The Clearwater Pureox 3500 ClO2 system is a simple, high efficiency, Chlorine Dioxide Generator – one of the most efficient solutions for ensuring water purity. Pureox prevents the build-up of microorganisms and biofouling within water systems, including, domestic, drinking and process water systems, providing peace of mind for building owners and operators.

It's impractical to transport ClO2 because it can become unstable with the wrong combination of concentration, pressure and temperature. ClO2 is therefore normally produced on site using various methods of generation, some of which are more efficient than others. We believe that the Clearwater Pureox 3500 range offers the safest, purest, most-stable production of Chlorine Dioxide, ensuring that all of the Chlorine Dioxide is used at the point of application, while optimised reaction ensures the purest of Chlorine Dioxide is being produced at all times.

The Clearwater range of ClO2 generators overcome many of the historical drawbacks of two-pack Chlorine Dioxide generators through the use of a unique, sequential, batching system.

**How It Works**

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**The Pureox 3500 range**

<table>
<thead>
<tr>
<th>Pureox Unit</th>
<th>Volume Treated/hr</th>
<th>Volume Treated Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pureox 10</td>
<td>20</td>
<td>480</td>
</tr>
<tr>
<td>Pureox 20</td>
<td>40</td>
<td>960</td>
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<tr>
<td>Pureox V2-30</td>
<td>60</td>
<td>1700</td>
</tr>
<tr>
<td>Pureox V2-40</td>
<td>80</td>
<td>1920</td>
</tr>
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<td>Pureox V2-50</td>
<td>100</td>
<td>2400</td>
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<td>Pureox V2-80</td>
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<td>3840</td>
</tr>
<tr>
<td>Pureox V2-100</td>
<td>200</td>
<td>4800</td>
</tr>
</tbody>
</table>

**“prevents the build-up of microorganisms and biofouling within water systems...providing peace of mind for building owners and operators”**
Chlorine Dioxide (ClO₂)

The primary use for Chlorine Dioxide in the Global Water Industry is as a disinfectant for contaminated water systems. It is particularly effective against a wide range of pathogenic microorganisms including Legionella, Pseudomonas and Cryptosporidium.

Why Chlorine Dioxide Is the Best Solution

1. Disinfection gas diffuses into Biofilm to destroy organisms where they proliferate, burning through the surface of the Biofilm, allowing deeper penetration and oxidising within, thus retarding the re-establishment of the bacteria.

2. ClO₂ is not pH dependent as most standard disinfectants and can work between a range of pH 1–10 without the depletion of its performance as a biocide.

3. In many disinfection applications it is considered a superior biocide, as compared to Chlorine and other oxidising agents that are associated with THMs, Chlorinated Phenols and Chloro-organics and highly toxic non-oxidising biocides.

4. ClO₂ does not form undesirable by-products.

5. It has 2.6 times the oxidising capacity of Chlorine per mg and will react in 1/3 of the time. Therefore it is less corrosive to pipes and equipment at typical treatment levels.

Purenex 3500

Unlike traditional two-pack ClO₂ generators, the Clearwater Purenex 3500 range processes small batches of Chlorine Dioxide by mixing the precursors at the ideal strength for optimal conversion and for a consistent contact period. The point where conversion to Chlorine Dioxide is maximalized, the solution is quickly diluted to the optimal strength for stability (ISO117/1997). This prepared solution can then be used to deliver consistent levels of Chlorine Dioxide during periods of high or low demand, no matter how hard the generator is working.

Where Should You Use Purenex 3500?

- Primary and secondary drinking water treatment
- Disinfection and sterilisation
- Cooling towers and process water
- Bleaching and colour removal
- Waste-water treatment

Source: SHECHMANN – Chambre du Deux – 6 30 53 12 December 2005

Chlorine Dioxide (ClO₂) can work between a range of pH 1–10 without the depletion of its performance as a biocide.

Applications

Secondary Disinfection and Health Care

Immune-compromised individuals are most susceptible to waterborne pathogens. In the EU, regulations require hospitals, nursing homes, and low-care facilities to have a Legionella and pathogen control program in place with the Technical Memorandum (TM 6-01 Addendum issued by the Department of Health (England)). The use of Chlorine Dioxide is the ideal solution as part of these pathogen control programs.

- Dose: the in-diy generation of Chlorine Dioxide as a chemical for drinking water treatment is subject to BSEN 12671. (ISO-01 stipulates that Chlorine Dioxide-generating equipment should be selected to ensure product efficacy of greater than 90% to provide the optimum performance for the intended application. It is important to use a technology such as Purinex 3500 which is capable of generating a high-purity product stream ensuring this requirement is met.

Chlorine Dioxide, as a dissolved gas solution, will pass through membranes in ‘Clean-In-Place’ systems, to provide Biofilm protection both upstream and downstream of the membranes. Chlorine Dioxide produced by ClO₂ systems in Chlorine free, ozone free, and will not attack UF membrane.

Purenex 3500 Technology utilizes prepared batches, containing low concentrations of chemicals that are easy to dose and produce high yield. The Clearwater range of Purenex 3500 generators are WRAS approved - a requirement for many installed items which will carry or receive water treatment

Reversing Osmosis

Chlorine Dioxide treatment is growing in popularity as a tool to control microbiological growth in the dairy industry, the beverage industry, the fruit and vegetable processing industries, canning plants, and in poultry and beef facilities.

Food And Beverage Production

Chlorine Dioxide can be used within the food processing industry as a clean system free from biological fouling.

‘Ensuring improved risk management and water compliance on your sites and facilities’

Water Recycling

Water scarcity is a growing issue in many countries and water-reducing schemes, benchmark programmes and general recycling of water are becoming more commonplace. However, recycled water comes with its own set of microbiological problems.

chlorine, which is typically used to disinfect this water, does not achieve the microbiological purity necessary for most commercial and industrial applications. Chlorine Dioxide is a natural solution for point-of-use disinfection where microbiological purity is required, when dosed at levels that conform to the 0.8ppm limit of Turkish drinking standards. In the Poultry industry, adding Chlorine Dioxide to the drinking water can stop cross infections of birds, reduce the mortality rate by up to 37% and increase the bird yield by 17%.

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