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Envirocleanse-A

Product Overview

NEXT-GEN DISINFECTANT EPA APPROVED TO KILL COVID-19 CORONAVIRUS

What is Envirocleanse-A?

Envirocleanse-A is a liquid disinfectant that is organic, nontoxic, biodegradable and safe for use on all hard surfaces. Our electrochemical activation takes a brine water, sends it through Envirocleanse's membrane and adds electricity. This reaction causes the saltwater to be separated into an anolyte solution and a catholyte solution.

The anolyte solution, known as Envirocleanse-A (ECA) is made up mostly of hypochlorous acid (HOCl) and water. The hypochlorous acid acts as a disinfectant and is the same chemical produced in our own bodies by white blood cells to attack pathogens.

ECA replaces chlorine disinfectants and other oxidizing disinfectants. Because ECA is made up of naturally occurring substances, it is nontoxic (EPA rating of lowest possible toxicity equivalent of nontoxic). ECA also is noncorrosive, nonflammable, sustainable and ready to use out of the bottle. Storage and spilling are not an issue since there are no harsh chemicals. No masks, gloves, or special equipment is required to use ECA. ECA naturally breaks down into a saltwater solution after degrading, which is harmless to the environment, humans and other warm-blooded animals.

ECA can be used in the healthcare, food services, janitorial services, oil and gas field, water reclamation, cruise lines, livestock and poultry, childcare centers and gyms. There are many applications, uses and industries beyond those listed. ECA's lack of toxicity makes it completely harmless and environmentally friendly, while its powerful disinfectant allow ECA to be highly effective in antimicrobial care.

	Enviro-cleanse-A	Chlorine Dioxide	Sodium Hypochloride (Bleach)	Ozone	Isopropyl Alcohol	Glutaral-dehyde	Hydrogen Peroxide
Kills Bacteria	✓	✓	✓	✓	✓	✓	✓
Non-Corrosive	✓				✓		
Ready to use	✓	✓	✓		✓		✓
Non-Toxic	✓						
Deodorizer	✓		✓	✓	✓		✓
Harmless to Humans	✓						
Environmentally Friendly	✓						
No Cautions with Storage	✓						
Non-Flammable	✓		✓	✓		✓	✓
No PPE Required	✓						
Easily Disposable	✓						✓

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Microorganism	% Reduction	Kill Time
MRSA/Staphylococcus	>99.999%	2 mins
Pseudomonas Aeruginosa	>99.999%	2 mins
Salmonella Enterica	>99.999%	2 mins
Escherichia Coli (incl. H157)	>99.999%	2 mins
VRE	>99.999%	2 mins
CRE	>99.999%	2 mins
Listeria	>99.999%	2 mins
H1N1 (Swine Flu)	>99.999%	2 mins
Norovirus Feline	>99.999%	10 mins
Norovirus Murine	>99.999%	10 mins
Hepatitis A	>99.999%	2 mins
Hepatitis B	>99.999%	2 mins
Hepatitis C	>99.999%	2 mins
HIV1	>99.999%	2 mins
(TB) Mycrobacterium Bovis	>99.999%	10 mins
Candida Auris	>99.999%	10 mins
Candida Albicans	>99.999%	10 mins
C. Diff.	>99.999%	10 mins
Canine Distemper	>99.999%	10 mins
Staphylococcus Epidermus (Soft Surface)	>99.999%	2 mins
Staphylococcus Aereus	>99.999%	5 mins
Klebsiella Pneumoniae	>99.999%	5 mins
Germicidal Sanitizing of Staphylococcus and E-coli	>99.999%	30 secs

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Chlorine Chemistry

There are two disinfectants associated with chlorine.

- HOCl Hypochlorous Acid, is a very effective disinfectant
- OCl- Hypochlorite Ion, is many times less effective than HOCl 2Cl2 + 2H2O = 2HOCl + 2HCl

Chlorine gas when added to water produces Hypochlorous acid plus Hydrochloric Acid. The Hypochlorous Acid then partially disassociates to the Hypochlorite Ion

(OCl-): 2HOCl = HOCl + H+ + OCl-

The extent of the disassociation depends on the pH of the water (6.5 to 8.5)

Overall Reaction

2CL2 + 2H2O = HOCL + H+ + OCL- + 2HCL

The higher amount of HOCl remaining, the greater the disinfection efficiency. (Lower solution pH).

The above is the classical method of disinfection by chlorine. Chlorine was (and is) distributed in upright gas cylinders which is an inexpensive method for disinfection. The major disadvantages are safety in transportation and at the point of use (POU).

Various methods have been tried to avoid the use of gaseous chlorine. The most successful is the manufacture of sodium hypochlorite and calcium hypochlorite. Sodium hypochlorite is the main ingredient in bleach. Calcium hypochlorite is primarily used commercially.

Sodium hypochlorite when added to water produces: NAOCL + H2O = HOCL + OH- + NA+

Sodium hypochlorite plus water produces hypochlorous acid plus hydroxyl ions plus sodium ions. The objective, as with gaseous chlorine, is to add hypochlorous acid to the water. Similar chemistry applies with calcium hypochlorite.

The disadvantage for both sodium hypochlorite and calcium hypochlorite is the need to transfer dangerous chemicals to the POU. In addition, calcium hypochlorite supports combustion and is a fire hazard.

Envirocleanse-A

Envirocleanse is the latest entry for producing hypochlorous acid inexpensively and at the POU. No transport problems, no fire problems, and completely non-toxic to humans.

Envirocleanse electrolyzes brine to produce hypochlorous acid.

2NACL + 6H2O + ELECTRICITY = 2HOCL + O2 + 4H2 + 2 NAOH

The oxygen and hydrogen gases are vented to atmosphere and the dilute sodium hydroxide is a waste stream. As with gaseous chlorine or sodium hypochlorite, the remaining hypochlorous acid partially disassociates to: HOCl = H+ + OCl-

The combination of HOCl and OCl- effectively destroy the microorganisms.

Observations

HOCL from chlorine gas

- Chlorine gas produces sodium hypochlorite Cl2 + 2NaOH = NaCl +NaClO + H2O
- Sodium hypochlorite produces hypochlorous acid NaOCl + H2O = HOCl + Na+ + OH-

HOCL from ordinary salt

- Envirocleanse Brine plus electricity produces hypochlorous acid directly
  2NaCl + 6H2O + Electricity = 2HOCl + O2 + 4H2 + 2NaOH No harsh chemicals