

ZOONO

*Safe anti-microbial solution
with a long residual life*



The long lasting anti-microbial solution



Zoono

2 types of products



Same Active Ingredient



For Skin (hands)

ZOONOCIDE®

For Inanimate Surfaces



The long lasting anti-microbial solution



What is a Germ (Microbe or Micro-organism)?

- Living cells that are too small to be seen with the naked eye
- Disease-producing micro-organisms are known as pathogens:
 - Bacteria
 - Fungi
 - Protozoa (Malaria is one of the most common protozoan diseases)
 - Viruses

Conventional disinfectants: stop working

Conventional antimicrobials must leave the surface they are on to work



Get inside the organism



The chemical agent will act like a poison



Interrupts key metabolic, or life sustaining process of the cell



Micro-organism dies

Most conventional anti-microbials **are consumed** or **use up their ability** to affect the micro-organisms during this process



IT STOPS WORKING

What is Zoonocide?

An effective **water-based multi surface** **broad spectrum anti-microbial** treatment that sanitizes and protects surfaces for **extended periods of times**.



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Zoonocide uses cutting edge Nano Technology

- Mechanical molecular device
- One end of its molecule creates a strong bond with a surface, forming a highly durable protective coating.
- The other end of the molecule forms a microscopic bed of molecular spikes.
- These spikes are long, pointed chains of atoms that are big enough to pierce the cell walls of various microbes causing the micro-organism to die
- Additionally, these chains of atoms carry a strong positive charge that attracts negatively charged micro-organisms

Zoonocide's ability to kill is not used up in this process,
Similar to a sword that is capable of repeated use

