



Ozone Technology For Air & Water Treatment



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About *Ozone Engineers*



Ozone Engineers is one of the leading manufacturer of Ozone Generators, Oxygen Concentrators, Ozone accessories and allied product based in Tamilnadu, India, established in 2012.

We exports our products and their services to more than 35+ countries.

"we unite to make the world better" is the underlining moral for Ozone Engineers to continuous improvement of engineering research, customer satisfaction, top quality products, clean manufacturing practices and best after sales and services.

We manufacture Ozone Generators ranges from 500mg to 2 KG machine for various water and air applications.





Mission

Our mission is to bring leading edge technologies in Ozone Disinfection System. Ozone Engineers will accomplish this mission through implementation of our core values, which include.

- 💧 Exceptional product performance
- 💧 Quality service to back up our products
- 💧 Creating long term, value-added relationships with our customers and strategic partners
- 💧 Continuous product improvement to meet the needs of our customers and the marketplace

Vision

Our vision is to become the global leader in Ozone Disinfection Systems to treat water and wastewater in varied industries and applications. We will develop a suite of leading edge products based on customer needs, experience, and demonstrated performance. With a committed workforce, solid financials, a presence in key global markets and our presence in key geographic markets enable us to be closer to our customers. This provides a better understanding to the specific requirements and regulations in these regions. ***Our organization is built around four pillars***



💧 **Research & Development**

💧 **Marketing**

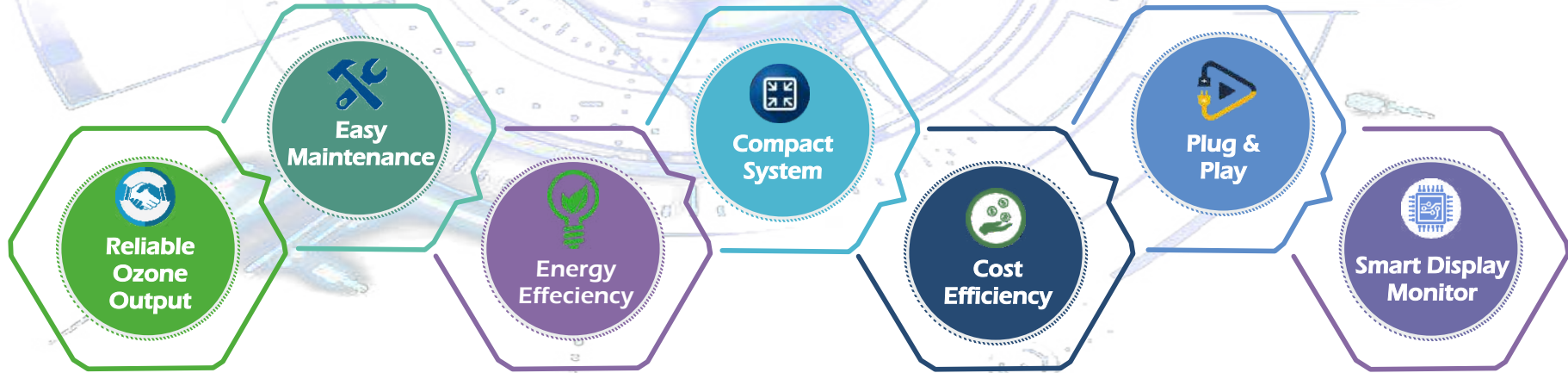
💧 **Manufacturing**

💧 **Customer Service**

WHY Ozone Engineers?



WHY Ozone Engineers Product ?





