



MEMBREL* ELECTROLYTIC OZONE GENERATOR



Electrolytic Ozone Generators

Membrel Electrolytic Ozone Generators, part of Veolia's portfolio of Ozonia* Ozone Systems, are the most effective way to disinfect ultrapure water (UPW) systems in industrial and pharmaceutical applications.





EFFECTIVE DISINFECTION OF:

- Ultrapure Water (UPW)
- Purified Water (PW)
- Highly-purified water (HPW)
- Water for Injection

APPLICATIONS

Membrel Electrolytic Ozone Generators are used for UPW disinfection applications in industries where water quality is critical to end product quality. Membrel Electrolytic Ozone Generators are optimized for ultrapure water loops where water is produced, stored and distributed in a closed-loop and used in at multiple points-of-use (POUs) for integration into products.

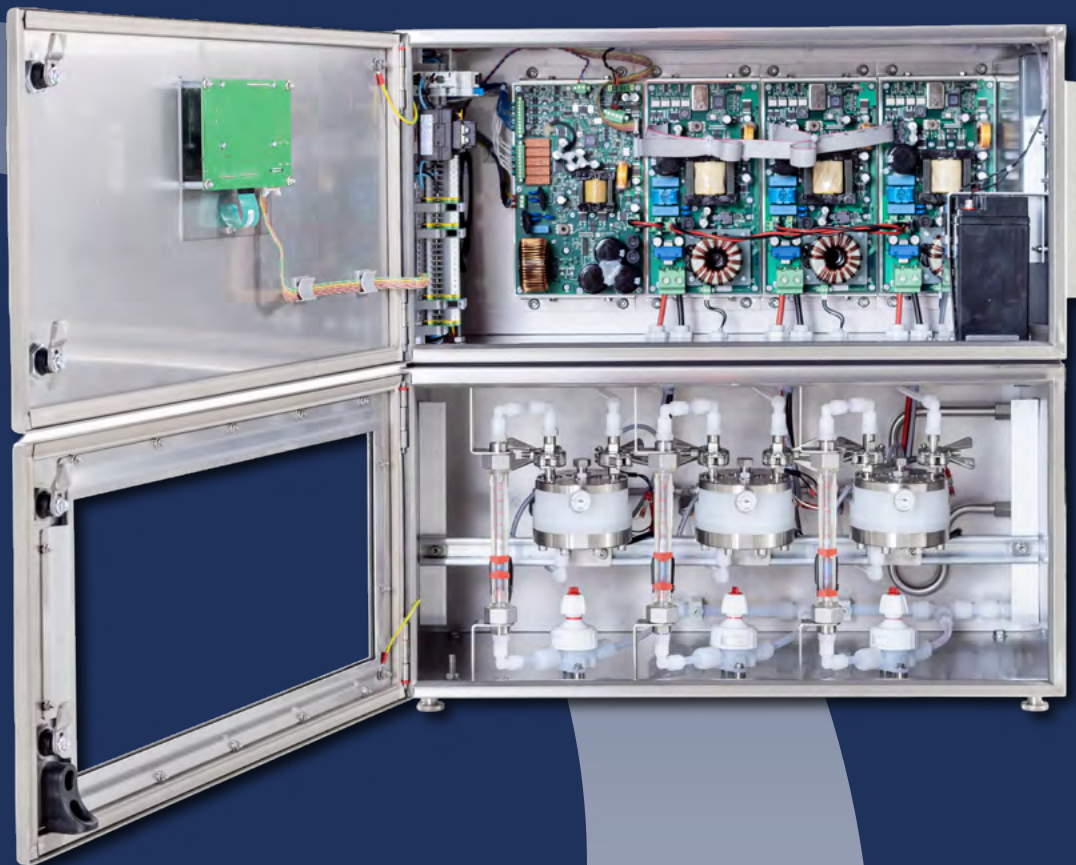
PHARMACEUTICALS
PERSONAL CARE PRODUCTS

COSMETICS
MICROELECTRONICS

TECHNOLOGY OVERVIEW

Membrel MkV Electrolytic Ozone Generators, part of Veolia's portfolio of Ozonia Ozone Systems, are the most effective way to disinfect UPW systems in industrial and pharmaceutical applications. Utilizing advanced solid polymer electrolyte technology and sophisticated electronics, the Membrel MkV delivers superior ozone production efficiency.

