



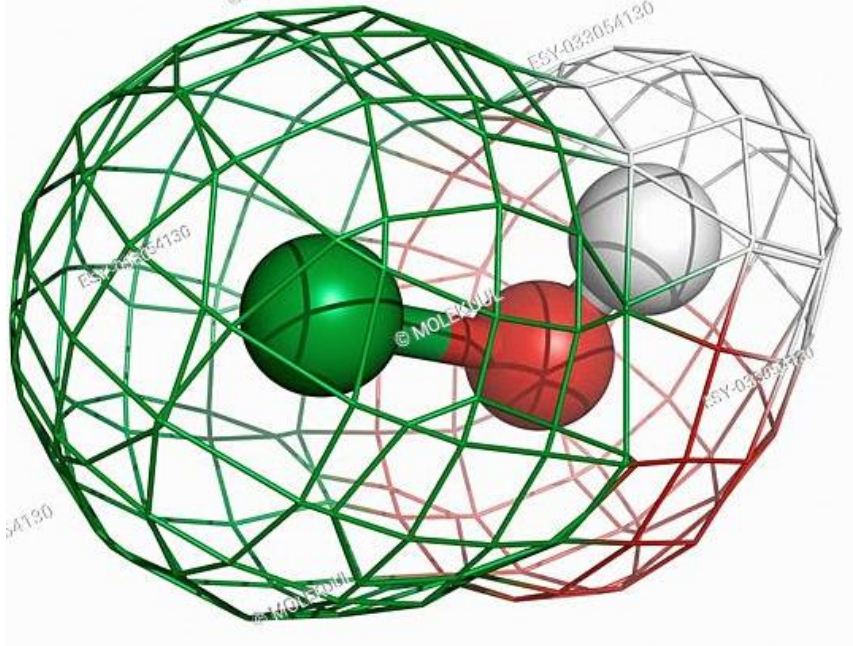
MEDICAL

atm plus



Eco Utility Systems

Hypochlorous Acid (HOCl)



also known as

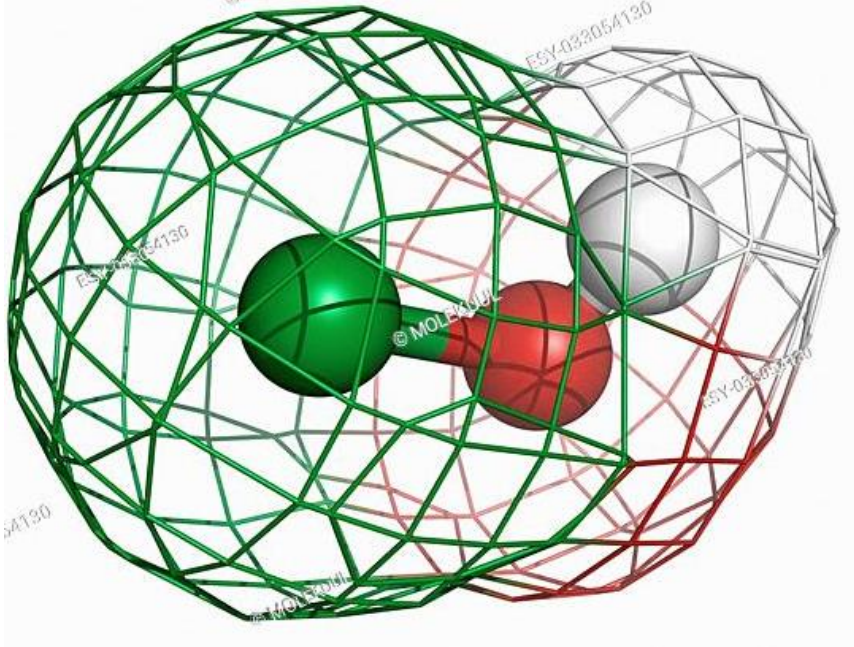
- electrolyzed water / electrolyzed reduced water
(ERW, EW)
- electrochemically activated water
(ECA)
- anolyte
(AEW, NEW, SAEW)

