

Introduction

The heart of every ozone system is the ozone generator. Ozone (O₃) is created from Oxygen (O₂) in nature and in ozone generators. However Ozone (O₃) quickly reverts back to molecular Oxygen (O₂). Ozone cannot be stored due to a short shelf-life and must be produced on-site and on-demand.

Ozone is produced from electrical discharge, commonly referred to as a spark. Great deals of ozone are produced from lightening during a thunderstorm.



Industrial and commercial ozone applications use Corona Discharge ozone generators almost exclusively. There is an almost infinite number of variations to the fundamental corona discharge principle. Fundamentals of a diffused electrical discharge through a dielectric material creates a corona discharge to generate ozone.

Any electrical discharge, or spark will create ozone. The spark will split the oxygen molecule (O₂) found in ambient air into elemental oxygen (O). These Oxygen atoms will quickly bind to another oxygen molecule (O₂) to form ozone (O₃).

The electrical energy used in ozone generation splits the oxygen molecule.

In a corona discharge ozone generator, the electrical discharge will take place in an air gap within the corona cell designed specifically to split the oxygen molecule and produce ozone. In this air gap, a dielectric is used to distribute the electron flow evenly across this gap to spread the electron flow to as great a volume of oxygen as possible.

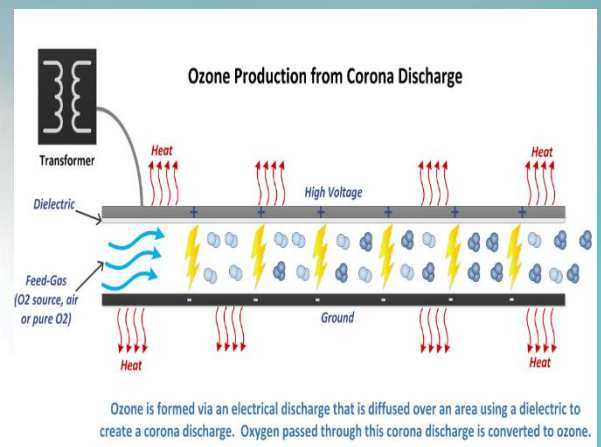
Creating a corona discharge with high voltages and great deals of energy to push through a dielectric barrier will create great amount of heat. In every corona discharge, ozone generator heat will be created that must be removed from the ozone generator. Corona discharge ozone generators can be either air cooled or water cooled. In either case, excess heat must be safely removed from the corona cell as ozone production will be reduced with excess heat due to the decreasing shelf-life of ozone as the temperature increases.

Ozone is produced from oxygen. Oxygen is present in our ambient air at a level of about 20%. Using air to produce ozone will work and will produce ozone from the oxygen in ambient air. However, if a higher concentration of oxygen is used, more ozone will be produced. Many ozone generators will implement an oxygen concentrator to increase oxygen levels in the feed gas and increase overall ozone production.

With either air or oxygen feed-gas it is extremely important that this air is perfectly clean and dry to eliminate the potential of creating dangerous by-products during ozone production.

The dielectric material used to diffuse the spark into a corona is of Quartz material.

Corona cell to house the dielectric material and provide the anode and cathode for the corona to originate from is a flat plate, or conical tube and is constructed of Stainless Steel, Aluminum, or other ozone resistant materials. A High voltage transformer to increase voltage of the electrical discharge.





+ve of Ozonization Technology

- Removal Of Pathogens like viruses, bacteria, fungus & mold, fungal pathogens, protozoa, cysts, algae, yeasts.
- Reduction of Chemical Oxygen Demand (COD) / Biological Oxygen Demand (BOD)
- Removal of VOC
- Minerals removal
- Pesticides removal
- Decolourisation without sludge
- Sludge digestion
- De -ammonification
- Denitrification
- Removal of H₂S
- Removal of endocrine disrupting substances.

Advantages

Ozone has 4 major Advantages.

- Strongest Oxidiser (next only to fluorine)
- Most broad spectrum Disinfectant
- Best Deodorising agent
- Best Bleaching Agent

The benefits are the strength of the disinfection and the lack of potentially harmful by-products like trihalomethanes (THMs).

Applications

Ozone is found very significant and safe due to its nature as an allotrope of oxygen and being high on oxidation potential.

Air treatment	Bottle water
Swimming pools	Laundry
Sewage treatment plant	Effluent water treatment plant
Cooling Tower	Agriculture
Poultry	Aquaculture
Food processing	Odour Control
Pharmaceuticals	Cold Storage

Product Features

- Ready to use ozone system
- Compact and Wall mountable
- High voltage and High frequency corona discharge
- Long life quartz ozone electrodes
- Air or water cooled electrodes
- Over current, over temperature protection
- Lowest power consumption in its class
- Variable ozone output (0-100%)

Models

Models *	Ozone Capacity (gm/hr)	Max. Concentration (weight)	Feed gas flow (lpm)	Electrical Rating
CF 1-200G	1-200	2-12%	3-30	230 V, 50 Hz, 80-2840W

*Customized according to application & requirements.