

Executive Summary by Allen Johnston - Chief Technology Officer, EcoQuest International University of Cincinnati Test Results

EcoQuest ActivePure technology effect on air contaminants

Summary:

Testing of EcoQuest's Fresh Air Technology has been performed over an 18 month period at the Center for Health-Related Aerosol Studies in the Department of Environmental Health at the University of Cincinnati under the direction of Dr. Sergey Grinshpun, Professor.

Testing included two technologies used in the Fresh Air system; Negative Ionization and Photocatalysis (an innovative proprietary Photocatalytic Reactor called Radiant Catalytic Ionization - ActivePure).

Each technology was evaluated independently:

- Fresh Air Ionization technology was able to reduce airborne particles from indoor air by up to 250 times over natural decay (gravity)
- Fresh Air Radiant Catalytic Ionization (ActivePure -RCI) was able to inactivate approximately 90% of airborne microorganisms in less than 60 minutes. The microorganisms tested were MS2 Virus and B. Subtilis (used as a surrogate for Anthrax).

Dr. Grinshpun also concluded that the combination of the two technologies provided a much more significant reduction of airborne biocontaminants than either of the two technologies working independently.

About the Author:

Dr. Grinshpun is one of the most respected scientists in this important field of Aerosol Studies. Through his career, Dr. Grinshpun authored or co-authored about 390 scientific publications, including 120+ original articles in peer-reviewed journals, 90 book chapters and full proceeding papers, as well as about 180 conference abstracts. He has served as a reviewer, panel member or consultant to several federal agencies and professional associations nationally and internationally as well as for major companies and research institutions. He has also served on the Editorial Boards of four journals with international circulation. Dr. Grinshpun's accomplishments in aerosol research were recognized through the International Smoluchowski Award from the European Aerosol Assembly (1996, The Netherlands), the AIHA Outstanding Aerosol Paper Award (1997, USA), and the David L. Swift Memorial Award (2001, USA). He also received two John M. White Awards from AIHA (1997, 1998, USA) for his contribution to respiratory protection studies and Best Practice Award from the US

Department of HUD (2000) for his studies of leaded particles in indoor air.

About the University:

University of Cincinnati is one of America's foremost Universities for Environmental Health.

About the Testing:

The testing by Dr. Grinshpun and his team focused on controlling aerosol contaminants in the indoor air through the application of two technology strategies:

- 1) Particle Concentration Reduction due to Unipolar Ion Emission
- 2) Microbial Inactivation due to the Photocatalytic reaction promoted by a Photocatalytic process called ActivePure - RCI (Radiant Catalytic Ionization)

The Results:

The paper concludes that the utilization of two mechanisms; ionization and oxidation, provide for significantly less exposure to potentially harmful contaminants in the air than either mechanism independently.

This conclusion is supported by showing ion induced air cleaning removes about 80% of viable airborne pathogens from a room air in 30 min, and the ActivePure-induced photooxidation inactivates about 90% of the remaining airborne microorganisms. The combination of both mechanisms resulted in an overall aerosol exposure reduction after 30 min by a factor of about 50, or an overall reduction/inactivation of approximately 98%.

The two active contaminants evaluated were:

- 1) B. subtilis bacteria
- 2) MS2 virions

Publication:

This research was peer reviewed and published in the journal of Environmental Science and Technology, January 2007, pages 606-612.

Note:

This testing was conducted in a controlled environment. Field results may vary based on environmental conditions. These results have not been evaluated by the FDA. This product is not a medical device intended to diagnose, treat, prevent, or cure any disease.