

## Explanation of Coronavirus and Application of Bi-Polar Ionization to Disinfect Air and Surfaces

Coronaviruses were first identified in the 1960s. Coronaviruses are enveloped RNA viral particles. The symptoms of most ordinary coronaviruses are similar to any other upper-respiratory infection, including runny nose, coughing, sore throat, and varying fever. In most cases you won't know whether you have a coronavirus, or a different cold-causing virus such as a rhinovirus. These ordinary strains are easily treated by over-the-counter medication.

In some of the more serious strains, the coronavirus causes an infection that can spread to the lower respiratory tract and cause pneumonia, especially in older people, people with heart disease, or people with weakened immune systems. Sometimes, but not often, a coronavirus can infect both humans *and* animals. Such seems to be the case with the New Coronavirus (COVID-19), isolated to patients from Wuhan, China. According to the World Health Organization, it likely originated from an animal and passed to humans by contact at a live animal market in Wuhan.

There also seems to be possible person-to-person cases of the New Coronavirus. Today, there are over 200 cases which will likely increase with time. The strain causes severe respiratory disease, pneumonia, and death in some cases.

Keep in mind that this New Coronavirus is among several other serious disease-causing strains of the virus. For example, more than 475 people have died from the MERS coronavirus (Middle East Respiratory Syndrome). The MERS strain originated in Saudi Arabia in 2012 before spreading to other countries in Middle East, Africa, Asia, and Europe. In May of 2015 there was an outbreak of MERS in Korea, the largest outbreak recorded. In 2003, another severe respiratory Coronavirus killed many people and caused several cases of the acute respiratory disease known as SARS (severe acute respiratory syndrome).

In general, most coronaviruses spread in the same manner as other cold-causing viruses: via **aerosols directly** (infected people coughing, sneezing or touching an infected person's hands or face) or **indirect contact** (touching fomites like doorknobs, elevator buttons, elevator buttons, etc. then touching your nose, eyes, or mouth).

Since the virus is spread via direct and indirect contact, the **continuous application** of Bi-Polar Ions emitted to ambient air by the AtmosAir System continuously disinfect both the breathing space and surfaces. It is the most effective system for continuously cleaning and decontaminating indoor air.

Also, because Coronaviruses are enveloped viruses, they are easier to kill compared to naked viruses like Noroviruses. AtmosAir has shown significant reduction on bacteria and viruses in both laboratory and in-situ testing. Spaces like airport terminals where travelers from affected regions may carry and spread this virus should implement the AtmosAir bi-polar ionization air cleaning system as a step to combat the spread of illness.

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