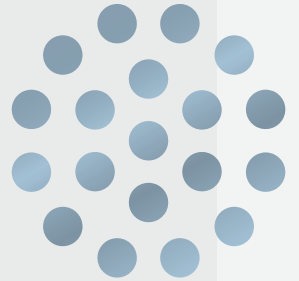


SteriNa

Approved food additive



Pure Water
99.9%

Strong and instantaneous bacterial removal,

instantaneous deodorant

Next Generation Stabilize Sodium Hypochlorite

SteriNa is a disinfecting and deodorizing agent friendly to people

SteriNa instantaneously deodorizes and disinfects various bacteria and viruses at the same time.

In removing odor, it is effective against many types of smells including tobacco, ammonia and “Eight bad odors” defined by Ministry of the Environment.

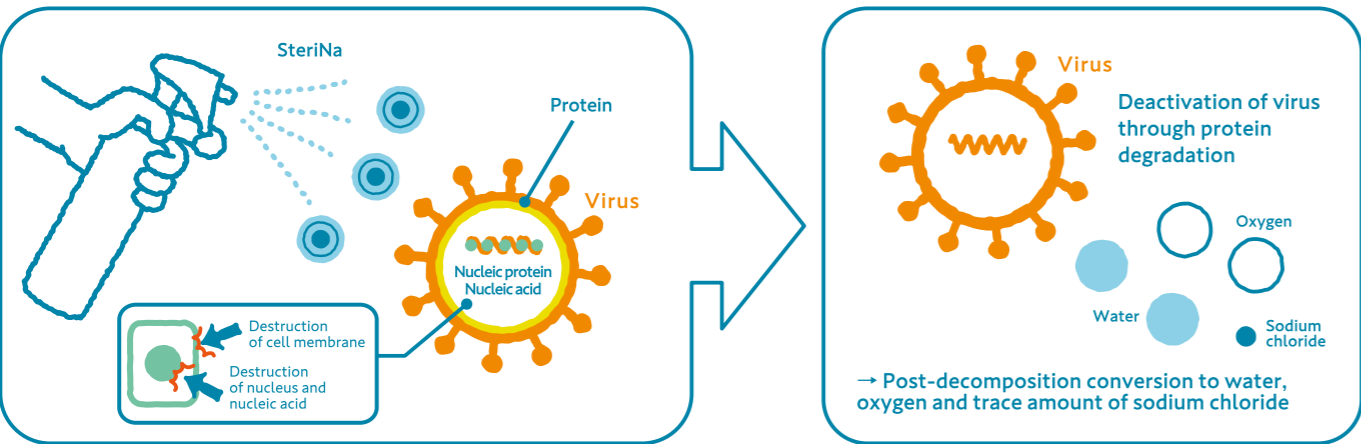
Despite its powerful effect, it is made from safe ingredients and can also be used in children and elderly.



Disinfection and deodorization mechanism

Alcohol products sterilize by scratching and vaporizing the membrane of proteins formed outside of bacteria and viruses, but virus with no such “envelope” such as Norovirus, cannot be sterilized with alcohol. SteriNa works regardless of whether an envelope exists.

* Rendering material functionless



Sodium hypochlorite, released by white blood cells to attach invading bacteria and virus cell walls and membranes through free chlorine oxidization, degenerates protein and nucleic acid (rendering material functionless), deactivating the target bacteria and virus cells. Moreover, it is large enough to pass through biofilm, allowing it to be effective against bacteria and viruses regardless of the presence or absence of biofilm.

This product can solve various problems and provide many benefits.

- Since it deactivates and sterilizes viruses and bacteria on contact, it is also effective for airborne viruses, and is effective until the liquid has fully dried.
- It is weakly alkaline and will not cause corrosion even when used on metals, fibers, leather products, etc. There is no danger of bleaching.
- There is no peculiar odor to chlorine, so it can be used by people who are sensitive to smells.
- It does not produce toxic gases when mixed with acidic substances like chlorine-based products, and does not produce carcinogenic chemical substances such as Trihalomethane.
- It is made of chlorine-based ingredients, but is weakly alkaline so it does not cause irritation, and is non-volatile so there is no hand roughness. It can also be used by people with sensitive skin.
- It is non-flammable so there is no danger of ignition.
- The effective chlorine concentration is retained over a long period of time, it can exert its effect firmly when used.
- Even if it is ingested, as it is made only with food additives there is no risk of harming the human body.

