HOW DO ZONTEC PRODUCTS WORK?

Zontec Electronic Deodorizers eliminate odors and clean the air in your home and business naturally, without the addition of sprays, masking agents, or other often harmful and irritating chemicals.

In nature, the air is cleaned through a combination of three primary mechanisms - OZONE, NEGATIVE CHARGED IONS, and ULTRA VIOLET LIGHT. These three mechanisms remove solid particles from the air (Negative Charged Ions), destroy airborne micro-organisms like bacteria, mold and virus (Ultra Violet Light), and remove odors and chemicals from the air (Ozone).

Zontec products harness the power of these natural processes to provide you with clean, fresh air.

The Perfect Air Plug-In uses a combination of Ozone and Negative Charged Ions to constantly control odors and airborne contaminents in your home, office, hotel room, or RV.

The Perfect Air Ultra cleans and purifies the air in your home with a combination of Negative Charged Ions, and Germicidal Ultra Violet Light, and low concentrations of Ozone.

The PA Series of Electronic Deodorizers utilize high concentrations of Ozone to permanently eliminate odors in commercial and industrial applications.

The O3 Air Purification System uses a combination of Medical Grade Germicidal UV Light and high concentrations of Ozone to eliminate odors and purify the air in commercial, industrial, and marine applications.

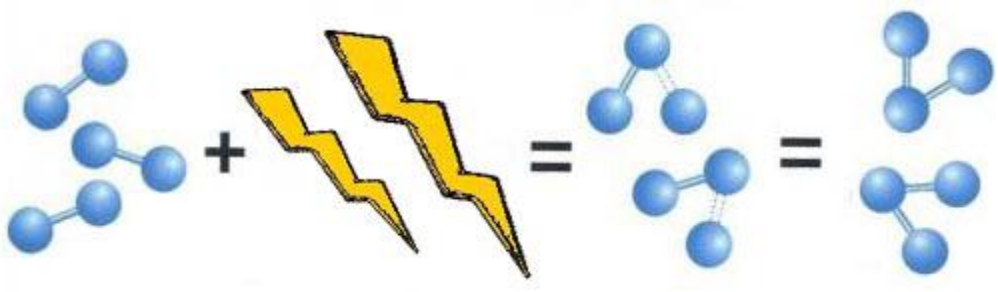
WHAT IS OZONE?

Ozone (O3) is a very chemically active, naturally occurring unstable gas made up of three oxygen atoms rather than the two atoms that make up the Oxygen (O2) which we breath every day. For this reason Ozone is often referred to as "Activated Oxygen" or "tri-Oxygen". Ozone is very well known

for it's ability to destroy odors - safely and naturally.

HOW IS OZONE PRODUCED?

Ozone is created in nature when "normal" Oxygen (O2) is subjected to a high voltage charge (in the form of lightning) or to Ultra-Violet (UV) Light in the atmosphere. The exposure to electricity or UV light breaks the Oxygen (O2) molecule apart into two individual oxygen (O) atoms. These "free" oxygen atoms temporarily bond to the remaining Oxygen (O2) molecules to form Ozone (O3).



3 Oxygen (O2) + High Voltage = 2 Oxygen (O2) + oxygen (O) + oxygen (O) = 2 Ozone (O3)

Zontec uses both of these mechanisms to generate Ozone in our Electronic Deodorizers.

Our conventional Ozone Generators (the PA Series for Commercial and Industrial applications) utilize two electrically charged plates of pure Titanium separated by a non-conducting Ceramic plate to create a Corona Discharge, similar to that created by a bolt of lightning.

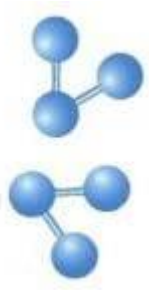
Zontec's O3 Air Purification System and the Injector Series of Ozone Generators (Commercial and Marine applications) utilize Medical Grade Germicidal Ultra-Violet Light to efficiently convert Oxygen to Ozone.

HOW DOES OZONE WORK?