atm plus has a broad spectrum anti-microbial use



Eco Utility Systems

Hypochlorous Acid (HOCl)



atm plus

most effective disinfectant in the chlorine family

- No polar charge
- Low molecular weight

PERFECT structure to penetrate CELL WALLS

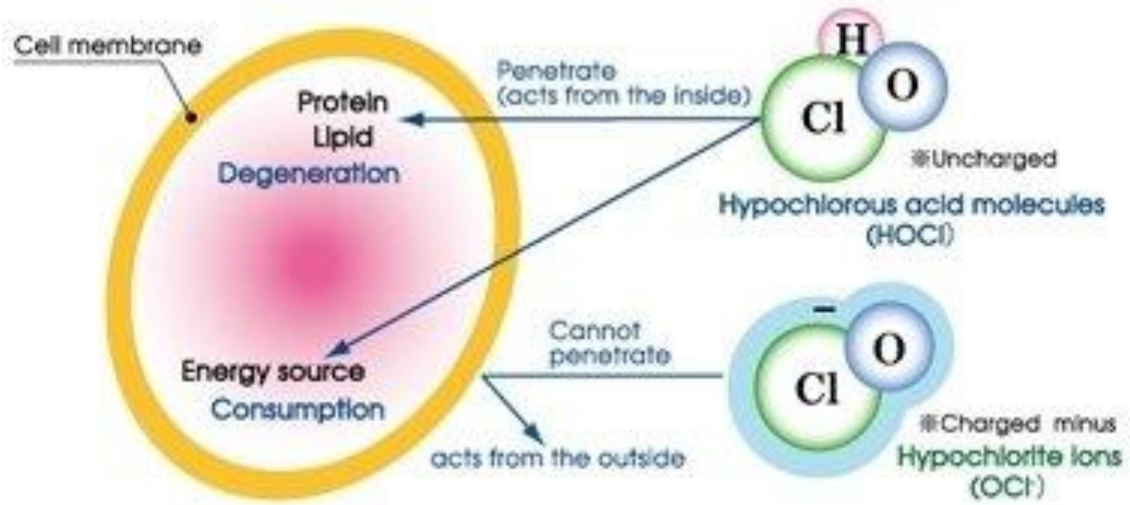
- HOCl is a WEAK ACID
- At a pH of 4 – 8.5 most available Chlorine is HOCl

NO RESIDUE after dissolving in water

- Solution stays active for
7 – 10 DAYS



Hypochlorous Acid (HOCl)



hypochlorousacid.com/about

- HOCl diffuse through cell membrane
- Without a polar charge it is not repelled
- OCl⁻ (BLEACH) is unable to penetrate cell membrane due to **negative charge**
- Bleach can only clean on the EXTERIOR
- HOCl acts from INSIDE

