Chemical-free prevention of bacterial food poisoning
Employing electrolyzed water production equipment greatly changes daily sanitation management practices. Washing and disinfecting of cooking utensils and sterilization of foodstuffs are vastly simplified—almost like washing without soap. Electrolyzed water is highly effective against microbes, the main cause of food poisoning, and acts to prevent both primary and secondary contamination. Paired with an accurate grasp of the routes of contamination, use of electrolyzed water production systems offers an efficient means of providing effective sanitation management.

The critical point in ensuring the prevention of food poisoning is "interrupting the route of contamination between foods."

**Primary Contamination**
This comprises contamination of foods directly from the natural environment, such as locations where foods are produced. This is broadly considered as contamination present at the time the food is received.

**Secondary Contamination**
This type of contamination arises indirectly from utensils and counters used in food processing, food handlers’ hands and fingers, and other points of contact.

Shouldn’t YOU be taking another look at your approach to sanitation management thus far?

"We do want to be stringent in following the "Sanitation Management Manual for Large-Scale Food Processing Facilities" guidelines,..."  
...but the work is so busy, and proper sanitation management takes a lot of effort..."
Electrolyzed water actively prevents contamination.

- **Food Poisoning**: Food is sterilized with acidic electrolyzed water (sanitizing water).
- **Washing**: Contaminants are washed away with alkaline electrolyzed water (cleaning water).
- **Disinfecting**: Acidic electrolyzed water (sanitizing water) is effective against nearly all types of food poisoning.

Prevention of Primary Contamination

Prevention of Secondary Contamination

Electrolyzed water changes sanitation management.

- **Increased Safety**: Decreases residues while inhibiting retention of chlorine odors.
- **Improved Workflow**: No diluting required. Facilitates smooth operations.
- **Greater Economy**: Only 0.02 Aed per liter. Enables large-scale use.
How is Food Poisoning Prevented?
[Bacterial Food Poisoning]

Despite the remarkable improvements in Japan’s living environment each year, there has been no downturn in the incidence of food poisoning, which instead harms tens of thousands annually.

**Incidence of Food Poisoning by Year** (Figures for incidence of food poisoning from Ministry of Health, Labour and Welfare)

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How does bacteria food poisoning occur?

- **In the course of major food processing operations**

<table>
<thead>
<tr>
<th>Critical Aspects</th>
<th>Processes in which bacterial ingress should be prevented</th>
<th>Processes in which bacterial proliferation should be prevented</th>
<th>Processes in which bacteria should be killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocking and Inspection</td>
<td>Improper management of workers or inadequate inspections during stocking of foods</td>
<td>Insufficient washing of ingredients in the processing stages</td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td>&quot;Cross-contamination&quot; of meat, fish, and vegetables</td>
<td>Excessively high temperatures during freezing and refrigeration</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td>Inadequate heat used in cooking</td>
<td></td>
</tr>
<tr>
<td>Cooking</td>
<td>Insufficient cleansing of hands and fingers or presence of wounds</td>
<td></td>
<td>Cutting boards, knives, and other implements in food processing not cleaned sufficiently</td>
</tr>
</tbody>
</table>
What is Bacterial Food Poisoning?

Approximately 50% of all cases of food poisoning is caused by bacteria.

<table>
<thead>
<tr>
<th>Major Bacteria</th>
<th>Vibrio parahaemolyticus</th>
<th>Salmonella</th>
<th>Campylobacter</th>
<th>Pathogenic E. coli</th>
<th>Staphylococcus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>Proliferates rapidly in seawater (Perishes in 8-10 minutes at 60°C)</td>
<td>Carried by flies and cockroaches (Perishes in 20 minutes at 60°C)</td>
<td>Present in livestock and pet intestines, proliferate in temperatures at 4°C (Perishes in 15 minutes at 60°C)</td>
<td>Well water, practically all environments (Perishes in 30 minutes at 60°C)</td>
<td>Present in human nasal and throat passages and open wounds (Perishes in 10 minutes at 80°C)</td>
</tr>
<tr>
<td>Main Foods Contaminated</td>
<td>Seafood, Compound foods</td>
<td>Eggs and processed foods containing eggs, Compound foods, Vegetables and processed foods containing vegetables</td>
<td>Meat and processed foods containing meat</td>
<td>Meat and processed foods containing meat, Compound foods, Vegetables and processed foods containing vegetables</td>
<td>Cereal grains and processed foods containing cereal grains</td>
</tr>
</tbody>
</table>

There are various types of bacteria that cause illness.

