



# The **BIO**PROTECT**Us**<sup>TM</sup> System

*Setting New Standards for Clean*

Celestial Service Group

**Our promise is  
to continue to  
research  
and develop  
environmentally  
responsible  
solutions that help  
continuously and  
persistently protect  
life's surfaces.**



The  
**BIOPROTECTUs™**  
System

**Established in January 2018, BioProtect Technologies is a U.S based biotech with a focus on the continued development of safe, innovative and environmentally responsible solutions to traditional cleaning technologies. We believes that life on this planet is precious, and has a breakthrough antimicrobial technology, BIOPROTECT™, to address the blatant problems plaguing current cleaning solutions.**

# BIOPROTECTUs™ System

“Downtown Atlanta hotel closes after 6 guests test positive for **Legionnaires’** disease”

*Atlanta Journal- Constitution July 2019*

“... in 2013, the US CDC listed fluconazole-resistant **Candida** as one of the top 18 antimicrobial-resistant threats in the US, and in 2018, it became a nationally notifiable disease at the Council for State and Territorial Epidemiologists Annual Conference.”

*Outbreak Observatory August 2019*

“University of Pittsburgh Medical Center Children's Hospital confirmed on Monday 12 cases of a drug-resistant staph infection in its neonatal intensive care unit (NICU), according to a statement from the hospital.” (**Methicillin-resistant Staphylococcus aureus MRSA**)

*CNN July 2019*

“**E. coli** outbreak: 196 people in 10 states now sick, linked to ground beef”

*USA Today May 2019*

“**Deadly Staph** Infections Still Threaten the U.S. CDC calls for increased prevention to protect patients

*CDC March 2019*



# BIOPROTECTUs™ System

## The Challenge:

Common surfaces (touch-points) are cleaned with poisonous disinfectants leaving behind no effective residual protection and within hours of disinfection, bacteria will grow exponentially presenting risk to re-infect patients and staff.

## The Goal:

**Supplement** current cleaning protocols with a proven antimicrobial solution treatment, to help prevent the known issue; the affect of bacteria on surfaces from a sublethal residual which allow microbes to adapt or build resistance.



# BIOPROTECTUs™ System

## The Solution: BIOPROTECT™

- a patented, revolutionary antimicrobial that creates a microscopic shield on porous and non-porous surfaces to destroy bacteria on contact with residual protection, even for surfaces that, post treatment, are immersed in water.
- GLP Lab tested, E.P.A. registered and FDA accepted technology that prevents biofilm proliferation on all applied surfaces by inhibiting first colonizers, allowing for easier cleaning.
- a persistent, passive action that works consistently, between applications, providing extended antimicrobial protection



# BIOPROTECT<sup>Us</sup>™ System - Products



BIOPROTECT™ RTU

BIOPROTECT™ 500



BIOPROTECT™ DP RTU- *Coming Soon*

BIOPROTECT™ Laundry Treatment



BIOPROTECT™ Hand Sanitizer

SmartTouch® Disinfectant

Submicron Air Filters

Electrostatic Spray Applicators



# BIOPROTECTUs™ System

## The Solution: The BIOPROTECTUs™ System with BIOPROTECT™

A highly efficient and effective disinfection program to help reduce and control the spread of microorganisms.

### HOSPITAL GRADE DISINFECTANT



**99.999% kill (5 Log)**

### ANTIMICROBIAL SURFACE PROTECTANT



**Long Lasting - up to 90  
day Residual  
Antimicrobial Protection**

### ANTIMICROBIAL LAUNDRY TREATMENT



**Long Lasting  
Antimicrobial Textile  
Treatment**

### 6 HOUR HAND SANITIZER



**Extended Protection  
Hand Sanitizer**

### SUBMICRON FILTERS\*



**Submicron Filtration**

**\*recommended**

## Complimenting and Extending Your Hygiene Programs

# BIOPROTECTUs™ System

## SmartTouch® Disinfectant

- E.P.A. Registered
- Hospital Grade Disinfectant
- Highly Effective - 99.999% kill (5 Log Reduction)
- 30 second kill time on *e.coli* and *s.aureus*
- *Effective a total of 38 GLP Tested Organisms*
- NSF (D-2) Registered No Rinse Required for Food Contact Surfaces
- No VOC's
- Non-Corrosive
- Non-Flammable
- Neutral pH