atm plus most effective disinfectant in the chlorine family

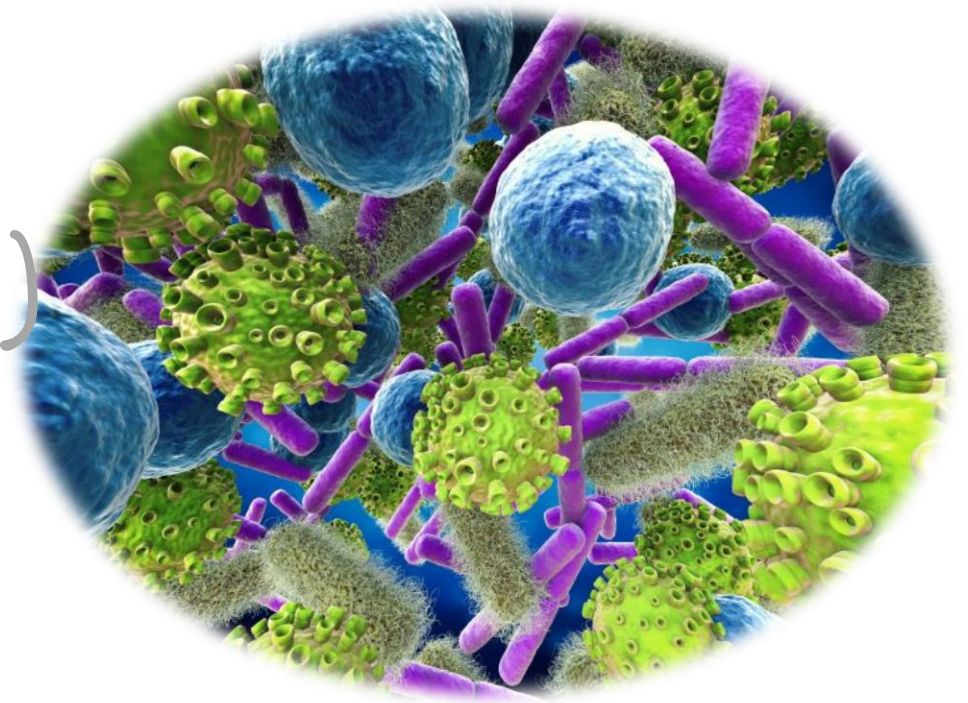


Eco Utility Systems

NATURE of Hypochlorous Acid (HOCl)

- Natural component of our own immune systems
- Fights against infection
- Reduces inflammation
- Bio-degradable in the environment

atm plus organic, lethal, cost effective



**“Hypochlorous acid is
LETHAL to every pathogen
it has been tested against
but completely HARMLESS
to humans and other
mammals.”**



phagocytosis

[fag-uh-sahy-toh-sis]

noun

Physiology. the ingestion of a smaller cell or cell fragment, a microorganism, or foreign particles by means of the local infolding of a cell's membrane and the protrusion of its cytoplasm around the fold until the material has been surrounded and engulfed by closure of the membrane and formation of a vacuole: characteristic of amoebas and some types of white blood cells.



- Neutrophils (WHITE BLOOD CELLS) seek out pathogens (VIRUSES AND BACTERIA) and destroy them using HOCl
- HOCl causes necrosis (RUPTURING OF THE CELL) and destroys the cell contents
- While disinfecting, HOCl is {OXIDISED} and consumed
- The only by-product is slightly salty water



EFFECTIVENESS OF HOCl

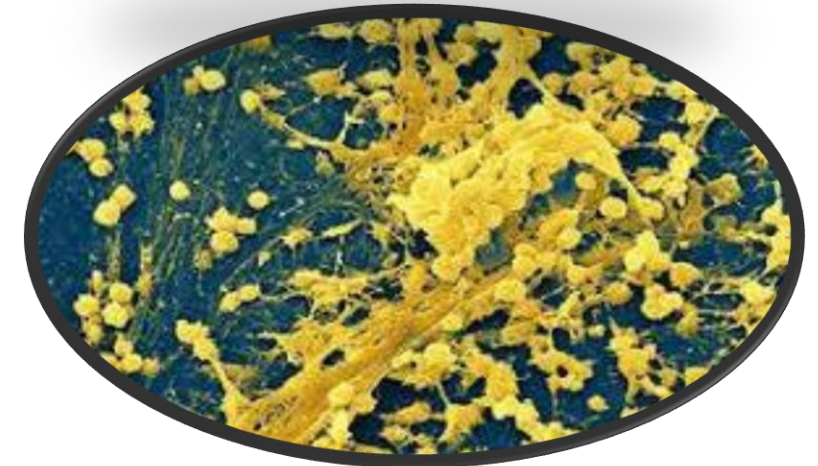
atm plus

disinfects and destroys:

