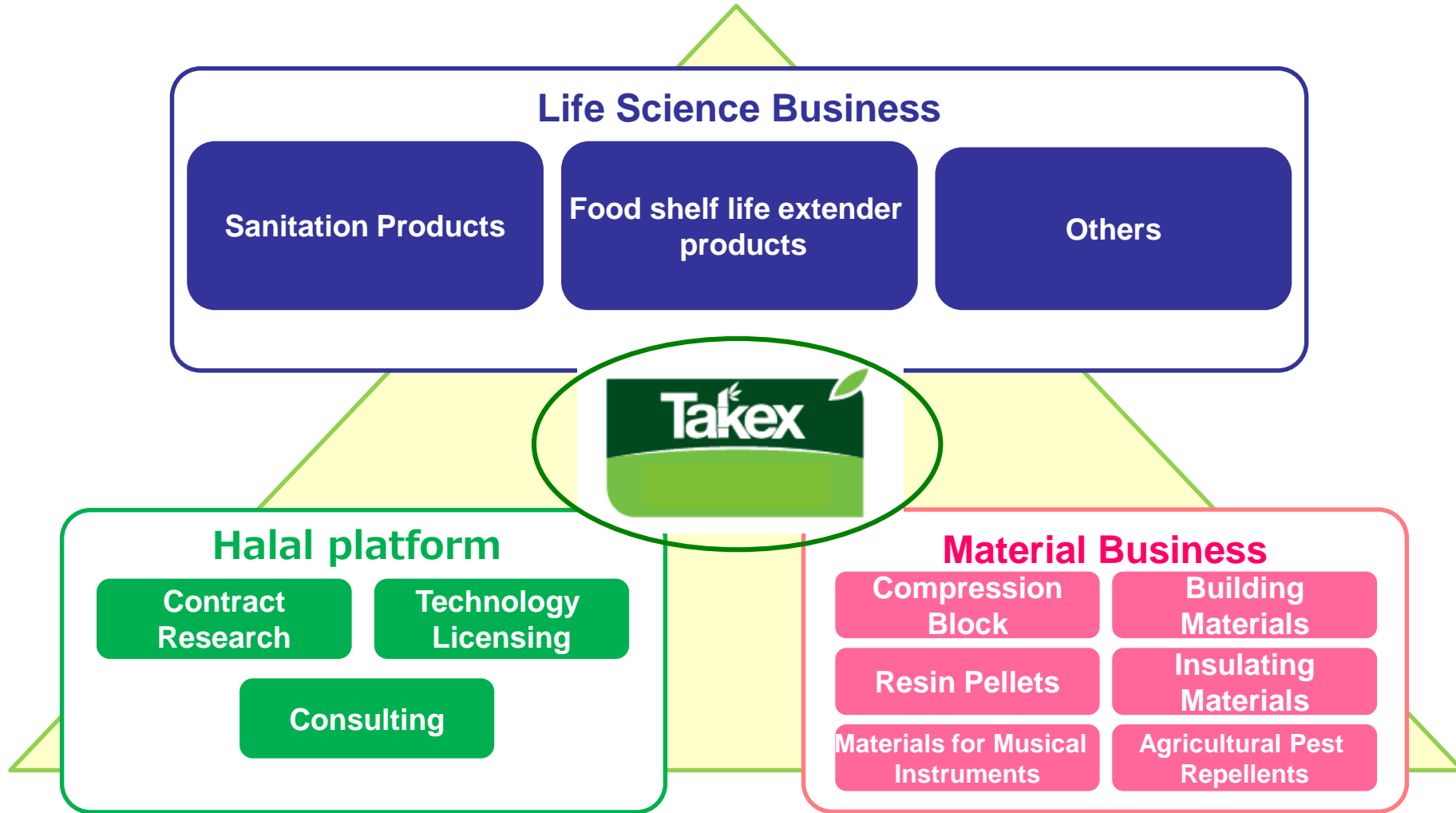




TAKEXCO MALAYSIA SDN BHD
TAKEX CO., LTD. (JAPAN)

■ Businesses of Takex

Through the research of bamboo, we are aiming to become a value-creating company that contributes to the conservation of the global environment and the health of people all over the world.



What is Takex Clean ?