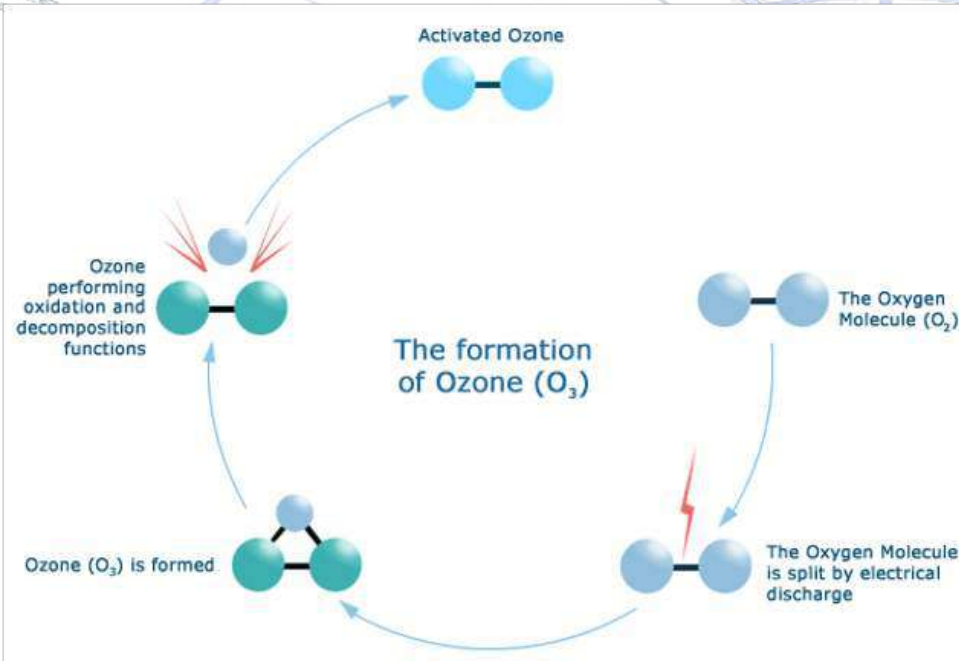
About Ozone

The chemical reaction that results in ozone is pretty simple. Ozone is a form of oxygen that is created when electrical energy breaks apart an ordinary oxygen molecule (O₂) starting a chemical reaction that results in ozone (O₃).

Electrical energy breaks the ordinary O₂ molecule into two O₁ atoms

The free oxygen atoms unite with other O₂ molecules to produce ozone
 $(O_1) + (O_2) = (O_3)$

How is Ozone Generated ?



Ozone is an unstable molecule because the 3rd oxygen atom is connected to the other two atoms with a weak bond (symbolized by the single line in the diagram). The weak bond is why ozone is such a powerful sanitizer

PHYSICAL PROPERTIES OF OZONE:

Formula : O₃

Colour : Colourless Gas

Melting point : -193°C

Boiling point : -112°C

Density : 2.14 g/ltr.

Solubility in water @ 20°C : 0.381 ltr. O₃ /ltr water

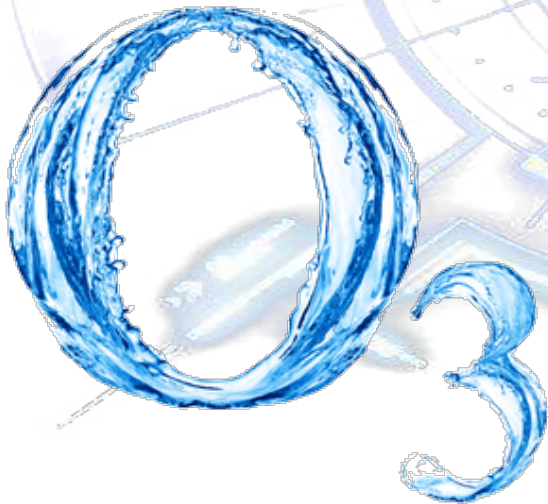
Solubility in water @ 60°C : 0 ltr O₃ /ltr water

Strong UV adsorption @ 254 nm



OZONE OXIDATION IS NATURE'S

Ozone (O₃) is a form of oxygen that has one more oxygen atom than the atmospheric oxygen (O₂) we breathe. It's this third oxygen atom that makes the ozone molecule so unstable, which is the key to its oxidizing power. Since ozone is unstable, it has a fairly short half-life under normal conditions, so it has to be produced and supplied continuously to a disinfection process.