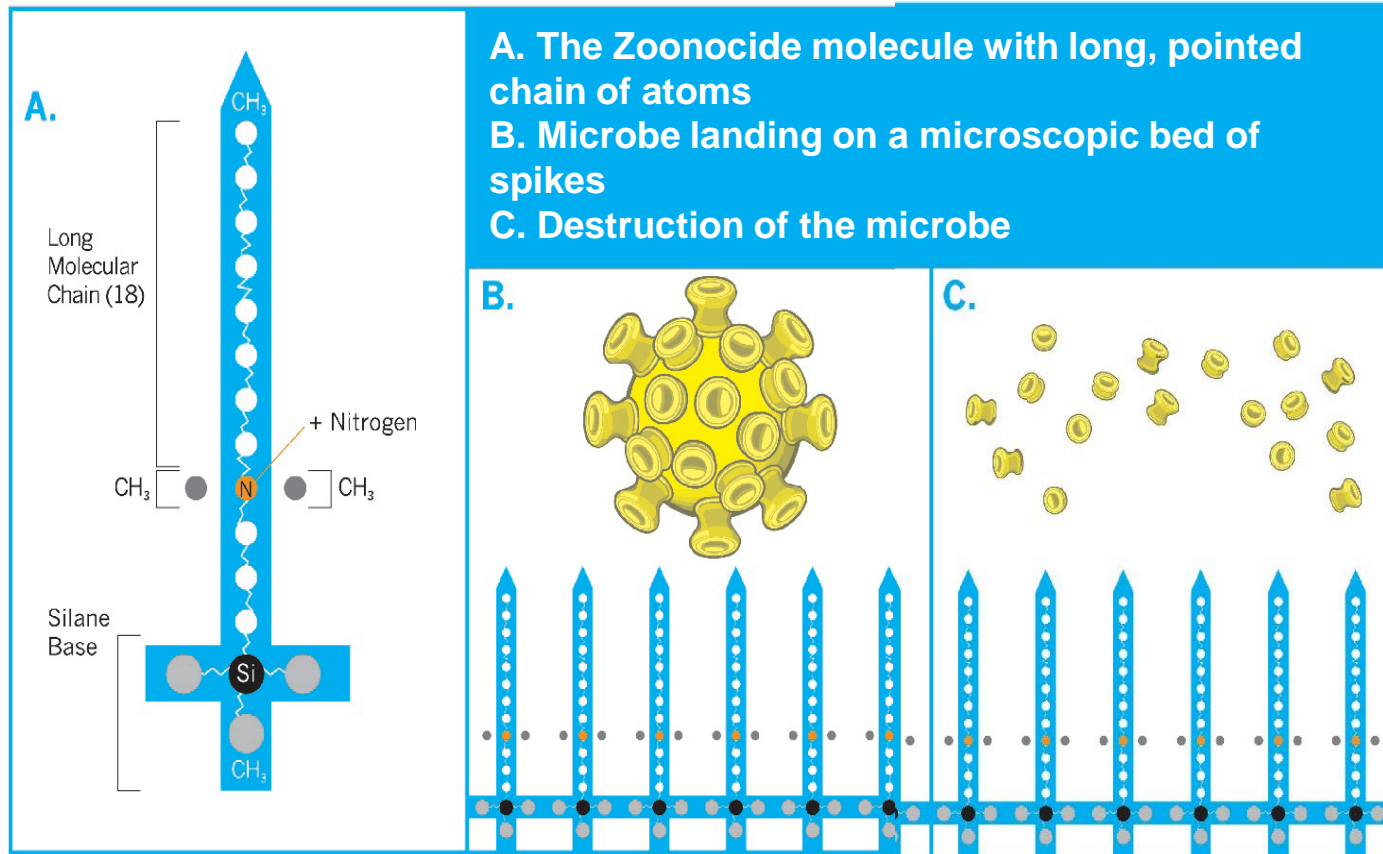


IT KEEPS WORKING

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The Zoonocide Molecule



3-Trimethoxy silyl propyl dimethyl octadecyl ammonium chloride

Why use Zoonocide:

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Permanent part of the surface: After drying Zoonocide forms an invisible, transparent and durable anti-microbial film, which:

- will not transfer on contact with other surfaces
- is non-leaching on contact with water or solvents.

=> allows it to remain functional even after long-term use that may include hundreds of cleanings or washing.

Keeps working:

- The active ingredient is not used up, but is capable of repeated use
- Organisms cannot adapt to it, because it does not kill the organisms by poisoning (but by piercing the cell's membrane).

The Zoonocide Difference

Zoono	Other Products
One Application	Multiple applications
Prevents Cross Contamination	Permits Cross Contamination
Long life invisible shield	Short life in seconds
Mechanical kill	Kills by poisoning the cells
Impossible to Mutate	Encourages mutations & resistance (super bugs)
Non Leaching	Could leach
Environmentally stable	Could bleed harmful toxins into the environment
Odourless	Some have unpleasant odours
Safe to use	Often highly toxic
Non Corrosive	Often Corrosive
Adheres to most surfaces	No adhesion

Zoonocide is **safe to use**: The long pointed chains of atoms are only about one millionth the diameter of a human hair => too small to harm the larger cells of mammals.



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Zoonocide



EBOS code	Description	List Price (excl GST)
33100013	Zoonocide Aerosol (400g)	
33100004	Zoonocide Trigger Spray 500ml	
33100005	Zoonocide Refill 5 Litre	



***Using advanced technology, GermFree24 is the only
24 HOUR PROTECTION
of your hands against 99.99% of germs.***

Consumer Research* shows:

* More than half of those questioned worry about germs

* Main reasons for not using more conventional hand sanitizers are:

- Dries out skin
- Forget to apply more frequently
- Forget to take with me during the day

* Almost 70% of those questioned indicated they would purchase a product which protects from germs for 24 hours

*In-house Consumer Research by Ebos Healthcare, December 2008. n=39



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**Using advanced technology, GermFree24 is the only
24 HOUR PROTECTION
of your hands against 99.99% of germs.**

- One spray kills germs all day
- Protects from germs for 24 hours
- No need to re-apply
- Safe to use on your hands
- Gently moisturises
- Smells light and fresh
- Used in New Zealand Medical Centers



Ebos Code	Description	List Price (excl GST)
33100006	GermFree24 Pump Spray 50ml	
33100007	GermFree24 Pump Spray 150ml	
33100009	GermFree24 Automatic Dispenser 400ml	
33100011	GermFree24 Bladder 400ml	
33100010	GermFree24 Automatic Dispenser 800ml	
33100012	GermFree24 Bladder 800ml	



FAQ

After several applications, e.g. 1 application every 2 weeks over a period of a year, will Zoonocide create a matrix of little spikes over the surface which may then reduce the molecules ability to pierce a foreign cell?

No. Repeated applications of Zoonocide does not diminish the products activity. A new application of Zoonocide simply adds more “

‘spikes’ to an area. (See next question). If the new application covers an old application, it simply adds fresh oleophilic octadecyl chains ("spikes") to the surface. The nature of Zoonocide is such that on an untreated surface, the film will always form with the "spikes" facing away from the surface. The Zoonocide polymeric surface is not consumed by microbial contact, but its effectiveness is reduced if the lysed cell (carcass remaining after the microbial cell has been ‘pierced’) remains on the surface. Surfaces should be cleaned periodically to remove dead, lysed cells and regenerate the surface.

Will Zoonocide adhere to itself? This is important when thinking of using several applications over a long period of time.

Zoonocide application is self-limiting. It is found that after the initial application, a second application will promote greater coverage, mostly in areas not covered by the first application and promote a more complete film. After a second application, Zoonocide will not adhere to itself as there are very few active sites for it to react with on a treated surface. Additionally, the Zoonocide treated surface is hydrophobic and causes the subsequent aqueous treatments of Zoonocide to be repelled into domains (bead-like areas) that are really not bonded to the surface and can be removed easily by wiping of the surface.

Have any long term studies, with several applications of Zoonocide over a longer period of time, been done?

