



Eltron Water Systems

Tech Brief

PeroxEgen On-Site H₂O₂ Water Treatment System

Problem Addressed

Chlorine gas is being replaced as the primary oxidizing biocide and oxidant in many industries. The hazards of handling and storing chlorine gas and concerns about the harmful effects of chlorinated organic byproducts to people and the environment is compelling the shift to a safer, more environmentally friendly alternative.

A robust and innovative electrolytic hydrogen peroxide generation technology, PeroxEgen™

- Provides an on-site hydrogen peroxide source for water treatment and cleanser generation
- Is a turn-key, modular system that scales to meet application requirements
- Allows feeding of acetic acid to generator for co-production of H₂O₂ and PAA
- Enables combining H₂O₂ with a UV or ozone system for advanced oxidation treatment capabilities

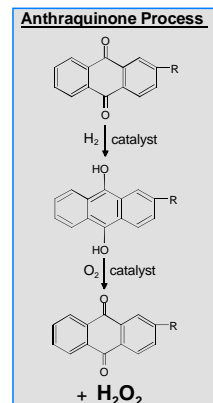
Hydrogen peroxide (H₂O₂) is a well-known oxidizing biocide and oxidant that is effective in many water treatment applications and is environmentally benign; only water and oxygen are byproducts. Using H₂O₂ in advanced oxidation processes that combine ultraviolet (UV), ozone or transition metal activation of H₂O₂ to form the very powerful, but short-lived hydroxyl radical are increasingly used in many water treatment applications.

Combining hydrogen peroxide with acetic acid (vinegar) forms the very effective biocide and sanitizing mixture of peroxyacetic acid (PAA) and H₂O₂. Foods and surfaces treated with this mixture are effectively disinfected without producing or leaving any harmful residuals.



Current Approach

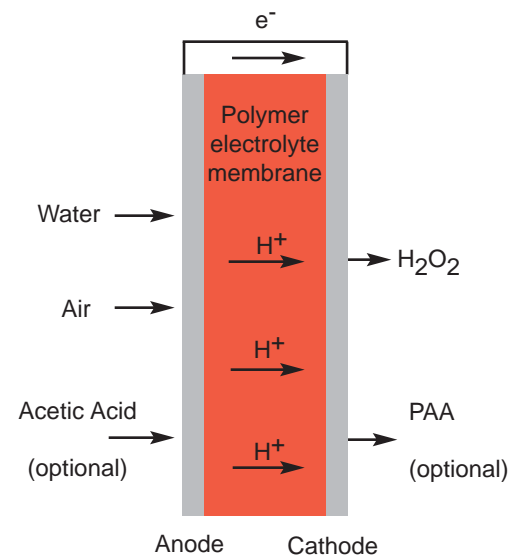
Most of the hydrogen peroxide produced today is made via the anthraquinone process (a two-step catalytic chemical process) at large-scale, centralized plants. H₂O₂ is then shipped to customers in concentrations ranging from 35-70%. Residual organics resulting from this manufacturing process are always present in anthraquinone produced H₂O₂. Additionally, phosphonate-based stabilizers are normally added to keep the H₂O₂ stable.



Eltron's Strategy

Eltron has developed PeroxEgen, a turn-key, mobile electrolytic technology that generates H_2O_2 -- and optionally PAA -- on-site for a variety of water treatment, advanced oxidation and cleansing applications. PeroxEgen requires only water, air, electricity and (optionally, acetic acid) 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 H_2O_2 concentrations. Unlike bulk catalytic production methods, Eltron's electrolytic process is virtually insensitive to temperature and can operate over a wide temperature range.

Eltron's PeroxEgen technology provides a different method for H_2O_2 delivery at the point of use, eliminating distribution costs and the hazards associated with handling and storage. Water treatment costs, H_2O_2 concentrations and production rates are dictated by the particular application and process conditions.



Advantages of Eltron Water Systems' PeroxEgen hydrogen peroxide water treatment system:

- Generates cleansers that are effective without surfactants, eliminates chlorinated byproducts and reduces BOD
- On-site source of hydrogen peroxide eliminates transport, handling, storage issues, regulatory compliance
- Mobile, turn-key operation
- Modular; scales for a variety of applications
- Consumables and system utilities are water, air, electricity
- Operating temperature up to 60°C
- Direct treatment of water in flow-through or batch modes
- No harmful chemical residuals
- Wide variety of water treatment, cleanser generation and remediation applications is further expanded with a combined advanced oxidation process



Contact Us

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

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