THE BENEFITS OF OZONE

- 💧 Ozone is 51% more powerful bacterial cell walls than chlorine.
- 💧 Ozone kills bacteria 3000 times faster than chlorine.
- 💧 Ozone is a most powerful broad spectrum microbiological control agent available.
- 💧 Ozone eliminates the use of hot water and conventional sanitizers.
- 💧 Ozone virtually eliminates all chemical usage.
- 💧 Ozone is chemical free, it produces no toxic byproducts.
- 💧 Ozone has full FDA approval, for direct food contact application.
- 💧 Ozone is clean and environment friendly, its only byproduct is oxygen.
- 💧 Ozone is extremely effective as a disinfectant at relatively low concentrations.
- 💧 Ozone is very inexpensive to produce and has an unlimited supply.
- 💧 Ozone extends the shelf life of food products.
- 💧 Ozone permits recycling of wastewater.
- 💧 Ozone reduces TOC, COD and BOD from the water.

Air Treatment



Ozone can be safely used in real time to significantly reduce or even eliminate odors as they are created by industrial processes.

A properly implemented ozone solution will result in odor removal indoors and out leading to reduced neighbor complaints and a better work environment.

Ozone Advantages

Ozone Works Fast

No Harmful By-Products (green technology.)

Ozone is Safe

Automated Operation

Improved Air Quality and Work Environment

Eliminate Odor Complaints

Hospital Operation Room

Hotel Rooms

Indoor Air Treatment

Printing Process Industry

Packing Industry

Drinking Water

Key Benefits

- ❖ 100% Bacterial free water
- ❖ Improve taste of the water
- ❖ Increases self-life of the water
- ❖ Removal of organic matter
- ❖ It produces No toxic by-products
- ❖ Increases DO level in water
- ❖ Removal of micro-pollutants, such as pesticides
- ❖ Ozonated water boosts the immune system
- ❖ The International Bottled Water Association suggests residual ozone level of 0.2 to 0.4 ppm



Food & Beverage



- ❖ Longer Shelf Life
- ❖ Water and Energy Efficiency
- ❖ Lower Cost in Waste Water Disposal
- ❖ Air-born Microbiological Control
- ❖ Ethylene Removal
- ❖ Instant Pathogen Destruction

❖ Reduction of Surface Contaminants

❖ Pesticide Removal

❖ Hygiene Foods

❖ Zero Chlorine

❖ Environment



Ozone Generator for Laundry



Key Benefits

- ❖ Chemical Savings – Ozone replaces many of the current chemicals used.
- ❖ Water Savings – Less rinsing of laundry during the cycle saves water.
- ❖ Electrical Savings – Less rinsing lowers rinse cycles reducing electrical costs.
- ❖ Natural Gas Savings – Cold water can be used when laundering with ozone, lowering the energy necessary to heat the water.
- ❖ Labor Savings – Lower chemical usage lowers the necessary rinse cycles, this in turn lowers necessary labor



Swimming Pool

Key Benefits

- ❖ Makes the water Non-Carcinogenic
- ❖ Oxidizes trace metals in the water.
- ❖ Ozone usage will reduce chlorine usage by 90%.
- ❖ Creates very healthy water for swimming.
- ❖ Gives the water a sparkling appearances.
- ❖ Ozone increases the shelf life of the pool water.
- ❖ Ozone oxidizes residual organic present in water.
- ❖ Ozone reduces TOC from the water.
- ❖ Leaves no residue on water.
- ❖ Removes Odor and Colour from the water.
- ❖ Removes Chlorine odors and its by products
- ❖ No Eye irritation, skin rash, Hair & Skin bleaching
- ❖ Ozone oxidizes sweat, sputum, saliva, etc.,



Ozone Generator for Sewage Treatment Plant

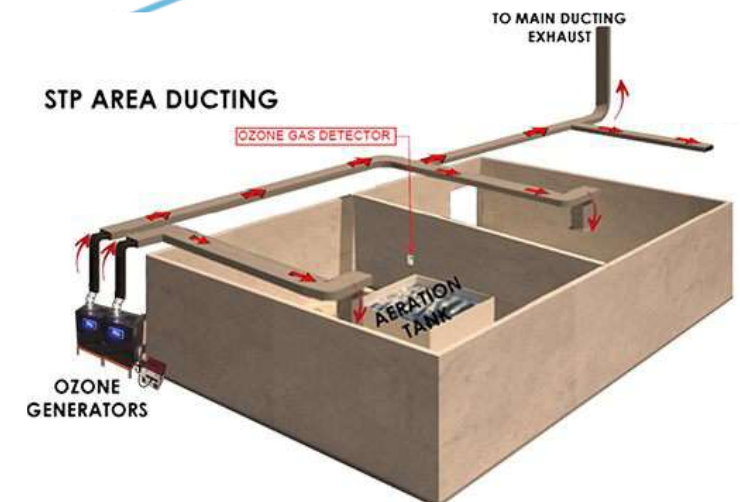
- ❖ Removes the colour & odor from the water
- ❖ Ozone reduce COD, BOD in water
- ❖ Reduces total organic compound
- ❖ Ozone permits recycling of wastewater
- ❖ Less sludge production, Zero discharge
- ❖ Highly suitable for inconsistent sewage
- ❖ Low space requirement, Low operating cost
- ❖ Powerful oxidizing agent
- ❖ Ozone treated water can be used for flushing, irrigation, construction and many more



