

Healthy Indoor Air... The Way Nature Intended



Bi-Polar Ion Technology to improve Indoor Air Quality (IAQ)

The Technology disinfection concept

The technology's disinfection concept is an excellent solution for all **food processing, food packaging and food storing areas** with critical requirements of air purity and sterility.

The system ensures reliable and consistent conditions preventing the build-up of germs and bacteria.

The basic principal is the permanent flushing of the area with clean air reinforced with positive and negative ions.

These charged oxygen molecules O_2^+ and O_2^- have high chemical activity and when reacting with water molecules in the air, H_2O_2 (Hydrogen Peroxide) is formed. A chemical reaction occurs and oxidants break down the protein structure of pollutants, rendering them harmless.

This process enables halting and controlling the growth of microbes and bacteria in a particular area.

This system keeps air ducts, air heat exchangers and machinery clean and supplies sanitized air in enclosed areas.. Each ionizing device is completely maintenance free and connected to a data-bus for supervision and monitoring.

Explanation about Bipolar ions reduction of viruses

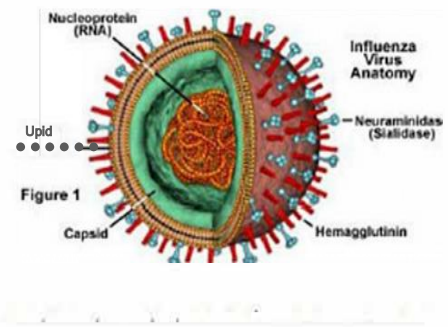
Release of bipolar ions in a room/ area starts a chain reaction due to charged oxygen in its vicinity.

Unlike other micro organisms viruses can not live on their own as they are just a strand of RNA (as is MS2 or Corona Virus) with protein cover.

The bipolar ions (charged oxygen) immediately react with hydrogen in the protein cover & dehydrates, effectively destroying the virus.

This virus then is unable to affect humans or reproduce to add more viruses.

Basically the ions in the air surround the hemagglutinin (VIRAL PROTEIN} - surface proteins that trigger infection & a chemical reaction ensues, which destroys hemagglutinin to deactivate virus.



Mechanism for Inactivating Airborne Virus

The positive and negative ions surround the hemagglutinin (surface proteins that form on organisms and trigger infections) and change into highly reactive OH groups called hydroxyl radicals ($\bullet\text{OH}$).

These take a hydrogen molecule from the hemagglutinin and change into water (H_2O). The ions destroy the virus surface structure, for example its envelopes and spikes, on a molecular level. As a result, the virus cannot infect even if it enters the body.

How does the Technology work?



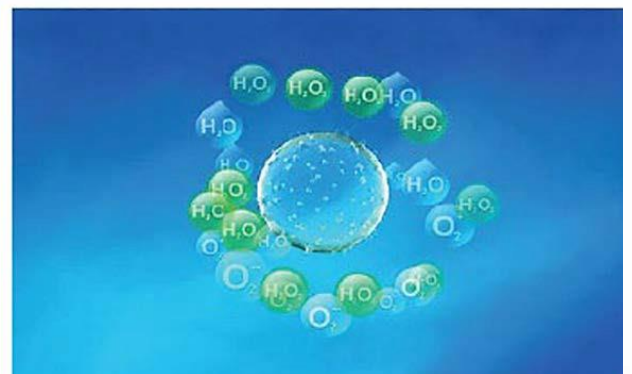
The Technology uses a corona discharge system to generate oxygen molecules O_2^+ and O_2^- .



These molecules have very high chemical activity and when reacting with water molecules H_2O in the air (Hydrogen Peroxide) H_2O_2 is formed.



Hydrogen Peroxide H_2O_2 together with water molecules cluster around harmful particles.



A chemical reaction occurs and oxidants breakdown the protein structure of pollutants, rendering them harmless.