# BIOPROTECTUs™ System

## BIOPROTECT™ RTU Surface Protectant

- Water based, Patented, Bound Antimicrobial Technology
- Ready To Use (RTU) formulation
- Non-Leaching
- Persistent and Continuous protection of treated surfaces for up to 90 Days
- Mode of Action - Mechanical Kill
- Works while dry
- EPA Registered
- Both colorless and odorless
- Keeps surfaces protected between cleanings
- Neutral pH
- Non-Corrosive, Non-Flammable, No VOC's
- Food Contact Surface Preservative



# BIOPROTECTUs™ System

## Hydrating Hand Sanitizer Extended Protection



- **Effective against 99.99% of Bacteria**
- **Up to 6 hours of protection**
- **Alcohol Free, Paraben and Sulfate Free**
- **Helps prevent the transfer of illness causing germs**
- **Increased and extended efficacy with repeated use**
- **Aloe infused**

### BIOPROTECT™ Hand Sanitizer vs. Leading Hand Sanitizer

	BIOPROTECT™ Hand Purifier	Leading Hand Sanitizer
Patented technology	✓	
Alcohol Free	✓	
Contains NO VOC's	✓	
Non-Flammable	✓	
Odorless	✓	
Does not cause discoloration of fabrics	✓	✓
Kills 99.99% of bacteria	✓	✓
pH balanced at 5-7	✓	

# BIOPROTECTUs™ System

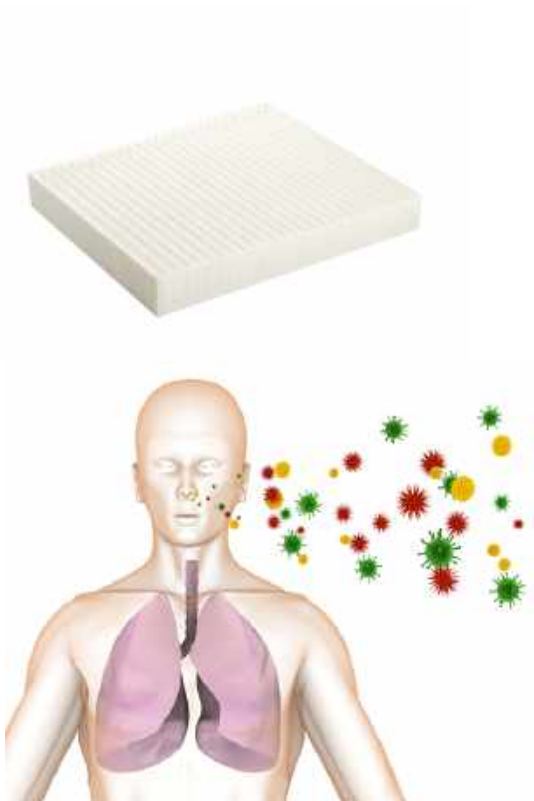
## BIOPROTECT™ Laundry Treatment

- Neutralizes and prevents offensive odors
- Preserves and extends the life of treated fabrics
- Prevents staining caused by mold and mildew
- Effective on most woven and non-woven fabrics
- Contains NO triclosan, heavy metals, arsenic, titanium, phenols or poisons
- Effective in the rinse cycle for most loads of laundered fabric