- ✓ VIRUSES
- ✓ BACTERIA
- ✓ MOULDS
- ✓ FUNGI
- ✓ SPORES
- ✓ BIOFILMS

defends against:

- ✓ INFECTION
- ✓ RESISTANCE/TOLERANCE
- ✓ PATHOGENS BENEATH BIOFILMS
- ✓ FERMENTATION IN STORAGE



atm plus

80 – 100 times more effective than bleach



Eco Utility Systems

PROVEN EFFECTIVE AGAINST SARS-CoV-2

The latest peer approved scientific papers conclusively show that **HOCL effectively kills the SARS-Covid 2 virus**. The papers also compare HOCL to other disinfectants showing its comparative performance with other disinfectants such as bleach.

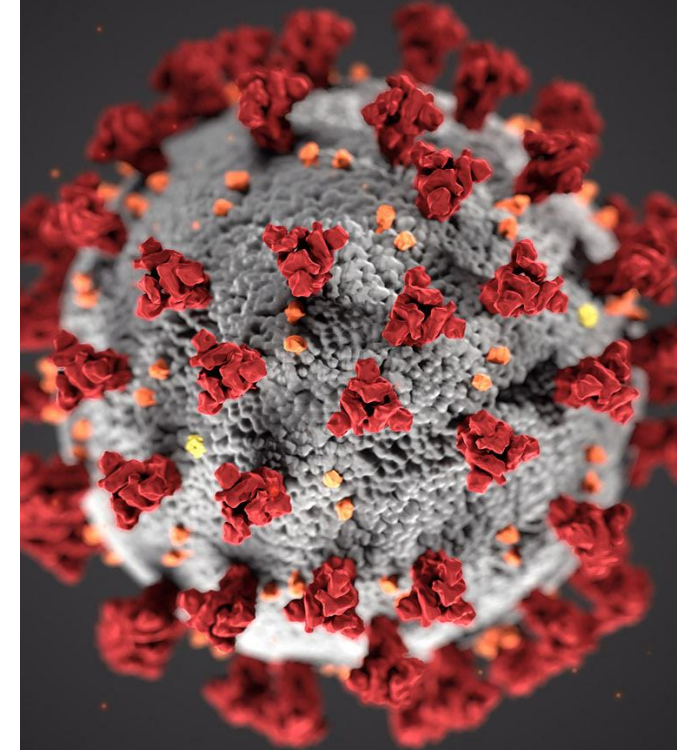
Chan K-H, Sridhar S, Zhang RR, Chu H, Fung AY-F,
Chan G, Chan JF-W,
To KK-W, Hung IF-N, Cheng VC-C, Yuen K-Y,
Factors affecting stability and infectivity of SARS-
CoV-2,
Journal of Hospital Infection,
<https://doi.org/10.1016/j.jhin.2020.07.009>.

‘The surgeon needs to have an **inexpensive, available, nontoxic, and practical** disinfectant that is effective in sanitizing against the COVID-19 (Coronavirus Disease 2019) virus.’

‘The results indicate that this material can be used with a **high predictability** for disinfecting against the COVID-19 (Coronavirus Disease 2019) virus.’

Michael S. Block, Brian G. Rowan,
Hypochlorous Acid: A Review,
J Oral Maxillofac Surg,
10.1016/j.joms.2020.06.029

atm plus 80 – 100 times more effective than bleach



Eco Utility Systems

atm plus

the effervescent tablet



HOCl concentrated into a 6 gram dissolvable tablet

1 tablet = 12.5l of disinfectant

consistent solution at 100PPM every time

active for 7 – 10 DAYS after dissolving
then returns to pure water

easy STORAGE

low TRANSPORT COSTS

1 year SHELF LIFE in tablet form

atm plus

effective at 25PPM to 200PPM depending on use



Eco Utility Systems

USES of atm plus

to name a few...

