

AquaSoar™ Products

AquaSoar™ is a concentrated, two component, activator / base technology that produces chlorine dioxide on site, using the farm water source for dilution. The specially formulated AquaSoar™ Activator / Base precursors produce chlorine dioxide at the highest yield, in the shortest amount of time.

Table 3.

AquaSoar™ vs. Hydrogen Peroxide Water Treatment ORP (mV) Values

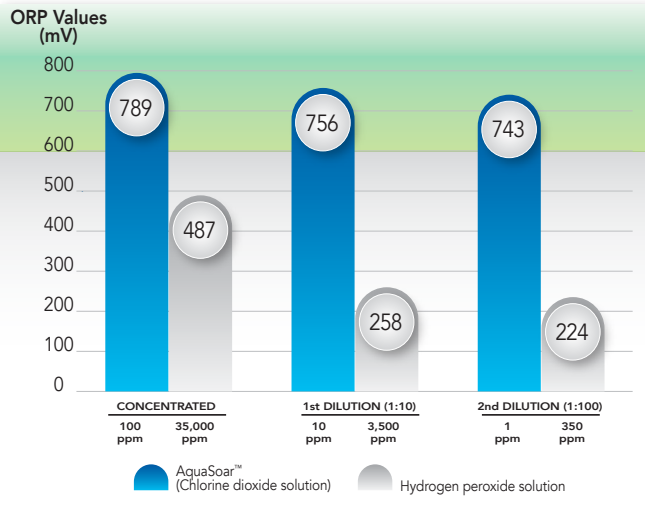
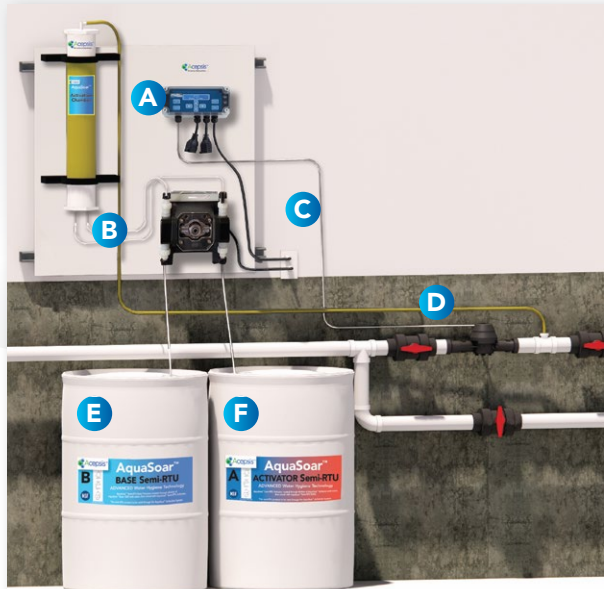


Table 3 demonstrates the ORP values of each chemical technology / formulation when added to water. AquaSoar™ retains its high ORP values even when diluted to low concentration levels. Hydrogen peroxide breaks apart (hydrolyzes) immediately when added to water, eliminating its ORP / disinfection value.

Acepsis™ is proud to provide the new AquaSoar™ Activation System that delivers the highest yields and efficiency in the activation and dosing of the AquaSoar™ product. Higher yields, higher efficiency, quantifiable results, increased ROI.

AquaSoar™ Water Treatment Installation



- A = AquaSoar™ Activation Chamber
- B = Dual Product Injection Pump
- C = Controller
- D = Water Meter
- E = RTU AquaSoar™ Semi-RTU Base
- F = RTU AquaSoar™ Semi-RTU Activator

For more information, call Acepsis™ or your local representative.

ACEPSIS™, LLC is an animal health based company that is focused on the development of state-of-the-art animal hygiene technologies. Our Company's mission is to apply innovative animal hygiene technologies into the agricultural and veterinary market sectors. Visit us at www.acepsis.com.



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AquaSoar™

A COMPLETE WATER HYGIENE TECHNOLOGY FOR BEEF CATTLE FARM WATER SYSTEMS

And introducing the AquaSoar™ Activation System: the easy and simple system to install and use

Because water is the **most important nutrient** in a cow's total daily food and water intake.