MS2200:2008(Part 1)
1 105-01/2016

5 Main Features

- 1 Wide range of antibacterial actions**
Sterilizes from viruses to bacteria
- 2 Still effective even with water**
Performs the sterilization effect even if the product is diluted in water
- 3 Excellent sustainability**
Continuous disinfection even after the product has evaporated
- 4 People-friendly, excellent safety performance**
All of the ingredients are approved as food grade
- 5 Excellent deodorizing effect**
Quick decomposition of bothersome odor



MS2200:2008(Part 1)
1 105-01/2016

Wide range of antibacterial actions

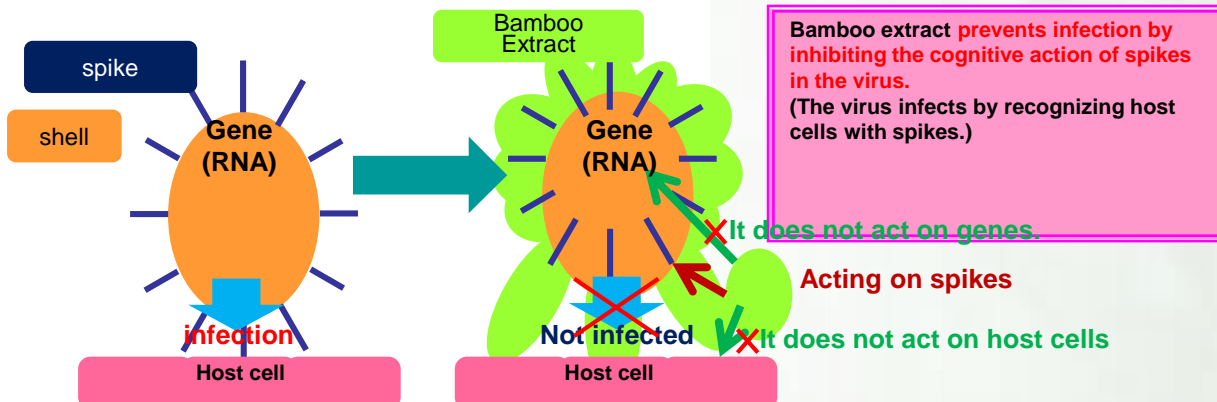
No.	contrastive virus・fungi	test result						remarks: test summary	test laboratory	
①	feline calicivirus	specimena sample)	TAKEX CLEAN Biz	when started	30 sec. later	5 min. later	30 min. later	log TCID ₅₀ /ml	Japan Food Research Laboraroties	
		contrast)	purified water	6.7	<2.5	<2.5	<2.5	<2.5: not detected (ND)		
②	influenza virus	specimena sample)	TAKEX CLEAN Biz 50v/v% dilution	when started	15 sec. later	30 sec. later	1 min. later	log TCID ₅₀ /ml	Japan Food Research Laboraroties	
		contrast)	purified water	6.5	<1.5	<1.5	<1.5	<1.5: not detected (ND)		
③	Bird Flu Virus (H5N3)	specimena sample)	TAKEX CLEAN Biz	first time	second time	/		log ₁₀ EID ₅₀ /0.2ml	Kyoto Industrial University Bird flu research center	
		contrast)	PBS solution	≤-0.5	≤-0.5			≤-0.5: not detected (ND)		
④	Staphylococcus aureus	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate-buffered dilution	4.9 × 10 ⁶	***	***	4.9 × 10 ⁶	***: not administered (NA)		
⑤	E coli O157-H7	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate-buffered dilution	3.9 × 10 ⁶	***	***	3.0 × 10 ⁶	***: not administered (NA)		
⑥	salmonella	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate-buffered dilution	7.3 × 10 ⁵	***	***	5.4 × 10 ⁵	***: not administered (NA)		
⑦	Campylobacter jejuni	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<100: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate-buffered dilution	1.0 × 10 ⁶	***	***	5.4 × 10 ⁵	***: not administered (NA)		
⑧	Aspergillus niger	specimena sample)	TAKEX CLEAN Biz undiluted	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate-buffered dilution	9.0 × 10 ⁴	50	<10	<10	9.0 × 10 ⁴		***: not administered (NA)
⑨	Vibrio parahaemolyticus	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphorolysis buffered dilution 3%NaCl	1.0 × 10 ⁶	***	***	1.0 × 11 ⁶	***: not administered (NA)		
⑩	Methicillin-resistant Staphylococcus aureus (MRSA)	specimena sample1)	TAKEX CLEAN Biz dry and undiluted	number of test	22 days later	34 days later	/		<10: not detected (ND)	Japan Food Research Laboraroties
		contrast1)	laboratory dish (nothing sprayed)	first time	10	<10			<10: not detected (ND)	
		specimena sample2)	TAKEX CLEAN Biz dry and undiluted	second time	<10	<10			<10: not detected (ND)	
		contrast2)	laboratory dish (nothing sprayed)	second time	6.5 × 10 ⁵	6.5 × 10 ⁵			<10: not detected (ND)	
⑪	Legionella pneumophila	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<100: not detected (ND)	Japan Food Research Laboraroties	
		contrast)	purified water	2.0 × 10 ⁵	***	***	3.0 × 10 ⁵	***: not administered (NA)		
⑫	Pseudomonas aeruginosa	specimena sample)	TAKEX CLEAN Biz 3 times dilution	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate buffered saline	9.7 × 10 ⁶	***	***	1.1 × 10 ⁷	***: not administered (NA)		
⑬	trichophyton	specimena sample)	TAKEX CLEAN Biz undiluted	when started	1 min. later	5 min. later	15 min. later	<10: not detected (ND)	Osaka Food Hygiene Association food analysis center	
		contrast)	phosphate-buffered dilution	3.0 × 10 ⁴	***	***	3.7 × 10 ⁴	***: not administered (NA)		

