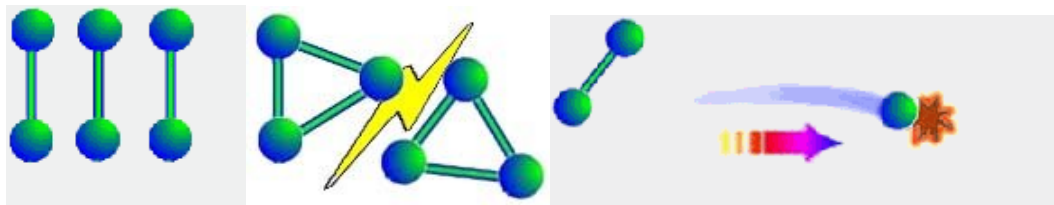


DC280 OZONIZER –Bacteria & Molodor Neutralizer

Historical Data:

- 1)Germany professor (Founder) in year 1840.
- 2)Chemical name : O₃
- 3)Colorless , High viscosity ,will change to light blue (theoretically).
- 4) Original smell similar to OZEIN(Greece wording) -- OZONE.
- 5) Ozone protection agreement 1985 in Vienna(UN)
- 6)Ban CFC against (5) in year 1988 at Tokyo.
- 7)First killing bacteria test in year 1873, whole world .1899 in France .
1901 in Germany (tested by using ozone kill bacteria on drinking water).

In Air :



Oxygen O_2 > is converted by High voltage Electricity , Lightning , Ozone generator. > into OZONE O_3 > which kills GERMS & Viruses (Oxygen atom Splits off to oxidize pollutant). > and turns back into Oxygen O_2 (breathable oxygen & purified Air).

How ozone purifies the air ?

Oxygen molecules are converted to ozone (O_3) by e.g High voltage electricity ,lightning or ozone generator.

1 Oxygen atom (O_1) splits off from the ozone molecule , and reacts with others particles when it comes within range of a pollutant.Ozone is highly reactive , so it never fails to initiate this reaction with other particles.

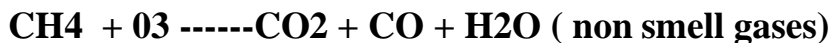
As the second most powerful oxidant in existence , the single Oxygen atom proceeds to “ oxidize “ the particle it reacts with. Meaning that it burns the particle, which changes its physical properties. In other words , the particle becomes completely harmless.

- When the single Oxygen (O1) molecule oxidizes the particle , it too is destroyed. This leaves behind the (O2) or pure and clean Oxygen.

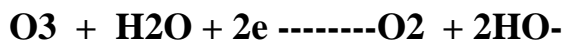
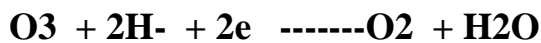
Types of Pollutants / Particles Removed from Air by Ozone generated by ozone generator :

Chemicals	Acid Odours	
Algae	Gases / Fumes	Fungi
Exhaust Fumes	Viruses	Fertilizer
Bacteria	Formaldehyde	Oils
Carbon Monoxide	Benzene	Resins
Mildew	Germs	Carbolic Acid
Tetrachloride	Ammonia	Propane
Nicotine	Cigarette Smoke	Ether Alcohol
Acrylic	Mould / Mold	Gangrene
	Spores	

e.g : Chemical reaction :



In water:



The viscosity of ozone (in Summer) = 0.001 ppm ---0.003ppm.

Standard /normal/ suitable level 0.01 ppm ----0.015ppm till max 0.05ppm.

50ppm within an hour (death)-----small insect (such as mosquito or fly).

DC280 Standard Specification :

30mg/hr +/- 10% = 30ppm .

30ppm/ 2200cuft = 0.013 ppm/ cuft.

Power: cost /month.

RM0.50/kwh , RM 0.0005/w , 12watt = RM0.006/12watt.

Watt usage/month = app 4320w.,max 3 years

= app 156,000watt/156 kwh.

**12watt x 30/60 minutes x24hr x 30 days x RM0.0005 =RM2.16 +
100% =RM4.32/month.**

Features of OZONE (Notice for user):

- 1) **OZONE** is 1.7 times heavier than atmosphere , the product must be placed at the position higher than of human body , with better effect of use.
- 2) **OZONE** critical point temperature is 69C ,**OZONE** may turns to oxygen(O₂) instantly.
- 3) If the regular temperature at air is 25 C , if **OZONE** is not used for sterilizing ,it will change back to O₂ after 50minutes.If temperature is above 69 C , it will change to O₂ instantly.
- 4) Application in water , the time for **OZONE** stays in water depends on temperature of water ,if it is 25C and **OZONE** is not to do sterilize , then it will resume to O₂ in 20minutes.If temperature is going up to 39C, **OZONE** will turns to O₂ by 2 minutes. If temperature is over 69C , **OZONE** will turn to O₂ instantly.
- 5) **OZONE** is made up of 3 molecules (oxygen) .In healthy and clean outdoor environment , occurs naturally between 0.02ppm and 0.05ppm.

25C -----app 50min

69C or above---within a second.