Comparison with existing products

It is a completely new product which was researched and developed to solve the problems faced by existing products such as alcohol products, chlorine dioxide products and hypochlorite products, which are representative examples of commercially available disinfecting and deodorizing agents.

	SteriNa	Alcohol products	Chlorine dioxide products	Hypochlorite products
Steriliza-tion time	⊙	○	○	⊙
Sterilizing capacity	⊙	△	○	⊙
Deodorizing power	⊙	△	△	○
Non-corrosive	⊙	⊙	×	△
Non-bleaching	⊙	⊙	×	×
Non-flammable	⊙	×	⊙	⊙
No toxic gas generation	⊙	○	×	×
Non-irritation	⊙	×	△	△
Non-volatile	⊙	×	×	×
Environmental safety	⊙	×	×	△
Shelf life	⊙	○	×	×

⊙ Excellent ○ Good △ Average × Bad

The problem of existing products

Alcohol products

- Must be used in a dry state in order to be sufficiently effective.
- Disinfection and sterilization hardly effective unless the concentration is from 76.9% to 81.4%.
- As ethanol has a distinct alcohol smell, caution is required when using it.
- Toxic if ingested, requiring caution. Can affect persons with weak alcohol tolerance.
- Due to its flammability, storage and use in places where there is a possibility of ignition should be avoided. Spraying should especially be avoided as there is a danger of ignition.
- Causes skin dryness and rough hands, so people with sensitive skin or weak people should be especially careful.

Chlorine dioxide products

- Generate toxic gas. There is a danger of harm to the respiratory system.
- Corrosion greatly affects metal items, etc. It is necessary to avoid their use in places with precision equipment.
- No food additive certification in Japan.(Safety doubtful)
- Generation of chlorine gas, creating a possibility of explosion if a certain amount of chlorine gas accumulates.
- Can cause nausea due to their strong and unique odor.

[Stabilized chlorine dioxide]

- Weak bacteriostatic effect, and can only be used as a deodorant.
- Mixing with citric acid generates chlorine gas, which is extremely dangerous.

Hypochlorite products

- Because of metal corrosion, require careful use and wiping off after use in places with metal products and precision equipment.
- Take some time to obtain a sterilization effect of 99% or higher.
- Strong chlorine smell.
- Generate carcinogenic chemical substances such as trihalomethane.
- Mixing with acidic substances such as hydrochloric acid generates toxic chlorine gas, so care must be taken when handling.
- Have a bleaching effect, and therefore can not be used on colored material fibers, leather goods etc.
- Low disinfecting effect, as the concentration is suppressed to keep the product safe.

Difference between common sodium hypochlorite products and SteriNa

Since common sodium hypochlorite products lack stability at ambient temperatures, effective chlorine concentration may decrease even in unopened condition. Therefore, in many cases a short expiration date is set. However, with SteriNa, the effective chlorine component is stable, making it valid for a long time of period in a proper storage environment.

SteriNa has no mixture and has strong chlorine disinfecting effect with sodium hypochlorite alone. In addition, it does not need to perform pH adjustment, so it has excellent performance ability.

Product features

01 Strong and instantaneous bacterial removal

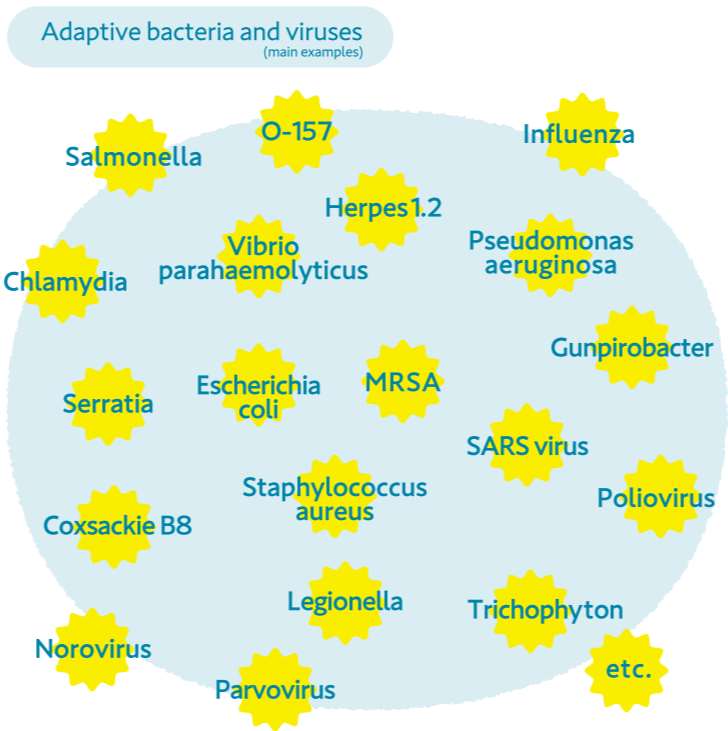
SteriNa disinfects by instantly decomposing and inactivating protein components in bacteria and viruses. It has been demonstrated that it is effective not only for seasonal influenza but also for the SARS virus, the feared dog parvovirus infection, Norovirus, which causes food poisoning, and O-157.