Odor Removal

Key Benefits

- ❖ Ozone oxidizes odorous gases instantly
- ❖ Ozone can kill bacteria, viruses, fungi etc.
- ❖ Adjustable ozone sensor (0.02 – 1 ppm)
- ❖ Saving intake of fresh air from outside for dilution Odors in indoor environment.
- ❖ Ozone does not produce any hazardous by products
- ❖ Ozone system is suitable for achieving reduction in volatile organic compounds, and reducing organic.
- ❖ Easy to control ozone concentration by output control and automated on/off timers.



Cold Storage

Key Benefits

- ❖ Ethylene Removal.
- ❖ Surface sanitation can be maintained.
- ❖ Maintain an odor-free cold storage area.
- ❖ Air-borne microbiological control.
- ❖ Keep odors from cross contaminating between products.
- ❖ Extend shelf-life of the produce within the cold storage facility.
- ❖ Reduced food spoilage microorganisms. (including spores)
- ❖ Eliminate mold growth from cold storage area.
- ❖ By inhibiting microbiological growth pathogens on the surface of produce, containers, and walls will be kept to a minimum.
- ❖ High ozone levels can be used for disinfection when room is empty.



Aqua Culture

Key Benefits

- ❖ **Powerful Germicidal Agent than Chlorine**
- ❖ **Destroys all Types of Microorganisms**
- ❖ **More Dissolved Oxygen Directly to the Roots Helps to increase in Yields**
- ❖ **Minimizes Condenser Fouling**
- ❖ **No Chemical Residue**
- ❖ **Improve Water Quality**
- ❖ **Increase Production**
- ❖ **Enhanced Disease Prevention**
- ❖ **Removal of Dissolved Organic Compounds**



Ozone Generator for Household



- ❖ Drinking Water Disinfection
- ❖ Fruits & Vegetable Washing
- ❖ Chicken, Fish & Meat Cleaning
- ❖ Air Treatment
- ❖ Clothes Washing

- ❖ Food Preservation
- ❖ Pets Cleaning
- ❖ Refrigerator odor removal
- ❖ Oral Hygiene
- ❖ Ozonated Bathing



Pharmaceutical



- ❖ Biofilms occur in a wide variety of systems, but are endemic to water systems in the bio pharmaceutical industry

- ❖ Ozonated water leaves no chemical residues, unlike other chemical sanitization procedures, and in ambient water reverts back oxygen naturally. Therefore, it does not need to be flushed as does chemically sanitized water.
- ❖ As a non-specific biocide, ozone reacts rapidly with most hydrocarbons to effectively destroy the biofilms' EPS, and the microbes and organic residue material within these films

Ozone Generator for Poultry

Key Benefits

- ❖ Completely kills bacteria in water like E-coli, Coliform, Salmonella
- ❖ Increase Dissolved Oxygen level in water
- ❖ Reduces Bio-film formation in Pipelines
- ❖ Eliminates use of other water sanitizers
- ❖ Improves feed conversion & layer output
- ❖ Reduces waterborne pathogens
- ❖ Improves animal metabolism
- ❖ Reduces CRD Complaints
- ❖ Ozone reduces Mortality rate