Effect of Bamboo Extract on Virus

Bamboo Extract

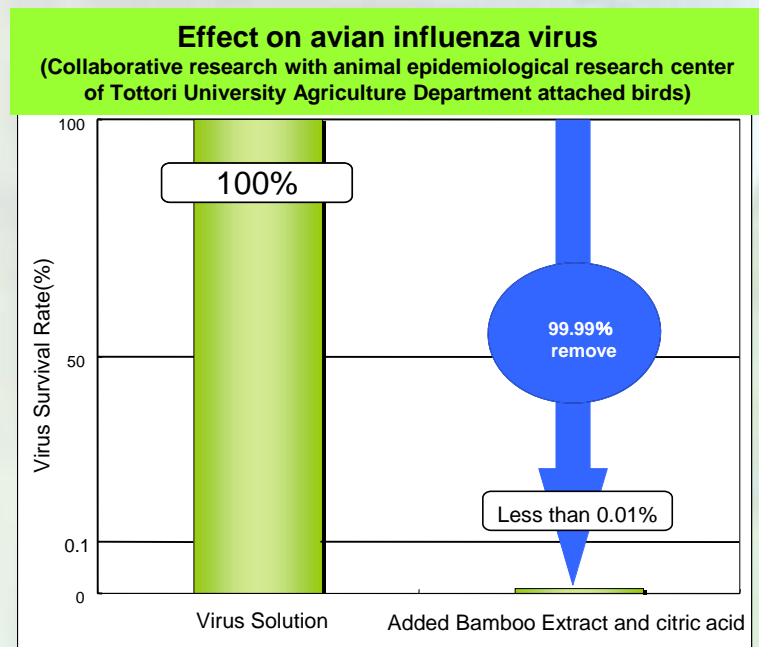
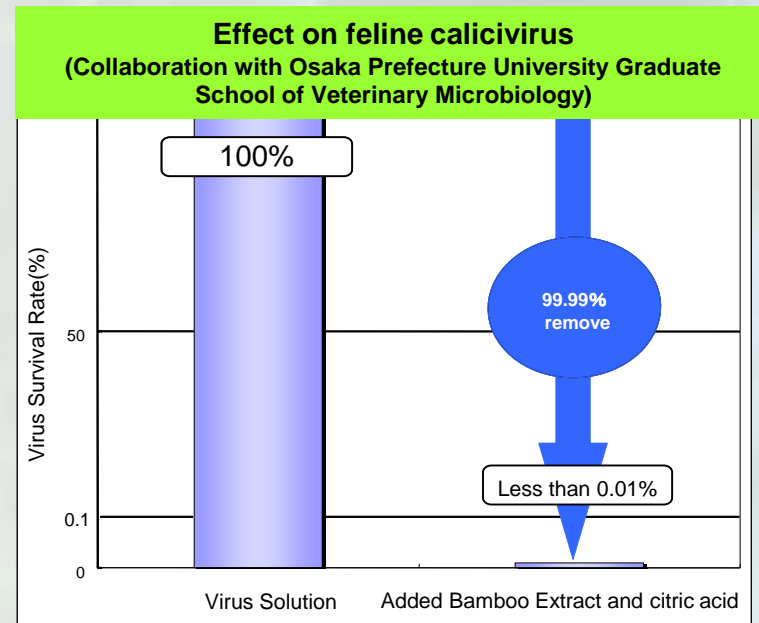
Ethanol based extract of Bamboo skin powder. Bamboo species only available in China and Japan. The bamboo contains 2,6-dimethoxy-1,4-benzoquinone, lutein, chlorophyll. It is used as a shelf life extender since the bamboo has antibacterial effect.

