



BioSafe90TM

Next Generation Antimicrobial Protectant



Distributed by:
Tru Shine
Window Cleaning
832-713-3545

3-(trihydroxysilyl)
propyldimethyloctadecyl ammonium
chloride- CAS # 27668-52-6



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BioSafe90™

antimicrobial protection

WHITE PAPER

The Next Generation of Long Lasting Antimicrobial Protectants

Rick Caouette, Todd Riddle- BioSafe90 Managing Partners

A Long Lasting Antimicrobial Surface Protectant is a strong bacteriostatic that kills without poison, and is a 90+ day protectant that kills bacteria, virus, molds, mildew, and even odors.

This product can be used as a concentrate, ready to use spray, or dipped and soaked applications for Hard non-porus surfaces, bedding, footwear, upholstery, carpets, air filters, curtains, drapery, blankets, pillow cases, and many more.

Fully approved for uses in homes, schools, offices, automobiles, hospitals, churches, day cares, nursing homes, buildings, hotels, sports facilities, freight lines, cruise ships and MORE!

BioSafe90™ was born for mission critical applications over the next two decades. Being in aerospace applications for 25 years we understand the need for high level efficient products that work.

When Covid-19 hit we explored several products and offerings that would help get people back to work with the confidence and trust needed to open things back up. We found that this product has been used for forty years in hospitals, on surgical equipment and in buildings to combat not only bacterial and viral problems but mold, mildew and odors caused by bacteria.

We have looked at studies on this product from Ohio State University Hospitals, Dow Corning, The Cancer and Research Institute in Columbus Ohio, The Journal of Clinical Microbiology, Barnes Hospital and Department of Pathology, The Washington School of Medicine, and reviewed lengthy studies from PhD's from the Biochemistry and Molecular Medicine at the Wayne State University Medical School in Detroit.

All of these studies have one goal. To deep dive into the use of Antimicrobials and test the effectiveness on surfaces, in the air, and in everyday products to help us determine if they can get the world to realize customized clean surface applications to instill trust and confidence that our everyday space can be virus-free.

AN INTRODUCTION

Independent studies have shown BioSafe90™ to be effective on Salmonella, E-Coli, Listeria, Norvo Virus and a wide range of bacterial and viral contaminants. It forms an invisible protective barrier that lasts over 90 days on surfaces. This means you can apply it to all high touch areas and be confident that it works. It is environmentally friendly and uses microscopic needles to puncture organisms using a physical kill with no poisons or chemicals. The protected surface will not be affected by everyday cleaning and depending on the use of the surface it easily lasts 90 days or more.

One single treatment potentially reduces ATP scores by over 83% (adenosine triphosphate (ATP) shows bacteria on a surface to determine its cleanliness and provide quantitative, pass/fail results.) Typical cleaners and disinfectants kill viruses and bacteria in seconds to minutes but once they dry, its over. The surface can be re-infected. Constant wiping, spraying and disinfecting is expensive and time consuming and it doesn't work.

BioSafe90™ can be applied and will protect up to 90 days, and it works. This doesn't mean it replaces your regular cleaning protocols, but it is a very high level second line of defense against germs, microbial contamination, viruses, mold, mildew and odors. You can apply this to all your high touch point areas and also to carpets, trash cans, armrests, doorknobs, doorbells, showers and even steam rooms! It is approved for surgical gowns and scrubs used by doctors and nurses.



Antimicrobial coatings are potentially the new breakthrough in infection control,” said Charles Gerba, an environmental virologist at the University of Arizona, who studies the spread of diseases. “The idea that anytime a surface gets contaminated, it starts killing the virus -- that’s the big advantage !

Excerpt from ABC News - May 14, 2020 - *From subways to planes disinfectants and microbes could play a leading role.*

Regarding Efficacy and Use of **BioSafe90™** in Prevention of Corona Virus COVID-19 on Textile and Hard Surfaces

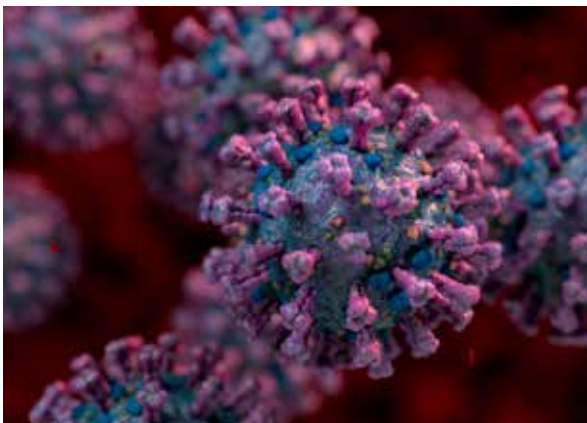
The CoronaVirus has been making headlines in both the national and international news, and we have been fielding calls regarding **BioSafe90™** and its use to protect surfaces in stricken areas. The first and foremost thing to remember about **BioSafe90™** is that by treating a surface, we are in no way making a health claim that someone will not get Corona, or that we can cure anybody from Corona by treating their surroundings. It is also important to remember that **BioSafe90™** contains an EPA registered bacteriostatic, meaning that it protects surfaces from contamination after it has been applied, and not as a biocidal agent that kills viruses on contact.

