

MIOX on-site generators produce a mixed-oxidant solution for water disinfection. The solution leaves a durable chlorine residual yet reduces disinfection by-product formation. Users no longer have to worry about chemical safety, liability, Hazmat training, or evacuation plans. MIOX Corporation or your local agent can provide a complete package, including a water softener, brine generator, filters for brine and water feed, an oxidant tank, and injection system.

SAL Family

Appropriate for smaller water supplies or well sites. Includes automated control unit, power supply, and converter for AC operation. 230 VAC, 50/60 cycle power standard. 110 VAC also available for SAL-30 and -40.

**SAL-30: 1.13 kg/day FAC*
1,130 m3/day at 1 mg/L**

**SAL-40: 1.8 kg/day FAC*
1,800 m3/day at 1 mg/L**

**SAL-80: 4.5 kg/day FAC*
4,500 m3/day at 1 mg/L**

Economy Models

The semi-automated AE unit is ideal for small rural and remote communities, or worker camps. Operator checks parameters and loads salt weekly.

The BPS is a self-contained, non-automated system ideal for emergency response situations, oxidant demand testing, bench-scale studies, or demos.

Both systems operate on 12 VDC power. 110 or 230 VAC is optional.

**AE-1: 0.45 kg/day FAC*
450 m3/day at 1 mg/L**

**AE-4: 1.8 kg/day FAC*
1,800 m3/day at 1 mg/L**

**BPS: 0.22 kg/day FAC*
220 m3/day at 1 mg/L**

Consumer Products

The MSR MIOX Purifier is a hand-held portable device ideal for outdoor enthusiasts, travelers, and military personnel. Device has extended shelf life, so is also ideal for disaster relief situations. Weighs 100g and is 15% of the size of a filtration pump. Leaves no unpalatable taste or odour in the water. Treats 200 litres per battery set.

Purifier: settings to treat ½ litre, 1 litre, 2 litres, and 1 gallon



MIOX Series

Passivated type 304 stainless steel cabinets for harsh environments and safe operation. Can be configured with multiple cell modules for expanded capacity and redundancy. 480 VAC, 3 ph, 50/60 cycle power standard. 208 and 400 VAC available for MIOX-25N through -100N. Communications, datalogging, and RS 232/RS485 serial interface for remote reporting and diagnostics are optional.

Up to 4 Cells per Unit:

**MIOX-25N: 11.4 kg/day FAC* per cell
11,000 m3/day at 1 mg/L per cell**

**MIOX-50N: 22.7 kg/day FAC* per cell
22,700 at 1 mg/L per cell**

**MIOX-100N: 4.5 kg/day FAC* per cell
45,000 m3/day at 1 mg/L per cell**

Unlimited Cells per Unit:

MIOX-250N: 110 kg/day FAC* per cell

MIOX-500N: 220 kg/day FAC* per cell



Government Systems

The P3 is a portable package plant providing filtration, disinfection, and monitoring at USFS sites. Records influent and effluent turbidity and free chlorine going to distribution. Power source can be 110/220 VAC or 12 VDC, configured as batteries, generator, or solar. Service only required every 30 days.

The Marine-40 is licensed to Howell Labs for integration into their Model 7060 EDG for potable water disinfection on Navy ships.

The ROWPU integration unit is designed for use with the US Army's 11,000 L/hr Reverse Osmosis Water Purification Units for final disinfection and reduced biofouling on membranes.

MIOX P3: 0.22 kg/day FAC*

Marine-40: 1.13 kg/day FAC*

ROWPU Unit: treats 11,000 L/hr flow



MIOX Corporation maintains a constant program of product improvement that may affect design and/or specifications. We reserve the right to make these changes without prior notice or liability.

*FAC= Free Available Chlorine

The Mixed Oxidant Advantage

MIOX technology allows the user to eliminate chlorine gas or bulk sodium hypochlorite in water disinfection. The products are based on a proprietary membraneless electrolytic cell that produces a liquid stream of mixed oxidants that are extremely effective in disinfecting water. The electrolytic cell uses common salt, water, and electricity to generate the oxidant solution, which is collected in a tank and injected into water at rates appropriate for treatment objectives.

Safe and easy to operate, MIOX systems are fully automated, self-diagnosing and neither use nor generate hazardous chemicals.



Eliminate Chlorine Gas

THE MIXED-OXIDANT SOLUTION

Anode Reactions

Several reactions are known or possible:



Cathode Reactions

The major electrolytic reaction at the cathode is electrolysis of water:



Bulk Solution Hydrolysis



The sodium ions (Na^+) and chloride ions (Cl^-) in the bulk of the brine provide necessary charge balancing in the cell. (Hydrogen gas is safely vented from the system and poses no safety concern.)

The most easily measured component of the mixed-oxidant solution is free available chlorine (FAC),

the combination of hypochlorous acid and hypochlorite ion. However, the solution exhibits radically improved behavior over traditional hypochlorite solutions, as evidenced by the characteristics described below. These results have been documented by third-party laboratory research and observed in field installations.

CHARACTERISTICS OF MIXED OXIDANTS

- **Superior Microorganism Inactivation.**
Inactivates microorganisms by 1 to 4 logs more than chlorine.*
- **Biofilm Removal.**
Eliminates distribution system biofilms and prevents regrowth.
- **Lower TTHM Formation.**
Typically reduces TTHM formation by 20% to 50% throughout the distribution system.
- **Chlorine Residual Maintenance.**
Reduces initial chlorine dose by up to 30% after the system has stabilized. Maintains a durable residual far beyond what traditional chlorination is able to achieve.
- **Microflocculation.**
Causes a microflocculation effect in clarifiers similar to that of ozone. Can reduce coagulant consumption up to 40%, increase filter runs and reduce sludge handling when used in pretreatment.
- **Oxidation of Iron and Manganese.**
Oxidizes iron and manganese, leading to precipitation of a solid phase that can be removed by standard coagulants and sometimes by filtration and/or settling alone.
- **Oxidation of Sulfides.**
Oxidizes sulfides without creating taste and odor and without first having to satisfy the full background chlorine demand of the water.
- **Ammonia Oxidation at Sub-breakpoint Doses.**
Removes ammonia and chloramines typically at doses well below those required for classical breakpoint chlorination.
- **Improved Taste and Odor.**
Imparts no chlorine taste even with FAC residuals up to 3 mg/L. Does not react to form di- or tri-chloramines, a primary source of taste and odor. Avoids problems associated with algae growth.

* The Centers for Disease Control (CDC) reports inactivation of *Cryptosporidium* with mixed oxidants by > 3.5 logs (>99.95%), as compared to no inactivation whatsoever by hypochlorite at equal FAC residuals.