



Mobilizing to change the paradigm of how we can sustainably protect ourselves the way nature intended it.

What is Progardeum™ Disinfectant Solution?

Progardeum™ Disinfectant Solution is comprised of optimized water and hypochlorous (HOCl) to form a super-oxidized water based disinfectant solution. HOCl is a free neutral molecule with the chemical structure. The Progardeum™ Disinfectant Solution has no potential health effects; is non-hazardous and non-toxic, yet is a much more powerful oxidant than sodium hypochlorite (or chlorine bleach).

How does Progardeum™ Disinfectant Solution work?

The disinfectant solution works to break down the cells that are creating an infection by destroying the cell membrane and its DNA/RNA, thus halting its replication or growth process. The human body produces HOCl to reverse markers of epidermal aging, protect against environmental aggressors and cleanse the skin. When utilized as an application outside the human body, pH-neutral Progardeum™ Disinfectant Solution works in much the same way.

What is its origin?

In 1834, French chemist Antoine Jérôme Balard discovered HOCl as the infection fighting compound found naturally in the white blood cells of the human body. Balard's work would most notably be used thereafter by armies in World War I and World War II for wound cleaning and to neutralize chemical burns. Today, it is most commonly used on humans, animals and the natural environment to clean and disinfect.



How does it kill microbial pathogens?

Progardeum™ Disinfectant Solution works to break down the cells that are creating the infection by destroying the cell membrane and its DNA, thus halting its replication through "cell lysis" process. When utilized as an application outside the human body, pH-neutral Progardeum™ Disinfectant Solution works in much the same way.

Are there any disadvantages?

Unlike many other sanitation chemicals, Progardeum™ Disinfectant Solution does not have an ongoing antimicrobial effect. In other words, once it lands on a surface, it reacts with any germs or organic matter on that surface and then immediately deactivates. This allows for an efficient sanitation process with no hazards to the environment as it is completely biodegradable.

How safe is Progardeum™ Disinfectant Solution?

Progardeum™ Disinfectant Solution is non-toxic and non-hazardous. Unlike most chemical sanitizers, hypochlorous is non-irritant to eyes, skin, and the respiratory tract. Even if it were ingested by accident, it causes no harm.

Is Proguardeum™ Disinfectant Solution safe enough for children and pets?

Yes! Unlike the toxic threat posed by any other cleaner or disinfectant (often times loaded with carcinogens), you can feel completely safe to effectively use Proguardeum™ Disinfectant Solution around children and pets. It is also important to note that you can feel comfortable using Proguardeum™ products around food and food prep surfaces! Today, there are many over the counter pharmaceutical products with HOCL including eye rinse, oral rinse, facial and acne cleansers, wound care and nasal sprays.

“Both the gel and the solution were extremely well tolerated. Additionally, based on the safety profile of HOCL, I have no problem recommending HOCL topical treatment to young children or women who are pregnant or trying to get pregnant. I can envision a time in the very near future when this will become a standard protocol in the treatment either alone or in combination with other treatments.”

Mark Steven Nestor, M.D., Ph.D.

Director of the Center for Clinical and Cosmetic Research™ and the
Center for Cosmetic Enhancement®, Aventura, Florida

Effects of a Low Concentration Hypochlorous for Nasal Irrigation Solution on Bacteria, Fungi, and Virus

Is HOCL allowed by the USDA National Organic Program?

On September 11, 2015 the National Organic Program (NOP) published a policy memorandum clarifying that electrolyzed water (hypochlorous) is allowed in organic production and handling. [Click here to see USDA Organic memorandum.](#)

What industries are using HOCL?

HOCL is being used in restaurants, food & beverage processing, livestock, agriculture, hospitals, schools, cruise ships, water treatment, and pharmaceutical manufacturing.

Healthcare Environments | Schools | Cruise Ships | Applications

Proguardeum™ Disinfectant Solution has many useful applications in many indoor environments. HOCL can be used in the kitchen as a no-rinse sanitizer for produce, meat, poultry, and seafood. HOCL can be used as a sanitizer on food contact surfaces and for general sanitation replacing quats and peroxide based chemicals for the cleaning of linens. It can be applied as dry misters to broadly disinfect rooms and large common areas. HOCL can be used to clean and disinfect for prevention and control of Norovirus and Hospital Acquired Infection outbreaks. HOCL can be used as hand sanitizers via dispensers throughout the ship. HOCL can replace chlorine for generating potable water and for pool treatment.

How is Proguardeum™ Disinfectant Solution made?

