

Stabilize Sodium Hypochlorite

ACUA Co., Ltd

Stabilized Sodium Hypochlorite

This product is recognized as a food additive by Japan Ministry of Health, Labour and Welfare (MHLW). Sodium hypochlorite has disinfecting attributes recognized in the medical field. Stabilized Sodium Hypochlorite (SSH) has been modified and resolves many issues related to the previous versions of sodium hypochlorite. SSH is applicable to the “Five disinfection method against infection” designated by MHLW. In addition, it is human and environmentally friendly causing no harm. SSH has an extended shelf-life if stored properly.

SSH has overcome the issues of many problems including the inflammability and toxicity of alcohol based products, the smell of chlorine dioxide and stabilized chlorine dioxide, release of chlorine due to chemical reaction, and corrosion and bleaching of metals. This product could immediately inactivate bacteria and virus upon contact performing as an effective disinfectant.

In removing odor, it is effective against many types of smells including tobacco, elderly smell, and ammonia. Instead of temporarily suppressing the smell or covering up of smells like common deodorizers, it effectively decomposes and removes the smell of the “Eight bad odors” defined by the Ministry of Environment. With its non-irritant and harmless nature, it could be applied to dermatitis, cut or scratch without causing irritation. It could also be safely used by children and the elderly.

Main characteristic

① Disinfection Effect

Disinfect by free chlorine

(sodium Hypochlorite attributes)

+

Decompose of protein of alkali

(Antiseptic soap or soap attributes)

+

Non-volatile effect

(Not attributes of Alcohol based or chlorinated product)

② Modification from Chlorinated product

Corrosive to Metal Fabrics

→ **Non - Corrosive**

In contact with Living
Organisms

→ **Not applicable**

Strong Chlorine Smell

→ **Nearly Odorless**

Storage Period

→ **Over 1 year**

Toxicity and hazard in Vapor

→ **Not applicable**

Oral Toxicity / Endotracheal
toxicity

→ **Not applicable**

Characteristic of the product

Strong deodorizing characteristic

Besides common tobacco, elderly smell, ammonia smell, it instantly removes bad smell from raw garbage and the 8 bad smell defined by Ministry of Environment.

Decompose the organic substance of microorganism and effectively remove their smell as well as organic solvent of hair perm. At the same time, it could be sprayer to remove the smell scattered in the air.

● Also effective in removing below smell

- Ammonia (Toilet, Rotten Meat)
- Trimethylamine (Rotten fish)
- Methyl mercaptan (Rotten vegetable)
- Methyl disulfide (Rotten vegetable)
- Elderly
- Diaper
- Foot
- Hydrogen Sulfide (Toilet, Rotten egg and vegetable)
- Styrene (Burning plastic)
- Methyl sulfide (Rotten vegetable)
- Acetaldehyde (Tobacco)
- Pet
- Dirty Clothing
- etc...

Mechanism of Odor Removal

Inactivate and kill the unwanted bacteria in the sweat component which cause bad smell, resulting in odorless environment. Also urea in bad smell substances consume and combine with chlorine, producing nitric acid ion and decomposing urea. Ammonia is finally decomposed and become monochloramine, an odorless substance.

Hydrogen sulfide emitted from origin of rotten smell is oxidized to sulfur, water and sodium chloride, turning it odorless. Acetaldehyde emitted from origin of garbage is reduced and decomposed, changing it become odorless.

Characteristic of the product

Strong Instant removal bacteria

“Stabilized Sodium Hypochlorite” instantly inactivate virus and bacteria by decomposition of the protein component. Its anti-bacterial function is proven to effective in seasonal influenza, SRAS virus, parvovirus in animals, norovirus and O-157 in food poisoning.

In addition, with the effective chlorine concentration for antibacterial properties, “Stabilized Sodium Hypochlorite” could instantly kill over 99.9% of bacteria. “Stabilized Sodium Hypochlorite” is effective in dealing with airborne virus, virus attached to materials, or virus floating around, thus making it effective for infection prevention.

● Adapted bacteria and Virus (Main Example)

- | | | | |
|---------------------------|--------------------------|-------------------|----------------------|
| • Salmonella | • O-157 | • Influenza | • Chlamydia |
| • Vibrio parahaemolyticus | • Pseudomonas aeruginosa | • Herpes1.2 | • Campylobacter |
| • Serratia marcescens | • E.Coli | • MRSA | • Coxsackie virus B8 |
| • Staphylococcus aureus | • SARS virus | • Poliovirus | • Norovirus |
| • Trichophyton fungus | • Legionella pneumophila | • Newcastle virus | • HIV virus |
| | | | • Hepatitis virus |

Characteristic of the product

● Inactivation Test on Virus (Institute Stock Raising Biological Science Security)