Most companies registering biostatic agents never consider viruses in their application process, as viruses are not biologically active on a surface for long periods, usually minutes to hours; and they do not grow on their own, they need a host cell to replicate. This being said, Silane Quaternary Ammonium Chlorides like **BioSafe90™** have been shown to be both biocidal to viruses on contact, and biostatic to viruses when applied to a surface first and then contaminated with a viral loading.

There are a few facts that will help in the information process when discussing **BioSafe90™** to potential clients that are concerned about Corona COVID-19.

First, there is no product in the United States that is registered with the EPA as being effective on Corona Virus. The EPA and CDC are basing efficacy against COVID-19 by stating that a product should be able to kill the Corona virus if it is effective against enveloped viruses. They also go a step further by saying that a product that is effective against non-enveloped viruses is preferred, as the non-enveloped viruses are harder to kill than enveloped viruses. **BioSafe90™** has been shown to be effective against both enveloped and non-enveloped viruses.

Second, bleach has been the go to product for disinfecting hard, non porous surfaces. The CDC in the United States has recommended the use of bleach because it is effective on both enveloped and nonenveloped viruses and it is readily available and inexpensive. The downsides of bleach are that it is corrosive on certain surfaces, it will discolor some surfaces, its lifespan in concentrate deteriorates over time and when mixed in a ready to use format its lifespan is much shorter. The main downside of course in relation to our product is that bleach is only effective on a surface as a biocidal agent for a matter of a few seconds. Then it loses its power to disinfect. It has no residual properties. The benefit of our **BioSafe90™** product is that when used after a bleach application, (or after other approved disinfectants), the surface will stay protected from microbes,



EFFICACY AND USE STUDY

including the Corona virus. It is important to note that we are not trying to distinguish ourselves as an alternative to bleach or other disinfectants. Based on its price and need for constant use in some areas, bleach is certainly a good application. But there are many areas that could also be treated with **BioSafe90™** to protect those surfaces either in-between bleach or other approved disinfectant applications, or in place of those applications.

Third, the biggest observation we have in selling BioSafe90™ is that there is no viral claim directly on the label from the EPA. This goes along with the points of item one. As far as we have seen in the research, there is no product on the marketplace that has long term preventative viral claims. But, the CDC, the ECDC

(European CDC), Doctors Without Borders (MSF), the W.H.O., and several other organizations have all said that bleach alone is not working, and have called for novel approaches to help reduce the risk of transmission, both from people and from surfaces. The United States EPA, the FDA, and the CDC allow for emergency use of products when a public health emergency is occurring. The most cited documentation we should be using is EPA Chapter 18 of Pesticide Registrations, which deals directly with this issue. Individual states also allow for the emergency use of a pesticide in matters of public health, even if the use is not stated on the Federal EPA registration.

ATTACHED ON THE BACK OF THIS WHITEPAPER ARE JOURNAL ARTICLES, TESTS, AND SUMMARIES THAT BACK UP CLAIMS OF **BioSafe90™**'S EFFICACY AGAINST VIRUSES, INCLUDING COMMON SURROGATES USED AS SIMILAR VIRUSES STRUCTURED LIKE EBOLA.



SAFETY ASSESSMENT

SA20161219

Active Ingredient:

3-(trihydroxysilyl) propyldimethyloctadecyl ammonium chloride

Summary of Use:

Approved for applications used in homes, offices, automobiles, & institutions; e.g. schools, day care centers, hospitals, churches, correctional facilities, hotels, cruise and freight liners, and more.

APPROVED FOR USE ON HARD SURFACES Countertops, cabinets, plumbing fixtures, bathroom, air conditioning, stainless, vinyl, porcelain, granite, marble, concrete, siding, walls, ceiling tiles, flooring, metal, stone, wood, vinyl, ceramic, aluminum, building materials, automotive, roofing

APPROVED FOR USE ON FABRICS

clothing, underwear, face masks, air filters, bed linen, carpets, curtains, fabrics, wiping cloths, footwear and insoles, socks, shower curtains, toweling, blankets, upholstery, awnings, athletic gear, non-woven diapers, vacuum bags, tents, umbrellas, leather, mats

6115 SKYLINE DRIVE
HOUSTON, TEXAS 77057



SAFETY ASSESSMENT

SA20161219

Active Ingredient:

3-(trihydroxysilyl) propyldimethyloctadecyl ammonium chloride

SAFETY ASSESSMENT

After performing a qualitative assessment, we have determined that the BioSafe90™, as summarized in The United States Environmental Protection Agency (EPA) Document 739-R-07-007, “Reregistration Eligibility Decision for Trimethoxysilyl Quaternary Ammonium Chloride Compound “ (document Available upon request) the product above, is required to pass several installation, prevention, toxic substances and quality inspections. These inspections ensure the quality and integrity of the product. The BioSafe90, LLC. Product Biosafe90™ antimicrobial surface protectant has no human health or ecological risks.