Bacteria, regardless of type, pose a danger throughout the year.

Incidence of Food Poisoning by Month

Spring | Summer | Autumn | Winter

This is how to prevent bacterial food poisoning.

Maintaining these three basic food poisoning prevention principles is critical in preventing primary and secondary contamination.
What Are the Effects of Electrolyzed Water?

Each of the two types of electrolyzed water generated by ROX Series units has different effects. Using the two types separately according to their respective qualities or in combination produces excellent results in improving efficiency in sterilizing food, washing and disinfecting cooking utensils, and other related tasks.

**Step 1**
Alkaline electrolyzed water (cleaning water) washes away slime and grime that are difficult to remove by washing with water alone.

**Step 2**
Acidic electrolyzed water (sanitizing water) washes away any remaining germs, leaving the surface clean.

---

**Effective for Washing**

Alkaline electrolyzed water (cleaning water) contains as an active ingredient a small amount of sodium hydroxide (NaOH) capable of dissolving proteins and emulsifying oil and fats. It is also useful for neutralization following disinfecting with acidic electrolyzed water (sanitizing water).

- Dissolves and emulsifies proteins, fats, and oils.

Alkaline electrolyzed water (cleaning water) dissolves and emulsifies proteins, fats and oils, and other organic matter difficult to remove with regular water and washes them away.

---

**Comparison of Emulsification of Oil with Alkaline Electrolyzed Water (Cleaning Water) and Tap Water**

1 ml of Chinese chilli oil was mixed into 10 ml alkaline electrolyzed water (cleaning water) and 10 ml tap water. The oil in the tap water separates, while emulsification of the oil begins immediately in the alkaline electrolyzed water (cleaning water). *The actual state of emulsification may differ than that depicted here.*

- **Alkaline Electrolyzed Water (Cleaning Water):** Allows oily contamination to be rinsed away.
- **Tap Water:** Only contamination cannot be lifted and washed away.
Effective for Disinfecting

Acidic Electrolyzed Water (Sanitizing Water)

The sodium hypochlorite (HCIO) in acidic electrolyzed water (sanitizing water) sterilizes approximately 80 times faster than sodium hypochlorite solutions of the same concentration.

- Exhibits more powerful antimicrobial efficacy than sodium hypochlorite.

While the abundant hypochlorite in acidic electrolyzed water (sanitizing water) from ROX systems contains the same effective chlorine in chlorine ions (ClO-) of which sodium hypochlorite contains large numbers, there is a huge difference in antiseptic efficacy, with the hypochlorite in acidic electrolyzed water (sanitizing water) exhibiting much greater antimicrobial power.

- Shown to be powerful in preventing secondary contamination

Results of testing by Hoshizaki using agar food stamps

<table>
<thead>
<tr>
<th>General Bacteria</th>
<th>Coliform Bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Processing</td>
<td>After Processing</td>
</tr>
<tr>
<td>Before Processing</td>
<td>After Processing</td>
</tr>
</tbody>
</table>

A cutting board surface was washed for approximately 30 seconds with ROX acidic electrolyzed water (sanitizing water). You can see the reduction in colonies of general bacteria and E. coli.

- Low residues means greater assurance of safety.

Comparison of Residue for Acidic Electrolyzed Water (Sanitizing Water) and Sodium Hypochlorite (Test performed by Hoshizaki)

Following sterilization of apple wedges (approximately 600g) with sodium hypochlorite (pH9.3, A.C.C. 200 mg/kg) and acidic electrolyzed water (sanitizing water) (pH12.6, A.C.C. 30 mg/kg), the apple pieces were washed for approximately 15 seconds in tap water, and the chlorine residue was checked using chlorine test paper (10-50 mg/kg).

