HOCL solutions

The New Generation of Clean!

- **The following information is for educational purposes only.**

Disinfectant/Sanitizer

EPA Missouri and South Carolina registrations:

South Carolina
EPA Reg. No. 92108-1-96303
EPA Est. No. 96303-SC-1

Missouri
EPA Reg. No. 92108-1-88098
EPA Est. No. 88098-MO-1

Safe for Employees
Safe for sewer disposal
Safe for septic disposal
No required notification for spills

Registered in All 50 States

An alternative to toxic and less effective cleaning products

HOCL Solutions Disinfectant/Sanitizer is on the N-List to be used against SARS-CoV-2

List N: Products with Emerging Viral Pathogens AND Human Coronavirus claims for use against SARS-CoV-2
Date Accessed: 03/26/2020

EPA Registration Number	Active Ingredient/s	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Emerging Viral Pathogen Claim?	Date Added to List N
92108-1	Hypochlorous acid	Excelyte Vet	PCT LTD	Norovirus	10	RTU	Yes	03/26/2020

HOCL Solutions Disinfectant/Sanitizer has demonstrated effectiveness against viruses similar to COVID-19 on hard, nonporous surfaces. Therefore, HOCL Solutions Disinfectant/Sanitizer can be used against COVID-19 when used in accordance with the directions for use against Norovirus and Rhinovirus type 16 on hard, non-porous surfaces.

https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

HOCL Solutions Disinfectant/Sanitizer

Viruses Non Enveloped

KILLS Adenovirus (1 or Type 1) (Strain 71) (ATCC VR-1)
KILLS Norovirus or Norwalk Virus (as Feline Calicivirus) (Strain F-9) (ATCC VR-782)
KILLS Rhinovirus (16 or Type 16) (Strain 11757) (ATCC VR-283)
KILLS Rotavirus (A or Group A) (Strain WA) (ATCC VR-2018)

Viruses Enveloped

KILLS Canine distemper virus (ATCC VR-1587) [(Strain Snyder Hill)]
KILLS [Human] Hepatitis C [Virus] [(as bovine diarrhea virus)] [(HCV)] [(Strain ADL)] [(ATCC VR-1422)]
KILLS Human Immunodeficiency Virus Type 1 (HIV-1), strain IIIB (clade B); ZeptoMetrix
KILLS Influenza A (H1N1) Virus [(Strain A/Virginia/ATCC1/2009)] [(ATCC VR-1736)] [(flu virus)]
KILLS Influenza A Virus (H1N1) A Swine/1976/31 (ATCC VR-99) (flu virus)
KILLS Respiratory Syncytial Virus (RSV) (Strain A-2) (ATCC VR-1540)
KILLS Swine Flu Virus (H1N1) A Swine/1976/31 (ATCC VR-99)

Yeast

KILLS Candida albicans (ATCC 10231)

Bloodborne Pathogens

KILLS [Human] Hepatitis C [Virus] [(as bovine diarrhea virus] [(HCV)] [(Strain ADL)] [(ATCC VR-1422)]
KILLS Human Immunodeficiency Virus Type 1 (HIV-1), strain IIIB (clade B); ZeptoMetrix

Bacteria

KILLS Bordetella bronchiseptica [Kennel Cough] (ATCC 10580)
KILLS Clostridium difficile -spore (C. Diff or C difficile) (spores) (ATCC 43598)
KILLS Escherichia coli (E coli) (ATCC 11229)
KILLS Klebsiella pneumoniae New Delhi Metallo-Beta Lactamase (NDM-1)
KILLS Carbapenem Resistant (CRE)
KILLS Listeria monocytoqenes (Listeria) (ATCC 7644)
KILLS Methicillin-Resistant Staphylococcus aureus (MRSA) (ATCC 33591)
KILLS Pseudomonas aeruginosa (Pseudomonas) (ATCC 15442)
KILLS Salmonella enterica (Salmonella) (ATCC 10708)
KILLS Staphylococcus aureus (Staph) (ATCC 6538)
KILLS Vancomycin Resistant Enterococcus faecalis (VRE) (ATCC 51229)