This product:

- **Protects surfaces in-between cleaning from microbial deterioration & odors**
- **Promotes comfort and well being**
- **Applies to surfaces and fabrics**
- **Effective on touch points**
- **Future cleanings are easier**
- **Resists regular washings**

BIO90

SAFETY ASSESSMENT
SA20161219
REV IR 12/19/16

The following documents have been used as sources of reference in the preparation of this assessment and report.

Studies(Title)	References:	Summary
Improved Control of Microbial Exposure Hazards in Hospitals- A study on the effectiveness of 3-trimethoxysilyl propyldimethyloctadecyl ammonium chloride and reducing Microbes, bacteria and viruses on different substrates	Kemper Research Foundation, Cincinnati, Ohio 45150 Ohio State University Hospitals, Columbus, Ohio 43210 Arthur G. James Cancer Hospital and Research Institute, Columbus, Ohio 43210 Ohio State University, Columbus, Ohio 43210 Dow Corning Corporation, Midland, Michigan 48686	The data from this study show that significant control of airborne microorganisms results from the modification of interior building surfaces with an organosilicon antimicrobial. Even when evaluated under severe environmental conditions, the antimicrobial activity of these modified surfaces provides substantive reduction of airborne microbial concentration.
Treatment of Carpets effectiveness and durability in Field and Laboratory Testing	Snyder, J. Canadian Hospital, Vol. 13, 1966, p.56., 2) Walter, W.G., Health Lab Sci., Vol. 3, 1969, p.140., Baker, P.G.H., New Zealand Medical, 1977, p.88., Schaffer, J.G., Health Lab Sci., Vol. 3, 1965, p.80, Lanese, R.R., Amer. J. Pub. Health, Vol. 63, 1978, p.171., Plueddemann, E.P., Journal of Adhesion Vol. 2, 1970, p. 184.	These tests indicated that there was no reduction of in the effectiveness of (3-trihydroxysilyl) propyldimethyloctadecyl ammonium chloride on carpets upon repeated exposure to microorganisms and contamination
Prevention of Microbial Growth in Ventilation Systems by Surface Modification	Malek, J.R. and Speier, J.L. 1982. Development of an organosilicone antimicrobial agent for the treatment of surfaces, Journal Of Coated Fabrics, Vol. 12, p. 38- 46, Kemper, R. A., White, W.C. and Gettings, R.L. 1990. Sustained aeromicrobiological reductions utilizing silane-modified quaternary amines applied to carpeting: Preliminary data from an observational study of commercial buildings. Dev. Ind. Microbiol. 31:237-244.	The study found that the only way contamination can be held in check in the environmental conditions that functioning air conditioning /HVAC systems create associated with normal usage is with an antimicrobial.
Microbial Inhibition in Hospital Garments treated with Antimicrobial Agents	Journal of Clinical Microbiology , September 1988, p. 1884-1886, Clinical Microbiological laboratory, Barnes Hospital and Department of Pathology, Washington University, School of Medicine	The results of this study show that fabrics treated with antimicrobials such as of (3-trihydroxysilyl) propyldimethyloctadecyl ammonium chloride is an effective inhibitor of most gram-positive cocci.
Controlling the spread of infections in Hospitals by the use of Antimicrobials on Medical Textiles and Surfaces	W. Curtiss White, Roger Bellfield, Dr. John Ellis, Devon PT Chemicals Ltd. Dylan Laboratories Ambergate, DE56 2EY, UK,	Tested Carpeting, HVAC system filters, uniforms, wound care dressings, linens, drapes, and blankets and found that out of 721 samples taken in 209 locations there was a dramatic reduction in microbial

		contamination
THE USE OF REACTIVE SILANE CHEMISTRIES TO PROVIDE DURABLE, NON-LEACHING ANTIMICROBIAL SURFACES	Robert A. Monticello, PhD, Biochemistry and Molecular Medicine at the Wayne State University Medical School in Detroit,	The use of reactive silane chemistry to provide durable, non-leaching antimicrobials on synthetic material has been demonstrated to be a way of controlling microbial contamination in a safe and effective manner.
ASTM E2149 - 2001 Determining the Antimicrobial Activity of Immobilized Antimicrobial Agents Under Dynamic Contact Conditions	Analysis performed by John Limbach Microbiologist Approved by Andy Konopacki Laboratory Director)	Tested the effectiveness of Antimicrobials (3-(trihydroxysilyl) propyldimethyloctadecyl ammonium chloride on fabrics and found that the product showed excellent antibacterial properties against Escherichia coli after 50 washings..
ASTM E2149 - 2001 Determining the Antimicrobial Activity of Immobilized Antimicrobial Agents Under Dynamic Contact Conditions – “Shaker Test”	Analysis performed by John Limbach Microbiology Technical Director Approved by Jeff Walsh Accounts Manager	A Treated Filter sample showed excellent reduction in viable mold spore cell count at 4 hours and at 24 hours





BioSafe90™
antimicrobial protection

ATP TEST RESULTS

AMAZING ATP TEST RESULTS UTILIZING BioSafe90™ ANTIMICROBIAL COATING

Adenosine Triphosphate (**ATP**) is present in all organic material and is the universal unit of energy used in all living cells.

ATP monitoring is a rapid testing method used by food and beverage processors and medical facilities to quickly assess the cleanliness of a surface.