Research Shows

Beef cattle may gain **15% - 28% more weight** over 12 months if they are drinking high quality water. This can add up to a **100 to 1** Return On Investment (ROI) if managed properly.

Know Your Water System!

- Test and monitor your water at the water source(s), and at the individual water troughs / drinkers
- Monitor your herd's water consumption
- Keep your water troughs free of disease-causing organisms
- Remove biofilm from your water distribution system(s)

What is Biofilm?

Biofilm is that slimy, glue-like substance that can be found almost everywhere in a farm water system. Sites for biofilm formation include all kinds of surfaces: natural materials above and below ground, metals, plastics, even plant and body tissue. Wherever you find a combination of moisture, nutrients, and a surface, you are likely to find biofilm.

A biofilm community can be formed by a single bacterial species, but in nature biofilms almost always consist of rich mixtures of many species of bacteria, as well as fungi, algae, yeasts, protozoa, other microorganisms, debris, and corrosion products.



It is estimated that more than 99% of the presence of disease-causing organisms are found in a biofilm community.

Water Quality Solutions

- Use proper tools to identify your biofilm hot spots
- Set up written hygiene protocols for identified areas
- Determine frequency of cleaning / treatment to maintain proper hygiene levels
- Monitor water hygiene levels



Why Chlorine Dioxide?

- Extremely high oxidation and germicidal efficacy values
- Superior hygiene solution for animal, facility and water treatment
- Effective in low concentrations and extremely soluble in water
- Rapid killing action across a wide spectrum of organisms
- Effective in a wide solution pH range
- EPA approved technology for water disinfection systems
- Environmentally friendly. Unlike sodium hypochlorite, does not produce eco-toxic byproducts such as TMH (trihalomethanes), HAA (halo-acetic acids), or chloro-phenols

Proven Method of Germicidal Strength Oxidation Reduction Potential (ORP)

As an oxidizer, AquaSoar™ provides a quantitative way to measure its ability to eliminate pathogens in a water system. ORP is a measurement of a sanitizer effectiveness in water. The more efficient the sanitizer means safer, cleaner water.

Proven Test Results

Table 1.

Measurement of Oxidizing Agent ORP Values In Pathogen Disinfection*	
OXIDIZING AGENT	OXIDIZING AGENT ORP VALUE RANGE (mV)
CHLORINE DIOXIDE (ClO ₂)	600 → 1000 MV
OZONE* (O ₃)	700 → 1000 MV
IODOPHORS (I ₂)	400 → 600 MV
HYDROGEN PEROXIDE	300 → 500 MV
SODIUM HYPOCHLORITE	250 → 500 MV



Table 1 provides the oxidizing (disinfecting) range of the most popular sanitizing agents in the industry. The higher the Oxidation Reduction Potential (ORP), the higher the disinfecting ability. This is measured in millivolts (mV).

Table 2.

ORP Values In Pathogen Disinfection**				
Pathogens	PATHOGEN SURVIVAL IN SECONDS (S) OR HOURS (H) AT ORP LEVELS (MV)			
	<500 ORP (mV)	500 - 600	600 - 700	700+
E. COLI (0157:H7)	> 300 S	< 60 S	< 10 S	< 1 S
SALMONELLA SPP.	> 300 S	> 300 S	< 20 S	< 1 S
LISTERIA MONOCYTOGENES	> 300 S	> 300 S	< 30 S	< 1 S
THERMO-TOLERANT COLIFORM	> 48 H	> 48 H	< 30 S	< 1 S

Table 2 shows the relative survival rate of different pathogens and the role that oxidation power has in the disinfection process, using the ORP (mV) value to measure the rates. Based on the numbers from Table 1, chlorine dioxide is a clear winner over hydrogen peroxide, for example.

*Ozone is greatly influenced by the water quality and ozonation system.

**Oxidation Reduction Potential (ORP) for Disinfection Monitoring, Control and Documentation; University of California, Trevor Suslow, Department of Vegetable Crops, University of California - Davis