyone concerned about indoor air quality and surface contaminants with the desire to provide a healthier indoor living environment using nature-based, proven technologies that are both convenient and cost effective.

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## Frequently Asked Questions

### • *How does AP3000 work?*

Four nature-based technologies including short wave UVC light, positive and negative ionization, RF ionization, and proprietary ActivePure® Technology are combined in one system to very effectively reduce dust and particulate, smoke, odors, and surface contaminants in the indoor environment.

### • *What is environmental conditioning?*

Because AP3000 treats interior exposed surfaces as well as indoor air, it doesn't fit into the category of an air purifier only. The term "environmental conditioning" more accurately describes the overall effect of the active technologies within the living area.

### • *Is AP3000 loud like a lot of air filtration machines?*

The loudness of an air purifier (measured in decibels) depends on the fan operating speed, and personal noise tolerance. In some situations, a high fan setting may be somewhat more effective; however fan speed of the AP3000 generally can be adjusted to your preference without adversely affecting overall performance, especially when using ceiling fans or operating an HVAC system.

### • *How long should the AP3000 run?*

For best results, it is recommended to continuously run the AP3000. This allows constant treatment for particle removal and reduction of contaminants on surfaces.

### • *Where should I place AP3000?*

Place the AP3000 in your home, in as high a place as is feasible. By doing so, you'll get the most benefit from the clustering effect of ionization and maximum dispersion of ActivePure® properties and the purifier feature of the AP3000.

### • *What is the expected coverage?*

The AP3000 is designed to cover from 250 to 3,000 square feet of area in an average home.

### • *How do I know when to clean the unit?*

A notification will appear on the display as a reminder to clean the rear lint screen, purifier plate (if equipped), and to vacuum the ActivePure® Cell and front and rear grills. This is a good sign and lets you know how much the AP3000 is helping you and your family.

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## Installing

For optimal performance, place AP3000 in your home as high up as possible, near the source of pollution or in the most heavily used area.

## Using AP3000

The power button on the remote or located on the front control panel will turn the unit on and off (standby). The 5-speed fan may be adjusted according to personal sound preference without adversely affecting performance.

The High Mode purification setting turns on the adjustable purification function for added effectiveness.

Reminders and notifications will appear on the screen when it's time for regular servicing or cleaning. For on-the-spot treatment, AP3000 can be easily moved to any room or area.

## Away Mode

For periodic additional effectiveness or remediation of stubborn, difficult odors, air quality problems, or surface contaminant issues, the Away Mode can be used, but only in areas that will remain unoccupied for the duration of the treatment.

## Warnings

- The rear of the unit should always have at least one inch of open area to allow unrestricted airflow.
- Point the unit toward the center of the room for maximum dispersion of ions.
- When operating a central heating and air conditioning fan, set the coverage up to the total ventilated indoor area. Otherwise, set the coverage up to the size of the room. Do not exceed the size of the ventilated indoor area when setting the purifier level.
- Please note: "unoccupied areas" includes pets. Some pets, like humans, may experience adverse reactions from exposure to increased levels of ozone and should not be present during AWAY MODE operation.
- Do not look directly at the glowing lamp. Prolonged exposure, even to reflected UV light, can cause eye damage according to the American Conference of Governmental Industrial Hygienists (ACGIH) Standards.

## Specifications

Model	AP3000
Electrical	<ul style="list-style-type: none"> <li>• 100 ~ 240 VAC 50/60 Hz External Power Supply</li> <li>• 50 watts maximum power consumption</li> <li>• Negative ion generation</li> </ul>
Size	<ul style="list-style-type: none"> <li>• Dimensions: 12" high x 9" wide x 12" deep</li> <li>• Weight: 10.2 lbs</li> </ul>
Purification Plate Output (High Mode)	>0.05 ppm
Coverage	<p>Covers a range of 250 sq. ft.   (23 m<sup>2</sup>) to 3,000 sq. ft. (279 m<sup>2</sup>)*</p> <p>* Depends on variables such as severity and frequency of pollution, humidity, and temperature.</p>

## Key Scientific Studies

National Academy of Sciences, 2011 Jun; S-1 Climate Change, the Indoor Environment, and Health. Committee on the Effect of Climate Change on Indoor Air Quality and Public Health; Institute of Medicine

Journal of Rapid Methods & Automation In Microbiology, 2007 Nov; 15(4):359-68 Efficacy of Radiant Catalytic Ionization and Ozone Generators at Reducing Microbial Populations on Stainless Steel Surfaces. M.T. Ortega, L.J. Franken, P.R. Hatesohl, J.L. Marsden. Department of Animal Sciences and Industry, K-State Food Science Institute, Kansas State University, Manhattan, KS 66506

Environ Sci Technol. 2007 Jan 15;41(2):606-12. Control of Aerosol Contaminants in Indoor Air: Combining the Particle Concentration Reduction with Microbial Inactivation. S.A. Grinshpun, A. Adhikari, T. Honda, K.Y. Kim, M. Toivola, K.S. Ramchander Rao, T. Reponen. Center for Health-Related Aerosol Studies, Dept. of Environmental Health, University of Cincinnati, 3223 Eden Avenue, Cincinnati, OH 45267



2017 Space Technology Hall of Fame Inductee



The ActivePure® Technology built into each AP3000 is based on a variation of the technology originally developed for use on the International Space Station and is recognized as the exclusive Certified Space Technology in its category.

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