Disclaimer: This product cannot cure, mitigate, treat, or prevent a disease.

INTRO

Hypochlorous acid (HOCl) is a naturally occurring molecule produced by the immune system in all mammals. It is highly active against bacterial, viral, and fungal microorganisms. Additionally, HOCl is active against biofilm and increases oxygenation of the wound site to improve healing. Natural HOCl is unstable, but through technology, it can be stabilized into solution and used as needed. (1)

HypoRedox is a stabilized hypochlorous acid solution. This is valuable because it gives us something that is effective against pathogens but remains non-toxic and non-irritating to humans and animals. This includes pathogens like MRSA, E. Coli, Candida, Meningitis, Encephilitis, Salmonella, HIV, Epstein Barr, and much more. *(See lab test results at the bottom of this info. sheet.)*

Hypochlorous acid is similar to household bleach but it disinfects 120 times better than bleach (NaClO) and bacteria can't become resistant to it. Although the word "acid" is in its name – it actually isn't acidic at all because hypochlorous acid only exists in a solution with a near neutral pH. In order for this type of disinfectant to be most effective it has to have around a 6.8 pH balance.

Hypochlorous Acid is also one of the few substances approved by the FDA as a FCS (food contact substance). There is a link to a FDA pdf download below. (2)

The reported benefits of Hypochlorous Acid include:

- Speeds up healing of wounds and reduces scaring. *(See Reference #1 and Vetericyn link)*
- Disinfects wounds, cuts, burns, etc
- Eliminates bacteria and viruses on contact including E.Coli, Listeria, Salmonella, HIV, and MRSA. *(See test results at the bottom of this information sheet.)*
- Eliminates fungi and molds on contact. *(See test results at the bottom of this information sheet.)*
- Non-irritating, non-stinging, non-toxic.

The common uses of Hypochlorous Acid include:

- Wound healing and disinfection.* *(See Vetericyn link)*
- Eye infections – for animals.* *(http://novabay.com/blog-post/new-treatment-pinkeye)*
- Ear infections – for animals.* *(See Vetericyn link)*
- Disinfecting tools, surfaces, equipment. *(See test results at bottom of this info. sheet)*
- Disinfecting vegetables / fruits / meats. (See FDA link)
- Disinfecting linens / materials (Think of disinfecting linens covered in diarrhea, vomit, or blood in disaster situations.)
- Disinfecting airborne pathogens by placing in a sonic humidifier.
- Disinfecting water of pathogens.*
- Disinfecting dishwashers.

How I came to have access to this product

HypoRedox is made by a farmer in our area who, after attending one of our preparedness classes, introduced us to a solution he makes in his backyard. He explained that 10 years ago he purchased a $40,000 piece of equipment and began making HypoRedox to sell to hospitals as a surgical tool disinfectant. The business never really took off so he went back to farming only making the solution every now and then for neighbors and friends who asked for it. We began selling it to our customers and now we're the only distributors for him.

The cost for one gallon of HypoRedox is very low when compared to other disinfectants on the market- especially other hypochlorous acid products. Most places that use hypochlorous acid (like hospitals, food plants, animal shelters, and grocery stores) produce it on site. Companies that sell it usually charge around **$30 for 32oz** for their diluted hypochlorous acid solution and use it for wounds & burns (Vetericyn & Puracyn), or as an oral supplement (Asea).

We took a sample of the HypoRedox to the chemist at a local company that sells a weak hypochlorous acid solution as an FDA approved supplement. After testing the solution he informed me that:

- *The same type of equipment used to make HypoRedox is the same that they began with; they knew someone who was trying to make a prescription drug by using hypochlorous acid but it didn't work. The owners came in, purchased the equipment and turned it into a drinkable, completely non-toxic, FDA approved supplement.*
- *HypoRedox is 10 times more concentrated than their drinkable version.*
- *HypoRedox is much less expensive than their product. (Their product costs over $45 for 32oz.)*

History of HOCl

Hypochlorous Acid was discovered by chemists in the early 1800's and has been used sporadically since that time. There are even reports of it having been used to treat wounds in soldiers during WWI.

