



Ion Exchange Method

Hypochlorous Acid Water  
Generating Machine

# Ion★Changer



Product catalog



# Hypochlorous acid water is a disinfectant that originated in Japan.

## Disinfection Spectrum

### Hypochlorous Acid Water 200ppm pH5.0 ~ 6.9(Ion Exchange Method)

spore-Foaming Bacteria: • Bacillus subtilis • Bacillus cereus • Geobacillus stearothermophilus

### Sodium Hypochlorite Solution [ 200ppm (0.02%) pH9~ ]

Viruses: • Noro(=Feline calicivirus) • Influenza(filamentous fungi) • Candida albicans etc.

### Alcohol (Ethanol)

General Bacteria: Staphylococcus aureus • Escherichia coli • Lactic acid bacteria etc.

Food Poisoning Bacteria: Salmonella enterica • Pseudomonas aeruginosa • Serratia • Campylobacter

Vibrio parahaemolyticus • Listeria monocytogenes • Yersinia enterocolitica etc.

Pathogenic Bacteria: Escherichia coli O157 • Vibrio cholerae • Shigella etc.

Fungi: Mold(Aspergillus) etc.

\*The above figure shows the general spectrum of the disinfectant.  
\*It is not a guarantee of efficacy against specific bacteria or viruses.

## HOCL Water is...

Disinfectant originated in Japan.  
\*\*HOCL is generally produced by white blood cells to fight infection



## Compare with Alcohol

Produce Cost & Skin Effect: **Lower**

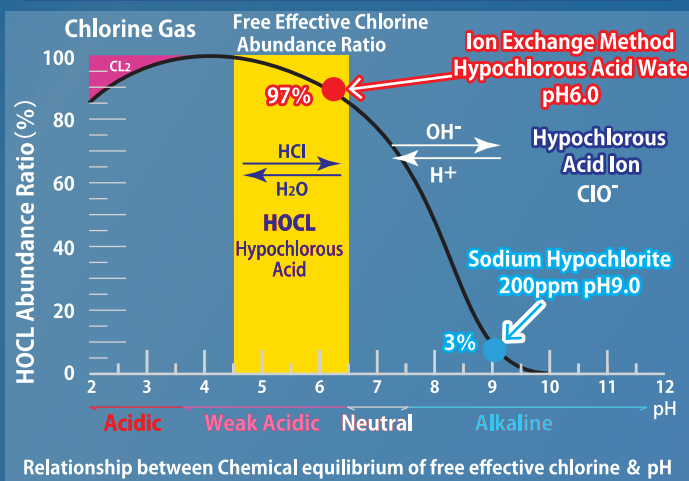
Sterilization Time: **Faster**

Versatility of Use: **Higher**



## The BEST pH value for HOCL Water is between 4.5 and 6.5 !!!

### Unique stable manufacturing method for outstanding reliability

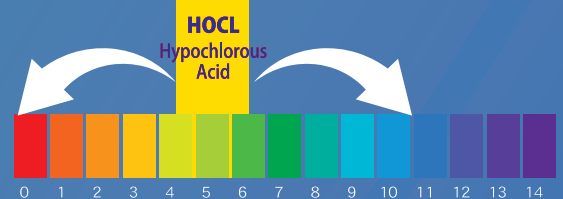


In this pH range, HOCL water is most effective, stable and can be stored for a long time.

Our machine produces HOCL water with a pH value in this best condition.

When the pH tends to acidity, the risk of toxic chlorine gas generation increases.

When the pH tends to alkaline, the active ingredient, HOCL, decreases.



## ION Exchange Method: Generating Flow



check!

Ion exchange agent removes calcium and magnesium from tap water.

check!

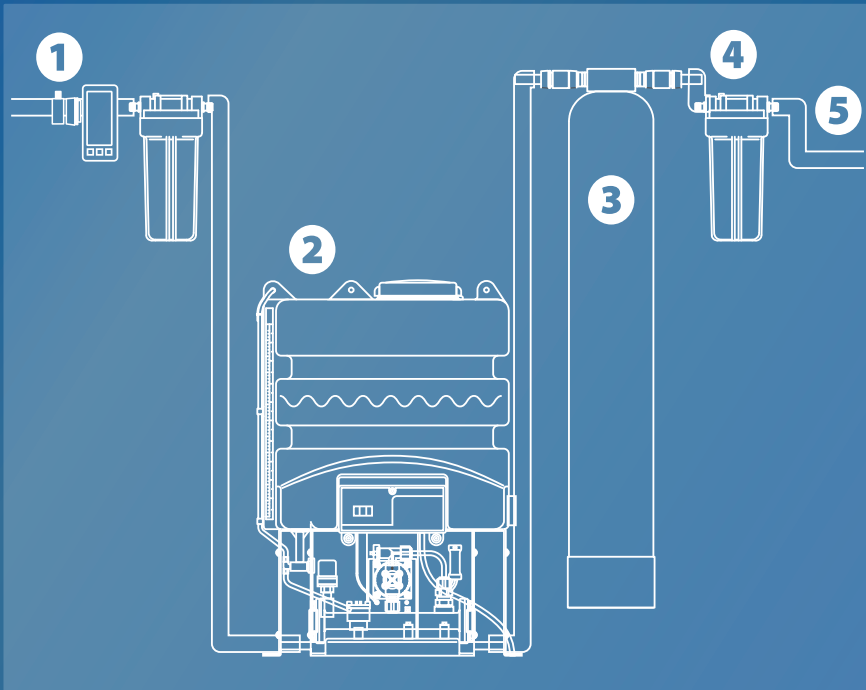
Ion exchange agent controls the pH value in the range of 4.5 to 6.5.

