

# Nature's Own Biocide.



A Rio Ultra Technologies Company



## A Safer Biocide for the Oilfield

Bacteria contamination during hydraulic fracturing or squeeze treatments can cause costly problems for oil and gas producers - impeding production, slowing operations and increasing risk. But traditional disinfection chemicals can be expensive, toxic and hazardous to transport and store.

Eco-Clean O&G anolyte biocide from Aqua Engineered Solutions Inc., changes all that - giving producers a safe, biodegradable and highly effective way to control bacteria in a range of oilfield applications.



Sulphate-reducing bacteria in injection water can produce  $H_2S$ , which is highly corrosive to pipelines, reduces the market value of oil, and can be a health hazard to personnel.

## Bacteria: What Harm Can They Do?

- Form  $H_2S$  and biofilm, causing corrosion and safety issues
- Cause reservoir souring, fouling and permeability damage
- Degrade frac gel and impede stimulation activities
- Cause catastrophic failure of well bores and production facilities
- Foul and corrode water disposal and waterflood system
- Corrode surface pipelines, process equipment and storage tanks

## Eco-Clean O&G Is Ideal For:

- Hydraulic fracturing
- Storage tank sterilization
- Controlling  $H_2S$  in sour production wells
- Waterflood injection water
- Protecting production equipment
- Disposal wells

Aqua Engineered Solutions Inc.

11205 West County Road 72, Midland, Texas 79707

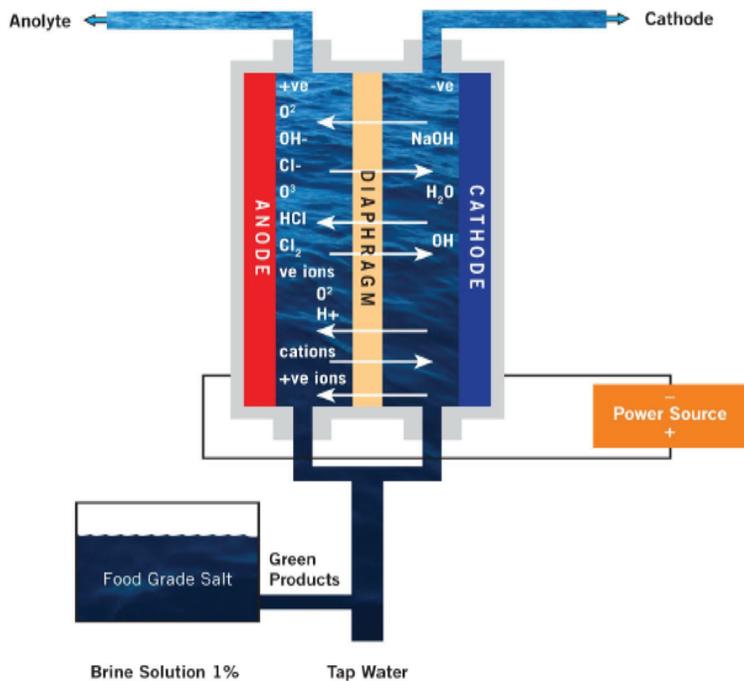
[www.AquaESI.com](http://www.AquaESI.com)

Corporate Phone: 800-590-6711

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# Start a Smarter, Greener Biocide Program Now.

Learn more about our services at [www.AquaESI.com](http://www.AquaESI.com), or Call us at: 1-800-590-6711



## Eco-Clean O&G Manufacturing Process

Our Eco-Clean O&G process uses a patented cell membrane to convert H<sub>2</sub>O and NaCl into anolyte and catholyte components.

The resulting hypochlorous acid anolyte biocide is 100% biodegradable, reverting to harmless salt and water.



## The Cleaner, Simpler Answer

- Non-toxic and 100% biodegradable, Eco-Clean O&G leaves no ecological damage to well sites or water tables
- Chemical residue free
- No special handling requirements - it's transported to site in totes
- Powerful and fast-acting
- Commercially competitive
- Six month shelf life eliminates on-site biocide manufacturing, saving space and time
- EPA registration number 93908
- 1,450 ppm of free available chlorine and neutral 6.5 pH

## Enhance Production and Performance

- Clears wells of downhole microorganisms, killing the bacteria and removing the restrictive biomass
- Manages bacteria in frac water, protecting fracturing fluids and gels
- Reduces scale and slime build-up from pipes, and cooling water systems can be kept free of biomass, improving heat exchange values and eliminating microbial-induced corrosion
- Produced water may be treated before being reused in stimulation on fluids or waterfloods

## Safe for People. Good for Production.

Based on a patented process, the active ingredient in Eco-Clean O&G is Hypochlorous Acid (HClO), the same chemical produced by infection-fighting white blood cells in the human body.



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