In addition, it has the highest reputation for sterilizing ability with a high effective chlorine concentration. It sterilizes at least 99% of many viruses and bacteria almost instantly.

It is also effective for airborne viruses because due to its instantaneous sterilizing effect. Furthermore, it is effective for infection, prevention on adhered and airborne viruses.

Why is instantaneous sterilizing effect important?

An Experiment with bacteria in a petri dish provides sterilization at least 99% of bacteria in several tens of seconds or a few minutes, but this effect is only an experiment result in the petri dish. Bacteria floats in the air, so that instant sterilizing effect is necessary. SteriNa sterilizes at least 99% of many bacteria and viruses almost instantly.



[Deactivation test against virus]

Sensitization time(min) Unit of virus : PPU/ml		Research Institute for Animal Science in Biochemistry and Toxicology			
Influenza virus	Control group	Average value	0 minutes	1 minutes	3 minutes
		Logarithmic conversion value	5.83 × 10 ⁴	1.05 × 10 ⁵	9.00 × 10 ⁴
	Test solution	Average value	< 10 ²	< 10 ²	< 10 ²
		Logarithmic conversion value	< 2.00	< 2.00	< 2.00
		LRV	< 2.8	< 3.0	< 3.0
Corona virus	Control group	Average value	5.4	5.3	5.5
		Average value	≤ 1.50	≤ 1.50	≤ 1.50
	Test solution	LRV	≤ 3.9	≤ 3.8	≤ 4.0
		%display	99.981%	99.972%	99.990%
Parvo virus	Control group	Average value	5.7	5.8	5.7
		Average value	3.4	≤ 1.50	≤ 1.50
	Test solution	LRV	2.3	≤ 4.3	≤ 4.2
		%display	99.270%	99.9927%	99.9918%

The institute is a public benefit corporation of the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Heath, Labor and Welfare aiming to contribute to the promotion of livestock industry, food sanitation and public health by conducting various tests, experimentation and research, as well as the development of veterinary drugs, human medicines, foods, food additives, agricultural chemicals, chemical substances, and more. It is an institution designated by the Ministry of Health and Welfare, under the provisions of the Food Sanitation Act which conducts examinations pursuant to the provisions of the Pharmaceutical Affairs Law.

* Virus cell count per 1 ml of testing sample
* Effective chlorine concentration of the reagents : 80ppm

[Antibacterial test against virus]

Fungus test		O-157	VRE	Legionella	Listeria	Pseudomonas aeruginosa	Salmonella	Staphylococcus aureus	Staphylococcus epidermidis	Hennessa	Vibrio parahaemolyticus	MRSA
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	3.2 × 10 ⁵	7.3 × 10 ⁵	6.7 × 10 ⁵	4.6 × 10 ⁵	1.4 × 10 ⁵
	After 15secs	> 10	> 10	5.0 × 10 ⁵	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10
	After 30secs	> 10	> 10	1.6 × 10 ³	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10
	After 60secs	> 10	> 10	> 100	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10

* Virus cell count per 1 ml of testing sample * > 10 : Undetectable * Effective chlorine concentration of the reagents : 1,000ppm

[Deactivation and safety tests by various institutions]

Test type	Test content	Result	Institution
Deactivation test (after 5 minutes)	Norovirus	>10 : Undetectable	Vison Bio Co., Ltd.
	Escherichia coli, Pseudomonas aeruginosa, MRSA, Salmonella, Staphylococcus aureus, Vibrio parahaemolyticus	>10 : Undetectable	Kyoto Institute of Microbiology

02 Safety

It is very safe to humans and environment as it becomes water and oxygen after bacteria and viruses are sterilized.