***** If apply Dc 280 Ozonizer with air conditioner or electric fan ,the result may spread the ozone in the air rapidly and reach to each corner of the place with supply of oxygen in the air and as a result for sterilizing ,deodorant and purify the air.**

Are Ozone Generators Safe?

Is Ozone safe?

Yes, when used properly , like anything else , ozone is safe.

"Why Ozone is beneficial ,and how they purify the air."

Effectiveness of Ozone

Effectiveness at Low Levels

In studies conducted at the Academy of Medical Sciences in Russia, Dr. Gubernskii and Dr. Dmitriev found that 0.005 ppm to 0.02 ppm of Ozone added to normal indoor air (0 ppm) increased animals' resistance to the cold, to infection, to toxic substances, and to Oxygen deprivation.

Drs. Gubernskii & Dmitriev also tested with *less than 0.01 ppm Ozone* in an air-conditioned office building. They also stated that : "Atmospheric Ozone has a positive effect on animals and people. It is important to note its positive effect on the breathing system, blood composition, arterial pressure, immune system, general feeling of well-being, and mental and physical work capability."

Russian scientists performed a study to see how effective Ozone was at improving indoor air quality(IAQ) in schools. Respiratory-related illnesses were drastically improved after the Ozone generator system were installed. The Ozone concentration produced by the systems were 0.015 ppm.

In testing performed by 2 scientists by the name of Elford and Van den Ende, it was found that Ozone effectively destroyed bacteria at 0.04 ppm. Many published studies show the effectiveness of Ozone (0.01 to 0.03 ppm) at removing malodours and pollutants.

Safety

Professional Studies

The Refrigeration Service Engineers Society has reported that electric-arc welders exposed to Ozone levels of 0.2 to 0.3 ppm for a decade showed no adverse effects. Also, according to the 1961 Encyclopaedia of Chemical Technology,

"During the 80-year history of large scale usage of Ozone, there has never been a human death attributed to it."

To this day, there has still never been a single human death or incident of harm attributed to Ozone generated by ozone generator. This despite the fact that Ozone was widely used in hospitals during the first half of the 20th century and is still widely used in European hospitals.

In addition, millions of Ozone generators are in use worldwide, both commercially and residentially. By Contrast, well over a million people are hospitalised, and well over 100,000 are killed every year due to medication side effects, according to the FDA.

Ozone is completely safe and effective when occurring within Singapore's Clean Air Act, FDA and OSHA standards of 0.05 ppm.

Self-Policing

In addition, the smell of Ozone will become unpleasant and obnoxious well before reaching harmful levels, serving as a built-in and self-policing safety mechanism. If this happens, one can adjust the Ozonizer. However, at proper levels (0.02 ppm to 0.05 ppm), it will have a pleasant and clean smell to it, reminiscent of the smell outside after a lightning storm.

One will smell the Ozone at first, but only barely. After a day or two, you will either barely smell the Ozone, or will not smell it at all, as the pollution level in the room is minimized.

Ozone & the Environment

Ozone Levels in Healthy and Unhealthy Environments :

In most unhealthy indoor environments, the Ozone level is virtually zero. [DC280 OZONIZER](#) , with ozone generator is a source of Ozone. In addition to being beneficial to our health when occurring at proper levels, they are highly effective at removing particles and contaminants from the air, which results in a much healthier environment by itself.

The EPA advises us that indoor air pollution is the worst environmental health problem, even 5 to 10 times as bad as outdoor air pollution. In addition, most people spend well over 90% of their time inside, making clean indoor air even more important for our health.

Fortunately, Ozone can remove particles as small as 0.01 microns. Ozone generator allows removal of pollutants that air filters cannot e.g. bacteria, chemicals, fumes, fine dust, viruses, etc.

"Factors to consider with Dc280 Ozonizer "

1. Nitrogen Oxides
2. Safe Ozone Levels
3. Adjustability and Air Flow
4. The Smell of Ozone
5. Applications Other Than Air

1. Nitrogen Oxides

Dc280 Ozonizer that use ozone generator do not produce nitrogen oxides at all.

2. Safe Ozone Levels

The Singapore's Clean Air Act, FDA and OSHA standards for Ozone in indoor environment is 0.05 ppm. Dc280 ozonizer , which with standard factory pre-setting " 10mins on and continue with 10mins off system" produce minimal amount of Ozone . You can get a much better idea of the Ozone level in the room just by the smell of the Ozone. At levels between 0.05 and 0.1 ppm, it can be almost intolerable.

3. Adjustability and Air Flow

It is also advantageous to find ways to increase air circulation e.g. keeping doors open, keeping the Ozonizer unit nearby a air conditioner , a vent, or running a ceiling fan.

4. The Smell of Ozone

At lower levels, it can be very subtle or virtually non-existent. At these concentrations it often has a fresh and natural scent to it, much like the scent in the air after a thunderstorm. The smell of Ozone serves as an **indicator** of when concentrations may be approaching even minimally harmful levels. Despite the fact that most people become de-sensitised to the smell of Ozone over time, the smell of Ozone will easily give it away if it gets anywhere near 0.1 ppm, since the smell would be more than overpowering. It takes long term exposure at high levels (close to or around 0.1 ppm) to inflict any harm. Even if the Ozone concentration were to reach a dangerously high level, there would be plenty of time to turn off the Ozone generator and out from that area.