The **ATP test** is a process of rapidly measuring actively growing microorganisms through detection of *adenosine triphosphate* or **ATP**.

An Outpatient Medical Facility underwent a 6-week *study with over 40 specific touch points treated ONE TIME with **BioSafe90™** and others untreated.

- The average 6-week ATP scores of untreated surfaces was 170.
 - The average 6-week ATP scores of BioSafe90™ treated surfaces was 29. •
- This represents an amazing ATP score reduction (reduced bacteria load) of 83%.

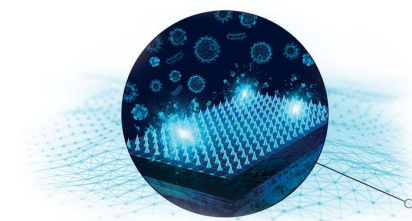
In summary, one single treatment of BioSafe90™
was capable of potentially reducing the bacteria load of this facility nearly 600%!

** Study available upon request.*



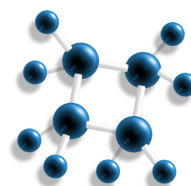
HOW IT WORKS

Because traditional disinfectants kill germs by poisoning them with toxic chemicals, they are required to quickly evaporate to avoid also harming people & pets. Unfortunately, as soon as they disappear, so does their ability to kill germs.



BioSafe™ not only disinfects, but also provides continuous antimicrobial protection via a proprietary “Electro-Mechanical” process that kills germs without the use of harmful chemicals ... and can last indefinitely.

Upon application, the patented active ingredient in **BioSafe™** permanently bonds with the surfaces to which it's applied.

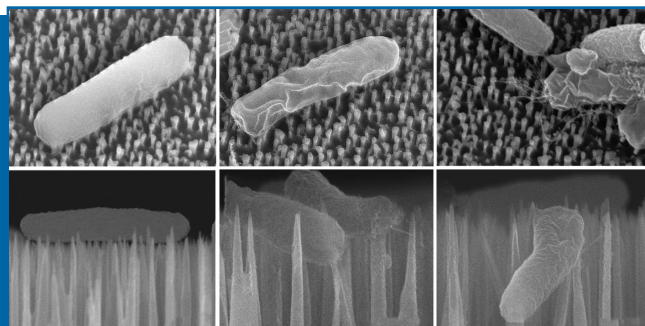


As the protective coating dries, millions of positively-charged microscopic “spikes” form and extend from the surface.

Because microorganisms are negatively charged, they are electrostatically pulled onto the positively charged spikes and destroyed, as the spikes rupture their cell walls and “electrocute” them.

A BETTER WAY

The photographs to the right were captured through an Electron Microscope and display a treated surface and its bed of “Spikes” in action. These images reveal the arrival and partial destruction of E-Coli bacteria, as they are impaled and shocked by the antimicrobial spikes.



BioSafe90™
antimicrobial protection

MICROBIOSTATIC AGENT A Silicone Quaternary Ammonium Salt, FOR ANTIMICROBIAL APPLICATIONS IN ALL INDUSTRY SECTORS.

In a world where hard surfaces could play host to a germ that could potentially kill you, experts say one key to fighting the coronavirus is keeping those places clean. Plastic counters and trays, stainless steel handrails, banisters -- all those places people touch frequently without thinking about it, they've all taken on a more perilous light.

The answers are critical for when America re-opens enough to get traveling again, and at least in part they lie in some of the ongoing efforts to directly target the microscopic threat. The Answer is BioSage90 Antimicrobial. Antimicrobial coatings are designed to protect surfaces for long periods of time and after repeated touching. They are already used in some densely packed foreign cities like Hong Kong and Singapore.



APPLICATIONS AND REGISTRATIONS

For use as an antimicrobial preservative under EPA and FDA Regulations to preserve food contact articles. (Food Preparation Surfaces, Polymeric Tubing for Beverages, Activated Carbon Water Filters) subject to FDA Regulations.**

Provides an invisible microbiostatic coating to inhibit the growth of odor causing bacteria, bacteria which cause staining and discoloration, fungi (mold and mildew), and algae. This product does not protect users or others against food-borne or disease-causing bacteria.

Active Ingredient: 3-(trihydroxysilyl)propyldimethyloctadecyl ammonium chloride....**7.00%***
Other Ingredients:.....**92.95%**

Stabilizer/pH Control:**05%**

TOTAL INGREDIENTS:.....**100.00%**

****SEVEN TIMES the normal concentration level for high strength and lasting stability***

NET CONTENTS: 2,4,6,8,12,16,32 oz or 1,5,30,55,275 Gallons

Manufactured by: BioSafe90- 6115 Skyline Drive, Houston, Texas 77057

* A microbiostatic agent is an agent that inhibits the growth of odor causing bacteria and fungi (mold and mildew), bacteria and fungi (mold and mildew) which cause staining and discoloration, and algae. This product does not protect users or others against food-borne or disease-causing bacteria or fungi.

ENVIRONMENTAL HAZARDS

Commercial and industrial uses: This pesticide is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Directions for Use: Approved Commercial and Industrial Applications

[AND/OR]

Approved commercial appliances used in homes, offices, automobiles, ship sails, buses, trains, ships, boats and airplanes and institutions e.g., schools, hospitals, daycare centers, churches, correctional facilities, Filter Element Media

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Dry treated areas and articles such as clothing before use. Remove children and pets from treated area until completely dry.