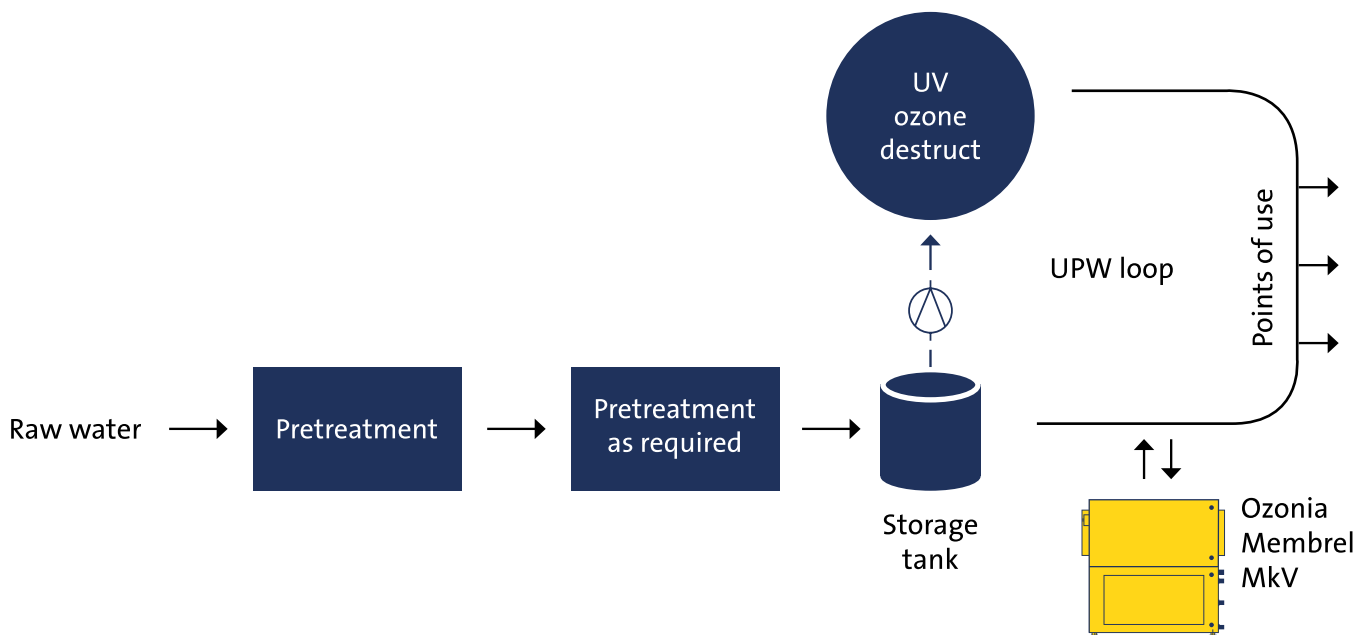
Its unique electrolytic process generates ozone directly from water rather than conventional gaseous feedstocks, enabling seamless integration within PW systems for on-site, on-demand disinfection. The Membrel MkV provides enhanced disinfection efficacy, streamlined operations, and proven reliability – meeting the most stringent industry standards for UPW quality.



HOW IT WORKS

Feed water from the main UPW loop enters the anode chamber where it dissociates into hydrogen and oxygen at the membrane surface. Hydrogen protons pass through the membrane, forming hydrogen gas at the cathode (vented to atmosphere), while some oxygen converts to ozone and dissolves in the water. This ozone-enriched water returns to the main loop.

The Membrel MkV effectively sanitizes PW loops without contaminants, chemicals, or additional treatment. Ozone dosing at 30-100 ppb minimizes colony forming units and biofilm. If ozone is undesirable, a UV ozone destruct unit can be installed before the first point of use.



The Membrel Electrolytic Ozone Generator is part of a large-scale fixed installation (LSFI) for the generation of UPW.

FEATURES

- Delivers scalable ozone production from 3 g O₃/h to 9 g O₃/h
- Utilizes proprietary Veolia technology that generates ozone directly from water
- Eliminates the need for a separate oxygen source
- Compact, space-saving design with integrated flow control
- Straightforward installation and seamless integration into ultrapure water systems
Remote monitoring capabilities for enhanced operational flexibility
- Easily upgradable by adding ozone production cells to expand capacity
- Ozone is instantly dissolved into the process water
- Requires minimal ancillary equipment, simplifying infrastructure

BENEFITS

- Generates ozone directly from ultrapure water for continuous disinfection
- Eliminates external contamination risk for maximum security
- Meets all major pharmaceutical standards and complies with FDA, EN, IEC, ISO, and CE guidelines
- Enhances water quality and system efficiency
- Ensures continuous, reliable performance
- Ideal for critical high-purity applications
- Prevents microbial growth over time



INDUSTRY-LEADING OZONE WATER TREATMENT SYSTEMS

Veolia's Ozonia ozone technology portfolio includes products from the laboratory scale to the largest ozone systems ever built. Veolia uses our extensive ozone technology experience to provide the industry's most reliable and robust products. Our unique ability to deliver the most reliable and robust systems is why thousands of customers around the world have chosen Ozonia ozone systems.

We have been the ozone industry pioneer for over 40 years. Trust Veolia to deliver the highest quality ozone solutions to meet your treatment challenges.

**PRODUCTION
SITES ACROSS 6
CONTINENTS**

**OVER 40 YEARS
OF EXPERIENCE**

**OVER 10,000
INSTALLATIONS**



-
- Production sites
 - ★ Top 5 production sites
 - Oroszlány, Hungary
 - Minnetonka, USA
 - Wuxi, China
 - Rivas, Spain
 - Riyadh, Saudi Arabia

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