Effluent Wastewater Treatment

- ❖ Wastewater Treatment Processes (WWTP) are used to treat municipal as well as industrial wastewater to meet effluent standards prior to discharge in the natural environment. Wastewater discharges from industrial sources contain a wide range in levels of COD, BOD, TSS and other emerging contaminants (i.e. pharmaceuticals, aldehydes, glycol, amines, alcohols, complex proteins, etc).
- ❖ Disinfection of water using ozone is advantageous compared to more traditional methods, such as chlorine or UV disinfection. Firstly, ozone is more effective at deactivating viruses and bacteria than any other disinfection treatment, while at the same time requiring very little contact time, thus reducing the overall treatment residence time while simultaneously leaving no chemical residues. Due to the high oxidation potential, ozone will effectively degrade microbes and virus, causing cell membrane rupture and decomposition of essential biomolecular components in for example bacteria. ozone can be used to oxidize hydrocarbons of cellular lipid bi-layers to kill contaminant microbes.

Key Benefits

- ❖ Ozone is more effective than chlorine in destroying viruses and bacteria.
- ❖ The ozonation process utilizes a short contact time (approx 10 to 30 Min.)
- ❖ There are no harmful residuals that need to be removed after ozonation because ozone decomposes rapidly.
- ❖ After ozonation, there is no regrowth of microorganisms, except for those protected by the particulates in the wastewater stream.
- ❖ Nanobubble technology more useful to reduce COD level in waste water
- ❖ Ozonation elevates the dissolved oxygen (DO) concentration of the effluent.
- ❖ The increase in DO can eliminate the need for reaeration and also raise the level of DO in the receiving stream.



Our Products Ranges



Fully Automatic Ozone Skid System

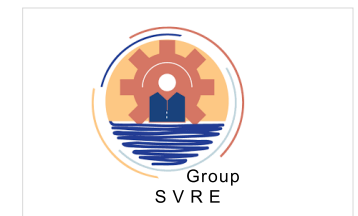
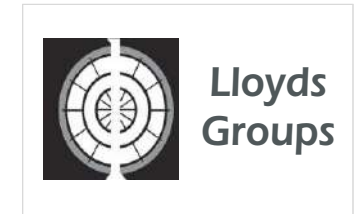
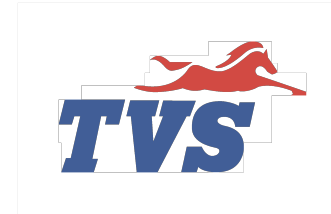


PSA Oxygen Plant

Our Products Ranges



Our Major Clients



Our Major Clients



Science • Sustainability • Social Impact



AGRI EXIM



Site Installations Photos

Nanobubble Installation - STP & ETP



Site Installations Photos

Ozone Installation - STP & ETP



Site Installations Photos

Ozone Installation - STP & ETP



Effluent Treatment Results

Sodium Sulphate Effluent



Tannery Effluent



Tobacco Effluent



Textile Effluent



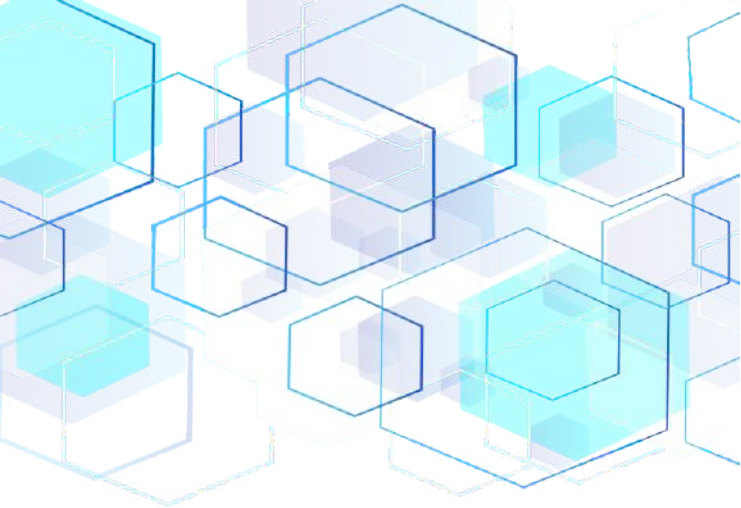
Site Installations Photos

Ozone Instillation - Drinking Water & Air Treatment



Our Global Presence in 35+ Countries





Go Green with Ozone

Save the Nature