# BIOPROTECTUs™ System

## Submicron Filters\*

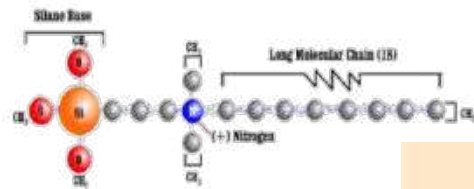


- High Efficiency Sub-micron Filtration
- Drastically reduces the spread of viruses, bacteria and mold
- Installs in Air Returns - Easily Retrofits
- Efficiency 99.97% at 1 micron
- H.E.P.A rated at 0.3 micron
- Filters can:
- Last for up to 6 months
- Can retrofit to any system
- Does not reduce the MERV rating

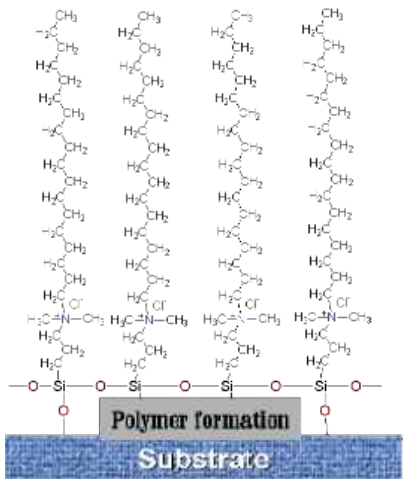
*\*recommended step*

# BIOPROTECT™ - how it works

A highly efficient and effective microbial control system to help reduce and control the population (dose) & spread (transfer) of microorganisms in your environment.