5. Applications Other Than Air

Ozone has proven to be an effective alternative for chemicals in water supplies throughout the world. It is used as a water purification agent in hundreds of municipal water treatment plants throughout the U.S., and many more throughout the world (particularly in Europe).

Dc280 Ozonizer creating Ozone does not produce **carcinogenic** by-products like **chlorine** and other chemicals, and is actually more effective at destroying micro-organisms in water.

Ozone utility place and illustration.

Utilize in air :

- 1)For living environment – sterilize, deodorant , air cleaning, effective destroy cell velamen of bacteria , prevent enteric virus and various bacterial affection . Restrain growing of germs and mould fungi, eliminate allergic origin , prevent virus affection.**
- 2)For bedroom use – Deodorant , sterilizing , air purify , eliminate dust germs.**
- 3)For a study—Deodorant , sterilizing , air purify , remove mould smell , refresh by fresh air.**
- 4)Studio room –Eliminate smell , air purify , refresh air.**
- 5)For cabinet – Sterilizing , deodorant (garbage smell) , remove food smell (mix or food smell).**
- 6)For kitchen – Sterilizing , deodorant (remove garbage smell) , eliminate food smell.**
- 7)Toilet room – Sterilizing , deodorant , eliminate mould fungi .**

8)Shoes cabinet – Deodorant , sterilizing.

9)Refrigerator – Sterilizing , deodorant , eliminate smell.

10)Hospital – Sterilizing , remove medical smell , prevent second hand affection .

11)Hotel – Deodorant , eliminate smell , air purify , sterilizing eliminate mould fungi.

12)Restaurant – Deodorant , eliminate smell , air purifying.

13)Ancient sanatorium – Deodorant , air purifying , sterilizing , eliminate urinal smell or other smell.

14)Pet house – Deodorant , sterilizing , eliminate stink smell , prevent allergy.

15)Smoking chamber/Gambling room – Eliminate smell of nicotine , stink smell , air purifying , oxygen generating to refreshing.

16)KTV Chamber – Deodorant , remove smoking smell , air purifying .

17)Car – Deodorant , remove smoking smell , air purifying , oxygen generating to refreshing.

Utilize in water :

1)Vegetable cleaning – Pesticide dissolving , sterilizing , fresh maintaining.

2)Seafood cleaning – Eliminate fishy smell , sterilizing , fresh maintaining.

3)Meat cleaning – Sterilizing , fresh maintaining .

4)Kitchen cleaning – Deodorant , sterilizing , oxygen generating , water purifying .

5)Bath room –Beautifying use , remove cosmetic use , sterilizing , deodorant.

IONIZER

- * Ionizers **DO NOT** purify the air!
- * Ions cannot kill mold or bacteria!
- * Too much ionization turn walls black!
- * Ionizers are “toys” compared to a real ozone generator.
- * Ionization may make the air “smell” fresh but as soon as you turn the unit off the effect is over . Meaning that ionizer never removing the source of the odors ,but just covering them up.

Ion generators

Ion generators simply negatively charge the air’s ions so that floating dust particles will cling to a surface in the room , much in the way static electricity does.

Problems with Ion generators:

- * to perform air cleaning with ionization , meaning removing pollutants , you need a very large amount of ions .More than has been recognized as a safe level .According to air science : indoor air has 100 to 200 ions per cubic cm , outdoor fresh air has 200 to 500 ions per cubic cm , and a fresh clean forest will have 1,500 to 5,000 ions per cubic cm.
- *Ion generators typically produce more than 1,000,000 to 10,000,000 negative ions per cubic cm . Some machines even boast an output of 500 trillion negative ions per cubic cm!

This is simply too much

- *Overuse of negative ionization push dust particles to the walls and floor .In fact for ionization to be truly effective, ionizers must generate so many ions that they cause headaches and sore throats.

MORE IS NOT ALWAYS BETTER!

The fact is even with this overabundance of ionization there is only limited temporary **air cleaning** being done and **zero** air purifying being accomplished. Nothing is being killed by the ions .Nothing is being purified.

In other words ionizers are simply pushing around the floating dirt to the surfaces in your room!

TOO MUCH IONIZATION TURNS WALLS BLACK!

The problem with this is that the same dust can be kicked right back into the air for you to breathe. The dirt that does not begin to float

again will stick to whatever surface is close after a few months walls , floors ,appliances , and furniture begin to build up a layer of dirt on them. If put an ionizer on a table near a wall, the wall will develop a black halo of dirt in just a couple of days.

For those claim to have plates that collect the dirt. In truth ,they can only collect less than 5% of the dirt. The other 95% of the dust , bacteria , and mold spores end up on your walls , floors, and belongings.

***Our Ozone generators produce reasonable levels of negative ions of about 10,000 to 30,000 per cubic cm ., which is more than enough to gain the positive benefits of negative ionization.**