Mechanism of action on virus



1. RT-PCR confirms that bamboo extract does not act on feline calicivirus gene
2. Confirm that bamboo extract does not act on host cell

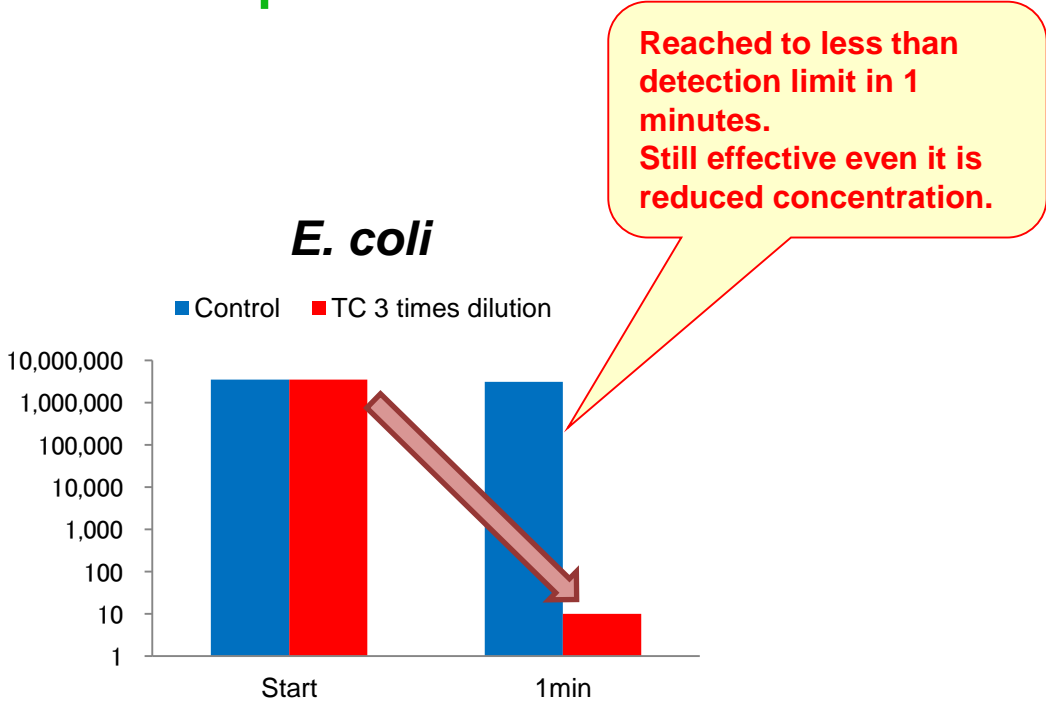
Based on the above results and the structure of feline calicivirus, the site where bamboo extract works is considered to be a virus spike. The existence of a site that recognizes the host cell has been reported in the spike, and it is considered that the bamboo extract inhibits the recognition function thereof, thereby suppressing the growth of the virus.



Still Effective Even in Water

Verification of benefit at wet place.

Test fungi	Test liquid	Viable bacterial count (cfu/ml)			
		Start	1 min later	5 min later	15 min later
<i>E-coli</i> O157-H7	Takex Clean 3 times dilution	3.5×10^6	<10	<10	<10
	Control	3.5×10^6	not administered (NA)	not administered (NA)	3.1×10^6

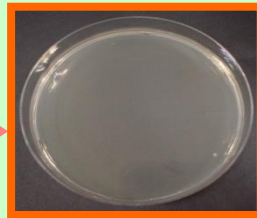
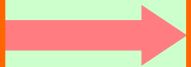


☆ Effective even at wet places

We cannot expect any effectiveness if it is diluted with water on standard alcohol preparations, but possible with Takex-Clean.



bacteria count when start



bacteria count in 5 minutes later

※using 3 times dilution

High Sustainability

Verification of duration (Escherichia coli · Staphylococcus aureus)

test fungi	test liquid	viable bacterial count (cfu/ml)
		7 days later
Escherichia coli	5 times dilution	<10
	contrast	1.2 × 10⁶

test fungi	test liquid	viable bacterial count (cfu/ml)
		7 days later
Staphylococcus aureus	5 times dilution	<10
	contrast	5.3 × 10⁶

Q : Wondering high efficiency of product on human health.



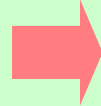
But in case of Takex-Clean

A : Due to its components are classified as food additive, no harm for human (human friendly)

☆ High safety level brings you human friendly.



Bamboo



Bamboo extract



Takex-Clean

As main component is natural bamboo extract, it offers you very high safety level. All the other components are also food additives, you can be free from care to use it.

Safety of Bamboo extract

Safety level is well tested.

- ① **Repeated-dose toxicity study** (Test to see how it effects in case of continuous administration)
- ② **Mutagenicity test** (Test to see if administration effects to chromosome.)
- ③ **Acute toxicity test** (Test to see how it effects in case of high dose administration.)