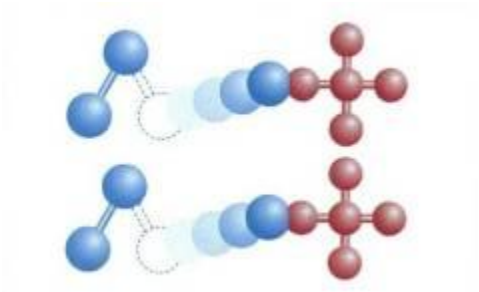
Ozone works to eliminate odors through a process called oxidation. The

combination of the three oxygen atoms forming Ozone is very unstable; the compound would actually prefer to "lose" one oxygen atom and revert back to Oxygen (O2). For this to happen, the "third" oxygen atom must bond with another molecule to form a more stable compound. This is oxidation.

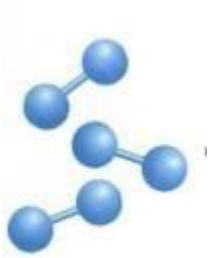
In practice, the unstable third oxygen atom of the Ozone breaks away from the O3 molecule and bonds with airborne chemical contaminants present in the environment. A simple explanation would be:



Unstable Ozone in the Air



Reacts with Contaminants also in the Air



Leaving Oxygen, Carbon Dioxide, and Water Vapor

For example:

Ozone+Acetone =Carbon Dioxide+Water Vapor+Oxygen
6 O3 +2 C3H4O2= 6 CO2 + 4 H2O + 3 O2

Most chemical reactions with Ozone are similar to this, in that the resulting chemicals are Carbon Dioxide, Oxygen, and water vapor.

IS OZONE SAFE?

All Zontec Electronic Deodorizers have been designed to provide safe and reliable operation - in the home and workplace. Ozone, like many other common chemicals (ie. Chlorine) can be irritating to some people in higher concentrations and for that reason, Zontec Electronic Deodorizers have been developed to operate within the Occupational Health and Safety Standards

(OHSS).

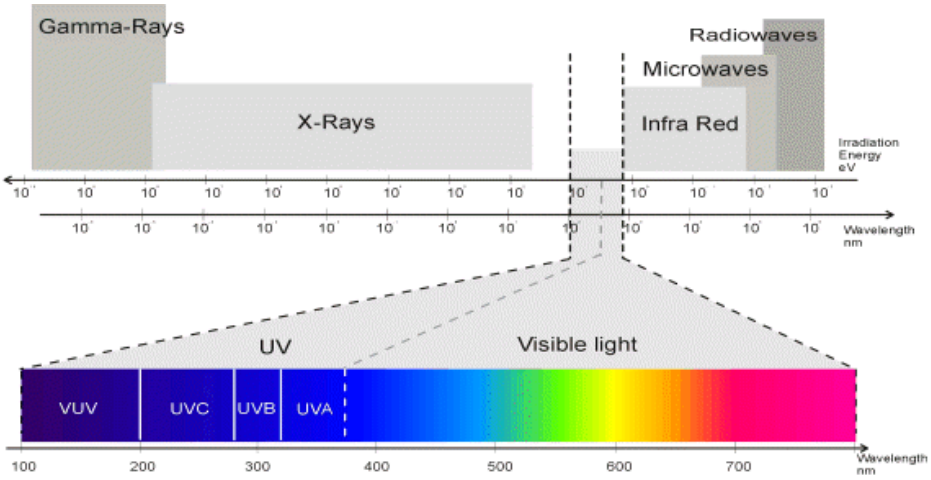
Zontec Commercial and Industrial Electronic Deodorizers are generally intended for use in unoccupied areas and for short periods of time. The relatively high concentrations of Ozone that these units produce (between 300 and 5,000 milligrams per hour) is very effective for eliminating most odors in a short period of time and for controlling strong odors (such as those found in garbage areas) on a continuous basis. Many of the Commercial Electronic Deodorizers manufactured by Zontec are equipped with timers or variable output controllers which can allow the units to be safely operated in areas that are occupied in an application specific basis.

Zontec Residential Electronic Deodorizers - the Perfect Air Plug-In and the Perfect Air Ultra - were designed for continuous operation in occupied areas such as homes, offices, hotel rooms, and washrooms. The very low concentrations of Ozone produced by these units (less than 10 milligrams per hour) is sufficient for controlling common household odors as they occur.