Mycobacterium

KILLS Mycobacterium bovis, BCG (Tuberculosis -or -TB)

Parvoviruses Non Enveloped

KILLS Canine parvovirus (ATCC VR-2016) [(Strain Cornell)]

Food-Contact Surface Bacteria

KILLS Salmonella and Staphylococcus

HOCL Solutions
Disinfectant/Sanitizer

- Safe for sewer, Safe for septic
- Degrades to salt and water
- No toxic by products
- No toxic fumes
- No toxic volatile organic compounds
- Zero environmental impact

HOCl Solutions are the choice of business that place the need for customer safety, employee efficiency, and positive community relations as the foundation of their success.

Hypochlorous Acid (HOCL), our active ingredient can help you reach your goals and profits by reducing “sick” days, and reducing the spread of communicable diseases.

HOCL
Wound + Skin Spray

HOCL
Wound + Skin Gel

HOCL
Disinfectant/Sanitizer

HOCL Clean Hands and Skin

HOCL solutions offer an EPA Approved Disinfectant/Sanitizer and FDA Cleared that are safe products.

EPA Approved Disinfectant/Sanitizer

- Alcohol Free
- No Petrochemicals
- No Phosphates
- Dye Free
- Fragrance Free
- No VOC's
- Safe For Sewer
- Safe For Septic
- No Harsh Fumes
- Kills Bacteria
- Kills Viruses
- Germicidal Spray
- Multi-Purpose Disinfectant
- No Rinse Formula
- Non-Flammable
- Non-Greasy
- Non-Sticky
- No Harsh Chemicals

FDA Products

- Alcohol Free
- Non-Stinging
- Non-Irritating
- Non-Sensitizing
- Safe Around Eyes
- No Petrochemicals
- Moisturizer
- Safe
- Clean
- Natural Ingredients
- BPA Free
- Non-Cytotoxic
- Kid Friendly
- Pet Friendly

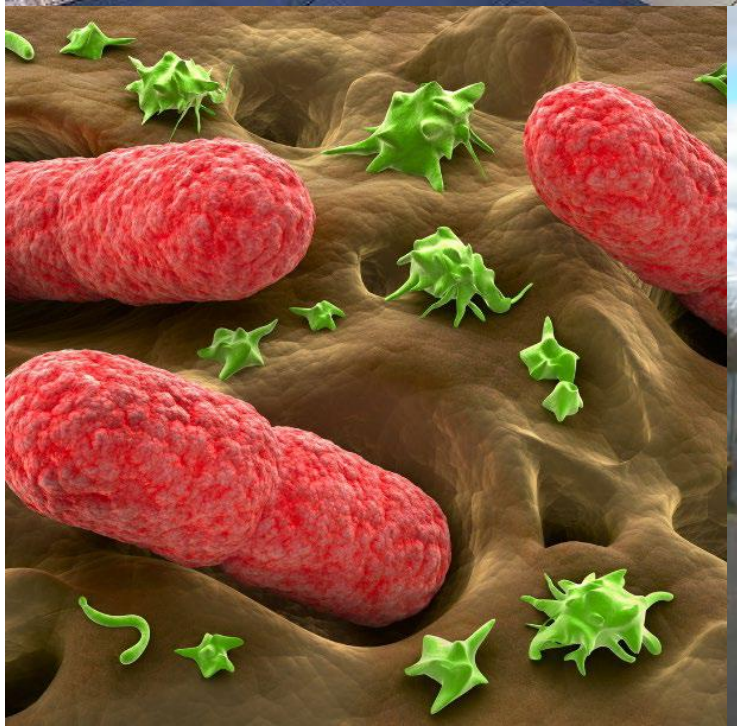
Biofilms

And other nasty things.

