



Potable and Waste Water Treatment with the PeroxEgen™ H₂O₂ Water Treatment System

PeroxEgen™:

- On-site H₂O₂ source eliminates transport, handling, storage issues
- Turn-key operation; modular system that scales to application demands
- Combines with existing UV or ozone treatment to create powerful organic destruction and microbial disinfection

Wastewater treatment facilities all over the world are seeking cost-effective solutions that will help them meet FDA regulations and protect the health and general welfare of consumers. The demand for potable water increases constantly along with population growth. And with new sources becoming harder to find, the demand for technologies that enable convenient, and highly effective treatment of freshwater and wastewater is continually increasing.

Enhance UV and Ozone Treatment

PeroxEgen, a turn-key, mobile electrolytic technology available from Eltron Water Systems, generates H₂O₂ on-site for a variety of water treatment, advanced oxidation, and cleansing applications. PeroxEgen requires only water, air (or molecular oxygen), and electricity as consumables for water treatment and allows pH to be controlled for a variety of applications.

PeroxEgen can be operated in flow-through mode for direct treatment at low H₂O₂ concentrations (<100 mg/L) or in batch mode, recirculating H₂O₂ to build up higher concentrations (up to 4500 mg/L, concentration limit dictated by electrolyte strength and pH). Unlike bulk catalytic production methods, Eltron's electrolytic process is virtually insensitive to temperature. Adding PeroxEgen into an existing UV or ozone treatment system can produce an advanced oxidation system for freshwater/drinking water treatment that provides very powerful, cost-effective organic destruction and microbial disinfection. Further, this creates a convenient method for significantly improving taste and odor in drinking water containing organic and inorganic contaminants. The combination of H₂O₂ and UV radiation to produce the short-lived hydroxyl radicals (<1 sec lifetime) integrates three very effective organic, inorganic, and microbial destruction methods into a single system that can be operated in batch or flow-through processing modes.



The primary advantage of a combined **PeroxEgen-UV** advanced oxidation process is that there are no chemical residuals, only water and oxygen as byproducts — desirable for potable water and food-grade water treatment. The primary advantage of a **PeroxEgen-Ozone** advanced oxidation process is the residence time of peroxide and ozone to travel to the point-of-use in a distribution system before fully reacting to form hydroxyl radicals. This is desirable for remediation applications such as soil flushing. The PeroxEgen pilot unit shown is capable of 86,000 gpd potable water treatment, in a **PeroxEgen-UV** advanced oxidation process. A scaleable system, PeroxEgen can be used in a variety of applications.

Simplifying the Logistics of Handling H₂O₂

Current methods for generating H₂O₂ require large, centralized industrial facilities. H₂O₂ has to be distributed by truck or rail. Transportation, handling, and storing concentrated H₂O₂ (50%–75%) creates a number of hazards, and meeting the associated regulations imposes more capital investment. Distributing H₂O₂ to remote locations potentially creates significant liability for distributors and increases costs for isolated water treatment and environmental remediation operations. All of these issues are hurdles that have made H₂O₂ use less common or impractical.

Eltron's PeroxEgen technology provides a different method for H₂O₂ delivery — at the point of use — simplifying the logistics, eliminating distribution costs, and minimizing hazards associated with handling and storage. There also are no known regulatory issues for this source of H₂O₂ since the feedstocks are only water and air, and the H₂O₂ concentrations produced are relatively low.

PeroxEgen advantages:

- On-site source of hydrogen peroxide eliminates transport, handling, storage and regulations issues
- Mobile, turn-key operation
- Only consumables and system utilities are water, air, and electricity
- Operates at up to 60°C
- Direct treatment of water in flow-through or batch modes
- No chemical residuals
- Generates cleansers that are effective without surfactants, eliminates chlorinated byproducts and reduces BOD
- Wide variety of water treatment, cleanser generation, and remediation applications is further expanded through combined advanced oxidation processes
- Modular, scalable for a variety of applications

Contact us

To learn more about PeroxEgen and innovative water treatment systems from Eltron Water, visit www.eltronwater.com.

To discuss the possibility of entering into a business relationship with Eltron, contact the Business Development Group at business@eltronresearch.com.



Eltron Water Systems LLC

Eltron Water invents, develops and commercializes innovative, cost-effective water treatment systems that are valuable to industries, utilities, and government organizations.

Science for the Blue Planet™

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