HOCl is something that is unstable and tends to revert back into the solution that it was created from. The quest to create a stable form of HOCl that is usable has been a worldwide endeavor. Today there are a number of companies in all parts of the world that claim to have stable forms of HOCl that can be used topically and internally by humans and animals. (Vetericyn, Ruthigen, Hypochlor, Natures Panacea, MetaClean A to Z, Aquaox, ASEA, and HypoRedox are just a few. A Google search on HOCl and will list a number of them.)

Why is it so effective?

Hypochlorous Acid is a weak, but strongly oxidizing acid and bleach. The reason why it is so effective is because it has a very high "Redox Potential". This means that it has a strong ability to tear electrons from the atoms of other substances. This removal of electrons changes both substances. The HOCl (receiving the electrons) is neutralized and the other substance (losing the electrons) is changed enough that it is usually destroyed.

In all living things, HOCl oxidizes (breaks it down by taking electrons from it) the cell walls of the living thing it comes in contact with. This breaks down the cell wall and causes necrosis (rupturing of the cell) or apoptosis (programmed cell death). Anything left of the cell contents are then destroyed by remaining HOCl. Even though a virus is not technically a living thing, it too is destroyed by HOCl.

Yet in spite of this destructive potential to living things, HOCl is something that our body produces and uses as part of our immune system. This process is called phagocytosis. Whenever the immune system is compromised, the body detects the compromised location and sends white blood cells through the body to fight the invading pathogens. The white blood cells attack, surround (or eat), and destroy (digest) the pathogen using a process that creates solutions that involve Hypochlorous acid as an end product.

Some studies (3) have shown that, even though our own body produces HOCl to fight infection, it does not mean that our own cells are not negatively affected by it. There is evidence to show that tissue inflammation due to injury may be a result of the same HOCl generated by phagocytosis.

This constant exposure to HOCl, may be the reason our body has adapted and developed ways to protect itself from HOCl. Even in weak solutions, HOCl is irreversibly lethal to pathogens, but tolerable to mammalian cells. In 2008 Graduate students at Yonsei Medical University in Seol Korea successfully proved that a saline nasal rinse containing HOCl killed bacteria and fungus but did not irritate the nose. (4)

Outside of use on living things, it is used even more frequently in food processing plants because of its amazing ability to disinfect equipment for meat and dairy products without introducing any hazardous chemicals into the food. Hypochlorous Acid is one of the disinfectants approved by the FDA for use in food processing equipment and utensils (2)

This is a solution that is lethal to every pathogen harmful to humans yet remains non-toxic to mammals!

Healing Properties

HOCl has long been recognized for two important healing characteristics: It has the ability to help wounds heal faster and to do it painlessly. Even though it is not fully understood why it does this, one thing is clear: a wound clean from pathogens heals faster and reduce scaring.

HOCl does not sting when applied to a wound. Alcohol, commonly used for sterilizing a wound, destroys pathogens by drying out the cells. Unfortunately, it does the same thing to the living tissue, as well as any white blood cells that are there to fight infection. **This makes hypochlorous acid far superior to alcohol as a wound care agent because, not only does alcohol destroy any natural defenses on the injured site but the process is extremely painful and reduces the chance that the injured person will allow further treatment.**

HOCl can only exist in a near neutral pH solution which also makes it highly tolerable to the body. It does not damage living tissue nor any of the body's natural defenses (white blood cells) that are on site working to repair damaged tissue. *This makes it one of the best first aid solutions available.*

Note: Although HOCl in general has been shown to have those healing characteristics, HypoRedox has not been FDA process to be approved as a topical application.