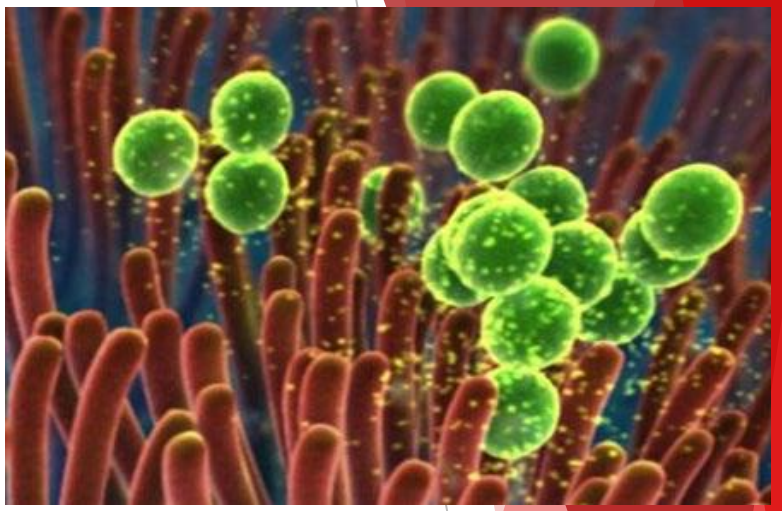
HOCL Solutions Disinfectant/Sanitizer

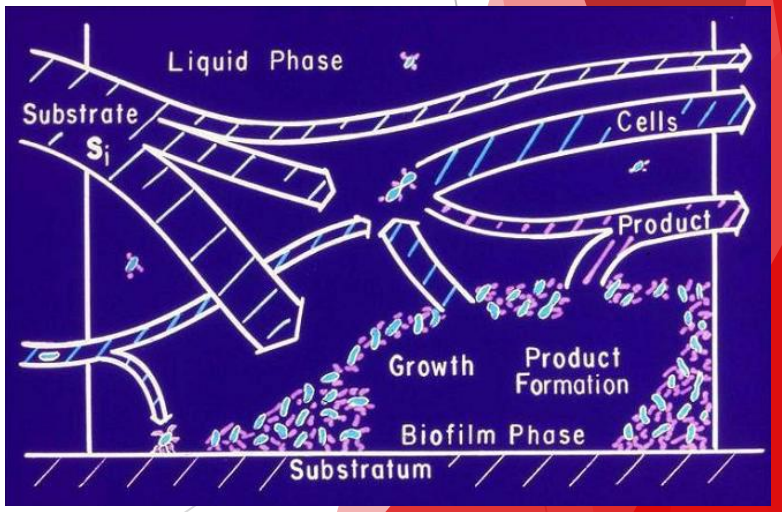
- Kills biofilms
- Kills odors
- Kills gram positive and gram negative bacteria
- Kills enveloped and non-enveloped virus
- Keeps coolers and freezers clean, safe and odor free.

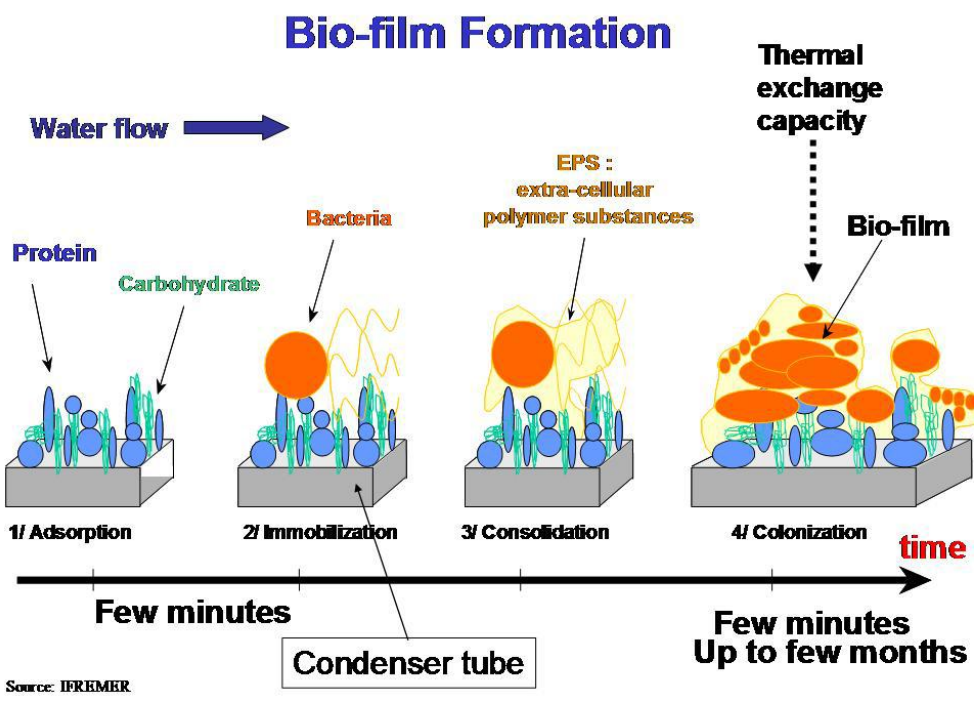
Kills: H1N1, Norovirus, TB, Rhinovirus, HIV, MRSA, CRE, VRE, C-diff, Listeria, Salmonella, Candida yeast, Staph, Pseudomonas, and Multi-drug resistant pathogens