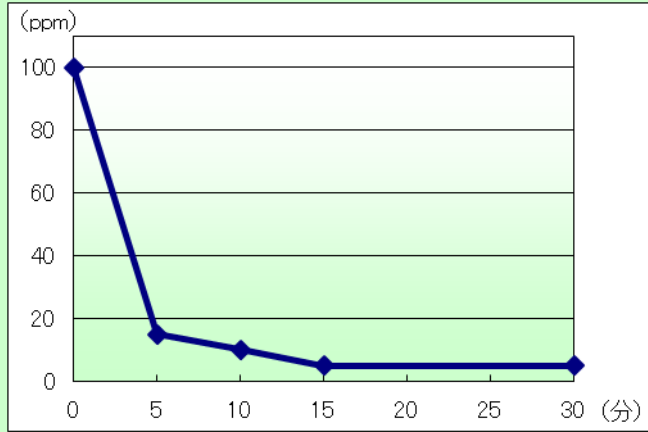
Test results show us it is safety even than salt.

① ・ ② Research and study of safety evaluation for existing food additives.
 ~ Report from Ministry of Health, Labor and Welfare, Environmental Health Bureau, Food Chemistry Division, Food Additive Safety Evaluation Test in 1999. ~
 ③ Material Safety Data Sheet (Poisonous Information)

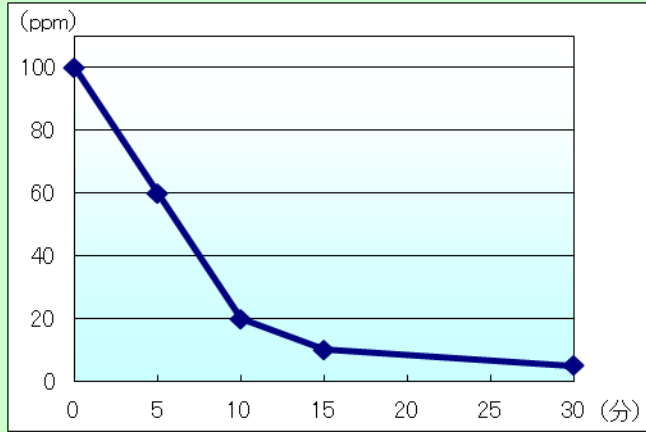
Excellent Deodorizing Effect

☆ Great odor eliminating effect.

Remaining gas concentration (Trimethylamine)



Remaining gas concentration (Ammonia)



With Bamboo Extract effect, it offers you great odor eliminating effect against several kinds of odour. It eliminates bad smells of garbage and at toilet almost perfectly. As it eliminates microorganisms which should be the origin of bad smelling at the same time, you can expect complete odor eliminating effect.

Remaining gas concentration (Trimethylamine)						Deodorant rate
Elapsed time(min)	0	5	10	15	30	
Remaining amount (ppm)	100	60	20	10	<5	
Remaining gas concentration (ammonia)						Deodorizing rate
Elapsed time(min)	0	5	10	15	30	
Remaining amount	100	15	10	<5	<5	

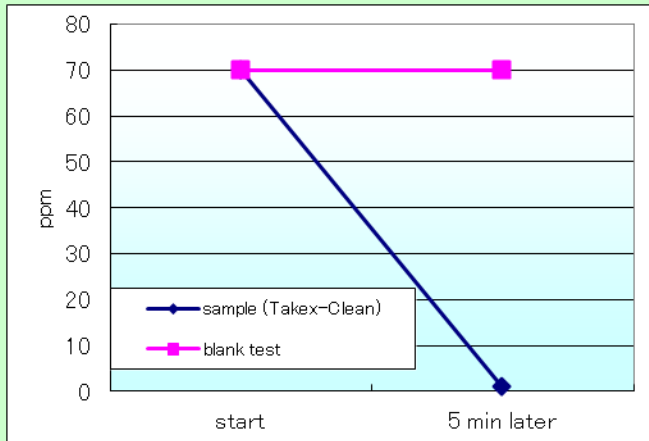
Both data shows you more than 95% deodorant rate.

Test laboratory : Our own laboratory

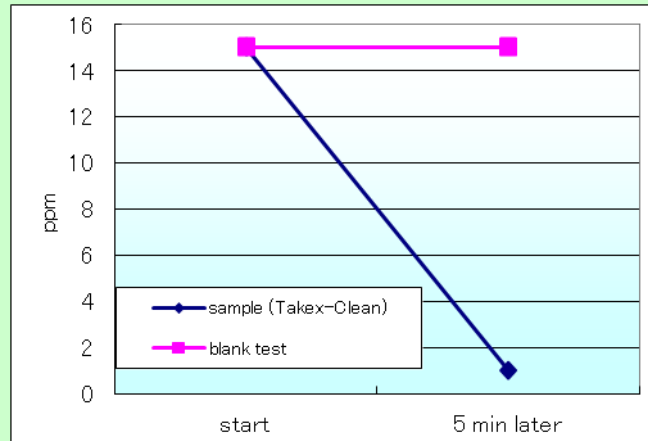
☆ Great odor eliminating effect.

