

Bio-Zone

What is **Bio-Zone** antimicrobial protection?

- ⌘ *HEALTHY AIR DISINFECTION* introduced **Bio-Zone**, a patented, EPA Registered and USDA accepted, innovative new product.
- ⌘ **Bio-Zone** is a totally new approach to providing long lasting Antimicrobial Protection. It is a spray-on antimicrobial protectant for both porous and non-porous surfaces.
- ⌘ **Bio-Zone** prevents the growth of an amazingly wide array of bacteria, mold, mildew, algae and yeast. **Bio-Zone** acts like a bed of microscopic spikes that pierce the cell walls of microbes. Visualize it as the fuzz on a peach.

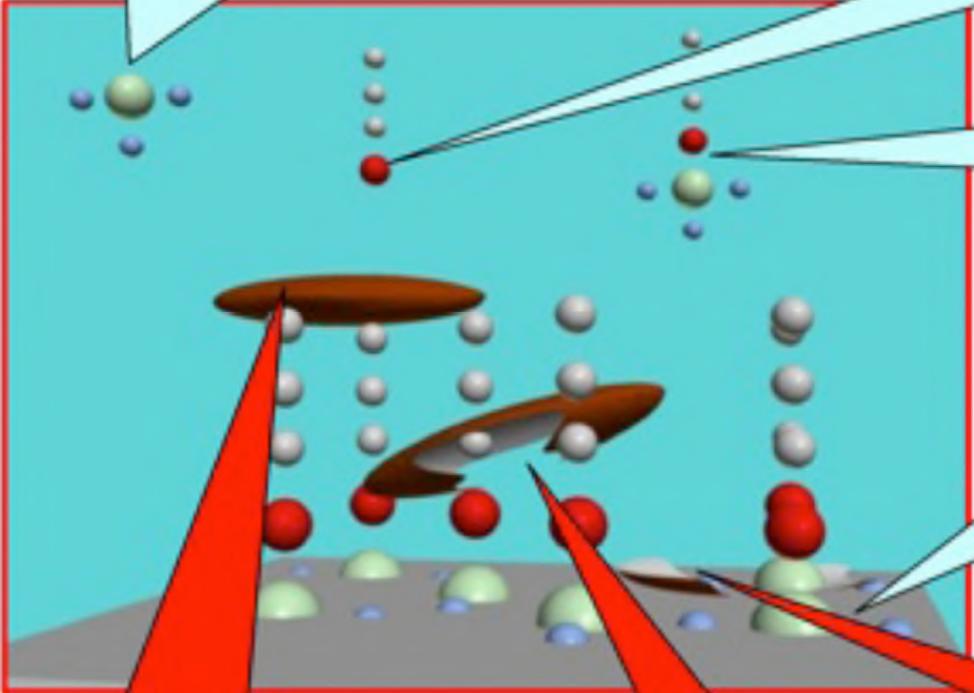
Bio-Zone

How does Bio-Zone work?

- ⌘ The active ingredient in **Bio-Zone** (Organosilane) forms a colorless, odorless, positively charged polymer, which chemically bonds to a surface.
- ⌘ When a microorganism comes in contact with the treated surface, the quaternary amine sword punctures the cell membrane and the electrical charge shocks the cell.

Silane Technology
Si (Silicon) molecule plus
O (Oxygen) molecules

Nitrogen Technology
N⁺ (Nitrogen +) molecule &
C (Carbon) long chain molecules



Organo Silane Technology
Silane plus Nitrogen Technology
N⁺ & long chain molecules

Polymerization Technology
Organo Silane plus makes a durable
& long lasting bond to most
surfaces, porous & non-porous

Microbial Attraction
Microbes are attracted to
the surface and the “positively”
charged Nitrogen

Microbial Penetration
Microbes are
pierced
by the “long chain”

Microbial Destruction
Microbes are destroyed by the
Combination of breaking the cell
wall and the N⁺ charge

