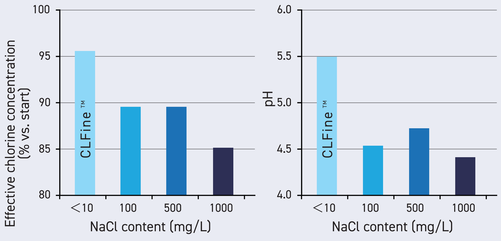
CLFine™

IONLESS™ Hypochlorous Water

PURE

Ionless™ Hypochlorous Water

CLFine™ is made from Japanese Pharmacopoeia sodium chloride and purified water. It is manufactured based on JIS* B 8701:2017, using a dedicated device (three-chamber electrolyzed-water generator) that complies with hypochlorous acid water generators, which reduces ions such as NaCl, nitrate ions, and sulfate ions. The water quality also complies with the water quality standards stipulated in the JIS standard.



Stability : Storage Condition: 40°C - 1 month

Standard: Effective chlorine concentration 40±10ppm (30ppm=65% vs. start) pH 5.0~6.5

Chloric acid content less than 0.6ppm (meets tap water quality standards in Japan)

* JIS: Japanse Industrial Standards



CLFine™

IONLESS™ Hypochlorous Water

SAFE

Realization of an aerosol mist of Ionless™ Hypochlorous Water based on safety tests

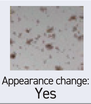
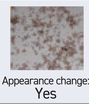
CLFine™ is adjusted to an effective chlorine concentration of 40±10 ppm and can be used without dilution. Additionally, the pH is adjusted to be slightly acidic, and the effects of metal corrosion and the influence of an aerosol mist of Ionless™ Hypochlorous Water on living organisms have been confirmed.

As for the spatial effective chlorine concentration, we recommend adjusting it according to the customer's environment, with reference to the standard chlorine control concentration (0.5 ppm) specified in the Industrial Safety and Health Act in Japan.

Corrosion Study

Study Facility: JFE Techno-Research Corporation
Test Method: Accelerated test by diverting JIS* C 60068-2-52

* JIS: Japanese Industrial Standards

Test material	Hypochlorous water		Tap water
	Space chlorine concentration 0.02ppm	Space chlorine concentration 0.5ppm	
SUS304	 Appearance change: None	 Appearance change: None	 Appearance change: Slight
iron	 Appearance change: Yes	 Appearance change: Yes	 Appearance change: Significant
electronic substrate component	 Appearance change: None	 Appearance change: None	 Appearance change: Slight



NIPRO

Live Longer. Live Better.

CLFine™

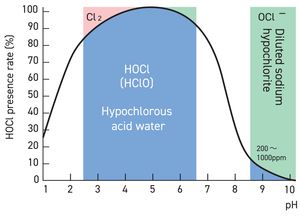
IONLESS™ Hypochlorous Water

EFFECTIVE

Effectiveness of reduction and disinfection of bacteria and viruses by Ionless™ Hypochlorous Water

As hypochlorous water has a higher ratio of hypochlorous acid (HOCl)* - an antimicrobial agent - than sodium hypochlorite, it exhibits high activity at low concentrations. CLFine™ is an Ionless™ Hypochlorous Water with a high level of hypochlorous acid (HOCl), adjusted to pH 5.0 to 6.5.

*HOCl is a weak acid that forms when chlorine dissolves in water.

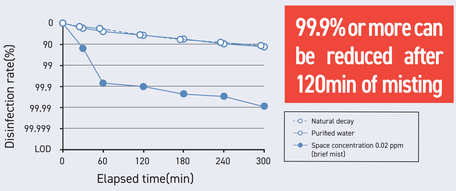


Reference: "Norovirus prevention and Electrolyzed Water" Functional Water Foundation 2008

Disinfection of indoor airborne bacteria

Airborne bacteria (Staphylococcus aureus)

Number of disseminated bacteria: 100,000 or less



99.9% or more can be reduced after 120min of misting

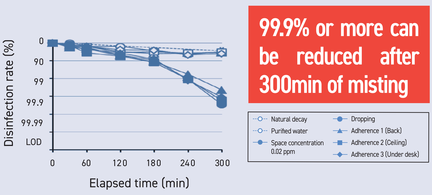
Study Facility: Kitasato Research Center for Environmental Science (Japan)

Study Method: After evenly spreading Staphylococcus aureus in a test space of 9.72m², the decrease in the number of bacteria when misting with CLFine™ was evaluated.

Disinfection of indoor surface-adhering bacteria

Surface-adhering bacteria (Staphylococcus aureus)

Number of disseminated bacteria: 100,000 or less



99.9% or more can be reduced after 300min of misting

Study Facility: Kitasato Research Center for Environmental Science (Japan)

Study Method: Petri dishes seeded with Staphylococcus aureus were installed in a test space of about 9.72m², and the decrease in the number of bacteria when misting with CLFine™ was evaluated.

In vitro disinfection rate test

HOCl concentration which demonstrated bacterial inactivation effects of 3 log or more

(= inactivation rate: 99.9% or more)

Bacteria species	Duration of action			
	20s	1min	5min	30min
Staphylococcus aureus	≧ 3ppm	≧ 3ppm	≧ 3ppm	≧ 3ppm

Study Facility: VibioSphen (France)

Study Method: Evaluated the decrease in the number of viruses when virus suspensions were mixed with various concentrations of CLFine™ for a certain period of time.

In vitro virus reduction rate test

HOCl concentration which demonstrated bacterial inactivation effects of 3 log or more

(= inactivation rate: 99.9% or more)

Bacteria species	Duration of action			
	20s	1min	5min	30min
SARS-CoV-2 (novel coronavirus)	≧0.3ppm	≧0.3ppm	≧0.3ppm	≧0.3ppm
Influenza virus type A/H1N1	≧1ppm	≧0.3ppm	≧0.3ppm	≧0.3ppm

Study Facility: VibioSphen (France)

Study Method: Evaluated the decrease in the number of viruses when virus suspensions were mixed with various concentrations of CLFine™ for a certain period of time.



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