By effectiveness of Bamboo Extract, it offers you great odor eliminating effect even to smelly feet (Isovaleric acid) and distinctive body odour (Nonenal). As it eliminates microorganisms which should be the origin of bad smelling at the same time, you can expect complete odor eliminating effect.

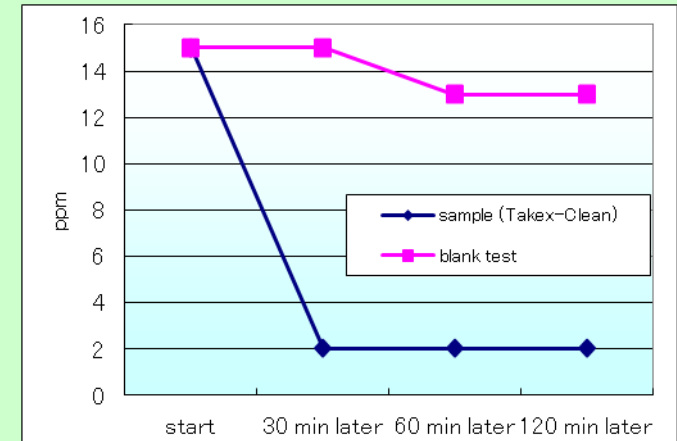
Remaining gas concentration (Trimethylamine)



Remaining gas concentration (Isovaleric acid)



Remaining gas concentration (Nonenal)



Test result against Trimethylamine

(Unit : ppm)

Sample classification	Elapsed time
	5 min
Sample*	< 1
Blank test	70

Gas concentration at beginning : approximately 70ppm
< 1 : minimum limit of determination under 1ppm

Test result against Isovaleric acid

(Unit : ppm)

Sample classification	Elapsed time
	5 min
Sample*	< 1
Blank test	15

Gas concentration at beginning : approximately 15ppm
< 1 : minimum limit of determination under 1ppm

Test result against Nonenal

(Unit : ppm)

Sample classification	Elapsed time			
	0 min	30 min	60 min	120 min
Sample*	15	2	2	2
Blank test	15	15	13	13

Gas concentration at beginning : approximately 15ppm

*Tested by Takex Clean Biz now on sale in Japan.

Comparison with competing products

formulation Effectiveness and efficacy	ethanol preparation	sodium hypochlorite	wood vinegar	Takex Clean
Verification of benefit against to feline calicivirus (noro substitution virus)	△	○	○	○
effect to bird flu virus	△	○	○	○
durability of eliminates saprophyte effect and antibacterial effect	✗ no bacteria elimination power after volatilization	○ ※validity down 2 hours later of dilution	✗	○ antibacterial effect lasts 7 days
bacteria elimination effect at watering place	✗	△ confirmed constant effectiveness, but some doubt on its safety level at certain dilution rate	○	○ confirmed good eliminates saprophyte effect even at 3 times dilution
deodorant power	△	△ fear of generate chlorine gas when mixed with acids	○	○
mold prevention	△ confirmed cytostatic effect at some concentration	△ used as bleaching solution	△	△ cannot use for bleaching, but prevent increasing
safety	○	✗ fear of carcinogenic due to its remaining chlorine	✗ in case of oral administration	○
stability to heat	✗	✗ unstable at undiluted and need to be kept at cool place	○	○ stable at any temperatures
smelling and taste of components	△	✗ typical smelling of chlorine	✗ strong smelling of components	△



To Kill Bacteria and Virus at the Frontline

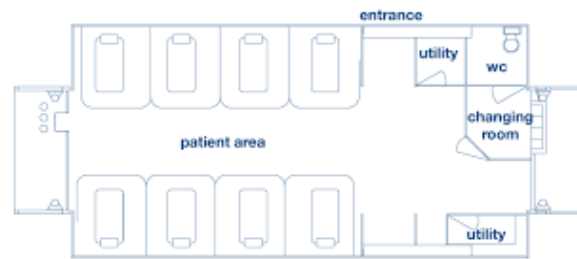
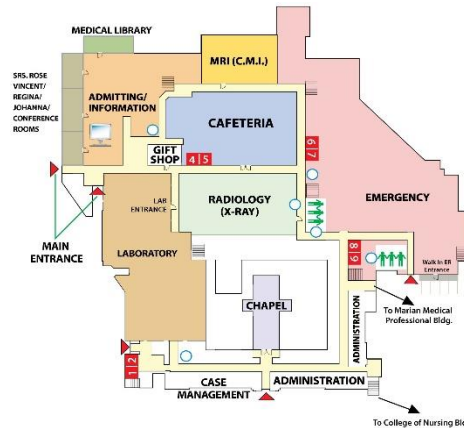


To prevent spreading of bacterial or viral infection carried from outside the compound. Reception counter is normally the first place people will get in contact with.