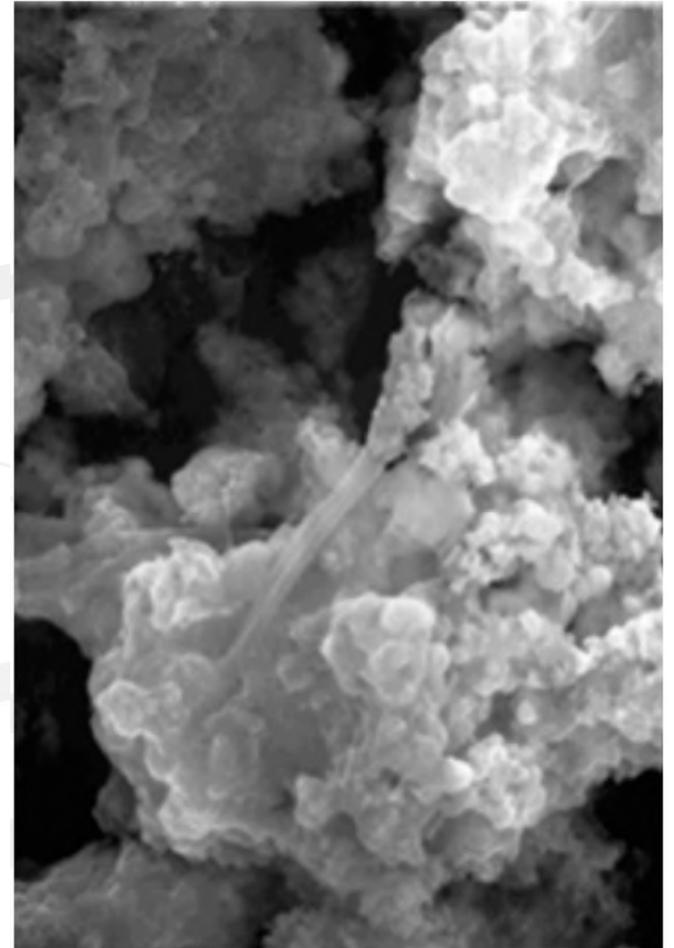
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How does **Bio-Zone** work?

- ✿ **Bio-Zone** gives substrates an added level of protection against damaging microbes. Some examples are: bacteria, mold and mildew, these can cause stains, odors and in some cases - deterioration.
- ✿ Note - In order for **Bio-Zone** to continue it's effectiveness, normal cleaning of treated surfaces is necessary.

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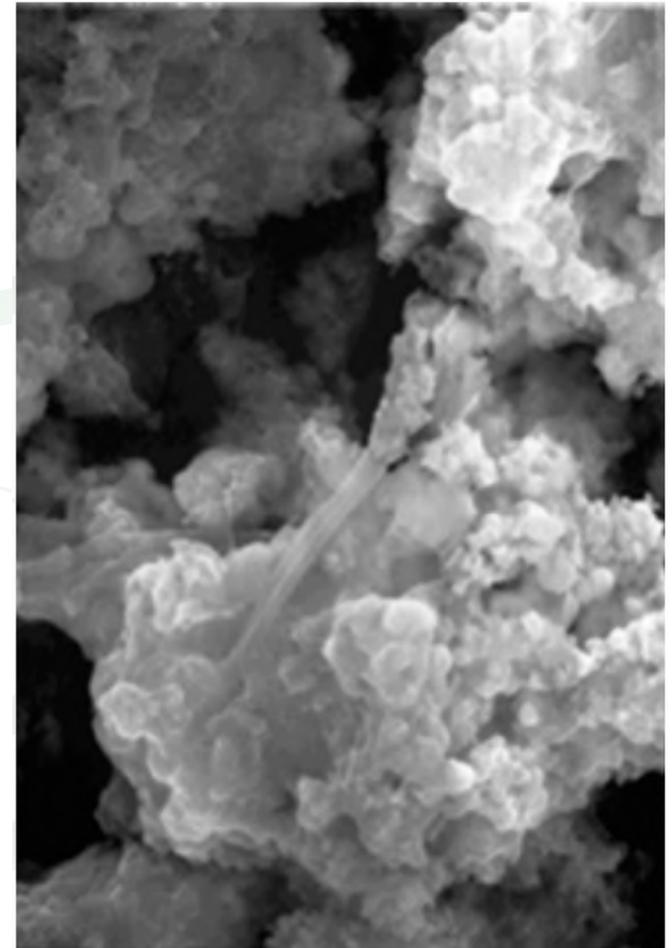
Biofilm



