For a Healthier Lifestyle

“Provide A Safe, Good Tasting, Aesthetically Pleasing & Sustainable Storage Stable Product”

Packaged Drinking Water

The mineral water shall be manufactured and packaged under hygienic conditions in properly washed and cleaned bottles.

Market Potential

The bottled water industry is estimated to be whopping Rs 1600 Cr business in India. In fact the fastest growth in the consumption of bottled water in the world has been recorded in India according to a new study conducted by the US based earth policy institute.

Growing at the rate of about 40% over the last 4 years, Indian bottled industry is the fastest growing in the world. India is the tenth largest bottled water consumer in the world.

Unfortunately safe potable water is not available everywhere in the country. Either harmful chemical substances are found in the layers of earth which enter into ground water or it may be contaminated due to pathogenic micro-organisms, which paves the way for the growing demand of the bottled water. This also speaks volumes of the scarcity of clean drinking water and the quality of tap water. Using bottled water has also become a symbol of healthy lifestyle emerging in India.

Bottling

Packing is done in PET bottles of various sizes, from 250 ml to 2 liters, and standard 20 liter bottles, through an automatic rinsing, filling, and capping machine.

TES Ozone Generators

Ozone is typically produced by the corona discharge(CD) method. Techonozone Generators are based on advanced Ceramic Electrode based Technology. The Generator houses tubular ceramic electrodes suspended within the tubular-shaped shell. The electrode, as suspended, forms an annular space of uniform width between the shell and the electrode, which space serves as the discharge gap. The CERAMIC electrode acts as a Di-electric electrode. A high voltage/high frequency (provided by IGBT technology) is passed across the electrodes resulting in Corona discharge between the electrodes.

For the production of ozone, ambient air can be used (supplied by a compressor) or pure oxygen (supplied by an oxygen generator). To condition this air, air dryers and dust filters are used. When Oxygen is passed through the discharge gap the oxygen molecules break up to form Ozone gas. In the ozone generator, the corona-discharge element is present, which provides a capacitive load. In here ozone is produced from oxygen as a direct result of electrical discharge. This corona-discharge ruptures the stable oxygen molecule and forms two oxygen radicals. These radicals can combine with oxygen molecules to form ozone. Ozone is tri atomic Oxygen. That is it contains three compounds of oxygen molecule.

The generation of ozone is very energy-intensive, with some 90 % of the power supplied to the generator being utilized to produce light, sound and primary heat. Important factors that influence ozone generation are: oxygen concentration inlet gas, the CERAMIC di-electric, cooling water temperature and electrical parameters controlled by our internally designed electronics board. To minimize the energy that is used at a high ozone yield, it is important that these factors are optimal

The CD process, generates a very large amount of heat as the input voltage is stepped up to several thousand volts using built-in transformers. We are the only manufacturer in India, using an in-house developed Ceramic coating technology for the electrodes, which is the heart of an Ozonator. Typically other Ozonator manufacturers use glass electrodes, which tend to have a very short life of a few months, before they crack or puncture, in the ozone formation process.

Most other sources of Ozonator are resellers of the product, and do not have control on the quality of the product. We manufacture all our products at our factory, where we also have an in-house Research and Development team. For more information about us and the product technology please visit our website, www.technozone.in

Technical Aspects

Typical RO water treatment and Bottling Process:

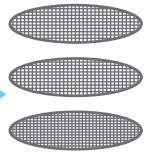
Step 1:
Raw water to be processed is collected in tanks. A known quantity is pumped into the above tank where the water is dozed with alum for coagulation with heavy metals or insoluble matters. The water after coagulation is allowed to settle for an hour.

Step 2:
The supernatant water is taken to the chlorination tank where primary disinfection is brought about by adding Sodium hypochlorite.

Step 3:
The water is then passed through pressurized sand filters for trapping of undissolved impurities.

Step 4:
The water after sand filtration is passed through Activated Carbon filters for removal of pesticide contamination, odour, colour and also for de-chlorination.

Step 5:
Then it is passed through the Reverse Osmosis Plant for the removal of Dissolved solids. This process eliminates dissolved impurities like unwanted salts.



Step 6:
It is then passed through series of micro fillers comprising 5 micron, 1 micron and 0.4 micron filters.

Step 7:
Followed by ultraviolet system. For Effective disinfection Water is required to be exposed to UV light of wavelength 245 nanometers (nm), at a dosage of 16000 microwatt/sq.cm at 40° C.

Step 8:
Finally by Ozonation, by using a suitably sized Ozone generator with the correct dosing, from a reputed manufacturer. This is the strongest oxidizer and disinfection agent which acts on broad spectrum of microbiological organisms Typically the dosing recommended is 2 to 2.5 ppm. This is because, at the time of bottling the water, a residual ozone concentration of 0.3 ppm is expected. Most of the initial dose of 2.5 ppm, will be consumed by ozone demand of the water to treated. Then there is a time lag of a few hours sometimes, from the final treatment to bottling process. During this time lag the ozone residual is further reduced due to the natural instability of ozone.

While the above mentioned typical RO process, uses ozone in the final step of the disinfection process, capitalizing on the known properties of ozone relative to pathogenic microorganisms, there are several other properties of Ozone that could be put to effective use in the pre-treatment steps and during the RO process.

Useful Properties of Ozone

Micro-flocculation: This property makes the smaller sized particles to form a floc or larger sized particles, which are then filtered by standard filters. This is the phenomenon by which organic material, when partially oxidized, becomes more polar. The raw water always contains polyvalent cations, like calcium, magnesium, iron, aluminum, and manganese, these organic polar groupings combine with the polyvalent cations. Micro Flocculation and Sterilization properties of Ozone:

- Complex materials are formed which are insoluble and can readily be filtered. This effectively reduces turbidity.
- In addition, turbidity forms through the suspension of microscopic particles or colloidal particles which can be organic or inorganic in nature. These particles often have the same electrical charge – namely being positive. Ozone has a negative charge, and upon reaction, the particles are neutralized and will precipitate.
- In general, ozonation can be made part of the Pre treatment process to benefit from this micro-flocculation property.

Benefits of micro-flocculation effect of Ozone

- Reduction or complete elimination of coagulants like Alum, Ferric Chloride and lime in the pre-treatment.
- Ozone can also be called as a sterilizer and not only a disinfectant. Chlorine can be eliminated.
- By micro flocculation with Ozone the pH is not altered.
- Contact time is very less.
- Through micro flocculation the load on the activated carbon is less, as the formed insoluble complex particles can be filtered in the Pressurized Sand filter.

Heavy Metals

Heavy metals such as Arsenic, cadmium, nickel can be precipitated by ozone. Metals such as, Iron, Manganese are effectively oxidized. Iron in the ferric state is oxidized to ferrous oxide by ozone. This is then allowed to settle.

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