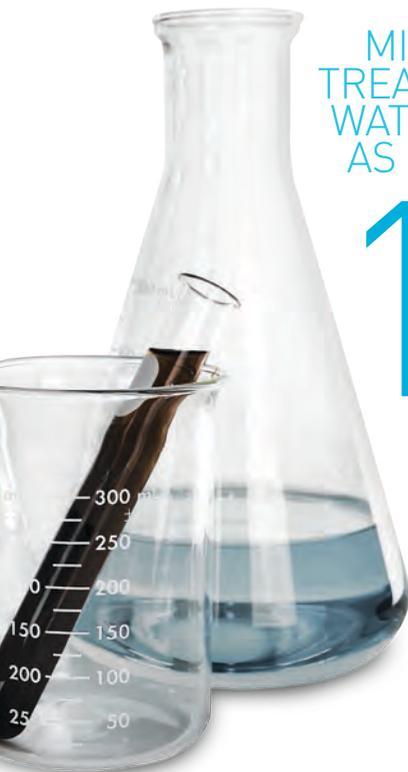


EXPERTS IN  
OIL & GAS

MIXED OXIDANT TECHNOLOGY PROVIDES RELIABLE DISINFECTION FOR MANY OIL AND GAS PROCESSES:

- FRAC WATER DISINFECTION
- SURFACE AND SUBSURFACE H<sub>2</sub>S & ODOR ELIMINATION
- BROAD SPECTRUM BACTERIA ELIMINATION (SRB, APB, ETC.)
- PRODUCED WATER RECYCLING
- WATER FLOOD INJECTION WATER PRE-TREATMENT FOR INCREASED INJECTIVITY
- DISPOSAL WELL WATER PRE-TREATMENT FOR PREVENTATIVE MAINTENANCE
- MEMBRANE CLEANING
- ORGANIC DESTRUCTION
- HYDROCARBON ELIMINATION
- EMULSION BREAKING



MIOX CAN  
TREAT YOUR  
WATER FOR  
AS LOW AS

10¢  
PER BARREL

# ON-SITE GENERATED CHEMICAL AT LOWEST COST WATER TREATMENT

PER  
BARREL

TAKE CARE OF THE ENVIRONMENT WHILE TAKING CARE OF YOUR OPERATIONS.

The oil and gas industry deals with large amounts of water. In 2009, in the US alone, over 18.9 billion barrels of water were managed in the industry. With hydraulic fracturing (frac) on the rise, water volumes used in the oil and gas industry are increasing, and so is the reuse of produced water in these fracs.

All of this water contains microorganisms. While the types of organisms vary widely, the most detrimental to the oil and gas industry are the sulfate-reducing bacteria (SRBs). These SRBs are present in all waters handled in the oilfield, and they sour reservoirs by converting sulfate ions to hydrogen sulfide (H<sub>2</sub>S). The potential for SRB activity is even greater when operations rely on injecting produced water. For this reason, biocides play a major role in frac fluid treatment and any water injected downhole.

The most common are non-oxidizing organic biocides, referred to as 'conventional' biocides. These include glutaraldehydes (glut), quaternary amines (quat) and others. Many SRBs become resistant to conventional biocides, limiting effectiveness and requiring operators to increase the concentrations used. Many conventional non-oxidizing biocides are also carcinogenic, so using more chemicals can present potential health risks for workers.

**Oxidizing biocides fall into the other category of biocides which include sodium hypochlorite (commonly referred to as bleach), hydrogen peroxide, and others. Oxidizing biocides are considered green chemistry and work well against all strains of SRBs.**

Sodium hypochlorite is among the top 10 disinfection chemicals used in the world and was used downhole in the oilfield as early as the 1960s. However, the wide spread use of sodium hypochlorite in the oil and gas industry has been limited by the high costs associated with transporting a product, that is mostly composed of water, to the remote oil and gas fields around the world.



# MIOX ON-SITE CHEMICAL GENERATORS



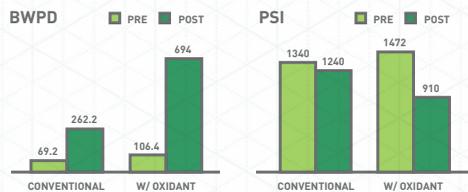
TREAT 1 → 500,000+ BARRELS/DAY

## MOBILE RELIABILITY & PERFORMANCE

MIOX on-site chemical generators have a small footprint, are modular and mobile, require minimal input, and come with a long history of applications. Depending on the specific application, the technology can be applied as a service or as standalone equipment to be leased or purchased.

### INCREASE PRODUCTIVITY

Field data proves that utilizing sodium hypochlorite downhole has increased injectivity and lowered injection pressures. In enhanced oil recovery, lower pressure and increased injectivity directly correlate to increased productivity.



ADDING OXIDANT INCREASES INJECTIVITY AND DECREASES PRESSURE

## ABOUT MIOX

MIOX Corporation designs and manufactures equipment that generates disinfection chemistry on-site and on-demand for oil and gas water treatment, eliminating the need to transport and handle hazardous chemicals. On-site generation technology available from MIOX in the oil and gas industry include disinfection treatment for produced water, frac water, disposal well sites, enhanced oil recovery, and hydrogen sulfide removal. As a technology company that delivers smarter solutions for water disinfection, increased performance and safety and a fast return on investment for our customers remain a principal focus.

MIOX invests deeply in technology and intellectual property, and regularly partners with new industries to develop solutions that meet very unique disinfection needs. With over nineteen years of experience in the water disinfection market and thousands of MIOX equipment installations in over 40 countries, MIOX systems are treating more than 7 billion gallons of water a day. MIOX technology is used in multiple applications though a wide range of products; cost-effectively producing disinfection chemistry from 1.0 to 3,000 pounds per day. Applications currently utilizing MIOX chemistry range from large industrial cooling towers, water and wastewater treatment, swimming pools and clean-in-place applications to oil and gas water cleaning and dairy farm disinfection.

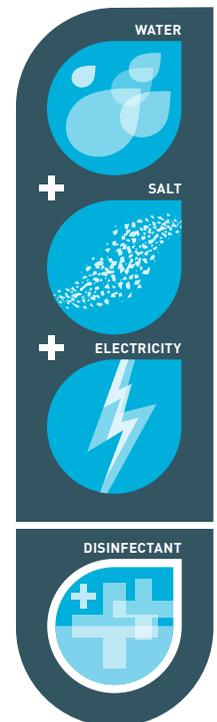
To lease, purchase or for more information, please contact Charles Mowrey at 832.454.5410 or [charles.mowrey@miox.com](mailto:charles.mowrey@miox.com)

## NEW DISINFECTION ALTERNATIVE: POWERFUL, SAFE, ECONOMICAL

MIOX has developed a highly effective disinfection technology for use in the oil and gas industry which creates Mixed Oxidant Solution (MOS) biocide—on location and on the fly—consisting predominantly of sodium hypochlorite and hydrogen peroxide. When applied correctly, MOS can completely eliminate SRBs and all other bacteria.

### ELECTROLYSIS PROCESS

The electrolytic cell of a MIOX on-site generator uses common salt combined with water and electricity to generate high performance Mixed Oxidant Solution (MOS) or hypochlorite, eliminating the need to transport and store hazardous chemicals.



THE MIOX DIFFERENCE

