



PeroxEgen™ On-Site H₂O₂/PAA Water Treatment System

Eltron has developed PeroxEgen™, a turn-key, mobile electrolytic technology that generates H₂O₂ — and optionally PAA — on-site for a variety of water treatment, advanced oxidation and cleansing applications.

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.

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 a readily available, safe feedstock forms the very effective biocide and sanitizing mixture of peracetic 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. Also, phosphanate-based stabilizers are normally added to keep the H₂O₂ stable.

A robust and innovative electrolytic H₂O₂ 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
- Generates PAA
- Enables combining H₂O₂ with a UV or ozone system for advanced oxidation treatment capabilities



H₂O₂/PAA Water Treatment System
Developed at Eltron Water Systems

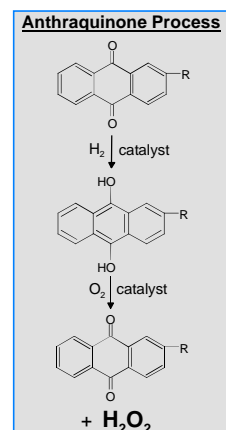


Illustration of the 2-step
anthraquinone process

Eltron has developed PeroxEgen™, a turn-key, mobile electrolytic technology that generates H₂O₂ — and optionally PAA — on-site for a variety of water treatment, advanced oxidation and cleansing applications. PeroxEgen requires only water, air, electricity and (optionally, a readily available generally regarded as safe feedstock) 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 /PAA 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 H₂O₂/PAA delivery at the point of use, eliminating distribution costs and the hazards associated with handling and storage. Water treatment costs, H₂O₂ and PAA concentrations and production rates are dictated by the particular application and process conditions.

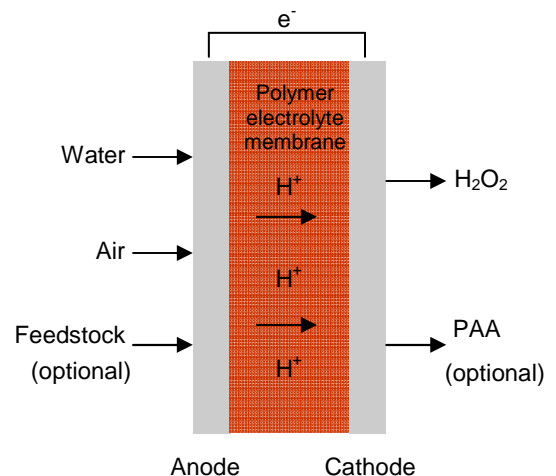


Illustration of Polymer Electrolyte Membrane Producing hydrogen peroxide and peracetic acid

Advantages of Eltron Waters' PeroxEgen H₂O₂ water treatment system:

- Generates cleansers that are effective without surfactants, eliminates chlorinated byproducts and reduces BOD
- On-site source of hydrogen peroxide/peracetic acid eliminates transport, handling, storage, regulatory compliance issues
- 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

Stage of Development

A PAA system developed by Eltron has been installed in a relevant commercial setting. Eltron has six pending U.S. Patent applications and various foreign filings.

The technologies described, and all related inventions are owned by Eltron Research & Development Inc, and protected by copyrights, trademarks, issued and pending patents, trade secrets, or other applicable intellectual property rights.

Contact us

To learn more about PeroxEgen and innovative water treatment systems from Eltron Water, visit www.eltronwater.com or contact: **Peter Hagan, VP Sales & Marketing:** phagan@eltronwater.com; **303-530-0263.**



Every Drop Counts

Eltron Water Systems LLC

Eltron Water invents, develops and commercializes innovative, cost-effective water treatment and disinfection systems.