To Kill Bacteria on Machines and Equipments



To kill the bacteria on the surface of instruments and equipment that have contact with patients and medical staffs. It is not corrosive to metal.



To Kill Bacteria in the Ward



Takex sanitisers can be used to sanitise the ward and items such as door knob, bed and mattress, patient monitor, furniture and washroom.

Food Grade and Halal Sanitiser



Effective on wide range of viruses and bacteria. Food grade ingredients are safe to human and it is environmental friendly. It ensures a high standard of hygiene for the food served in the cafeteria and ward.

To Minimise Bacteria at Common Area



Door knobs, elevators, walls, countertops etc.





Wide range of antibacterial effect



Active ingredients in Bamboo Extract and plant-derived ethanol work to kill virus and bacteria widely.

To prevent mold and bacteria in wet or damp places



TAKEX CLEAN has excellent effects in wet or damp places, unlike usual ethanol sanitizers.

To kill bacteria on kitchen utensils



First, wash the kitchen utensils, remove the dirt, drain off the water, and spray TAKEX CLEAN.

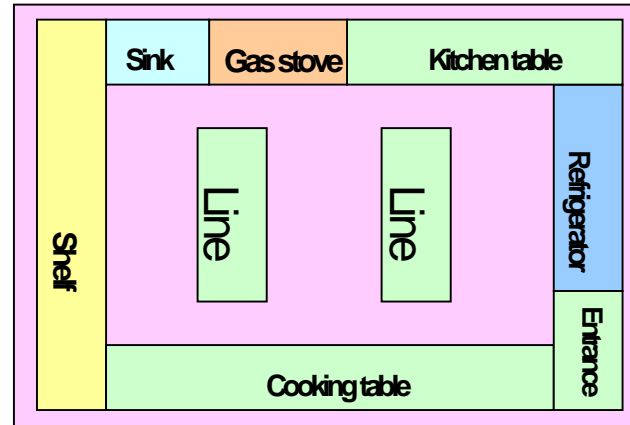
Even if some water is left in the utensils, the effect is not affected. Speedy sterilization is possible.



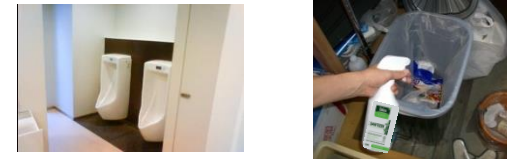
To kill bacteria on door knob and handrail



Door knobs and handrails can be agents to transfer bacteria from person to person. TAKEX CLEAN can prevent to expand bacteria.



To kill odor on toilet and trash box



Very effective on the odor of the toilet and raw garbage. Quickly disassemble uncomfortable smells and provide more comfortable space.

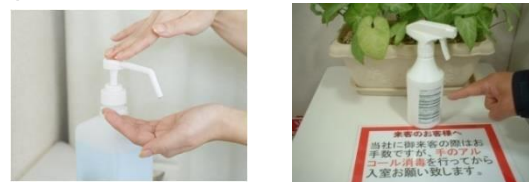
To kill bacteria on food containers



Effective on wide range of viruses and bacteria. High durability makes it possible to provide food safety.

To kill bacteria on hands and fingers

The main cause of food poisoning is considered as polluted hands and fingers. It is necessary to sterilize hands and fingers, and places where hands will touch.



ALL IN ONE

How to use in Cafeteria, Canteen and Restaurant

Kitchen

To kill bacteria on Kitchen utensils



First, wash kitchen utensils, remove the dirt, drain off the water, and spray TAKEX CLEAN. Even if some water is left on the utensils, the effect is not affected. Speedy sterilization is possible.

To kill bacteria on hands after washing

The main cause of food poisoning is considered as polluted hands and fingers. It is necessary to sterilize hands and fingers, and places where hands will touch.



To kill bacteria on tableware

Since TAKEX CLEAN uses safe ingredients only, no rinsing is required after spraying.



Toilet

To kill bacteria and odor on toilet



There are a lot of bacteria on the toilet seat. TAKEX CLEAN kills bacteria and odor.