Bio-Zone

What is Biofilm

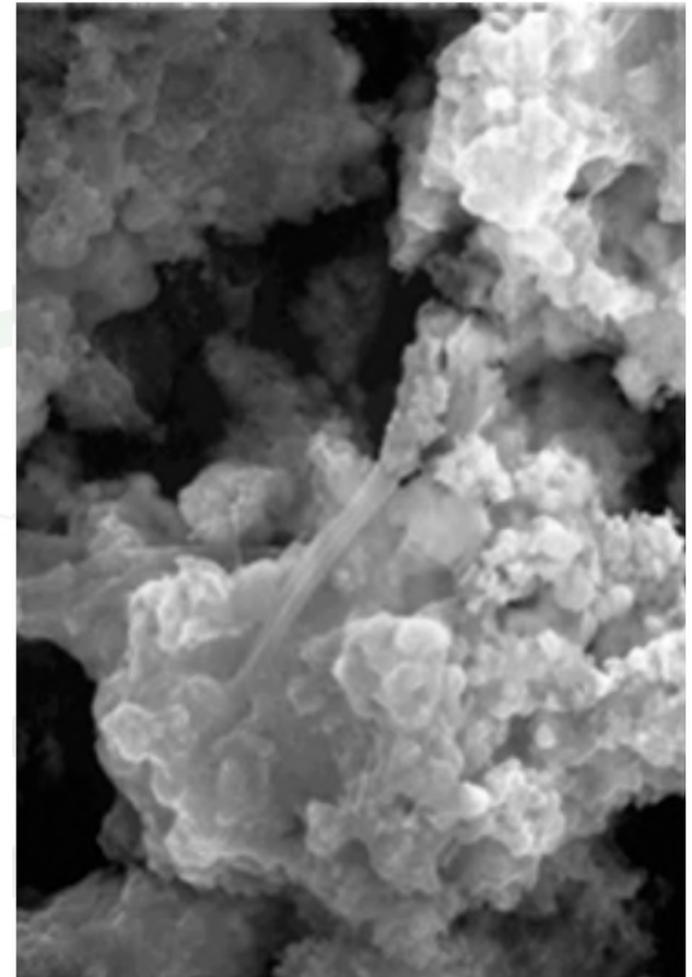
- ⌘ Biofilm is a community of single-celled microorganisms that forms on surfaces
- ⌘ A wide range of microorganisms can function, even thrive, in a community setting.



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What is Biofilm

- ⌘ Biofilm is a major cause of antimicrobial resistance
- ⌘ Layers of microorganisms have an insulating effect from cleaners with the outermost reaches protecting the layers of organisms underneath
- ⌘ 80% of all human infections are caused by some sort of biofilm



Bio-Zone - Forming Biofilm

Reversible
adsorption
of bacteria
(sec.)

Irreversible
attachment
of bacteria
(sec.-min.)

Growth &
division of
bacteria
(hrs.-days)

polymer
production &
biofilm formation
(hrs.-days)

Attachment of
other organisms
to biofilm
(days-mnths.)



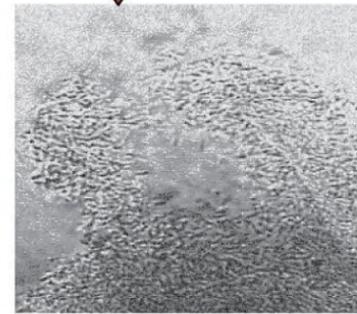
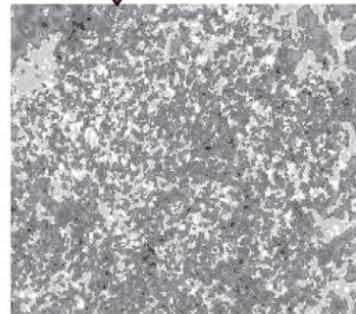
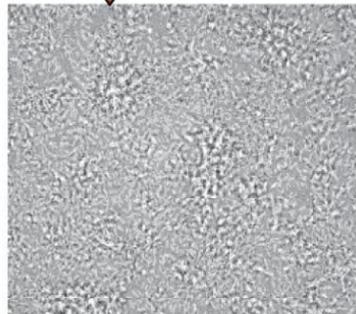
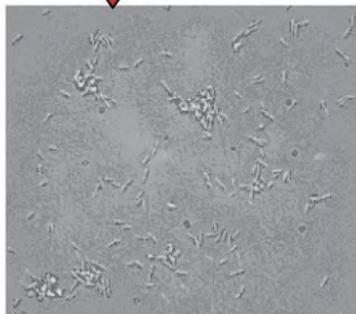
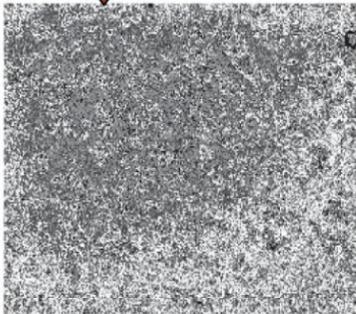
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Bio-Zone

Biofilm in Action