The product can be applied to organic or inorganic substrates by fogging. All surfaces must be cleaned prior to fogging. Fogging is supplement to normal cleaning and practices. Fogging can be used in homes, offices, automobiles and institutions e.g., schools, hospitals, daycare centers, churches, correctional facilities, and food processing facilities.

1. Prior to fogging, remove and carefully protect all food products and packaging materials.
2. Fog areas using one gallon per 1000 cu. ft. of room area.
3. Allow surfaces to drain thoroughly and air dry before operations are resumed.

Dry substrates at temperatures from ambient to a maximum of 160°C (320°F) to effect complete condensation of silanol groups and to remove water, solvents and/or traces of methanol from hydrolysis. Optimum application and drying conditions, such as time and temperature, should be determined for each application before use. If necessary, reapply the Product every three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return.

The product when used as a concrete additive is added directly concrete preparation. Use 60 fluid ounces per cubic feet of concrete. Addition of the product reduces deterioration of sewer pipes and manholes by inhibiting microbiologically induced corrosion.

The active ingredient in the product is effective against odor causing bacteria, bacteria which cause staining and discoloration, fungi (mold and mildew) and algae as a static agent. The product can be used as a final bacteriostatic finish on the following items to impart bacteriostatic/fungistatic (mold and mildew) and algaestatic activity.

- Recirculating air handling systems.
- Air filters/materials
- Aquarium filter material
- Bed sheets, blankets, and bedspreads
- Buffer pads (abrasive and polishing)
- Carpets and draperies
- Fiberfill for upholstery, sleeping bags, apparel, where the fiber is cotton, natural down, nylon, polyester, rayon, or wool
- Fiberglass duct board
- Fire hose fabric
- Humidifier belts
- Mattress pads and ticking
- Men's underwear and outerwear
- Non-woven disposable diapers
- Non-woven polyester
- Outerwear apparel (jackets, sweaters, sweatshirts, coats, raincoats, overcoats, jerseys, ponchos)
- Polyurethane and cellulose foam for household, industrial, and institutional, non-food contact sponges and mops
- Polyurethane and polyethylene foam, when covered
- Polyurethane foam for packaging and cushioning in non-food contact applications
- Polyurethane foam used as a growth medium for non-food crops and plants
- Pre-moistened towelettes and tissue wipes (these do not impart pesticidal properties)
- Roofing materials – defined as shingles, roofing granules, wood shakes, felt, stone and synthetic overcoats
- Sand bags, tents, tarpaulins, wood, sails, and ropes
- Athletic and casual socks
- Shoe insoles
- Shower curtains
- Socks comprised of nylon, nylon/orlon, cotton/nylon, linen/Lycra, acrylic/polypropylene, nylon, Lycra, wood/silk/nylon/Lycra and wool/acrylic/nylon/Lycra
- Throw rugs
- Toweling made of 100 percent cotton, 100 percent polyester, and blends of the two fibers
- Toilet tank and seat covers
- Umbrellas
- Upholstery made of acetates, acrylics, cotton, fiberglass, nylon, polyester, polyethylene, polyolefins, polypropylene, rayon, spandex, vinyl, wool
- Vacuum cleaner bags and filters
- Vinyl paper-wallpaper for non-food contact surfaces
- Disposable wiping cloths that can be used for multiple purposes such as dusting or washing furniture, cars, walls, windows, floors, appliances, dishes, counter tops; the wiping cloths do not impart pesticide properties
- Woman's hosiery
- Women's intimate apparel

BioSafe90™

For Pump Spray Application: Using pump sprayer, spray entire area 4'-6' from the surface making sure the surface is completely covered. Apply and then let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. Test for staining and color-fastness of fabrics and carpets by treating and drying a small, concealed area prior to application. Apply the product per the table below:

Amount of Product	Pint 16 fl. Oz.	Quart 32 fl. Oz.	½ Gallon 64 fl. Oz.	One Gallon 128 fl. Oz.
Area to be Treated	25 sq. ft.	50 sq. ft.	100 sq. ft.	200 sq. ft.

When treating coarser substrates, more product may be required due to absorption. A fan may be used to assist in drying carpet.

For Commercial Spray Application: For commercial application equipment (i.e. carpet/upholstery steamers, rotary jet extraction cleaner, electrostatic sprayers, and pressure sprayers) apply and then let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. Test for staining and color-fastness of fabrics and carpets by treating and drying a small, concealed area prior to application. See table for application rates. When treating coarser substrates, more product may be required due to absorption. Dry carpet areas and surfaces before re-entry and dry articles before use. A fan may be used to assist in drying carpet.

For Dipping/Soaking Application: Use appropriate sized wash basin or tub for dipping/soaking the item you are treating. Use enough product solution to completely submerge item. Completely submerge item in solution for 3 minutes. Remove item and dry. Test for staining and color-fastness of fabrics by treating and drying a small, concealed area prior to application. Do not reuse solution after dipping/soaking.