Where it comes from

Hypochlorous Acid is made by taking a brine solution (NaCl and H_2O) and putting it through a specialized piece of equipment that electrically separates the atoms through electrolysis. The process yields Hypochlorous Acid (HOCl) and the Hypochlorite Ion (OCl-). The important part of the process is to create a solution that maintains a neutral pH. While HOCl and OCl both fight bacteria, they are not present in equal proportions and it is the HOCl that is most effective at fighting bacteria. HOCl exists most abundantly in a near neutral pH and according to a University of Illinois study, **HOCl is 120 times more effective as a sanitizer than the – OCl ion.**

HypoRedox is constantly checked for pH to assure that it is at the levels where the most possible HOCl can exist.

Shelf Life

The exact shelf life is dependent upon a number of factors. Exposure to air and sunlight causes it to revert back to water quicker than if it is left undisturbed. Storage in a cool dark area will keep your product potent for 2 years or more. If you can smell the "bleach" or chlorine-like smell in it then it is most likely still potent. If it smells or tastes more like water then it is most likely losing its potency. **One 5 year old bottle has been found that had been out of sunlight and hadn't been opened yet and it was still effective.**

Warning Labels on the Bottle and Common Sense Use

HypoRedox was registered with the EPA as a hospital grade disinfectant and as such it was required to have labeling similar to other chemical based disinfectants. In a more concentrated solution, Hypochlorous Acid is obviously dangerous to humans and animals, but not at the concentration found in HypoRedox (0.046%). Even though HypoRedox is not caustic in any way, it should still be used with care.

Do not mix it with any other cleaning solutions. Please read below to see how we have used it.

Suggestions on How to Use HypoRedox

*****Important: Don't dilute more than you are ready to use. Dilution changes the pH and causes the HOCl to dissipate faster and reduces the efficacy. (This doesn't apply to the amount added to water storage)*****

For disinfecting water:

- 1-2 cups in 55 gallon drum of water. (Change every 2 years.)
- ½ tsp in gallon of water.
- (Note: This only kills all pathogens – it doesn't pull out heavy metals, radiation, etc. you'd need something like charcoal or bentonite clay to do that.

For disinfecting the air:

- 1 part HypoRedox in 5 parts water poured into an ultrasonic humidifier that where the filter has been taken out. (One cup of HypoRedox to one gallon of water). Humidify one room for 1-3 hours or more.

For disinfecting surfaces, tools, etc:

- Either use straight or dilute to a 1:3 or even 1:5 ratio – 1 part HypoRedox and 3 or 5 parts water (so it's down to a 30ppm ratio – HypoRedox is at 150ppm).

Extra Info that was on the Original HypoRedox Information Sheet:

HypoRedox is basically electrolyzed water that kills bacteria, germs, viruses, mold, fungi, and spores. It is a stable electrolyzed water solution. It is a non-hazardous, cost-effective alternative to bleach and other traditional hazardous chemicals used for disinfection.

Laboratory testing (shown on the following page) done on HypoRedox have shown that it is as much as 100 times more effective against bacteria than bleach. HypoRedox is produced from a simple salt water solution making it completely safe and environmentally green.

HypoRedox is a strong oxidizing solution that kills microorganisms including but not limited to viruses, fungi, spores, mold, mildew, mycobacterium and bacteria.

The US Environmental Protection agency has conducted thorough investigations of the scientific data relative to HypoRedox. After a battery of independent lab testing performed by the fully-certified EPAapproved labs, HypoRedox is the only anolyte solution EPA registered as a broad spectrum hospital disinfectant. (EPA Reg.#82341-1)

HypoRedox is up to 100 times more effective than bleach at $1/10^{th}$ the concentration. HypoRedox is produced at 6.5 to 6.8 pH which is considered the most effective range for a solution like this. Due to its oxidizing potential the hypochlorous acid transfers atomic oxygen in the form of a "radical" to the microorganism, which destroys the organism.

The smaller the disinfectant droplets are, the higher the airborne "killing" ability is. In this sense, high frequency ultrasonic humidifiers are the most suitable technique to generate uniformly micrometer-sized droplets, which can be evaporated immediately.