Acidic Electrolyzed Water (Sanitizing water)

- No discoloration
- Practically no chlorine residue

Sodium Hypochlorite

- Color turns blue
- Chlorine residue remains

Odor-Killing Power

Alkaline (Cleaning Water) & Acidic (Sanitizing Water) Electrolyzed Water

Offensive odors are caused by bacterial proliferation and deterioration of proteins, fats and oils, and other substances. Washing with alkaline electrolyzed water (cleaning water) and then disinfecting with acidic electrolyzed water (sanitizing water) is thought to enable suppression of volatile odors by killing odor-causing germs and oxidizing odors' constituents.

- Attacking/Solving Odors at the Source

1. Contaminants and bacteria are the source of odors
2. Contamination washed off with alkaline electrolyzed water (cleaning water)
3. Disinfecting with acidic electrolyzed water (sanitizing water)
4. Odors eliminated
How do these systems differ from previous sterilization methods?

Here is a comparison of the antiseptic efficacy of acidic electrolyzed water (sanitizing water) produced by ROX electrolyzed water production systems and sodium hypochlorite (diluted).

### Acidic Electrolyzed Water (Sanitizing Water) vs Sodium Hypochlorite (Diluted)

**Greater Efficacy**
- Main Active Ingredient: Sodium hypochlorite (HOCl) molecules
- Enables shorter treatment times, even at low concentrations
- Despite acidic electrolyzed water (sanitizing water) having a lower concentration of chlorine than sodium hypochlorite (diluted), it exhibits equivalent sterilizing effectiveness.

**Fast**
- Acidic electrolyzed water (sanitizing water) enables processing in less time
- Treatment Time: Approx. 10~60 Seconds
  - Faster sterilization enables shorter processing times for more rapid operations
- Treatment Time: Approx. 5~10 Minutes
  - Slow sterilization requires lengthy immersion times.

**Simple**
- Acidic electrolyzed water (sanitizing water) requires no dilution—simply pour!
- Electrolyzed water output simply by generator
  - Just wave hand
  - Constantly produced at uniform concentration. No discrepancies in sterilization.
  - Requires extra work to dilute.
  - Discrepancies in sterilization occur easily. Achieving even sterilization effect is difficult.
How do these systems differ from previous sterilization methods?

**Acidic Electrolyzed Water (Sanitizing Water) vs Sodium Hypochlorite (Diluted)**

**Safer**

- **Acidic electrolyzed water (sanitizing water) leaves little residue, inhibiting lingering odors.**
  - Residues are minimal, so practically no chlorine odors remain in foods. This enables sterilization while preserving delicious flavors.
  - Residues are easily retained, so chlorine odors easily remain in foods.

**Safer**

- **Acidic electrolyzed water (sanitizing water) inhibits generation of byproducts.**
  - The low concentration of available chlorine inhibits generation of organic chlorine compounds and other byproducts.
  - The alkalinity of available chlorine in high concentrations promotes generation of organic chlorine compounds and other such by-products.

**Acidic electrolyzed water (sanitizing water) offers both sterilizing power and ease of use.**

---

**Plus, ROX systems save money Low cost—just 0.02 Aed per liter.**

The system utilizes only commercially available salt with tap water and electricity, with no need for any proprietary solutions or other special materials. This keeps running costs down, making these systems suitable for high-volume operations.

\[
\text{Tap Water} + \text{Salt} + \text{Electricity} = 1 \text{L} = 0.02 \text{ Aed}
\]

※Cost based on tap water rates of 3.55 yen/m³ (Tokyo waterworks rates), salt cost of 490 yen per 5 kg (Salt Industry Center of Japan), and electricity rates (100 V, single phase) of 24 yen/kWh and at 30°C temperature and saline concentration of 0.1%.
Food Hygiene Using Acidic Electrolyzed Water (Sanitizing Water)

Measures Against Primary Contamination

Sterilizing Vegetables

Raw vegetables used in salads, peeled fruit, and other raw food require special care as they are not cooked with any heat. Always make sure these foods are thoroughly sterilized.

