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*Ingenuity for life*

## Ozone-Free, Needlepoint Bipolar Ionization Solution for Life Science Environments

Make smart infrastructure part of your lab's infection control and air quality solution.

[usa.siemens.com/lifescience](http://usa.siemens.com/lifescience)

Offer reliable, long-term protection to your researchers, lab workers, and lab assets from surface and airborne pathogens with this innovative, ozone-free approach to cleaner indoor air. Provided by our solution partner, Sustainability Management Partners called O2Prime™, this needlepoint bipolar ionization solution transforms your building's infrastructure into a front line of defense. Equipment is easily installed in HVAC systems to flood the air with hundreds of millions of positive and negative ions that attack pathogens, mold, and other airborne/surface contaminants.

### Creating an environment that protects

This ionization solution treats the air by generating positive and negative ions that normally exist in nature and releases them into the forced air circulation of an HVAC system where they can travel into spaces throughout the building. The ions are capable of attacking viruses, bacteria, pathogens, and mold at the molecular level, breaking them down and robbing them of their hydrogen molecules necessary for survival. Third-party testing has demonstrated effectiveness against certain viruses and bacteria\*.

\* Results available upon request.

### Key Benefits

- Ozone-Free – will not harm lungs
- Can run anytime, including when the lab is occupied
- Rapid installation that integrates with building automation system

### Supporting North America's Research Labs

As the need for testing, research, and space expands, we're harnessing our capabilities, expertise, and global network of partners to support research laboratories and other life science environments in the following ways:

- Supporting the rapid design and development of life science infrastructure
- Identifying sources of potential contamination and offering effective technologies to mitigate those risks
- Developing a holistic approach for Intelligent Labs of the future



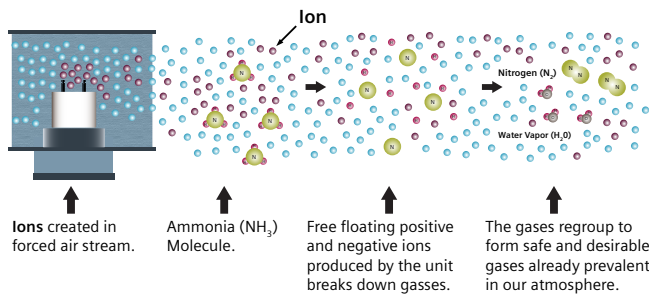
Solution  
Partner

Smart  
Infrastructure

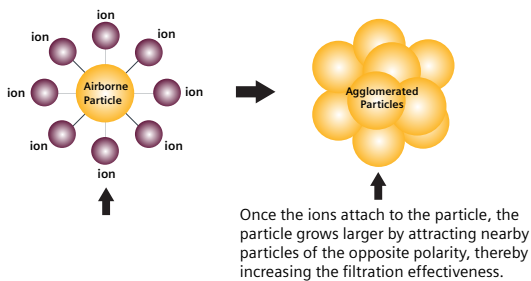
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# Needlepoint Bipolar Ionization Technology

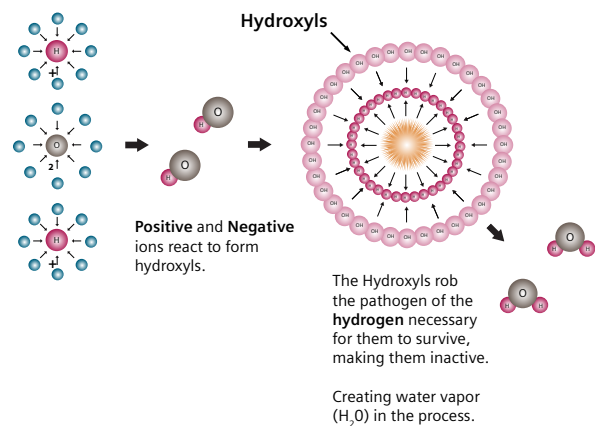
## VOC Effects



## Airborne Particle Effects



## Bacteria and Pathogen Effects



Ozone-Free Needlepoint Bipolar Ionization artificially creates millions of positive and negative ions and releases them into the forced air circulation of an HVAC system travelling into spaces inside building(s).

## How it works

This needlepoint bipolar ionization solution uses positive and negative ions, forced through a building's HVAC system that are capable of attacking and deactivating certain bacteria, pathogens, airborne particles, and VOCs.

**Bacteria & Pathogen Removal** – Positive and negative ions react to form hydroxyls. The hydroxyls rob the pathogen of the hydrogen bond, removing the food source.

**Airborne Particle Removal** – Ions attach to the airborne particle causing the particle to attract nearby particles of opposite polarity. As a result, the particle grows larger and becomes more vulnerable to filtration systems.

**VOC Removal** – Free-floating ions are used to break down ammonia ( $\text{NH}_3$ ) molecules and other VOCs, and regroups them into safe and desirable gasses, like nitrogen and water vapor, that are already prevalent in our atmosphere.

## System and installation options

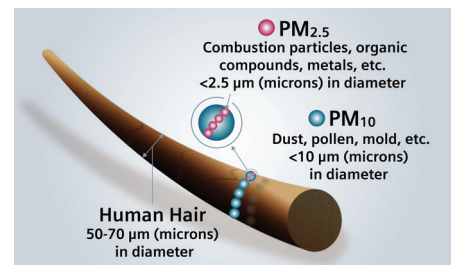
This ionization solution can be installed at the air handler or in the duct work. Siemens also offers sensors to monitor ion levels being produced. We will analyze system requirements and provide recommendations for optimal implementation.

## About Sustainability Management Partners (SMP)

Our mission at SMP is to provide indoor air quality solutions that lead to healthier occupants, increased productivity, and clean, fresh, healthy environments. By reducing the need for outside air, SMP and our O2Prime technology promotes smaller, more cost-effective HVAC systems and can increase energy savings related to heating and cooling.

## About Siemens Smart Infrastructure for Life Science Environments

Siemens Smart Infrastructure brings innovations in smart building technologies to create environments that care for research labs and other life science environments. Our Intelligent Lab infrastructure solutions further improve researcher and lab worker experiences; lab efficiency; and safety for all staff, assets, and research.



Ozone-free, needlepoint bipolar ionization deactivates particles smaller than PM<sub>2.5</sub>.

## Siemens Industry, Inc.

Smart Infrastructure  
1000 Deerfield Parkway  
Buffalo Grove, IL 60089  
Tel: (847) 215-1000

This document contains a general description of available technical options only, and its effectiveness will be subject to field conditions with project parameters defined in a formal contract.

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