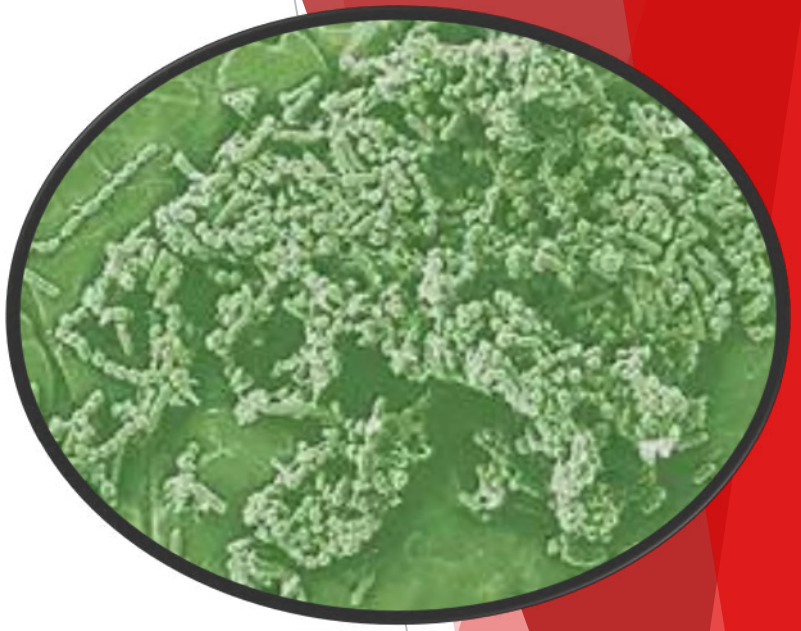
- IN THIS FIGURE WE SEE THAT MICROBIAL CELLS ARE INITIALLY PRESENT IN AQUEOUS SOLUTION IN SUSPENDED OR “PLANKTONIC” STATE. IF THESE CELLS FIND THEIR WAY NEAR A SURFACE THEY HAVE A VERY STRONG TENDENCY TO ADHERE TO THE SURFACE. IF ENVIRONMENTAL CONDITIONS IN THE AQUEOUS FLUID ARE FAVORABLE FOR GROWTH (I.E. SUFFICIENT SUBSTRATE AND GROWTH NUTRIENTS) THEN THE ATTACHED CELLS WILL GROW, DIVIDE AND FORM NEW CELLS ALONG WITH MATRIX OF EXTRACELLULAR POLYMER (EPS) WHICH BINDS THE CELLS TO EACH OTHER AND TO THE SURFACE (SUBSTRATUM). THE AGGREGATE OF CELLS AND EPS, TOGETHER WITH ANY TRAPPED INERT PARTICLES AND ORGANIC MATTER IS TERMED "THE BIOFILM". PRODUCTS OF CELL METABOLISM AND BIOTRANSFORMATION ARE RELEASED BACK INTO THE AQUEOUS PHASE ALONG WITH CELLS WHICH DETACH FROM THE BIOFILM.