**Cabbage**

1. Remove outer leaves, cut into quarters, and remove the stem.
2. Wash pieces submerged in alkaline electrolyzed water (cleaning water).
3. Wash pieces submerged in acidic electrolyzed water (sanitizing water).
4. Cut with a slicer or knife.

**Tomatoes**

1. Wash tomatoes submerged in alkaline electrolyzed water (cleaning water).
2. Wash tomatoes submerged in acidic electrolyzed water (sanitizing water).
Note Regarding Food Sterilization Examination

Based on the premise that sufficient application of heat with predeterminated methods in food preparation inhibits incidents of food poisoning, tests were conducted concerning core temperatures of foods consumed or offered uncooked. Targeted solutions examined in the test are shown at the right.

### Examined Solution
- **Tap Water**: 7.0 – 7.5 (10-12) | Available Chlorine Concentration (mg/L): 0.2 – 0.4
- **Acid Electrolyzed Water (sanitizing water)**: 2.5 – 2.7 (10-12) | 20 – 30
- **Sodium Hypochlorite Solution**: 9.5 – 10.2 (10-15) | 180 – 210

### Sterilization of Fish and Eggs

Washing procedures for fish and meat vary according to the state in which the foods are received. Therefore, comprehensive measures including thorough testing along heating, washing, and other methods of sterilization are required to prevent food poisoning.

**Fish**

- **Acidic electrolyzed water (sanitizing water)** is effective in removing slimy matter from fish.

1. **Remove slimy matter from outer surface with acidic electrolyzed water (sanitizing water).**
2. **Remove the fish head and viscera. Rinse with tap water.**
3. **Wash fish submerged in alkaline electrolyzed water (cleaning water).**
4. **Wash fish submerged in acidic electrolyzed water (sanitizing water).**

**Eggs**

- **Occurrences of secondary contamination from eggshells is a distinct possibility. Be sure to stir eggs around within the acidic electrolyzed water (sanitizing water).**

1. **Wash eggs submerged in alkaline electrolyzed water (cleaning water).**
2. **Wash eggs submerged in acidic electrolyzed water (sanitizing water).**
3. **To prevent proliferation of bacteria, remove moisture and store refrigerated.**

### Examination of Bacterial Counts in Outer Skin of Horse Mackerel

- **Treatments per Procedure:**
  - No treatment
  - Tap Water
  - Acid Electrolyzed Water (Sanitizing Water)

### Examination of Bacterial Counts in Chicken Eggs (Eggshell)

- **Treatments per Procedure:**
  - No treatment
  - Tap Water
  - Acid Electrolyzed Water (Sanitizing Water)
  - Sodium Hypochlorite

### Treatment Method

- **Tap Water**: 10 sec. immersion and agitation
- **Acid Electrolyzed Water (Sanitizing Water)**: 10 sec. immersion and agitation → 10 sec. rinse
- **Sodium Hypochlorite Solution**: 3 min. immersion → 10 sec. rinse
Washing and disinfecting with Alkaline (cleaning water) and Acidic (sanitizing water) Electrolyzed Water

Measures Against Secondary Contamination

Cooking utensils may become contaminated in preparation and cooking with bacteria from ingredients or food preparers, resulting in recontamination of the processed foods. Preventing such "secondary contamination" requires diligence in sterilization during these procedures.

Washing and Sterilizing Utensils

Knives

1. Using a scrubber sponge, wash the knife, including the grip, with alkaline electrolyzed water (cleaning water).
2. Wash with acidic electrolyzed water (sanitizing water).
3. Wipe off moisture.

Examination of Bacterial Counts from Processing with Knives

- Before Washing
- After Washing
- Electrolyzed Water
- Tap Water Only

Note: Do not use this solution if bothered by rust on knives.

Cutting Boards

1. Use a scrubber, thoroughly wash in and around knife scores with alkaline electrolyzed water (cleaning water).
2. Scrub with acidic electrolyzed water (sanitizing water).