The substrate can be dried at room temperature or at temperatures to a maximum of 160°C (320°F), (for example in a clothes dryer. Remove excess liquid before attempting to dry in a clothes dryer.) If necessary, reapply product every three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return.

****FOR USE AS AN ANTIMICROBIAL TO PRESERVE FINISHED FOOD CONTACT ARTICLES SUBJECT TO FDA REGULATIONS.** Incorporate the product as an antimicrobial additive to coat items listed below that are used for manufacturing, processing, packing, packaging, transporting, handling and/or holding food or water if such use is not intended to have any effect in the food or water itself. Do not incorporate the product into any food or water contact application listed on this label unless the substance is approved, with associated use conditions, for food or water contact in **21 CFR 174-186** (inclusive) as amended or in the US FDA's Food Contact Substance Notification System, as amended.

Food Preparation Surfaces

This Food Contact Substance (FCS) can be used as an additive without food or beverage type or temperature limitation, in food or beverage preparation and processing surfaces (where FCS is applied to the surface as a coating).

Use:

Food contact surface coatings, films and laminates.

Products:

- Appliances, equipment and utensils, (used in preparing and processing of food products for human and animal consumption)
- Barrier fabrics
- Building materials and components, (used in food preparation and processing areas)
- Collection and storage equipment (such as conveyor systems, piping systems, silos, tanks, and process vessels made from any material)
- Cookware made from any material
- Countertops and cutting boards made from composite materials, stainless steel, laminates
- Food wrap (including coated deli paper, coated food interleaves, plastic wrap, polystyrene and plastic trays, aluminum foil)
- General purpose containers of any material for short and long term storage
- Glazing for cement tiles
- Glazing for vitreous china used in plumbing fixtures such as countertops, sinks and other vessels
- Industrial equipment and machinery for the preparation, processing or transportation of food and beverage products
- Natural and synthetic fibers and fabrics in any combination of compositions packaging (made from paper, plastics or metals)
- Paper products (such as wipes, tissues, wall coverings, towels)
- Plastic film (of any weight and composition)
- Sinks and other vessels used for cleaning or transporting food and beverage products

Maximum Concentration:

1% by weight active ingredient of resin, laminate, or surface coating.

Polymeric Tubing for Beverages

Polymeric tubing for transfer of beverages and drinking water.

Use:

Food contact molded plastic and metal parts.

Products:

- Beverage dispensing equipment tubing
- Beverage processing equipment tubing
- Holding tanks
- Pump

Maximum Concentration:

1% by weight active ingredient of finished tubing.

Activated Carbon Water Filters

Repeat use activated carbon water filters and other water filter media.

Use:

Process and drinking water filter

Products:

- Activated carbon water filters (and synthetic woven or non-woven media, zeolite and other natural media)

Maximum Concentration:

0.25% by weight active weight percent of the carbon block.

Application:

Product is a READY TO USE product only. [BioSafe90™] [This product] can be applied to organic or inorganic substrates by brushing, dipping, padding, soaking, spraying or by using foam finishing techniques.

For Pump Spray Application: Using pump sprayer, spray entire area 4'-6" from the surface making sure the surface is completely covered. Apply and then let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. Apply product per the table below:

Amount of Product	Pint 16 fl. Oz.	Quart 32 fl. Oz.	½ Gallon 64 fl. Oz.	One Gallon 128 fl. Oz.
Area to be Treated	25 sq. ft.	50 sq. ft.	100 sq. ft.	200 sq. ft.

When treating coarser substrates, more product may be required due to absorption.

For Commercial Spray Application: For commercial application equipment (i.e. electrostatic sprayers, and pressure sprayers) apply and then let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. See table for application rates. When treating coarser substrates, more product may be required due to absorption.

For Dipping/Soaking Application:

Use appropriately sized wash basin or tub for dipping/soaking the item you are treating. Use enough Product solution to completely submerge item. Completely submerge item in solution for 3 minutes. Remove item and dry. Do not reuse solution after dipping/soaking.

The substrate can be dried at temperatures from ambient to a maximum of 160°C (320°F) to effect complete condensation of silanol groups and to remove water, solvents and/or traces of methanol from hydrolysis. Optimum application and drying conditions, such as time and temperature, should be determined for each application before use. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, mildew stains, and algae stains return.

DIRECTIONS FOR USE

For residential applications

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Dry treated areas and articles such as clothing before use. Remove children and pets from treated area until completely dry. Clean surfaces prior to application.

Approved residential uses

The active ingredient in the product is effective against odor-causing bacteria, bacteria which cause staining and discoloration, fungi (mold and mildew), and algae as a static agent.