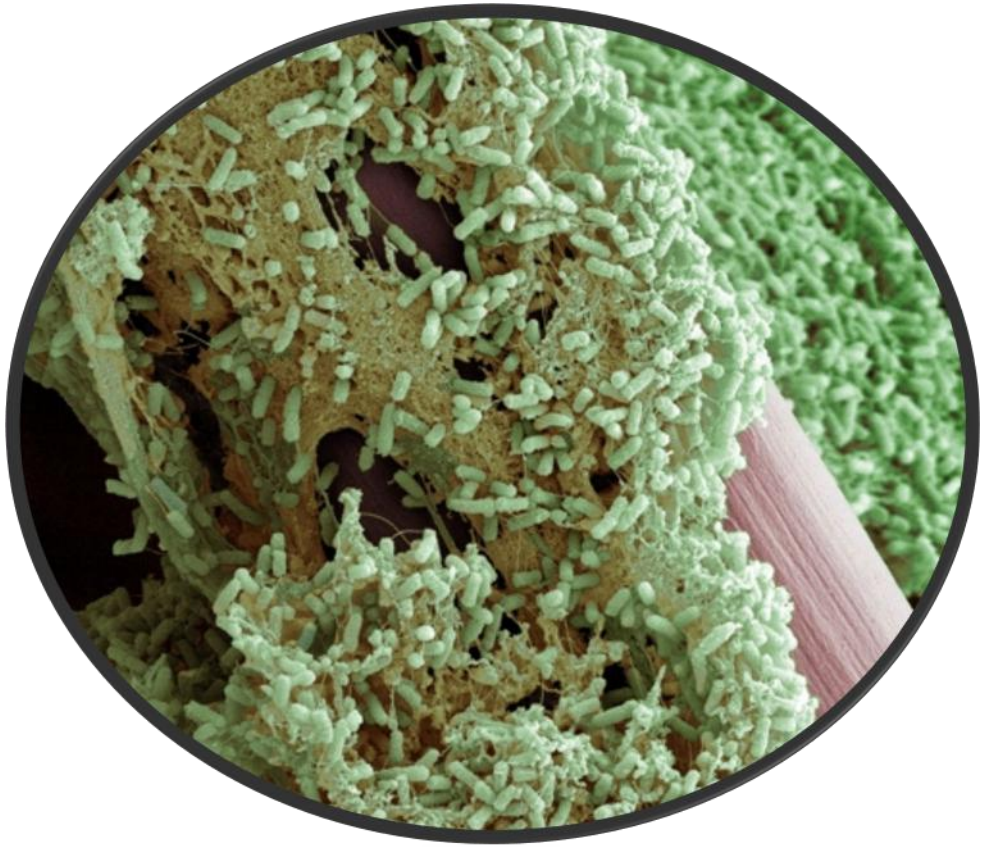





Bio-film Formation
Thermal exchange capacity
Water flow
EPS : extra-cellular polymer substances
Bacteria
Bio-film
Protein
Carbohydrate
1/ Adsorption
2/ Immobilization
3/ Consolidation
4/ Colonization
time
Few minutes
Few minutes
Up to few months
Condenser tube
Source: IFREMER

Disease-producing bacteria, including *Listeria*, can be 1,000 times harder to eliminate if it is living in a protective biofilm. Biofilms can be very difficult to remove from surfaces and are known to have an increased biocidal resistance due to the biofilm structure protecting the microorganisms. Biofilms can be a continual source of pathogenic and spoilage organisms if not completely removed.





Spoilage organisms such as *Pseudomonas* grow in biofilms and can be sloughed off during production, contaminate the food, and accelerate spoilage. The polymers secreted by the bacteria close to the surface are strong adhesives making the cells very difficult to remove. The cells in a biofilm actually take on specialized functions and can communicate with each other in a rudimentary way (called Quorum Sensing).