Examination of Bacterial Counts from Use of Cutting Boards

- Before Washing
- After Washing
- Electrolyzed Water
- Tap Water Only

Note: If contamination is particularly heavy, prewash the cutting board thoroughly with detergent.
Washing and Disinfecting with Alkaline (cleaning water) and Acidic (sanitizing water) Electrolyzed Water

Washing and Sterilizing cloths

Kitchen cloths and other cloths used to wipe a wide variety of matter may harbor large numbers of bacteria. Sanitary practices should always be maintained with regular sterilization of cloths.

Kitchen Cloths

Kneading while washing is critical!

1. Knead cloth under running alkaline electrolyzed water (cleaning water).
2. Firmly wring cloth.
3. Knead cloth under running acidic electrolyzed water (sanitizing water).
4. Firmly wring cloth.
5. Dry and store.

[Treatment of cloths] Change in Bacterial Counts from Washing in Running Water

Washing and Sterilizing Floors and Drains

Floors are breeding grounds for bacteria flushed from processing or carried in from outside. Ensure proper sanitation management with sterilization at regular intervals.

Washing Floors

1. After sweeping up coarse debris, scrub the floor with a deck brush while pouring alkaline electrolyzed water (cleaning water) over the floor.
2. Wash floor with water containing a 1:1 mixture of alkaline electrolyzed water (cleaning water) and acidic electrolyzed water (sanitizing water).

Sink Traps and Drains

Wash with running water containing a 1:1 mixture of alkaline electrolyzed water (cleaning water) and acidic electrolyzed water (sanitizing water).

Stainless Table top

1. Spray alkaline electrolyzed water (cleaning water) for stainless table top and wipe off with tablecloth for cleaning.
2. Spray acidic electrolyzed water (sanitizing water), and wipe off with tablecloth for sanitizing.
Compact unit requires little space for pipes, fits under sinks.

**Electrolyzed Water Production System**

**Direct Output Type**

**ROX-20TB**

Under-Counter Type

Daily Output Capacity

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaline Electrolyzed Water (Cleaning Water)</td>
<td>Approx. 2.2~4.3t</td>
</tr>
<tr>
<td>Acidic Electrolyzed Water (Sanitizing Water)</td>
<td>Approx. 2.2~4.3t</td>
</tr>
</tbody>
</table>

Sanitary touchless operation—emit water just by holding up your hand to the sensor.

The unit features a built-in contactless sensor. Just hold your hand up to the sensor; the sensor detects your hand and automatically emits electrolyzed water. The system is very sanitary, as it outputs water without hand contact.

**Equipped with Easy-to-Use Flex Nozzles.**

These units feature flexible pouring nozzles that can be bent to any desired angle. The nozzle also can be switched to emit water in a shower flow.

**Emit Continuously or at Predetermined Times.**

The system features two output modes, a normal mode that provides a continuous stream only when and in the amount needed, and one that allows users to set a timer and have the stream start and automatically shut off at preset times. This is a convenient feature for tasks such as filling sinks with electrolyzed water.

**Indicator and Control Panels Are Easy to Read and Use.**

Indicator Panel

Control Panel

**Adjust Flow Rate Easily with a Single Switch.**

The flow rate can be adjusted just by pressing the control panel’s flow adjustment switch. Select from “Low,” “Standard,” and “High” flow rates.

- Alkaline Electrolyzed Water (Cleaning Water) Approx. 3.0L/min
- Acidic Electrolyzed Water (Sanitizing Water) Approx. 3.0L/min

※Output capacity may not increase if supply water pressure is insufficient.
Sample Installation

Remote Controller (with sensor) included with ROX-20TB

ROX-20TB

Power Supply 100-240V, 50/60Hz, 0.8kW (max. 1.8kW)

Electrical Water Supply Acidic electrolyzed water (cleaning water), alkaline electrolyzed water (dilution water) approx. 11.3 (or above) with (Acid electrolyzed water)

Electrolyzed Water Output Acidic electrolyzed water (pumping water), alkaline electrolyzed water (cleaning water) approx. 15.3 (or above) with (Acid electrolyzed water)