Not on hard dry surfaces. Carpet treatments with a good single application have demonstrated non-reduced activity after 40 shampoos. Test results have been recorded for treated filter media not losing activity after 4 years in a continuous flow aqueous environment - a much more aggressive than a nonabrasive aerobic environment .

FAQ

Does losing skin cells more rapidly than every 24 hours compromise GermFree24's efficacy when using on the hands?

No. A sitting person loses 100,000 skin cells/minute and a fast walking person (8kph) loses 10 million/minute. Testing indicates the maximum amount of time the GermFree24 will remain on the skin and resist bacterial colonization is 64 hours. (No shower or washing). People should use it at least once a day to maintain maximum effectiveness. The once a day application will help cover those areas where skin cells were shed. As the applications are self-limiting as with Zoonocide, it is difficult to build-up layers on the skin.

What is a normal rate for sloughing off human skin cells?

In addition to the above rates, a person walking at 3 kph loses 5.0 million skin cells/min. (Source: Dr, Ken Goldstein, Clean Rooms, 7/99). So the rate of shedding skin cells is dependent on persons' activities.

Would the rate of sloughing off change depending on the activity of your hands and the amount you sweat?

Sweat will of course produce more skin bacteria. Studies conducted found that after a strenuous, sweat producing workout, there was an increased level of bacteria on the skin treated with GermFree24. However, the next skin sample showed the bacterial level was reduced to levels below that previous to the workout. Sneezing on the treated skin produced similar results.



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FAQ

Will the anti-microbial film formed by GermFree24 allow your skin to function normally; sweat, breath, produces its own oil, have its own "good bacteria" count etc.?

Yes. GermFree24 does not inhibit the normal function of the skin. The silicate layer produced by application of GermFree24 and which bonds to the skin is transparent to gasses and allows the skin to "breathe" normally. It has a tendency to reduce moisture loss, hence a moisturizing agent.

Does the film formed by GermFree24 affect the skins own ability to expand and contract rapidly to allow for heat and cold exposure?

No

If a GermFree24 user has very thin skin (for example an elderly patient) will GermFree24 add to the skin thinning?

There is no data to show that GermFree24 will add to skin thinning. It is believed the thin film formed by GermFree24 will add a strengthening layer that also protects against pathogens.



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FAQ

Is the active ingredient in Zoonocide and GermFree24 a Quaternary Ammonium Compound (Quat)?

The active ingredient in the Zoono products is a 7th generation Quaternary Ammonium Compound, or Quat. Quats have been around since the late 1930s, and have been extensively used in both a medical and food processing environment. Older generation Quats work similar to the Zoono active ingredient in the way they kill and inactivate germs, through piercing the germs cell membrane, a process called lysis.

What is the main difference between older generation Quats and the Zoono products?

Zoonocide and GermFree24 form a permanent bond with the surface or skin. They form a not water soluble, protective film.

Older generation Quats do not become a part of the surface once they are applied. They are more like a salt on top of a surface and are often soluble in water. They provide protection against germs for a much shorter amount of time than the Zoono products. Most importantly, if a treated surface or skin is cleaned the active ingredient is removed as well and the protection is gone instantly.

The 'spikes' that pierce the germs cell membrane can get clogged up by the dead, lysed cells, reducing their effectiveness in killing and inactivating germs. When using products with the older generation Quats it is not possible to clean the treated surface of these dead cells without also removing the active ingredient.

When using GermFree24 and Zoonocide however, the treated surface or skin can be cleaned many times of dead cells and other matter, whilst maintaining the protection against germs.



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Independent test results

Organism	Bacteria % Reduction	After 14 days	After 28 days
Staphylococcus aureus	99.98	99.97	99.98
Pseudomonas aeruginosa	99.94	99.96	99.96
Escherichia coli (Ecoli)	99.99	99.98	99.98
Proteus vulgaris	99.92	99.93	99.93
Methycillin resistant Staphylococcus aureus (MRSA)	99.99	99.98	99.96
Vancomycin resistant Enterococcus (VRE)	99.97	99.97	99.96
Legionella	99.99	99.99	99.97
Salmonella	99.92	99.94	99.94
Cryptosporidium	98.45	98.45	98.44
Influenza A2 (Asian)	99.91	99.94	99.94
Citrobacter Freudii	99.99	99.98	99.98

Gettings, Richard L. (Freeland, MI) White, William C. (Midland, MI) Application Number: 07/433817 Filing Date: 11/09/1998 Publication Date: 05/07/1999 Assignee: Dow, Corning (US); Morteza Abbaszadegan. Rudolf Ouwens. Patricia Monteiro and Absar Alum. Arizona State University. Tempe. AZ 85257; Peterson, William (Phoenix, AZ, US) Berman, Renee E. (Chandler, AZ, US) Application Number: 10/850121 Filing Date: 05/19/2004 Assignee: COATING SYSTEMS LABORATORIES, INC. Primary Class: 424/78.270 International Classes: (IPC1-7): A61K031/785



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