References

1) Wound Care Agent reference
    a https://www.researchgate.net/publication/6339980_Hypochlorous_Acid_as_a_Potential_Wound_Care_Agent_Part_II_Stabilized_Hypochlorous_AcidIts_Role_in_Decreasing_Tissue_Bacterial_Bioburden_and_Overcoming_the_Inhibition_of_Infection_on_Wound_Healing

    b https://pubmed.ncbi.nlm.nih.gov/31904191/

2) Approved Food Contact Substance by the FDA
    a https://www.fda.gov/media/109611/download
    b http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=178.1010

3) http://www.ncbi.nlm.nih.gov/pubmed/11327319
"However, the generation of a potent oxidant is not without risk to the host, and there is evidence that HOCl contributes to the tissue injury associated with inflammation."
4) Nasal Rinse use
    a https://pubmed.ncbi.nlm.nih.gov/18677274/

$10,000 Lab Tests Done to Test/Prove Disinfectant Potential

Laboratory Testing of HypoRedox™
Hypochlorous Acid (HOCL) Against Various Microorganisms

Clarcon Biological Chemistry Laboratories: Roy, Utah

		Percent reduction after ultrasonic aerosol	1 to 6 Sec. Contact	7 to 10 Sec. Residual
Clostridium		Psuedomembranous colitis(**C.diff**)-Botulism-Tetanus-Gas Ganrene	97%	83%
Bacilli (class)		Strep-: Alpha (pneumoniae, mutans, viridans) – Beta A pyogenes (Scarlet fever, Erysipelas, Rheumatic fever, Streptococcal pharyngitis), B Agalactiae- D Entero-	92%	88%
Coccus		Staphylo—Toxic Shock Syndrome, Mastitis	96%	84%
		Bacillus (shape) Bacillus (Anthrax – Listeria (listeriosis)	91%	89%
Actinomycetales		Actinomysetoma (Whipples's disease) – Corynebacterium (Diphtheria, Erythrasma) – Nocardia (Norcardiosis, Masuromycosis)	90%	80%
Mycobacterium		M. tuberculosis (Tuberculosis): Ghon focus/Ghon's complex – Pott Disease – brain (Meningititis, Rich focus) – cutaneous (Scrofula, Bazin disease, Lupus vulgaris, Prosector's wart) – Miliary	95%	85%
		M. leprae (leprosy)	100%	95%
		Nontuberculous: Mycobacterium avium (Lady Windermere syndrome) Mycobacterium ulcerans (Buruliulcer)	92%	90%
Spirochetal		Treponema: Syphilis (Bejel) – Yaws – Pinta	90%	80%
		Borella: Relapsing fever – Lyme disease (Erythema chronicum migrans, Neuroborreliosis)	100%	95%
		multiple/unknown: Noma – Trench Mouth – Rat-bite fever – Leptospirosis	93%	83%
Mycoplasmatales		Mycoplasma pneumonia – Ureaplasma infection	97%	85%
Chlamydiae		Chlamydophila (Psittacosis) – Chlamydia (chlamydia, Lymphogranuloma venereum, Trachoma)	99%	89%
Proteobacteria	a/	Rickettsiales/ Typhus, spotted fever(Rocky Mountain) Boutonneuse fever	100%	99%
Anaplasmataceae		Ehrilchiosis Human granulocytic ehrlichiosis, Human monacytic ehrilichiosis	99%	89%
		Other: Coxielia (Q fever)–Bartonella (Trench fever)–Orientia (Scrub typhus)	99%	81%
Rhizobiales		Brucellosis – Cat scratch fever – Bartonellosis (Bacillary angiomatosis)	100%	90%
	B	Neisseriaceae: Meningococcus – Gonorrhea	100 %	90%
		Burkholeriales: Glanders – Meliodosis – Pertussis	97%	83%
		Enterobacteriaceae: Salmonella (Typhoid fever, Paratyphoid fever, Salmon-Ellosis) – Yersinia pestis (plague/Bubonic plague) – Kiebsiella (Rhinoscleroma, Donovanosis) – Shigelia (Shigellosis – Escherichia coli/o157:h7 – Proteus	99.9%	89.7%
		Pasteurellaceae: Pasteurella (Pasteurellosis) – Haemophilus (Brazillian Purpuric fever, Chancroid) – Actinobacillus (Actinobacillosis)	96%	84%
		Other: Francisella (Tularemia) – Vibrio (Cholera)		
	V	Legionella (legionellosis) – Pseudomonas – Serratia	98%	89%
	E	Campylobacteriosis – Helicobacter	99.5%	89.9%
Bacteroidetes		Bacteroides	100%	97.9%
Other		Gardnerella	98.9%	89.9%
VIRUS				
		Adenoviridae: adenovirus	97%	100$
		Picornaviridae: coxsackievirus, hepatitis a virus, poliovirus	98%	98%
		Herpesviridae: Epstein-barr virus, herpes simplex virus, type 1 and 2, human Cytomegalovirus, human herpesvirus, type 8, varecella zoster virus	91%	89%
		Hepadnaviridae: Hepatitis B virus	100%	98.9%
		Flaviviridae: Hepatitis C virus	98.9%	99%
		Retroviridae: Human immunodeficiency virus (HIV)	50%	49%
		Orthomyxoviridae: **(TYPE A)** influenza virus	79%	73%
		Paramyxoviridae: measles virus, mumps virus, parainfluenza virus, Respiratory syncytial virus	83%	80%
		Papovaviridae: papillomavirus	100%	98.9%
		Rhabdoviridae: rabies virus	100%	99.8%
		Reoviridae: Rotavirus	99.2%	99.1%
		Togavirid: Rubella virus	94.6%	93.4%

