

# EOS

## Portable Air Purification System



At the heart of the SecureAire EOS Portable Air Purification System is SecureAire's ACTIVE Particle Control Technology (PCT), a revolutionary breakthrough in air purification technology. With the EOS system, every aspect of indoor air pollution is addressed: removing airborne particulates, dangerous pathogens, and toxic VOCs (volatile organic compounds).

ACTIVE Particle Control Technology is based on the same particle-control technology used in semiconductor manufacturing cleanrooms, some of the most rigorously clean environments on the planet. PCT has also been deployed in hospital operating rooms, greatly reducing infection rates. Now, this same advanced air purification technology is providing families with the safest, healthiest, and cleanest indoor air possible.

Research has shown that some of the smallest airborne particles can also be the most harmful. Viruses, bacteria, and VOCs are on that list. Yet the smallest particles are also the least susceptible to airflow and, due to electrostatic forces remain suspended in the air, nearly unaffected by air currents.

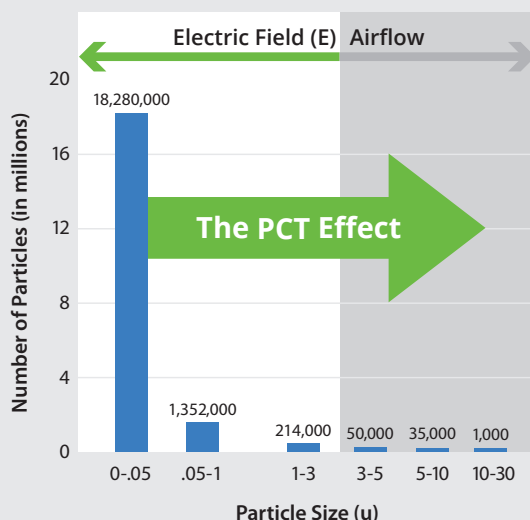
SecureAire's ACTIVE Particle Control technology conditions the smallest particles to attract to each other forming ever-larger clusters that can then be brought to the filter by air currents. Once these airborne contaminants are attracted to the filter, they are held there and can't escape. The charged media within the filtration cartridge creates oxidative cellular stress on any pathogens, killing them, and rendering them harmless.

The EOS Portable Air Purification System consists of the ACTIVE Particle Control Technology System, a replaceable SecureAire filter cartridge, a quiet and powerful fan, and a variable-speed controller. This complete system can deliver up to 600 cubic feet per minute of particle-free air, enough to purify a room as large as 1000 square feet.

The EOS System utilizes all three of the essential components necessary for the highest indoor air quality:

- 1. Particle Coagulation.** In order to overcome the static effect of electromagnetic forces on small particles, Particle Coagulation creates larger particles making airflow the dominant transport mechanism.
- 2. Optimized Air Change Rate.** With particle coagulation and a quiet yet powerful fan, the EOS brings particles back to the filter for Inactivation and elimination.
- 3. High Efficiency Filtration.** Through innovative use of positive and negative charges on particles and oxidative stress, the EOS filter cartridge safely and cleanly kills 99% of all captured particles.

Particle Size Distribution in Air



## System Technology

**The SecureAire ACTIVE Particle Control Technology System is based on three elements: the Particle Conditioning Unit, the Collector, and the Internal Particle Collider.**

As unfiltered air moves through the ACTIVE Particle Control Technology System, it first passes through the Particle Conditioning Unit (PCU). The PCU emits equal amounts of positive and negative charges at a high voltage and low current to avoid generating ozone. As particles move and pass through this section they will pick up these charges, thus becoming conditioned. These conditioned particles are now more influenced by the electric fields, which increases their force of attraction, thus enhancing inelastic collisions between them.

The Collector or Replacement Filter Cartridge, by virtue of the associated electrical fields, is polarized and provides high efficiency filtration (MERV 15) as defined by ASHRAE 52.2.

In addition, the constant high voltage electrostatic fields provide the setting for our INACTIVATE Technology. INACTIVATE targets any viable airborne pathogen that comes into contact with the system and renders it inactive or unable to reproduce or kills it.

Lastly, the Internal Particle Collider uses a pulsed high voltage electrodynamic field to condition any particles that may have escaped the Collector. This section is well suited for all air flow applications. Both positively and negatively charged particles

will pass through the particle collider and be forced to have inelastic collisions. These inelastic collisions will occur hundreds of times thus creating larger particles that have a net neutral charge.

These particles will then proceed out into the occupied space to further collect other particles, TVOCs, gases, odors, bacteria, viruses, and other viable airborne particles. It is the TRANSPORT of airborne pathogens that is most important for any purification system within any indoor environment. Without TRANSPORT, most systems simply don't work.

## The EOS System Overview

- **Cabinet** – The entire system is contained within a cabinet that houses the fan, the ACTIVE Particle Control Technology System (PCT), the system control module, and a replaceable filter cartridge.
- **System Control Module** – The SCM contains all of the PCT system's embedded electronics including diagnostics, safety circuits, and controls.

**The EOS is today's most advanced electrically enhanced Portable Air Purification System.**

## System Specifications

<b>Filtration Efficiency Rating</b>	MERV 15 per ASHRAE 52.2 standard test
<b>Air Flow Range</b>	Up to 600 CFM
<b>Power Supply</b>	120 Single Phase VAC
<b>Safety Current Protection</b>	SB 1.0 A/125V fuses
<b>Electrical Safety Ratings</b>	UL 867: 2011 R8.13, CSA C22.2 NO. 187-09, and UL 2998
<b>Humidity Range</b>	<95% Non-Condensing RH
<b>Safety Interlocks</b>	The filter replacement panel safety switch turns the system off to accommodate a filter change.
<b>Dimensions/Weight</b>	Height: 16.75" Width: 12" Depth: 15.35" Weight: 22 pounds
<b>Noise Level</b>	45-50 dB
<b>EOS System Part Number</b>	APS100X
<b>Replacement Cartridge</b>	APS100X-RC