HOCL SOLUTIONS DISINFECTANT / SANITIZER REACTS WITH BIOMOLECULES

- Use in all listed area by EPA, that is to say machinery, production area, milking area, food prep areas, etc.
- USDA allows hypochlorous acid in many areas of food production, post-harvest of vegetables, meat and egg production as well.
- HOCl reacts with Sulfur containing molecules-Thiols
- Sulfur containing compounds such as cysteine, methionine, glutathione, react with HOCl 100 fold faster than any other cellular component. HOCl mediated oxidation of cysteine thiols gives rise to unstable Sulfenyl chloride intermediates which react with water to form oxidized cysteine sulfenic acids.
- In short, this leads to irreversible thiol modification that typically lead to protein degradation.

Our competitors only rupture the cell wall

- They do not destroy the genetic material.
- They do however, create mutants.
- This why pathogens become resistant to antibiotics, household cleaners and disinfectants

HOCL WOUND + SKIN SPRAY AND HYDROGEL

- FDA cleared 510(k) medical device
- Use liberally for maintaining healthy clean skin
- Safe for children and pets
- Safe for elderly
- Does not sting
- Soothes
- Essential as a first aid spray in work areas
- Contains no VOC’s (Volatile Organic Compounds) petrochemicals or sulfates

HOCL DISINFECTANT / SANITIZER

- Lowest toxicity level for mid-level hospital disinfectant.
- Will not harm the lungs, eyes, skin, or mouth.
- Removes mold and mildew stains
- Alcohol Free, No VOC’s (Volatile Organic Compounds), petrochemicals or sulfates

OSU Oregon State University Research Office

Fact Sheet
Disinfection Using Chlorine Bleach

December, 2011 / OSU Biological Safety / Environmental Health & Safety / 541-737-4557

Efficacy

Chlorine kills microorganisms by oxidizing free sulfhydryl groups, disruption of cell membrane and wall components, and degradation of a variety of cellular macromolecules.

The efficacy of the various forms of chlorine in water at killing microorganisms is as follows:

HOCl > OCl^- > inorganic chloramines > organic chloramines

The above hierarchy clearly shows that free chlorine is more efficacious than combined chlorine. Also, as noted above, HOCl is 100 times more effective as a disinfectant than OCl^-. Consequently, free chlorine is most effective at a pH of 5 to 7, where HOCl is the predominant form. The efficacy declines with increased pH.

• At a pH of 7.5, it is about 50/50 HCOl and OCl-.

• At a pH of 8.0, it is about 20 percent HCOl and 80 percent OCl.

HCOl is 80 to 300 times more effective than OCl-. For instance, it is more than 100 times more effective than OCl- against cysts and 60 to 70 times more effective against E. coli. The activity of OCl- as a sanitizer therefore can be compared to that of chloramines, (i.e. much below that of HCOl).

For good bacteriological quality, it is therefore essential to maintain a proper HCOl level in the water at all times. Total free chlorine readings, which combine both HCOl and OCl , cannot be depended upon for proper water maintenance

Hypochlorous Acid (HOCL) is known to be 80-100 x'S more effective than Bleach. So, when we say we are 500ppm FAC that is equivalent to 50,000 ppm of bleach without the toxicity.

Approved for Flowers and mold and bacteria control

We also offer products for flowers and post-harvest sanitizing.

- **AGRICULTURAL APPLICATIONS**
- **Cut Flowers or Plants:**
- For longevity of cut flowers or plants mix 1-2 ounces [(1/8 – 1/4 cup)] [Anolyte] [of this product] per quart of water
- To make a 15-30 ppm FAC solution for use in flower vase or buckets to retard the growth of non-public health bacteria.
- Change solution if it gets murky or hazy. Spray diluted solution on plants or flowers to control bacteria growth
- Increases flower hydration after cutting
- Prolongs freshness by eliminating bacterial decomposition.

HOCL Solutions vs Flower Fresh
DAY 10 AT ROOM TEMPERATURE

HOCL SOLUTIONS DISINFECTANT / SANITIZER

- Kills biofilms
- Kills odors
- Kills gram positive and gram negative bacteria
- Kills enveloped and non-enveloped virus
- Destroys the proteins of RNA and DNA
- Keeps coolers and freezers safe and odor free.