Water Supply Approx. 3.8 liter/min, 0.2 liter/min at 10°C with (Acid electrolyzed water)

Dimensions W: 220mm x H: 450mm x D: 350mm

Connections Supply: G1/4" (reducing valve G1/2) outlet: G1/2" (2 edges)

Weight Approx. 17kg (with packaging)

Water Supply Must conform to waterworks standards, with water softener and filter required

Ambient Temperature Range Ambient temperature range 5-35°C, water temperature 5-35°C

Relative Humidity 85% max. (decoration and permission)

Installation Site Must meet interior specifications, with ventilation required

Altitude Limitation ±10% of rated voltage

Salt Table salt (sodium chloride) from Salt Industry Center of Japan (min-purity 99.9%)

Distributor of MGK ROX Water is the future of chemical free cleaning and sanitizing for the 21st century.

Ian Hopper, Immediate past President FCSI, Worldwide
ROX series

Compact unit can be mounted on walls above sinks and in other tight spaces

Electrolyzed Water Production System

Direct Output Type

ROX-10WB
Wall-Mounted Type

Daily Output Capacity

- Alkaline Electrolyzed Water (Cleaning Water) Approx. 1.5~2.1t
- Acidic Electrolyzed Water (Sanitizing Water) Approx. 1.5~2.1t

Sanitary touchless operation - emit water just by holding up your hand to the sensor.

The unit features a built-in contactless sensor. Just hold your hand up to the sensor; the sensor detects your hand and automatically emits electrolyzed water. The system is very sanitary, as it outputs water without hand contact.

Equipped with Easy-to-Use Flex Nozzles.

These units feature flexible pouring nozzles that can be bent to any desired angle. The nozzle also can be switched to emit water in a shower flow.

Emit Continuously or at Predetermined Times.

The system features two output modes, a normal mode that provides a continuous stream only when and in the amount needed, and one that allows users to set a timer and have the stream start and automatically shut off at preset times. This is a convenient feature for tasks such as filling sinks with electrolyzed water.

Indicator and Control Panels Are Easy to Read and Use.

Adjust Flow Rate Easily with a Single Button.

The flow rate can be adjusted just by pressing the control panel's flow adjustment switch. Select from "Low," "Standard," and "High" flow rates.

Flow Rate

- Alkaline Electrolyzed Water (Cleaning Water) Approx. 1.5L/min
- Acidic Electrolyzed Water (Sanitizing Water) Approx. 1.5L/min
**Sample Installation**

**ROX-10WB**

**Power Supply:** Single-phase 100V, 50/60 Hz, 0.5 kW (5.0A)

**Power Consumption:** 150/150 W

**Direct Filter/Dryer**
- Acidic electrolyzed water (sanitizing water): 15.1 L/min
- Alkaline electrolyzed water (cleaning water): 15.1 L/min

**Reduction Valve**
- Acidic electrolyzed water (sanitizing water): 15.1 L/min
- Alkaline electrolyzed water (cleaning water): 15.1 L/min

**Piping Diagrams**

**Holding Tank**

- ROX-10WB Unit
- Salt Tank
- Reducing Valve
- Filter
- Softener

**Direct Output**

- ROX-10WB Unit
- Salt Tank
- Reducing Valve
- Filter
- Softener

**Power Supply**
- 100V, 50/60 Hz

**Important Notes**

1. Ensuring all electrical connections are properly made and secured to avoid electrical hazards.
2. Regular maintenance is required to ensure optimal performance.
3. Always use recommended water treatment chemicals.
4. Follow all installation guidelines and safety precautions.
5. Store and Knew water at appropriate temperatures to avoid damage to the system.