The unique solution is made through a proprietary patented process. It is designed to optimized the water molecule properties through a patented process in concert with medical grade filtration media to remove all impurities from inorganic metals to trace pharmaceuticals where the optimized super-oxidized water is generated.

How stable is the Proguardeum™ Disinfectant Solution?

The Traiad™ Restoviva System utilizes a patented single cell technology to generate in the solution in the pH range of 6-7. When generating the disinfection solution through a single cell, no high pressures are used and no ions are forced across a membrane.

What is the shelf-life of the Proguardeum™ Disinfectant Solution?

Given the purity of the disinfection solution, the shelf-life greater than 12 months if stored in a closed container protected from the oxygen in the air. Containers that block out UV light can assist in extending the shelf-life.

How effective is the Proguardeum™ Disinfectant Solution at eradicating bacteria?

Study results indicated that HOCl is more effective than OCl⁻ (aka. chlorine bleach) for inactivation of bacteria and viruses. These results have been confirmed by several researchers that concluded that HOCl is 70 to 80 times more effective than OCl⁻ for inactivating bacteria (Culp/Wesner/Culp, 1986). Since 1986, there have been hundreds of publications confirming the superiority of HOCl over OCl⁻. HOCl may be more effective than OCl⁻ for two reasons, this first is because it holds a neutral charge and therefore can easily penetrate the negatively charged cell walls of bacteria. The second reason is because HOCl has a much higher oxidation potential than OCl⁻.

How effective is it at eradicating viruses?

Hypochlorous (HOCl) has been researched and proven to be effective against many viruses.

REFERENCE: Virucidal effect of electrolyzed water

Tamaki, S., Bui, V.N., Ngo, L.H. et al. Virucidal effect of electrolyzed water and neutral electrolyzed water on avian influenza viruses. *Arch Virol* **159**, 405–412 (2014). <https://doi.org/10.1007/s00705-013-1840-2>

PRODUCT SAFETY REFERENCES

Multiple studies have reported on the safety profile of pH neutral Hypochlorous. It is essentially tasteless & odourless and poses no risk of irritation or toxicity. The Regulatory Authorities have also classified Hypochlorous as safe for use by humans and animals.

Excerpt from CDC

The microbicidal activity of chlorine is attributed largely to undissociated hypochlorous (HOCl).

The microbicidal activity of a new disinfectant, "super-oxidized water," has been examined. The concept of electrolyzing saline to create a disinfectant or antiseptics is appealing because the basic materials of saline and electricity are inexpensive and the end product (i.e., water) does not damage the environment. The main products of this water are hypochlorous (e.g., at a concentration of about 144 mg/L). As with any germicide, the antimicrobial activity of super-oxidized water is strongly affected by the concentration of the active ingredient (available free chlorine) 536. One manufacturer generates the disinfectant at the point of use by passing a saline solution over coated titanium electrodes at 9 amps. The product generated has a pH of 5.0-6.5 and an oxidation-reduction potential (redox) of >950 mV.

FDA Reference

In October 2002, the FDA cleared super-oxidized water as a high-level disinfectant (September 18, 2002).

“Super-oxidized water” has been tested against bacteria, mycobacteria, viruses, fungi, and spores. Freshly generated super-oxidized water is rapidly effective (<2 minutes) in achieving a 5-log₁₀ reduction of pathogenic microorganisms (i.e., M. tuberculosis, M. chelonae, poliovirus, HIV, multidrugresistant S. aureus, E. coli, Candida albicans, Enterococcus faecalis, P. aeruginosa) in the absence of organic loading. However, the biocidal activity of this disinfectant decreased substantially in the presence of organic material (e.g., 5% horse serum) 537, 549, 550. No bacteria or viruses were detected on artificially contaminated endoscopes after a 5-minute exposure to super-oxidized water 551 and HBV-DNA was not detected from any endoscope experimentally contaminated with HBV-positive mixed sera after a disinfectant exposure time of 7 minutes.

The following Safety Certifications have been issued:

REGULATORY BODY	RATING	DATE
EU-EPA	Approved as “Sterilizer Producing Equipment”	1998
USDA	Approved as Sterilizer for E. Coli 0-157, Salmonella and various other disease-forming bacteria	1999
USA-FDA	GRAS (Generally Recognized as Safe) Approved to be used to wash fruits, vegetables and seafood	Issue Number 00-03-13: 2000
Japan: Ministry of Health, Labor and Welfare	Food Sterilizer and Sanitizer	June 2002
FDA-FSIS	Sterilizer and sanitizer of slaughtered poultry, cattle and swine	2006
Korea-FDA	- Food additive - Sterilizing agent	November 2007 August 2008