The use of Ozone to clean contaminants from the air is very similar to the use of Chlorine to clean the water in a swimming pool. Low concentrations of Chlorine are constantly circulated throughout a swimming pool to continuously maintain the water while occupied by swimmers. Occasionally, however, swimming pools require a "shock" of much higher concentrations of Chlorine to address specific water quality issues. It is not recommended that swimmers be allowed in the water while the pool is being shocked, as the Chlorine concentration is very high. It is, however, safe to swim in the pool shortly after it has been shocked and while it is being constantly treated with low levels of Chlorine.

WHAT IS ULTRA VIOLET LIGHT?

Ultraviolet (UV) Light, like Visible Light, represents a portion of the sun's electromagnetic spectrum. Ultraviolet Light occurs at wavelengths between 100 and 400 nanometers (nm) whereas Visible Light occurs between 400 and 700 nanometers. This makes it the wavelength of light immediately beyond the violet end of the visible light spectrum. Ultra Violet Light is invisible to humans but may be seen by some animals and insects.



There are three classes of Ultra Violet Light:

UV-A - 315 to 400 nm - The most common form of UV Light. It is often used in Tanning Beds and is known as "Black Light"

UV-B - 280 to 315 nm - This is the most harmful form of UV Light and is known to cause skin cancer.

UV-C - 100 to 280 nm - The least common form of UV Light. It forms Ozone in the atmosphere and is "Germicidal" in nature, meaning that it destroys micro-organisms such as bacteria, mold, yeast and viruses.

WHAT DOES ULTRA VIOLET (UV-C) LIGHT DO?

Ultra Violet "C" Light occurring between 100 and 280 nanometers is responsible for the formation of Ozone in the upper atmosphere and the destruction of airborne micro-organisms. Naturally occurring UV-C is almost completely absorbed in upper atmosphere; when UV-C photons collide with oxygen atoms, the energy exchange causes the formation of Ozone. In fact, UV-C is the "source" of the Ozone found in the Ozone Layer. UV-C light occurring at 253.7 nanometers is Germicidal and has the ability to kill all micro-organisms that it comes in contact with. The Germicidal UV-C Light strikes the airborne micro-organisms (bacteria, virus, yeast, mold, algae, etc.) and "deactivates" the DNA of the organism, leaving it unable to replicate and rapidly killing the organism. UV-C's ability to destroy viruses is one of the reasons that colds are more common during seasons where there is little sun.

Germicidal Ultra-Violet Light has been used for over 100 years to sterlize air and water. It is recognized internationally as a reliable method to eliminate most viruses, including Anthrax, Tuberculosis, and Plague. Historically, this technology has been limited to government, military, and institutional use.

WHAT ARE NEGATIVE CHARGED IONS?

Technically Speaking...

Ions are charged particles in the air that are formed in nature when enough energy acts upon a molecule such as carbon dioxide, oxygen, water, or nitrogen to eject an electron from the molecule leaving a positively charged Ion. The displaced electron attaches itself to a nearby molecule, which then becomes a negatively charged Ion. Like Ozone, Negative Charged Ions represent a natural method of cleaning the air we breath. While ozone removes chemicals and eliminates odors, Negative Charged Ions remove solid particles (like dust and smoke) from the air.

WHAT ARE THE BENEFITS OF NEGATIVE CHARGED IONS?

There are many potential benefits which are provided by negative-charged ions.

One direct benefit is the removal of airborne particulates (many of which are the source of allergies) due to gravity. By necessity, the particles which float in the air are very light. The addition of the displaced electron often adds enough weight to the particle that it can no longer float freely in the air and it will fall harmlessly to the floor where it will be swept or vacuumed away. Particulates which are vulnerable to negatively-charged ions can include tobacco smoke, pet dander, dust, and even mold spores.

Many believe that Negative-charged ions can also have a direct and positive physical effect on the body as well.

"Remember that feeling you've experienced near a waterfall or high in the mountains? Those are two places that thousands of negative ions occur. They create an effect on human biochemistry. The normal Ion count in fresh country air is 2,000 to 4,000 negative Ions per cubic centimeter (about the size of a sugar cube). At Yosemite Falls, you'll experience over 100,000 negative Ions per cubic centimeter. On the other hand, the level is far below 100 per cubic centimeter on the Los Angeles freeways during rush hour."

"While ionization of the air is mandatory in many European and Russian hospitals and work places, it has only recently come to light in our country with the growing problem of toxic air in our urban environments."