	Pest controlled	Method of Application
Bed sheets, blankets, bedspreads, curtains, draperies (washable only), underwear, socks, intimate apparel, hosiery, throw rugs, toweling, toilet tank covers, shower curtains, shoe insoles, outerwear apparel (jackets, sweaters, sweatshirts, coats, raincoats, overcoats, jerseys, ponchos). Product can be applied to fabrics made of acetates, acrylics, cotton, fiberglass, linen, Lycra, nylon, orlon, polyester, polyethylene, polyolefin, polypropylene, rayon, silk, spandex, vinyl, and wool.	Odor-causing bacteria, bacteria which cause staining and discoloration, and fungi (mold and mildew)	DIP/SOAK: Use appropriate sized wash basin or tub for dipping/soaking the item you are treating. Use enough product solution to completely submerge item. Keep item in solution for 3 minutes. Remove item and wring excess liquid from treated item. For larger items (e.g. bedspreads, curtains, draperies), place in washing machine on spin cycle to aid in the removal of excess liquid. Test staining and color-fastness of fabric and carpets by treating and drying a small concealed area prior to application. Do not reuse solution after dipping/soaking. Dry treated articles before use. Substrates can be hang-dried at room temperature or at temperatures to a maximum of 160°C (320°F); (for example, in a clothes dryer). If necessary, reapply Product every three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return. SPRAY: Clean surface prior to application. Using a trigger pump sprayer or pressure

	Pest controlled	Method of Application
		sprayer, spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. Let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. Test staining and color-fastness of fabric by treating and drying a small concealed area prior to application. If necessary, reapply the product three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return.
Air filters and air filter material for: Furnaces, Air Conditioners, Air Purification Systems, Automobiles Recirculating air handling systems, Vacuum cleaner filters, Aquariums	Odor-causing bacteria, bacteria which cause staining and discoloration, fungi (mold and mildew), and algae	SPRAY: When treating filters, remove filter from the unit. Using a trigger pump sprayer or pressure sprayer, spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. Apply and then let stand until dry. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, mildew stains, and algae stains return.
Carpeting	Odor-causing bacteria, bacteria which cause staining and discoloration, and fungi (mold and mildew)	SPRAY: Apply to clean carpet surface. Using a trigger pump sprayer or pressure sprayer, spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. For rotary jet extraction cleaners and carpet steamers, add the product solution directly to the cleaning tank, then operate the equipment in accordance with manufacturer's instructions. Apply and then let stand until dry. Test staining and color-fastness of carpets by treating and drying a small concealed area prior to application. When treating coarser substrates (e.g., wool carpeting), more product may be required due to absorption. Dry carpet areas and surfaces before re-entry. A fan may be used to assist in drying carpeting. Remove children and pets from treated area until completely dried. If necessary, reapply the Product every three months or when odor, staining and discoloration due to

	Pest controlled	Method of Application
		bacteria, mold stains, and mildew stains return.
Mattress pad and mattress ticking and upholstery composed of acetates, acrylics, cotton, fiberglass, nylon, polyester, polyethylene, polyolefin, polypropylene, rayon, spandex, vinyl, wool; fiberfill to be used in upholstery, sleeping bags, apparel, where the fiber is cotton, natural down, nylon, rayon, or wool	Odor-causing bacteria, bacteria which cause staining and discoloration, and fungi (mold and mildew)	SPRAY: Clean surfaces prior to application. Using a trigger pump sprayer spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. Apply and then let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. Test staining and color-fastness of fabric by treating and drying a small concealed area prior to application. When applying to mattress pads and ticking do not soak. Remove children and pets from treated area until completely dried. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return.
Tents, tarpaulins, wood, sails, ropes.	Odor-causing bacteria, bacteria which cause staining and discoloration, fungi (mold and mildew), and algae	SPRAY: Clean surface prior to application. Using a trigger pump sprayer or pressure sprayer, spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. Let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. Test staining and color-fastness of fabric by treating and drying a small concealed area prior to application. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, mildew stains, and algae stains return. DIP/SOAK: Use appropriate sized wash basin or tub for dipping/soaking the item you are treating. Use enough of the product solution to completely submerge item. Keep item in solution for 3 minutes. Remove item and wring excess liquid. Do not reuse solution after dipping/soaking. Dry treated articles before use. Substrates can be hang-dried at room temperature or at temperatures to a maximum of 160°C (320°F); (for example, in

	Pest controlled	Method of Application
		a clothes dryer). Remove excess liquid before attempting to dry in a clothes dryer. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, mildew stains, and algae stains return.
Roofing materials (such as shingles, roofing granules, wood shakes, felt, stone, synthetic overcoats)	Odor-causing bacteria, bacteria which cause staining and discoloration, fungi (mold and mildew), and algae	SPRAY: Make sure the roof is clean prior to application. Using a pressure sprayer, spray the entire surface area 6"-12" from the surface, making sure the surface is completely covered. After applying the product, let stand until dry. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, mildew stains, and algae stains return.
Buffer pads (polishing and abrasive), polyurethane and cellulose for household, non-food contact sponges and mops, vacuum cleaner bags, umbrellas, casual shoes, athletic shoes	Odor-causing bacteria, bacteria which cause staining and discoloration, and fungi (mold and mildew)	SPRAY: Clean surface prior to application. Using a trigger pump sprayer or pressure sprayer, spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. Let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return.
Tubs, glazed tiles, vanity tops, shower curtains, shower stalls (areas), sinks, washable walls, wall paper for non-food contact, floors, window sills, cabinets, garbage cans, appliances, refrigerators (exterior), fiberglass, Formica, glazed tiles, glazed porcelain, synthetic marble, plastic, vinyl	Odor-causing bacteria, bacteria which cause staining and discoloration, and fungi (mold and mildew)	SPRAY: Using a trigger pump sprayer, spray the entire surface area 4"-6" from the surface, making sure the surface is completely covered. Let stand until dry or let stand 3 minutes and wipe dry with cloth or sponge. If spotting occurs, wipe with moist cloth or sponge. If necessary, reapply the product every three months or when odor, staining and discoloration due to bacteria, mold stains, and mildew stains return.