Testing Time (mins) Virus Unit PPU/ml		0min	1min	3min	
Influenza Virus	Control	Average	5.83×10^4	1.05×10^5	9.00×10^4
		Log	4.77	5.02	4.95
	Testing	Average	$<10^2$	$<10^2$	$<10^2$
		Log	<2.00	<2.00	<2.00
		LRV	<2.8	<3.0	<3.0
		% Decrease	99.72%	99.90%	99.90%
Coronavirus	Control	Average	5.4	5.3	5.5
	Testing	Average	≤ 1.50	≤ 1.50	≤ 1.50
		LRV	≤ 3.9	≤ 3.9	≤ 3.9
		% Decrease	99.98%	99.97%	99.99%
Parvovirus	Control	Average	5.7	5.8	5.7
	Testing	Average	3.4	≤ 1.50	≤ 1.50
		LRV	2.3	≤ 4.2	≤ 4.2
		% Decrease	99.27%	99.27%	99.99%

Characteristic of the product

●Antibacterial test for Virus (Japan Food Research Laboratoriws)

Testing Result of bacterial count in “1ml” of testing sample (100mg/L)

Bacteria		O-157	VRE	Legionella	Listeria	Pseudmonas aeruginosa	Salmonella
Bacterial Count (/ml)	Beginning	1.3×10^5	1.1×10^5	2.7×10^7	6.5×10^5	1.0×10^5	6.8×10^5
	After 15secs	>10	>10	5.0×10^5	>10	>10	>10
	After 30secs	>10	>10	1.6×10^3	>10	>10	>10
	After 60secs	>10	>10	>100	>10	>10	>10

Bacteria		Staphylococcus Aureus	Staphyococcus epidermidis	Steptococcus	Vibrio parahaemolyticus	MRSA
Bacterial Count (/ml)	Beginning	3.2×10^5	7.3×10^5	6.7×10^5	4.6×10^5	1.4×10^6
	After 15secs	>10	2.3×10^5	>10	>10	>10
	After 30secs	>10	>10	>10	>10	>10
	After 60secs	>10	>10	>10	>10	>10

>10 : Not detect

Characteristic of the product

Noncorrosive / Non bleaching

Due to its weak alkali nature (pH10.5 - 12.0), its non-corrosiveness enable it be safely use in fabric, dedicated machinery and metals.

If proven by reliable testing centers that the product's non-corrosive nature towards metal is as safe as purified water. (avoid electronic parts)

Also as it does nor bleach, it could be safely use in colored fabric without concerning the applied fabric will be bleached out.

Odorless

When using alcohol based or chlorine based disinfectant, there is unique bad smell or chlorine smell similar to those found in swimming pools. However

“Stabilized Sodium Hypochlorite” is odorless and is highly applicable to many situation as it is not added with any fragrance.

Non-volatile

Unlike alcohol based product which is volatile and cause rough and allergic skin reaction, “Stabilized Sodium Hypochlorite” is non-volatile and non-irritant.

Also, it remains effective until it vaporizes.

Unlike chlorine based product which is volatile causing degradation of the effective chlorine concentration, “Stabilized Sodium Hypochlorite” is non-volatile and is stable be used for long period time without degradation of chlorine concentration.

Characteristic of the product

Safety

“Stabilized Sodium Hypochlorite” is recognized safe as food additive. After decomposing bacteria and virus, the product will be water and oxygen, which is safe to both human and environment.

Even if it is consumed accidentally, it has no harm to human health. It causes no adverse effect of inflammation on skin.

Because it does not cause inflammable concern like alcohol, toxic gas by-product like chlorine based product, or emit any hazardous reactive oxygen which could threaten human health, it is regarded as a safe product.

It does not impose adverse effect to environment even though it is discarded into sewage.

● Safety Test Tokyo Food Institute of Technology

- Mouse acute toxicity test (Oral)
- Mouse local site acidity examination (ocular mucous membrane)
- Mouse local site acidity examination (Skin)

→ **No bad effect**

● Safety Test by Japan Food Research Laboratories

- Eyes stimulation examination of rabbit → Non-irritant
- The first skin stimulation examination of rabbit → Non-irritant
- Acute toxicity test on rabbit (Oral, Endotracheal) → No bad effect

Disinfectant Contents

Stabilized Sodium Hypochlorite (Approved Food Additives)

pH value (Measured by Glass Electrode Method) : 12.0 weak alkaline *Japan Food Research Laboratories

Storage Condition

Before opening : Over 2 years / After opening : About 1 year *Keep in dark and cool area within 5°C to 40°C

Caution for Application

- It is ineffective when used in high-temperature areas such as saunas. Refrain from using in these areas.
- Store at room temperature and avoid freezing, extreme heat, and UV.
- Refrain from using aluminum products.
- Refrain from direct oral intake.
- Use according to instructions.