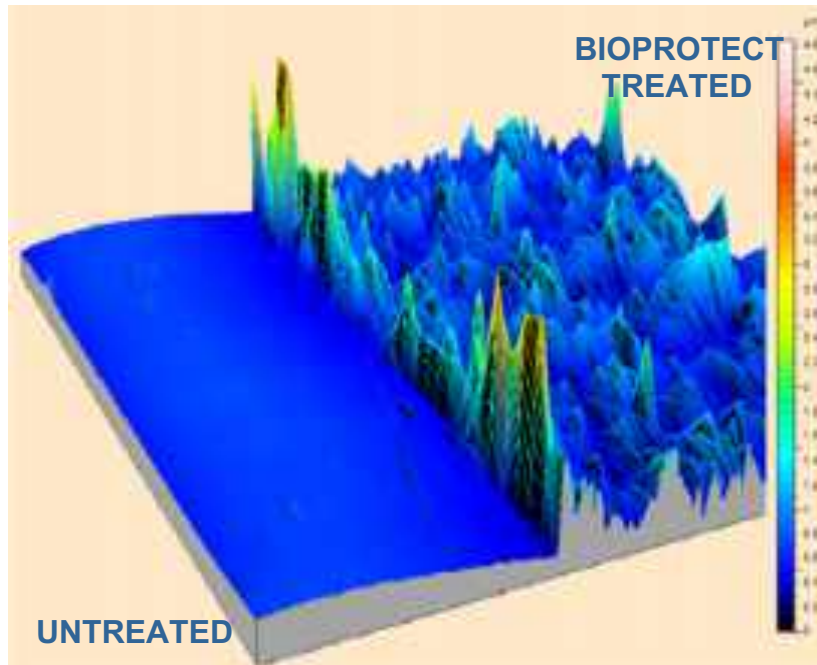


THE MOLECULE

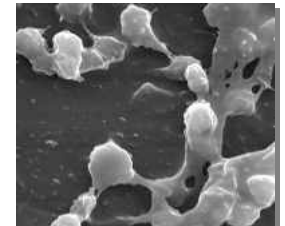


THE POLYMER

## PATENTED TECHNOLOGY



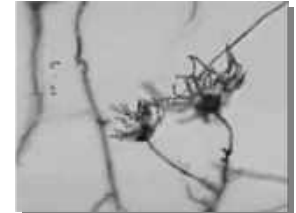
SOFT GOODS  
& LINENS



BACTERIA



BEDDING &  
FURNISHINGS



FUNGI



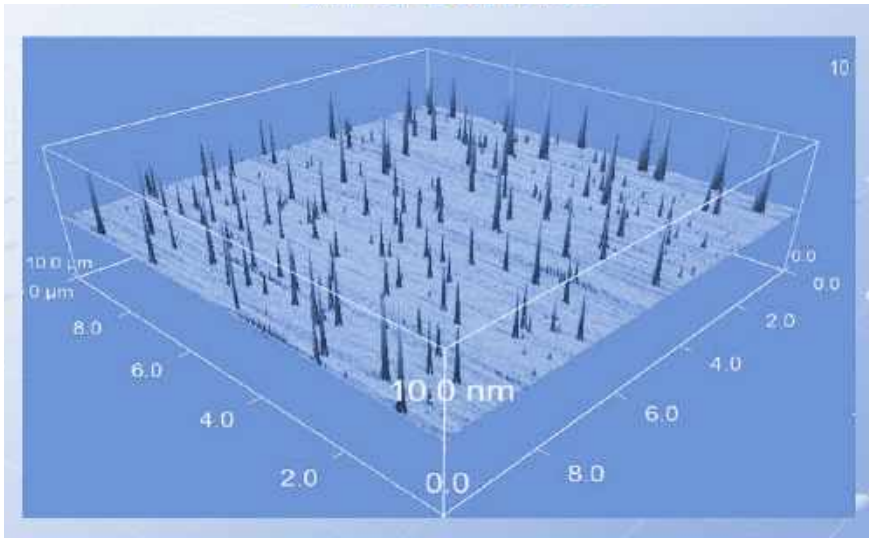
GARMENTS/  
UNIFORMS



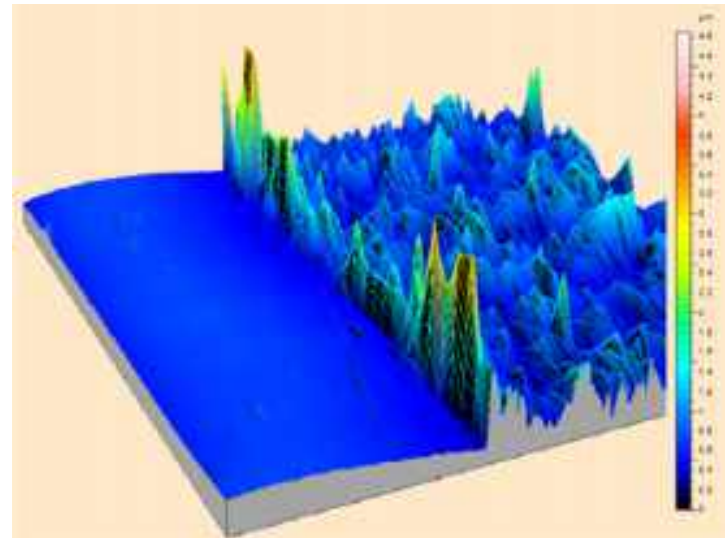
VIRUS

# BIOPROTECT™ - how it works

When applied to a surface or incorporated into a material, BIOPROTECT forms a covalent bond with the substrate and creates a **microbiostatic antimicrobial coating**. The coating forms a nano-bed shield of spikes (self assembling monolayer), each of which carry a positive charge that attracts the negatively charged bacteria. Once attracted, the molecular spikes pierce the cell and rupture its cell membrane, causing that bacterial microorganism to die.