# Sodium hypochlorite (food additive quality) and Water are ONLY used.

Our unique technology adjusts pH and removes impurities.  
It is a deodorizer and sanitizer that has improved the safety,  
sanitizing power, and stability of hypochlorous acid water.

## Simplified Production System

Concentration can be set from 50ppm to 300ppm.



1

Regular tap water (10L/min) is passed through a water purification filter.

2

Drip a commercial sodium hypochlorite (12%) into tap water by to the flow rate proportion to make a sodium hypochlorite solution.

3

The sodium hypochlorite solution is reacted with ion exchange agent to produce **hypochlorous acid water**.

4

Remove impurities from the generated hypochlorous acid water and purify it.

5

Dilute the hypochlorous acid water by its intended use and bottle it in a light-shielding bottle.

**One-step installation.**  
**All you need is water and power.**

POINT

### Cost performance

1

Can be installed with minimal initial cost and lead time.

POINT

### Simple production process

2

No special knowledge or training required.  
One-step control of chlorine concentration

POINT

### Safety in handling

3

Human and environmentally friendly manufacturing methods, products, and waste



## Anti-virus Effect Test on SARS-CoV-2

This test revealed that 25ppm of Hypochlorous Acid Water (Ion Exchange Method) inactivates the virus.

※ + indicates a bactericidal reaction.

※ Positive & Negative control experiments were conducted.

※ TCID50 : Refers to the concentration of virus that is infectious to 50% cultivation.

※ Test was performed by Department of Veterinary Pathology, Faculty of Agriculture University of Miyazaki on July,2020.

### Effect on SARS-CoV-2 for 1-minute, 2-minute, and 10-minute actions

Virus titer 250 TCID <sub>50</sub>	1min.	2min.	10min.
100ppm	+	+	+
50ppm	+	+	+
25ppm	+	+	+
12.5ppm	+	+	+
6.2ppm	+	+	+
3.1ppm	+	+	+
1.5ppm	+	+	+
Positive control	-	-	-

No CPE was found in the positive control.

5,000 TCID <sub>50</sub>	1min.	2min.	10min.
100ppm	+	+	+
50ppm	+	+	+
25ppm	+	+	+
12.5ppm	+	+	+
6.2ppm	-	-	-
3.1ppm	-	-	-
1.5ppm	-	-	-
Positive control	-	-	-

CPE: A morphological change seen in cultured cells infected with a virus.

**NEW!!**

Anti-virus Effect Test on

SARS-CoV-2

by University of MIYAZAKI on July,2020

25ppm HOCL water inactivates 97.2% of Virus

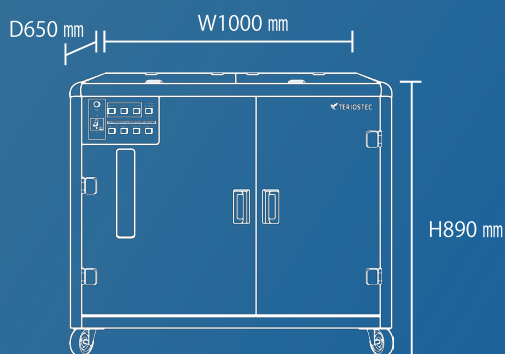
**50ppm inactivates  
99.9% of SARS-CoV-2**

## Running cost

■ Hypochlorous acid concentration: 200 ppm (Example)

Item	Retail price (¥)	Production volume (L)	Unit production cost(¥/L)
Including ion exchange resin (strong acidity) Cylinder (for replacement)	50,000	3,000	16.7
Replacement filter (2pcs)	3,000	3,000	1.0
Sodium hypochlorite (12%) 20L	3,000	12,000	0.3
Tap water/Electricity	—	—	—
total			18.0

## Dimensional Drawing



## Specifications

Model		TM-300R2
Dimension		W100xD65xH88 (cm)
Weight		About120kg
Power Source		AC 100-220V 50/60Hz ※Depend on Countries
Power consumption		12W
Water Supply	Water Pressure	Depends on Countries
	Water Temperature	5～34℃
Generation	Amount	Maximum 600 Litter/Hour
	Effective Chlorine Concentration	50-300ppm
	p H	4.5-6.5
Additive Solution		12% Sodium Hypochlorite
Tank Capacity		25 Liter

\*This specification is subject to change without notice.

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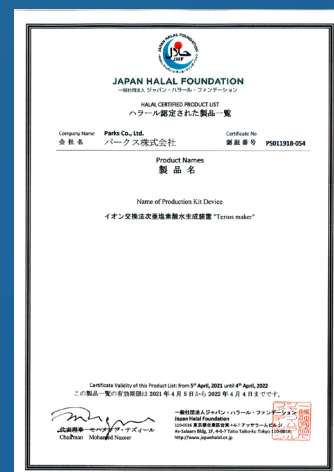
Phone : 045-594-6981

WebSite : www.teriosec.jp

For more information about the product,  
please refer to the website video on the right.

Machine : <https://www.youtube.com/watch?v=yRPf8T-QPKs>

## Halal Certification



Halal certification is a guarantee that the product or service in question conforms to the provisions of Islamic law and can be eaten, used, or utilized by Muslims with confidence.

※Halal is an Arabic word meaning "what is permissible."

## Recommended Use by Concentration

**This machine allows you to set the concentration from 50ppm to 300ppm.**

- 50ppm : Ideal for use in space spraying with an atomizer
- 100ppm : Various types of cleaning, surface sterilization and deodorization
- 200ppm : Hand hygiene, facility cleaning (Falling bacteria & Adhesive bacteria)
- 300ppm : Environmental improvement in agriculture and livestock

### Consumables (sold separately)

- Sodium hypochlorite
- Cylinder with ion exchange resin
- Purification filter (replacement)

**Please purchase from your local distributor.**