Vetericyn Lab Results

Vetericyn, a product used for dogs and other animals, also did some lab studies regarding the efficacy of their hypochlorous acid product. Here are their results:

Works Naturally

Vetericyn® works naturally with the animal's own immune system. Vetericyn does not contain steroids, antibiotics or alcohols, making it safe for a wide range of animals with even the most sensitive systems.

Great for:

- Acute and chronic wounds
- Burns
- Skin infections and irritations including dermatitis
- Fungal infections such as ringworm
- Post-surgical sites
- Skin ulcers, abscesses and hot spots
- Skin rashes and allergies
- Eye infections*
- Ear infections**

*For superficial use with intact cornea

In Solution Vetericyn kills the following:

Name of Organism	Time to Kill	Percent Reduction
MRSA - Staphylococcus aureus	30 seconds	99.9999%
VRE - Enterococcus faecalis	30 seconds	99.9999 %
Staphylococcus aureus	30 seconds	99.9999%
Pseudomonas aeruginosa	30 seconds	99.9998%
Escherichia coli	30 seconds	99.9997%
Moraxella bovis	30 seconds	99.9999%
Moraxella catarrhalis	30 seconds	99.9999%
Acinetobacter baumannii	30 seconds	99.9999%
Bacteroides fragilis	30 seconds	99.9999%
Candida albicans	30 seconds	99.9999%
Enterobacter aerogenes	30 seconds	99.9999%
Enterococcus faecium	30 seconds	99.9999%
Haemophilus influenzae	30 seconds	99.9993%
Klebsiella oxytoca	30 seconds	99.9999%
Klebsiella pneumoniae	30 seconds	99.9999%
Micrococcus luteus	30 seconds	99.9999%
Proteus mirabilis	30 seconds	99.9999%
Serratia marcescens	30 seconds	99.9999%
Staphylococcus epidermidis	30 seconds	99.9998%
Staphylococcus haemolyticus	30 seconds	99.9999%
Staphylococcus hominis	30 seconds	99.9996%

Staphylococcus saprophyticus 30 seconds 99.9999%
Streptococcus pyogenes 30 seconds 99.9999%