**TDT-15WB2**

**Holding Tank Unit for ROX-10WB (Optional)**

**Power Supply**
- Single-phase 100V, 50/60 Hz, 0.5 kW (5.0A)

**Power Consumption**
- 150/150 W

**Output**
- Acidic electrolyzed water (sanitizing water): approx. 5.5 L/min
- Alkaline electrolyzed water (cleaning water): approx. 5.5 L/min

**Tank Capacity**
- Acidic electrolyzed water: approx. 15 L
- Alkaline electrolyzed water: approx. 15 L

**Chlorine Gas Treatment**
- Chlorine gas treatment with chlorine gas dosing agent

**Weight**
- Approx. 70 kg (approx. 200 kg packaged)

**Important Notes**

1. Ensuring all electrical connections are properly made and secured to avoid electrical hazards.
2. Regular maintenance is required to ensure optimal performance.
3. Always use recommended water treatment chemicals.
4. Follow all installation guidelines and safety precautions.
5. Store and Knew water at appropriate temperatures to avoid damage to the system.
What type of Electrolyzed Water does each system produce?

Electrolyzed water from ROX Series Systems is created from salt water through electrolysis using a membran, improving the efficiency of sanitation management in food processing environments, including food hygiene and washing and disinfecting of cooking utensils.

Created by non-membrane electrolysis of salt water, electrolyzed water from JIX Series systems exhibits an effect equivalent to that of sodium hypochlorite, providing a simple means of improving food hygiene.

Electrolyzed water is created in HOX Series units through electrolysis of plain water, with no addition of salt, bringing out foods’ delectable flavors and offering tremendous utility in food processing.

All these “electrolyzed water” varieties are special types of water that are extremely useful in kitchens.

Electrolyzed Water Production Systems

These systems produce alkaline electrolyzed water (cleaning water) effective for washing and acidic electrolyzed water (sanitizing water), which is effective as a disinfectant.

As the figure from the top shows, membrane electrolysis of salt water with a concentration of 0.2% or lower results in the generation of alkaline electrolyzed water (cleaning water) at the cathode (negatively charged terminal), and acidic electrolyzed water (sanitizing water) at the anode (positively charged terminal). ROX systems utilize this principle to produce alkaline electrolyzed water (cleaning water), which is of great utility in washing contaminated items and acidic electrolyzed water (sanitizing water), which is effective for disinfecting and food sanitizing.
ROX System: In Summary

ROX is the ultimate green solution from MGK.

R: Reduction - Alkaline water
OX: Oxidation - Acidic water

ROX generates Alkaline water and Acidic water from only tap water and salt. Both ROX water by MGK can be used in food sanitation.

To prevent food poisoning

If you will use ROX water, it is easy to disinfect utensils, equipment and ingredients diligently, because ROX water is safe. It is effective on most bacteria and viruses.

For Example...

- Deodorant of rubbish
- Disinfection of seafood
- Hand washing
- Washing and disinfection of utensils
- Disinfection of Vegetables
At Vida Downtown Dubai we are continuously aiming to achieve the highest levels in environmentally-friendly solutions for our hotel. We want to express our thanks to MGK for their support and effort in implementing the ROX Electrolyzing Water System. We are more than satisfied with the use of ROX machine for cleaning and sanitizing the food, as well as washing the floors to ensure the entire kitchen operation exceed the level of Hygiene versus conventional cleaning chemicals.”

A. Refaie Othman Executive Chef
Zuma, DIFC Dubai

“I started with MGK’s ROX in 2012 and since then sanitizing all our produce from Vegetable to meat, poultry, or even fish with the ROX Water. The Lab results are by far exceeding our expectations and we have adapt MGK’s ROX as Brand Standard for all our future upcoming Restaurants!”

Luca Signoretti Executive Chef
Roberto’s, DIFC Dubai

“At Vida Downtown Dubai we are continuously aiming to achieve the highest levels in environmentally-friendly solutions for our hotel. We want to express our thanks to MGK for their support and effort in implementing the ROX Electrolyzing Water System. We are more than satisfied with the use of ROX machine for cleaning and sanitizing the food, as well as the kitchen equipments.”

Daniel Kingston - Hotel Manager
Vida Hotels and Resorts

**Comparison with other disinfectants**

- **Sodium hypochlorite ‘bleach’**
  - It can’t be used during cooking because of the strong residue.
  - (The smell and slimy feeling remains.)
  - Undiluted solution almost doesn’t have disinfection power.
  - It takes time to dilute.
  - The processing time is long.
  - When it touches clothes, it makes decolorization.