From "Whole Self", Spring 1991, an article entitled "Ions and Consciousness".

HOW CAN I MAKE THE BEST USE OF MY ZONTEC ELECTRONIC DEODORIZER?

There are four primary considerations to ensure that you receive the maximum benefit from your Zontec Electronic Deodorizer. They are:

Model Selection
Zontec Electronic Deodorizers are manufactured for a variety of applications and uses. It is highly recommended that you refer to our APPLICATION DATABASE or contact a sales representative prior to purchasing your Zontec unit to ensure that you get the Electronic Deodorizer that is right for you. Considerations include: the area to be treated, the nature and severity of the odors present, temperature, humidity, and a host of others.

Ozone Concentration
Generally speaking, Zontec recommends using as little Ozone as possible to treat offensive odors. Due to the oxidizing nature of Ozone, there is no benefit to "over saturating" an enclosed area for anything less than garbage odors or fire or flood restoration projects. Once the Ozone has oxidized the contaminant, there is nothing left to attack as the contaminant has been destroyed. With nothing more to react with, the Ozone will simply revert back

to Oxygen in a short period of time.

Application Time
Ozone will effectively eliminate most all odors in a very short period of time - depending on the severity of the odor and the output of the Zontec Electronic Deodorizer that you are using. For example, the PA200 was designed to effectively deodorize a standard guest room in a hotel or motel in under 15 minutes. In commercial or industrial applications and when dealing with stronger odors, we recommend an initial saturation period of a few hours, followed by a break without treatment. If any odors remain, repeat the process (of saturation followed by a break) as required. Most odors will be eliminated during the initial saturation and even stubborn odors (such as mildew) will be removed after only a few treatments.

Unit Placement
For maximum dispersion and effectiveness, Zontec recommends placing your Electronic Deodorizers as high as physically and practically possible in the room. On the top of a bookshelf is an ideal location or, as a permanent solution, use a Wall or Ceiling Mount Kit available from Zontec. Ozone is heavier than air, meaning that once the Ozone has left the generator it will fall through the air as it disperses through the room.

DOES MY ZONTEC ELECTRONIC DEODORIZER REQUIRE MAINTENANCE?

Yes, all Zontec Ozone Generators require periodic maintenance to ensure long operating life and maximum efficiency. All units include cleaning and maintenance guidelines in the instructions provided with the unit (as maintenance requirements do vary from unit to unit). In general:

Perfect Air Plug-In
The Perfect Air Plug-In is relatively maintenance free and requires only periodic cleaning with a moist, lint-free Q-Tip. Depending on how often the unit is used and how dirty the air around the unit is will determine how often the unit must be cleaned. In most applications, and to receive the maximum benefit of negative ionization and Ozone generation, Zontec recommends cleaning the Perfect Air Plug-In once every three months.

Perfect Air Ultra

The Perfect Air Ultra requires only occasional wiping of it's removable collection plate. In most cases, cleaning is required once every month or two.

PA Series
Generally units in the PA Series require routine cleaning and maintenance every three to six months, depending on how often you use your machine and what the particular environment is where it is being used. Routine cleaning may be as simple as wiping the ceramic plate and titanium generator with an alcohol pad to remove dust or other contaminants. No special tools are required and complete maintenance kits are available for all units.

O3 Air Purification System
The O3 Air Purification System was designed to be the lowest maintenance Electronic Deodorizer available. Most units require maintenance only once in every two to three years. The lifespan of the Germicidal UV Bulbs is 9,000 hours and in time controlled applications, a single bulb may last for five years or more!

With regular cleaning and maintenance, Zontec Electronic Deodorizers will last well in excess of fifteen years with no loss of output or efficiency!

DOES MY ZONTEC ELECTRONIC DEODORIZER COME WITH A WARRANTY?

Yes, all Zontec Electronic Deodorizers come with a comprehensive limited warranty against parts and manufacturing defects from the factory. All Zontec Commercial and Industrial unit come with a two-year warranty. With regular cleaning and maintenance, Zontec Ozone Generators will last well in excess of fifteen years with no loss of output or efficiency.

Zontec's Service Department is at your service even after your warranty has expired to provide factory certified upgrades or maintenance.

Read what our customers are saying about Zontec's Ozone Generators!