Self assembling monolayer



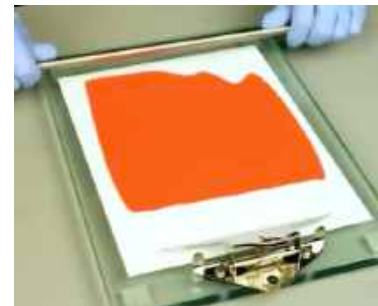
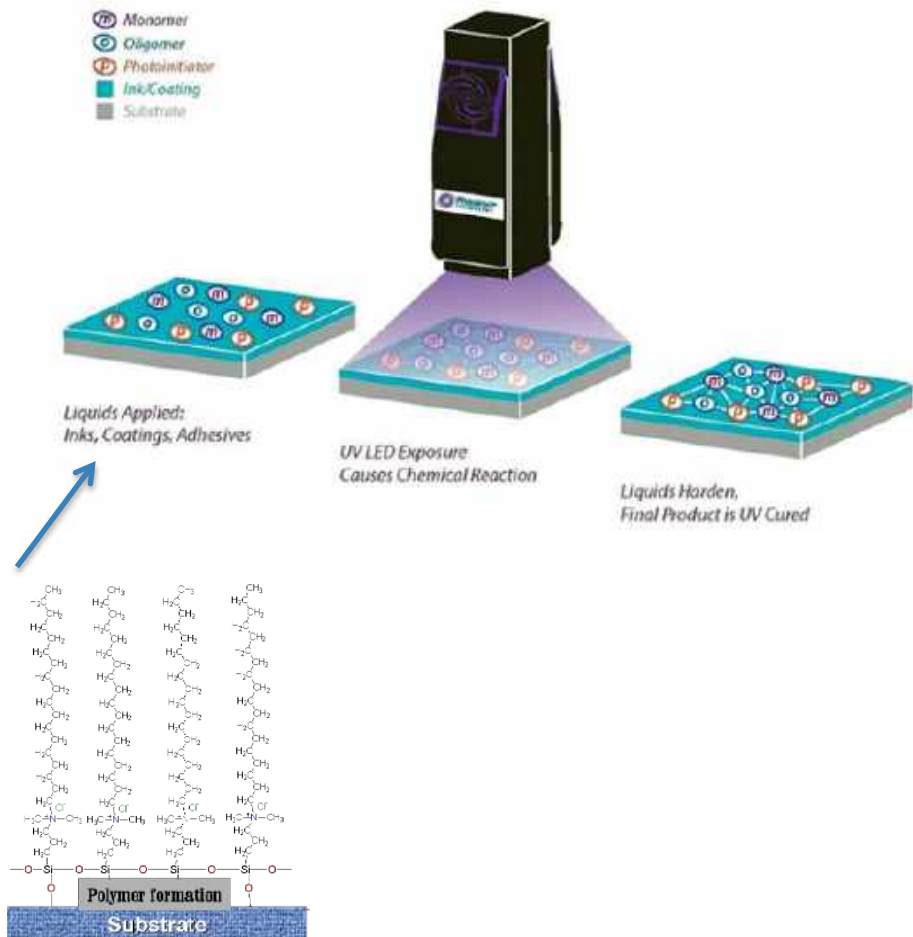
Untreated vs BIOPROTECT treated surface

**Just spray or fog BIOPROTECT onto a surface directly from the bottle or sprayer**, it's as easy as that.  
**No rinse is required**, even for food surface contact, and protection begins in 60 seconds and remains effective for up to 90 days.