In the unlikely event that the product comes in direct contact with the mouth or with a person with sensitive skin, there is no harm to the human body. There is no irritation or any adverse effect, so it can be used in environments with children, elderly people and pregnant women.

Moreover, there is no danger of combustion as seen in alcohol based products, and it does not release toxic gases or negate trihalomethane and other compounds, such as found in chlorine based products, which may harm to the human body.

[Safety test by Tokyo Food Technology Institute · Japan Food Research Laboratory]

Acute toxicity test (oral·intratracheal)

Local irritation test (ocular mucosa)

Local irritation test (skin)

No abnormalities

* Effective chlorine concentration 1,000ppm

03 Strong and instantaneous deodorant

It is particularly effective in deodorizing organic smells including tobacco and aging (body) odors, and also decomposes the odor of ammonia, making it harmless and odorless. It has an excellent deodorizing effect on raw garbage, and also has an instantaneous deodorizing effect on the 8 major offensive odors specified by Ministry of the Environment, which are generally difficult to erase.

Additionally, it has an effect on odors emitted from microorganisms through decomposition of organic substances and liquid medicines (such as perm solutions), and smells drifting in the air can be easily deodorized through spraying.

8 major offensive odors specified by Ministry of the Environment

- 1 Ammonia

Toilet odor components, odor of putrid meat
- 2 Hydrogen sulfide

Toilet odor components, odor of rotten eggs and vegetables
- 3 Trimethylamine

Odor of putrid fish
- 4 Melti mercaptan

Odor of rotten vegetables
- 5 Methyl sulfide

Odor of rotten vegetables
- 6 Dimethyl disulfide

Odor of rotten vegetables
- 7 Styrene

Smell of burning plastic
- 8 Acetaldehyde

Smell of tobacco

Effective on the following smells:

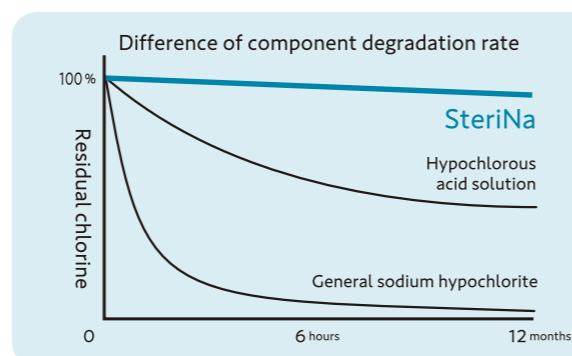
- Smell of tobacco
- Aging body odors
- Unpleasant toilet smells
- Pet smells
- Dirty smells on diaper, etc.
- Smell of sebum and sweat
- Odors from shoes
- Musty odors
- Putrid odors
- Odors in cars and rooms
- Odors in air conditioners
- etc.

04 Long-term stability

Commonly used chlorine based products and sodium hypochlorite are most effective at the time of production, after which effective chlorine concentration begins to decrease, rendering the product almost ineffective after several days to several weeks.