- **Ethanol**
  - It is expensive.
  - When surface is wet it doesn’t have disinfection power.
  - It is damaging to skin.

**ROX water**

- It can be used easily during cooking because it has no residue.
- Running cost is cheap and it can be used like a tap water.
- Disinfection time is fast it needs just 15 sec.
- It is safe to human body and environment.
Who trusts mgk | HACCP AT ITS BEST!
**Microbiological Analysis Report**

**Sample Description**

Butchery Kitchen Knife, Blue (Washed & sanitized With ROX EO Water) (Test-Washing With 5% Sodium Hydroxide Solution Produced By Rox 20 TB-E machine (Alkaline Water) At 32.5°C For 30Sec. And pH 10.3 Rinsed with 5%Hydrochloric Acid (Product by Rox 20 TB-E Machine (Acid Water) For 15sec At 31.2°C & pH 3.11 Both Chemical are produced by Rox 20 TB – E Machine)

<table>
<thead>
<tr>
<th>S No.</th>
<th>Parameter</th>
<th>Test Method</th>
<th>Unit</th>
<th>Result</th>
<th>*Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Total Plate Count</td>
<td>CFPA 1.1.2:2007</td>
<td>CFU/cm²</td>
<td>&lt;10</td>
<td>1000/cm²</td>
</tr>
<tr>
<td>02</td>
<td>Total Coliforms</td>
<td>CFPA 2.2.1:2007</td>
<td>CFU/cm²</td>
<td>ND</td>
<td>* ND</td>
</tr>
<tr>
<td>03</td>
<td>Staphylococcus aureus</td>
<td>CFPA 3.1.5:2007</td>
<td>CFU/cm²</td>
<td>ND</td>
<td>* ND</td>
</tr>
</tbody>
</table>

Test Method Variation: None
Sampling Method: LAD-PRO-002

EIC of India Sep 2007, issue 2

*Client-Details of sample collection and transportation which may affect the accuracy of the results were not provided by the client.

Comments: The sanitation of the above food contact surface was satisfactory.

The results stated in this report refer only to the sample(s) tested unless otherwise stated. The test report cannot be reproduced, except in full, without prior written permission of the company.

For FAHSS

ANJU MATHEW

Technical In-charge

An ISO 9001:2008 certified company
Proven Results by DAC Accredited Laboratory

TEST REPORT
Hilton Dubai Jumeirah
MICROBIOLOGICAL ANALYSIS

<table>
<thead>
<tr>
<th>No.</th>
<th>Client Ref No.</th>
<th>Sample Name</th>
<th>Other Info</th>
<th>Sample No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Store</td>
<td>Unsanitized Orange, (Temp: Ambient)</td>
<td>P:24/03/13 E:25/03/13</td>
<td>4967</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Units</th>
<th>Method Used</th>
<th>Result of 4967</th>
<th>Microbiological Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. coli</td>
<td>MPN/g</td>
<td>US FDA BAM, Sep 2002</td>
<td>&lt;3.0</td>
<td>&lt;10&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>Per g</td>
<td>US FDA BAM, Jan 2001</td>
<td>&lt;10</td>
<td>&lt;10&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Salmonella</td>
<td>In 25g</td>
<td>US FDA BAM, Dec 2007</td>
<td>ND</td>
<td>0</td>
</tr>
<tr>
<td>Bacillus cereus</td>
<td>CFU/g</td>
<td>US FDA BAM, Jan 2001</td>
<td>&lt;10</td>
<td>&lt;10&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Test Method Variation: None
Uncertainty: Will be reported on client request
Sampling plan/procedure: If sampling is done by SGS, SGS SOP, FL-SOP-TECH-019 Rev.2 is applicable and is available for client reference on request
Comments: As per the tests conducted and listed above, Microbiological status of the above product is satisfactory.

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FECL IF0003 Rev. 0, Dated: 01/08/2010