# BIOPROTECTUs™ System

**PATENTED TECHNOLOGY – Application at point of manufacture;  
plastic, metal, paint, coating**



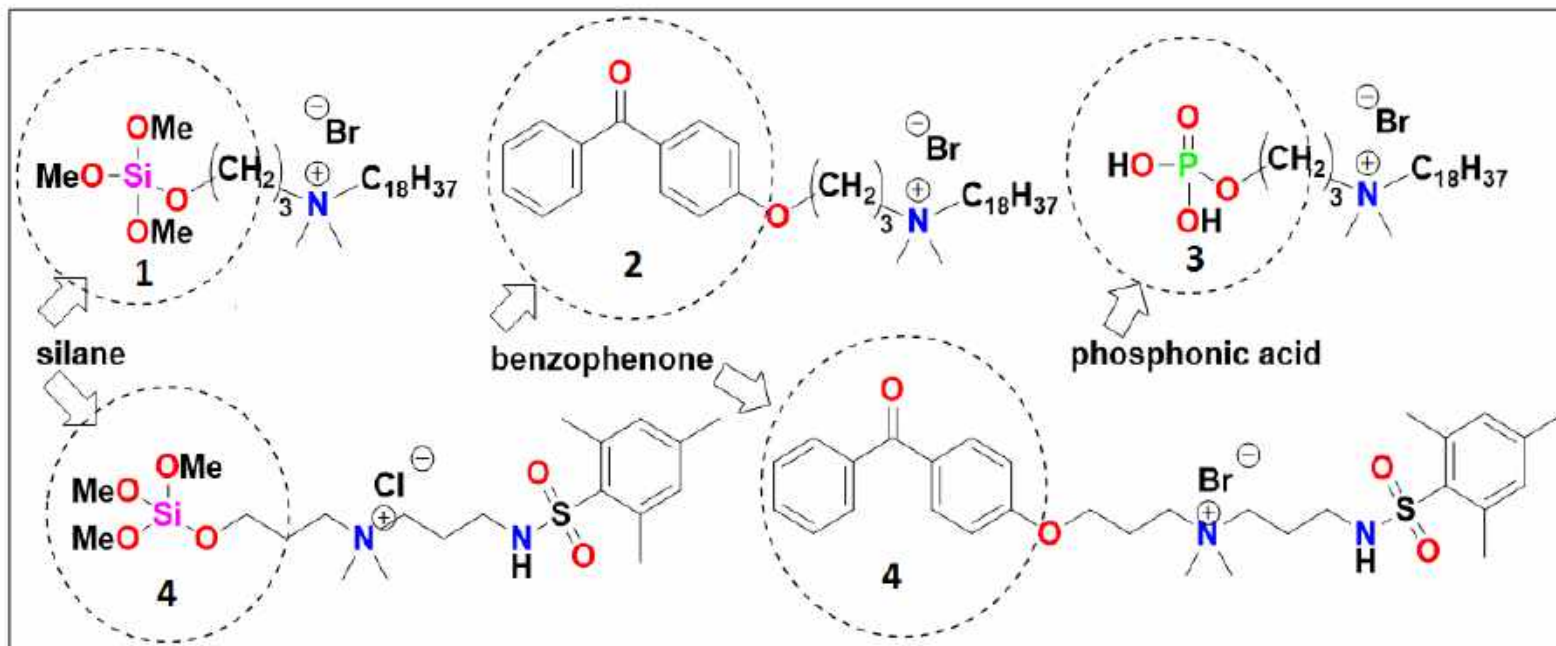
- UV Cure
- Heat Cure
- Roll Coating
- Paint
- Spray

**THE POLYMER**

# BIOPROTECTUs™ System

## PATENTED TECHNOLOGY

newly patented bonding agents (benzophenone, phosphonic acid)  
to extend the value of BIOPROTECT:



# BIOPROTECTUs™ System

## BIOPROTECT™ Key Aspects:



**BIOPROTECT™ Generation I and II carry an FDA(MAF) master file allowance through the CDRH providing for use in class I, II and IIIb medical devices (instruments and certain types of implants)**



**Multiple EPA registrations including approval by USDA for FCSS (Food Contact Surface Safe)**



**9 international patents including 2 for the attachment of the UV (Generation II) molecule during plastic and metal manufacturing process as a coating**



**May 2018 Plastics Industry Association stated BIOPROTECT™ is a “game changer in germ control”**



# BIOPROTECT™ - Fast Facts

## Key Highlights:



**BIOPROTECT™** is a patented, revolutionary antimicrobial that creates a microscopic shield on porous and non-porous surfaces to destroy bacteria on contact for up to 90 days after cleaning, even for surfaces that post treatment are immersed in water.