- DISINFECTING any and all surfaces
 - fresh fruit / veg preparation
 - hydroponics / irrigation
- AGRICULTURAL
 - pesticidal treatment
- LIVESTOCK
 - control / reduction of disease
 - improves digestion / feed conversion ratios
 - increase livestock yields
- MEDICINAL / DENTISTRY
 - mouthwash / wound care
 - waterline disinfection
 - scrubbing in

atm plus 100% organic, bio-degradable, MRL FREE



USES of atm plus

to name a few...

- HORTICULTURE
 - increase shelf life
 - reduces rotting / infection
- WATER TREATMENT
- FACILITIES
 - shopping centres
 - accommodation
 - office buildings
- TRANSPORT
 - airlines / airports
 - public transport
 - shipping / cruiseliners

atm plus safer exposure to humans than regular disinfectant



atm plus:

COMPARING DISINFECTANTS

	CHLORINATION	atm plus	ALCOHOL
Solution	Sodium Hypochlorite Solution	Hypochlorous Acid Solution	Isopropyl / ethanol / other
Compound description	NAOCl	HOCl	Ethanol, Triethanolamine
Other Name	Bleach	Anolyte	Alcohol
Usage Level	50ppm	5 - 500ppm	60% - 95%
MSDS Statements	Very hazardous in case of skin contact, eye contact, or ingestion. It is an irritant and corrosive. Prolonged exposure may result in skin burns and ulcerations	Under prescribed use conditions, the likelihood of adverse health effects are low. The solution is recommended for wound treatment. If any irritation occurs, flush with water	Highly flammable and combustible. Keep away from food, drink and animal feeding stuffs. Not corrosive. Non-Hazardous
Dose level harmful to humans	Yes	No	Yes
Effective as surface decontamination	Yes	Yes	No, due to evaporative nature
Kills Legionella	Yes	Yes	No
Removes Biofilm and Scale, and resulting bacteria	No	Yes	No
At high pH	Hypochlorite Ion (OCl ⁻)	Hypochlorous Acid (HOCl)	
Contact time	Up to 15 min necessary	Effective as fast as 30 seconds after application	10 Minutes
Biocidal impact	Only as disinfectant	As Disinfectant and Sporicidal agent	Only as disinfectant
Resistance	Bacteria develops a resistance	Bacteria is unable to develop resistance due to cellular level impact.	Bacteria develops a resistance
Rinse required	Yes	No	Yes



atm plus:

GENERAL USE

atm plus CAN BE USED TO CLEAN AND SANITIZE:

- Reception areas
- Administrative offices
- Mortuary
- Equipment
- Staff and patients hands, clothes and shoes



'As a Disinfectant/Sterilant, HOCl has greater killing power than Chlorine, Chlorinated Water, Chlorine Dioxide, Sodium Hypochlorite, Hydrogen Peroxide and Ozone'

atm plus

gentle, effective, safe – NO PPE NECESSARY



Eco Utility Systems

atm plus:

MEDICAL



- DENTAL
- WARDS
- RADIOLOGY
- EMERGENCY SERVICE

Hypochlorous acid is NON-Cytotoxic so it won't harm human cells

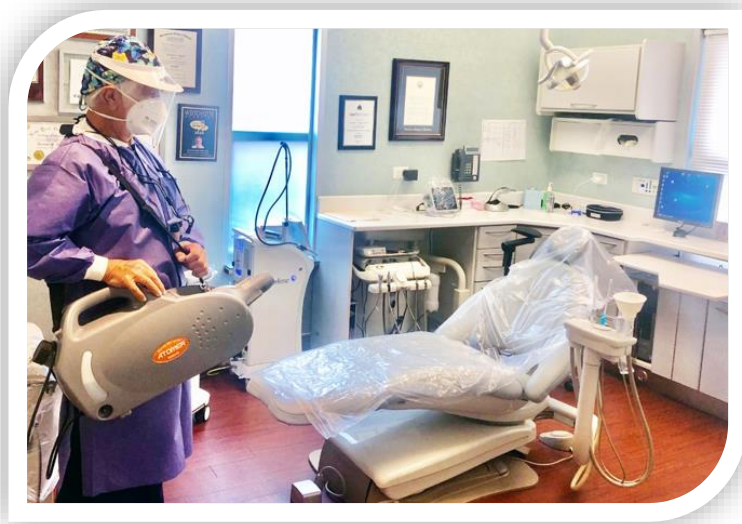
atm plus reduces overall bacterial spread