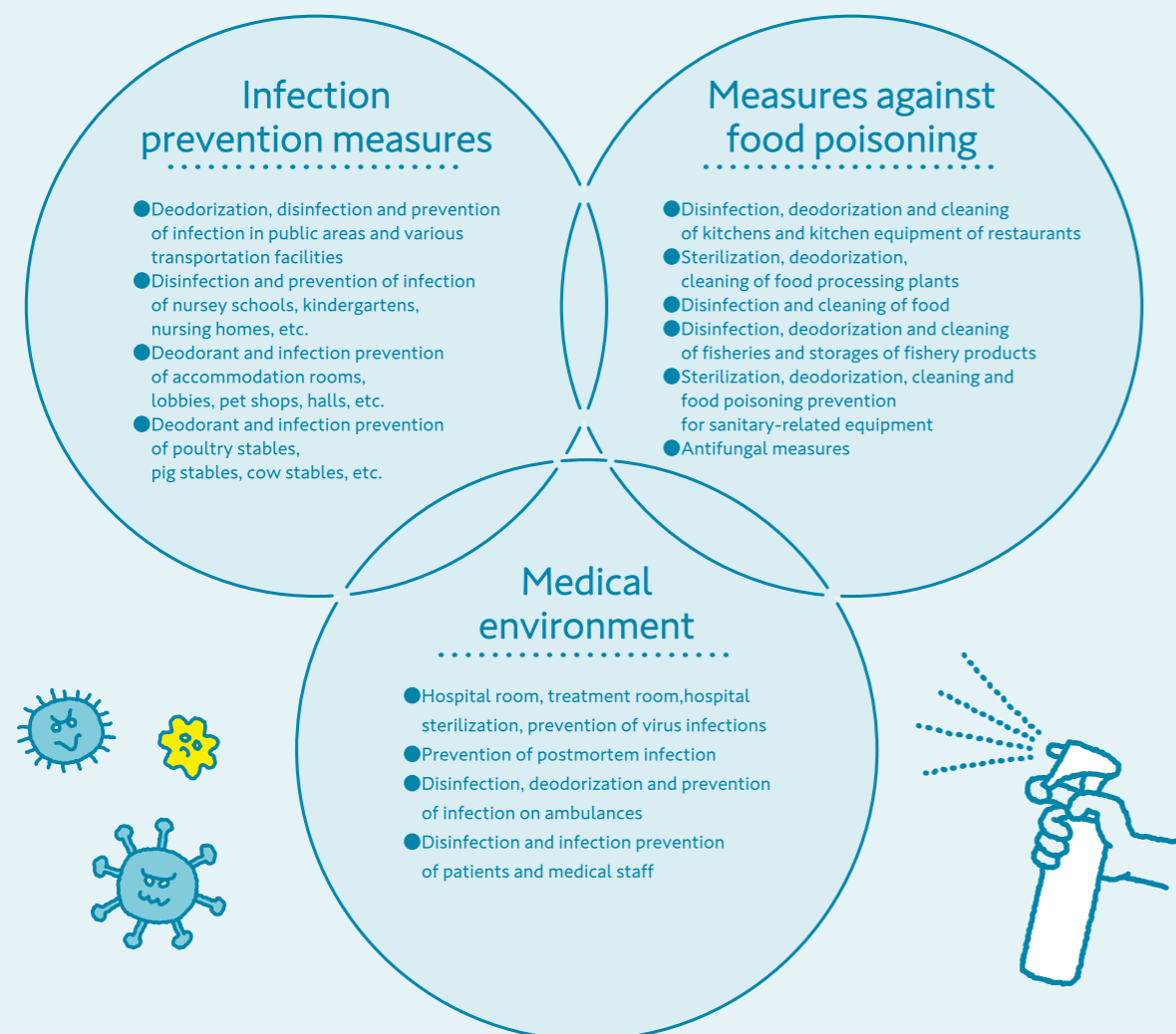
In most cases the effective chlorine concentration is less than 10% compared with at the time of production, but the SteriNa maintains almost the same chlorine concentration over the course of one year.

As a result, even when stored as a product for a long time of period, it is more than effective enough against viruses and bacteria.



Examples of main applications

With its strong and instantaneous disinfection and instantaneous deodorization, and safety, SteriNa is very safe to humans and the environment. It can be used in environments with children, elderly people and pregnant women.

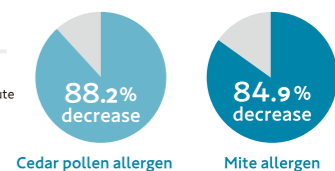


05 Allergen inactivation

Stabilize sodium hypochlorite deactivates allergen such as pollen and house dust, which cause allergy.

Allergen reduction rate

(Effective chlorine concentration: 100ppm)
* Examined by Environmental Allergens Institute



06 Non-corrosive, non-bleaching

Since it is weakly alkaline, there is no danger of corrosion which is particularly seen with chlorinated products making it safe to use for metalworking products and precision instruments, textiles and clothes. A reliable inspection institution has proved that its metal corrosivity is almost equal to that of purified water. There is no danger of bleaching, so it can be used with confidence (as a normal detergent).