- Antimicrobial Surface Protectant
- Creates an invisible shield that inhibits the growth of microorganisms, [microbes] and helps prevent the growth and spread of bacteria.
- Bacteriostatic, fungistatic (mold and mildew), algaestatic.
- Imparts microbiostatic properties.
- Provides an invisible microbiostatic coating to inhibit the growth of fungi (mold and mildew) and algae.
- Does not damage screens, including [touchscreen devices], [electronic devices], [device surfaces], [lenses].
- Approved for use on food contact surfaces.
- Protection for indoor and outdoor use.
- **Protection for 3 months**
- Water based and odor free.
- Unscented.
- Waterproof
- Product is an antimicrobial agent effective against bacteria which cause staining and discoloration.
- Product is an antimicrobial agent effective against fungi (mold and mildew).
- Product is an antimicrobial agent effective against algae.
- Product is an antimicrobial agent effective against odor causing bacteria.
- The Product, an antimicrobial agent, inhibits smelly odors caused by mold and mildew that can grow in even the cleanest of homes.
- Creates an invisible barrier to inhibit the growth of mold to keep indoor and outdoor surfaces mold free for up to 3 months.
- Effective on modern hard non-porous washable surfaces made of fiberglass, glazed porcelain, Formica, stainless steel, synthetic marble.
- Inhibits the growth of algae between cleanings.
- Inhibits the growth of bacteria which cause staining and discoloration between cleanings.
- Inhibits the growth of fungi (mold and mildew) between cleanings.
- Inhibits the growth of odor causing bacteria between cleanings.
- Prevents deterioration caused by bacteria and fungi (mold and mildew). Inhibits deterioration caused by bacteria.
- Protects device [surface], [glass], [lenses] from the growth of [odor-causing microorganisms] [odor- causing bacteria] .
- Provides an invisible microbiostatic coating to inhibit the growth of odor causing bacteria. Provides an invisible microbiostatic coating to inhibit the growth of bacteria which cause staining and discoloration.
- Resists development of microbial odors, stains and discoloration due to bacteria, fungi (mold and mildew), and algae.
- Resists development of stains and discoloration due to bacteria. Resists development of stains due to fungi (mold and mildew).
- Resists stains due to algae.
- Use on carpet and upholstery to inhibit the growth of odor causing bacteria, bacteria which cause staining and discoloration, and fungi (mold and mildew).
- Use on the surface of a [touchscreen], [electronic device], [glass], [lenses]

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in original, tightly closed containers below 30°C (86°F) and above 0°C (32°F) in a secure area inaccessible to children and away from food or feed.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. **[For homeowner use the statement will read: “Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site.”]**

Container Handling: (containers intended for residential users) Nonrefillable/container. Do not reuse or refill the container. Securely wrap original container in several layers of newspaper and discard in trash or offer for recycling if available.

Container Handling: (containers intended for nonresidential users, larger than 5 gallons) Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Dispose of rinsate as pesticide waste. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.

Container Handling: (containers intended for nonresidential users, smaller than 5 gallons) Non-refillable container. Do not reuse or refill this container. Triple rinse container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Dispose of rinsate as a pesticide waste. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

FOR MORE INFORMATION CONCERNING THIS PRODUCT, PLEASE CONSULT THE SAFETY DATA SHEET (SDS). THE SDS CAN BE OBTAINED BY WRITING THE MANUFACTURER.

IMPORTANT: WARRANTY AND DISCLAIMER INFORMATION The

Manufacturer warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated in this bulletin when in accordance with directions under normal conditions of use; but this warranty of fitness for a particular purpose does not extend to the use of this product contrary to bulletin instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to the seller, and buyer assumes the risk of any such use. MANUFACTURER SPECIFICALLY DISCLAIMS ANY OTHER EXPRESSED OR IMPLIED WARRANTY, INCLUDING THE WARRANTY OF MERCHANTABILITY.

CONCLUSION

BioSafe90™ is a high strength long lasting, non-toxic, water -based, highly effective antimicrobial that, unlike traditional disinfectant technologies, delivers a “physical kill” to any pathogen subject to lyses (i.e. being punctured). It is the best longest lasting antimicrobial and nothing works harder than BioSafe90 with the data to back it up. BioSafe90 is built on a quaternary ammonium chloride compound, specifically: 3-Trimethoxysilyl propyl dimethyl octadecyl Ammonium Chloride.



Rick Caouette- Managing Partner

Rick Caouette is the President of Global Filtration, Inc. 25 year old approved aerospace parts company that is approved under the Code of Federal Regulations Part 21.303, 21.307. His Field of expertise is filters, medias and materials research, and chemical product development. Degreed in Business from Southwest Texas State University, he as owned and operated 10 successful businesses. Reach him at 6115 Skyline Drive, Houston, Texas 77057 +713-856-9800 X 104



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