Eco Utility Systems

atm plus:

MEDICAL: DENTAL



- DENTAL UNIT WATERLINE DISINFECTION
- AS A MOUTHWASH
- ENVIRONMENT / EQUIPMENT DISINFECTION
- AS ANTIPLAQUE AGENT
- COLD FOGGING AGAINST VIRAL AIR PARTICLES

Hypochlorous acid is NON-Cytotoxic so it won't harm human cells

atm plus

reduces overall bacterial spread



Eco Utility Systems

atm plus:

MEDICAL

DESTRUCTION OF BIOFILM AND SCALE IN WATER LINES



atm plus

recommended use at 100 - 200PPM



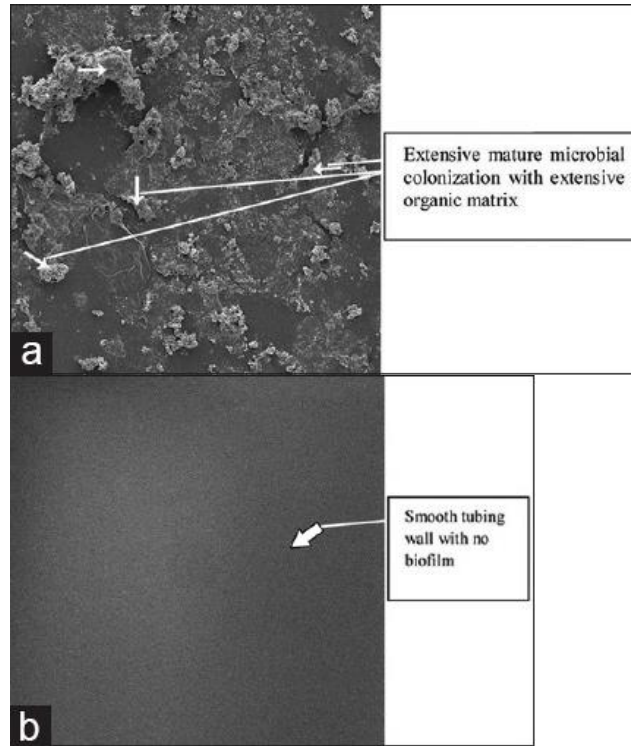
Eco Utility Systems

atm plus:

MEDICAL: DENTAL

DESTRUCTION OF BIOFILM AND SCALE IN DENTAL UNIT WATERLINES

- 13 New dental units
- Biofilm allowed to grow for 10 DAYS
- 12 Units Treated, 1 Untreated
- The results are definitive
- **Untreated** dental unit waterlines showed a **microbial colonization** with continuous filamentous organic matrix
- There was **no slime layer** or bacterial cells seen in any of the 12 **treated** dental waterlines which mean that there was **no evident of biofilm formation**



Scanning electron microscope images show the efficacy of the disinfectant or disinfection procedure.