07 Odorless

Alcohol products may have a peculiar odor, and chlorine type products may be discomforting due to their chlorine odor, such as that of a swimming pool, however, SteriNa is almost tasteless and odorless. As perfume is not used at all, those worried about smell at the time of use or after use can also use it. (Odor level: Less than 1/100 of sodium chlorite having equivalent effective chlorine concentration.)

08 Non-volatile

Unlike volatile products such as alcohol based products, it does not volatilize, so there is no skin irritation or rough skin experienced after use. Additionally, as long as the components of the product are in contact with bacteria and viruses, there is continuous sterilization.

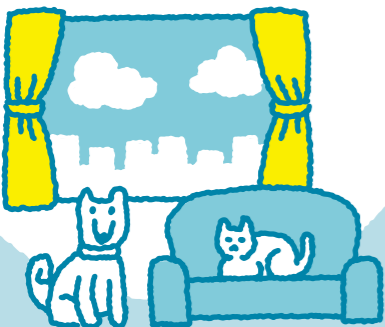
09 Small difference in the effect of the Ph value

SteriNa maintains constant effect in all the Ph value.

Examples of main applications

Living room

It can be used for deodorizing the smell of tobacco or pets on cloth items such as carpets and sofas. It also simultaneously sterilizes airborne bacteria.



Kitchen and dining

It is effective for deodorizing odors such as blended ingredients and oil, as well as disgusting odors generated from garbage, and sterilizes simultaneously.



Baby bottles and infant toys etc.

Ideal for deodorization and sterilization of baby bottles and infant toys. These items get gently wiped areas only for casual use going out.



Vehicle interiors

It will deodorize bad smells that remaining inside when spraying directly on the seat or visor or spraying the whole space. Moreover, by spraying around the openings of the air conditioner, the source of the smell is sterilized, and the unpleasant smell of the air conditioner is erased.



pH test result

pH value : 10.5 (Weak alkalinity)
* According to the examination by the Japan Food Research Laboratory
Effective chlorine concentration 100ppm

Food additive standards and criteria conformity assessment

Sodium hypochlorite
Property: Conformity Content: Conformity (Effective chlorine 4.3%)
* According to the examination by the Japan Food Research Laboratory

Usage Precautions

- Since high temperatures such as in sauna and from heating type humidifiers can reduce the effectiveness of the product, please avoid using in such environments.
- This product is sensitive to freezing, high temperatures and ultraviolet rays, so please store it in a cool, dark place at room temperature where temperature changes are as minor as possible during storage.
- Avoid using on aluminum products as much as possible.
- Avoid ingesting.
- Please do not transfer to a commercially available container. Product effect will be diminished.
- Please use within the range specified for usage.

Product lineup



300ml
Spray bottle

1000ml

Clothing and fabric products

Please use it for smell of tobacco that sticks to clothes, aging body odors, sebum odors, ammonia smells and so on. There is no risk of bleaching or corrosion.



Boots and shoes

It can be used to deodorize smells by spraying into the boots and shoes that often give off a distinct, warm odor. Simultaneously, it also prevents and sterilizes bacteria, athlete's foot, and more.



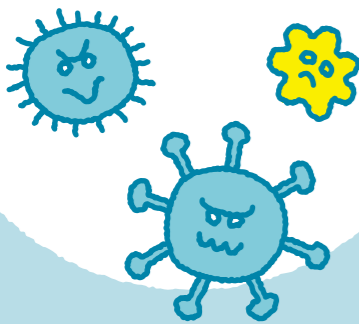
For laundry

It can deodorize the smell that lingers in a room after drying laundry.



Mold prevention

As it prevents the growth of mold and fungi, it is effective for air conditioners and in places where mold easily occurs. It is simultaneously against the smell of mold.



Asthma and hay fever measures

It nullifies the effect of allergens such as mites and pollen. It cleans clothes with pollen and enclosed rooms by spraying the air.



Toilet

By spraying over the whole area or just the bad smell that remains inside the toilet. It is also achieve space sterilization and air are also sprayed.



Vomiting measures

It deodorized the bad smell from disposal of the vomit of noroviruses or the like.



SSP Co.,Ltd.

〒306-0214 740 KOYA, KOGA-CITY, IBARAKI
Tel. +81-280-91-0350 Fax. +81-280-92-3454



<https://ssp-co.jp>

This catalogue contains the latest information and data, however, please be reminded that the effect at places is not guaranteed. It is subject to change without notice.