To kill bacteria on hands at washstand



The hands after toilet are polluted. Spray TAKEX CLEAN to kill bacteria after washing hands.

Hall

To kill bacteria at Hall space

Provide comfortable hall space where customers can enjoy time safely. Spray TAKEX CLEAN on the table and places where customer's hands will touch.



To kill bacteria and odor on kitchen cloth

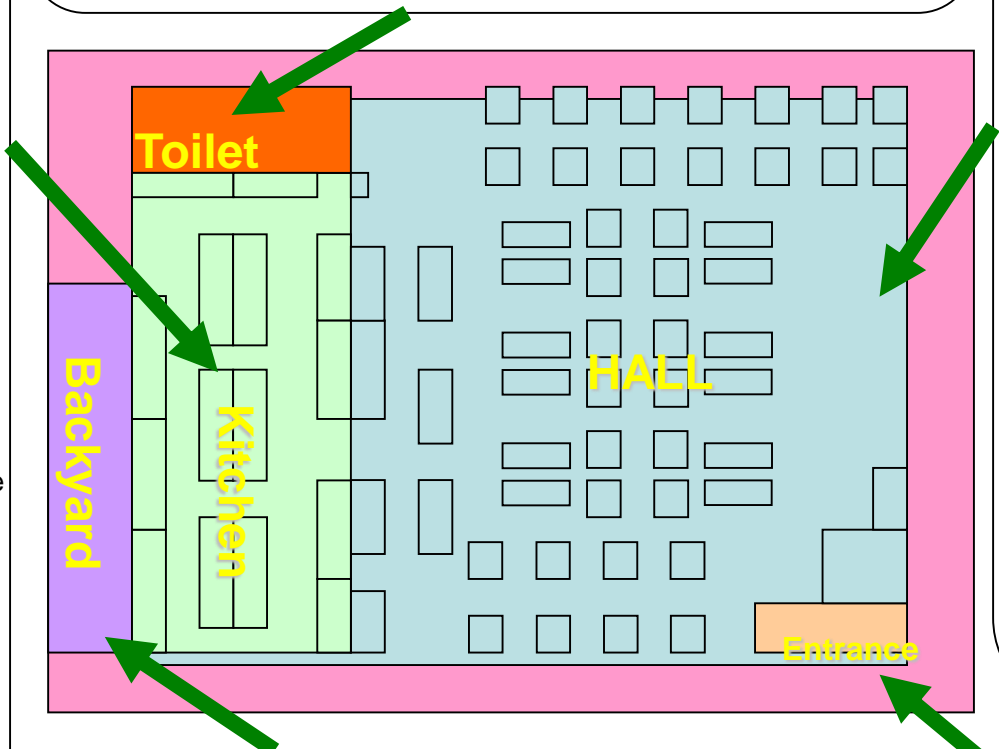
Used cloths are highly polluted. Spray TAKEX CLEAN often to kill bacteria and odor to keep cloths clean.



To kill bacteria on filter



Virus may attach to filters of air conditioners and can be spread. Spray TAKEX CLEAN after washing filters.



Backyard

To kill odor on trash box



Very effective on the odor of raw garbage. Quickly disassemble uncomfortable smells.

Entrance

To kill bacteria on hands at the entrance


Before entering the store, kill bacteria on hands at the entrance. Can reduce to carry bacteria from outside into the shop.



Hygiene Management in School

In fact, there is virus and bacteria in many unexpected places.....
Let's start safe hygiene management with TAKEX CLEAN!

Kill virus and bacteria widely



Synergetic effect of active ingredient in Moso Bamboo Extract and ethanol brings power to kill virus and bacteria widely.

To kill bacteria after hand-wash

Wash your hands thoroughly and use TAKEX CLEAN to kill bacteria which could not be removed by hand washing.



To prevent mold and bacteria in wet or damp places

TAKEX CLEAN has excellent effects in wet or damp places, unlike usual ethanol sanitizers.



To kill bacteria on filters



To kill bacteria and odor in the air by spraying onto filters of Air conditioners.



To kill bacteria in prayer room

Can keep prayer rooms clean by spraying TAKEX CLEAN on mats or carpets.



To kill bacteria and odor on shoe locker and shoes

One of the main causes of bad smell of shoe lockers and shoes is breeding of bacteria. TAKEX CLEAN can kill bacteria and odor. You can spray on shoes and bags also to keep them clean always.



To kill bacteria on door knob and handrail

Door knobs and handrails can be agents to transfer bacteria from person to person. TAKEX CLEAN can prevent to expand bacteria.



To kill odor on toilet

Effective much to kill unpleasant smell of toilet (ammonia). Can provide comfortable space.