- (a) The inner lumen wall of the cut section from the untreated dental waterlines (control tube) and the arrow indicates extensive mature microbial colonization with extensive organic matrix material.
- (b) (b) The inner lumen of the cut section of treated dental unit waterline (sample a) and the arrow indicates the smooth tubing wall with no biofilms

Shajahan IF, Kandaswamy D, Srikanth P, Narayana LL, Selvarajan R. Dental unit waterlines disinfection using hypochlorous acid-based disinfectant. *J Conserv Dent.* 2016;19(4):347-350. doi:10.4103/0972-0707.186441

atm plus

recommended use at 100 - 200PPM



Eco Utility Systems

atm plus:

MEDICAL

COLD FOGGING: TO DEFEND AGAINST AEROSOLS



- It carries no electrical charge and is not repelled by germs
- 100% safe, non-irritant, non-corrosive
- Use with ultra-low volume fogging machines
 - Mist over all areas
 - Will dry within a minute
 - Can be used between each patient

'Some disinfectants work by disrupting intermolecular interactions. They can't differentiate between human and microbial cells. HOCl {atm plus} breaks down to prevent this'

atm plus

"the form of free available chlorine that has the highest bactericidal activity against a broad range of microorganisms" (US FDA, 2015)



Eco Utility Systems

atm plus:

MEDICAL: RADIOLOGY

COLD FOGGING: TO DEFEND AGAINST AEROSOLS



- Hospitals are facing increasingly resistant strains of micro-organisms
- Hard to properly disinfect electronic equipment like
 - CT and MRI scanners

Studies Show:

TBC (Total Body Count) **Reduction** of 78.99 – 92.50%

By using HOCl {atm plus}

Pintaric, Robert et al. "Suitability of electrolyzed oxidizing water for the disinfection of hard surfaces and equipment in radiology." *Journal of environmental health science & engineering* vol. 13,1 6. 28 Jan. 2015, doi:10.1186/s40201-015-0160-8

atm plus

Biocide aerosolization proved to be efficient and safe in all applied way



Eco Utility Systems

atm plus:

MEDICAL: WARDS

HOUSEKEEPING

- Studies show only 40 – 50% of surfaces are cleaned
- Wiping takes time
- Staff shortages reduces efficacy
- Inappropriate dilution causes inefficient cleaning

HOCI MAY BE SPRAYED ON AND LEFT WITHOUT WIPING

- Reduces cleaning time
- Does not reinfect with dirty cloth



'HOCl {atm plus} does not leave toxic residues'

atm plus

does not cause irritation of eyes, skin or respiratory systems



Eco Utility Systems

atm plus:

MEDICAL: WARDS

HOUSEKEEPING

HOCI MAY BE SPRAYED ON:

- Beds
- Equipment
- Linen
- Surfaces
- Bathrooms
- Hands



'HOCl {atm plus} is efficient in 15 seconds'

atm plus

does not cause irritation of eyes, skin or respiratory systems



Eco Utility Systems

atm plus:

FOOD PROCESSING



- wash and rinse fruit and vegetables
– NO RESIDUE ON PRODUCT
- disinfect and clean equipment
– PREP AREAS, SORTING
– PPE, BOOTS, TOOLS
- disinfect KITCHENS, TROLLEYS AND TRAYS



atm plus spray, wipe and dry: NO RINSE REQUIRED



Eco Utility Systems

atm plus:

FOOD PROCESSING

Disinfection of leafy vegetables with activated waters

Lettuce was treated with tap water (c) anolyte without salts (1) and HOCl {atm plus} (2) for 15 minutes



Lettuce after 24 hours of application



Lettuce after 1 week of application

Journal of Advances in Agriculture Vol 9 (2018) ISSN: 2349-0837

Conclusion: vegetables treated with HOCl stay **FRESH** (free of bacterial decay) for longer

atm plus

use at max 60PPM on fresh produce



Eco Utility Systems

atm plus:

FOOD PROCESSING

ON CONTACT SURFACES



- Reduces biofilm formation – with SUBMERSIVE treatments of 30 seconds
- Eliminates bacterial contamination
- Effectiveness is not dependent on surface type
 - Plastic cutting boards
 - Wooden cutting boards
 - Steel preparation areas

'For fresh meats, a commonly used antimicrobial is organic acids like HOCl {atm plus}'

atm plus should be used with an appropriate degreaser



Eco Utility Systems