**BIOPROTECT™** is water-based, non-toxic to humans and animals, contains no harmful chemicals or heavy metals, and is bound to the surface (substrate) meaning it cannot leach into the surrounding environment and is foggable in interior environments.



**BIOPROTECT™** carries an FDA master allowance file (MAF) through the Center for Devices & Radiological Health (CDRH) as well as 2 revolutionary patents for the attachment of the UV (Generation II) molecule during the manufacturing process, extremely beneficial in the medical device, plastics manufacturing industries.

# BIOPROTECTUs™ System



## IS

- ✓ Odorless
- ✓ Colorless
- ✓ Persistent – works in DRY STATE
- ✓ Water-based
- ✓ pH balanced and hydrophobic
- ✓ Environmentally Responsible
- ✓ No VOC's
- ✓ Safe

## IS NOT

- ✗ Toxic to humans or animals
- ✗ Leaching or migrating
- ✗ Flammable
- ✗ Corrosive
- ✗ Made of harmful or toxic chemicals, poisons, phenols, or heavy metals

# BIOPROTECTUs™ System

## BIOPROTECT™ 500

### Bound Antimicrobial Technology vs. Other Antimicrobials

ANTIMICROBIAL TECHNOLOGIES	BIOPROTECT™ Bound antimicrobial technology	TRICLOSAN TECHNOLOGY	SILVER ION TECHNOLOGY
PASSED FDA CYTOTOXICITY	✓		
KILL METHOD	NON-LEACHING	LEACHING	LEACHING
SUPERBUG PREVENTATIVE	✓		
COST	\$	\$\$	\$\$\$\$
SAFETY	Safe for humans, pets, and the environment. NO poisons, toxic chemicals, or heavy metals used	IN 2016, FDA BANNED USE OF TRICLOSAN IN ANTIBACTERIAL PRODUCTS	Can cause permanent skin discoloration



# BIOPROTECTUs™ System

## SmartTouch™ Disinfectant vs. “Other” Disinfectant



	SmartTouch Disinfectant	Other Disinfectant
<b>Efficacy</b>	99.999% 5 Log Reduction	99.99% 4 Log Reduction
<b>Effective on both porous &amp; non-porous surfaces</b>		
<b>Organism Kill List</b>	38 GLP Tested Organisms	14 GLP Tested Organisms
<b>Contains NO Phenols</b>		
<b>Can be Diluted</b>		
<b>NFS (D2) Registered</b>		
<b>Hospital Grade</b>		
<b>Toxicity</b>	It took 5,000 mg/kg of ST to reach toxic levels, making ST 2.5 times less toxic than the leading disinfectant	This product reached toxic levels at 2,000mg/kg

# BIOPROTECTUs™ System

## SmartTouch® & BIOPROTECT™

Causative Agent Control:		
Bacteria	Mold/Fungi	Viruses
E. coli (feces)	Ringworm	Norovirus
Salmonella (food)	Athlete's foot	Influenza
Listeria (water)	Candida	HIV
MRSA	Asthma	Measles, Mumps
Staph aureus	Aspergillosis	Chicken Pox
Tuberculosis		Hepatitis A-B-C
C-diff (veg)		Rotavirus
Legionella		Hanta Fever

# BIOPROTECTUs™ System

## Common Touchpoints for application



Carpets

HVAC Systems

Smart Phone

Door Knobs

Faucets

Light Switches

Elevator Buttons

Bathroom Sinks

Bathroom

Showers

Linens

Towels

Uniforms

Cleaning Cloths

Mops

Sponges

Footwear

Preparation  
Areas

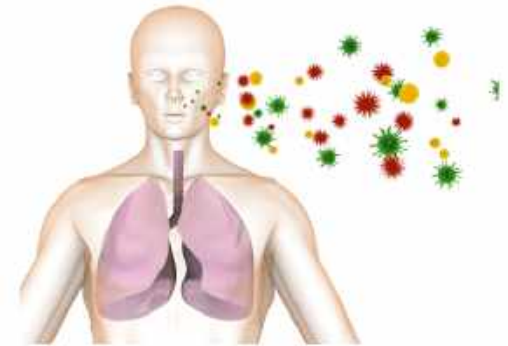


**\*Any area subject to moisture**

# KEY APPLICATIONS - HVAC

## The **BIOPROTECTUs** System For HVAC Systems

The **BIOPROTECTUs**™ (Antimicrobial) System, uses patented and E.P.A. registered technologies to modify surfaces, providing such surfaces with disinfection and durable long-term antimicrobial protection that kills and inhibits the growth of problematic bacteria, fungi, algae, protozoans, virus, and other microorganisms that can inhabit HVAC systems.



### Filters can:

- Last for up to 6 month
- Can retrofit to any system
- Do not reduce the MERV rating

### **BIOPROTECTUs**™ System can apply to:

- HVAC ductwork and registers
- Furnaces and air handlers
- Fan coils
- Condensate drain pans
- PTAC units|
- Indoor living areas including carpeting, drywall, basement masonry and wood.
- Attics and garages



# ViaClean Technologies, LLC R&D Executives



**DR. CURTIS WHITE, PhD || CHIEF TECHNOLOGY OFFICER**

Dr. White, often denoted as the ‘godfather of antimicrobials, is the developer and creator of BIOPROTECT™ Generation 1 molecule. Dr White has been involved in the research, development, registration, and commercialization of antimicrobial agents since 1962 as a teacher and employee at Dow Chemical, F. Jos Lamb, Dow Corning, Aegis and currently is the Chief Technology Officer of ViaClean Technologies, LLC. Dr. White, recognized as a leader in the understanding and control of microbial problems on substrates, in products, and in the indoor environment, has over 50 patents and 200 plus technical, trade, and standards organizations papers and presentations.



**DR. LUKASZ POROSA, PhD || CHIEF CHEMIST, R&D DIRECTOR  
VIACLEAN TECHNOLOGIES LLC**

Dr. Lukasz Porosa, PhD, joined ViaClean in 2018 as lead chemist and R&D director after developing proprietary bonding chemistries in the BIOPROTECT™ line of non-leaching antimicrobials at Ryerson University, Canada. Dr. Porosa has extensive experience in researching, developing and commercialization of pathogen and microbial technologies.

Dr. Porosa leads the research and product development strategies of ViaClean with responsibility in the management of all technical resources as well as strategic technical plan development for current and future products Dr. Porosa also executes oversight of government and regulatory approval processes and compliance for all product formulation which also includes associated intellectual property. As ViaClean’s Chief Chemist Dr. Porosa directly manages all testing and executes any training of direct and contracted technicians.

# BIOPROTECTUs™ System

**We** believe that every product, environment and personal health can benefit with its revolutionary formularies

## **UNLIMITED POTENTIAL**

Protection against harmful bacteria and other microbes compliments countless markets and applications, and BIOPROTECT™ has them all covered

## **RESIDUAL EFFICACY**

Once applied, the substrate is protected for up to 90 days, even underwater. If BIOPROTECT™ is added during manufacturing, protection extends throughout the expected life of the product

## **COMPLETELY SAFE**

There are no environmental dangers and the product is completely non-toxic to people and animals, even for food and hospitals. Best of all, it's easy to use!

## **ROLLOUT READY**

The patents are obtained, FDA(MAF) master file allowance through CDRH is in place, EPA registrations are active as well as USDA FCSS approval, and existing partnerships and agreements



# BIOPROTECTUs™ System

**Efficient and Effective disinfection/protection program with:**

- **Optimized cleaning system of products**
- **Trained application technician partners**
- **Market leading application tools**
- **Application training options**

***Complimenting and Extending Your Hygiene Program***