



It's what's on the
SURFACE THAT COUNTS

SparGuard Educational Guide

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SparGuard Microbial Defense

Despite the use of cleaning chemicals today, we are threatened by more harmful microorganisms than ever before. Microbes have become adaptive to current chemicals and have become more difficult to control. Be it inadequate cleaning methods or the improper use of cleaning agents, microbes have shown a readiness to take advantage of such situations.

SparGuard Microbial Defense—EPA approved and U.S. patented—creates a layer of protection on any surface to fight against the threat of harmful microbes.

The basics

What is SparGuard?

SparGuard is a micro biostatic surface protectant, a unique water-based liquid that proactively protects virtually all surfaces and fabrics from a broad array of bacteria and microorganisms, including all forms of MRSA. It is not a disinfectant; rather SparGuard combines the best qualities of a disinfectant with long-term efficacy.

What does SparGuard kill?

SparGuard kills up to 99.99% of the bacteria that cause odor. It does not mask it, it *kills* at the source.

The Threat: Microbes

- Majority of infections (80%) spread by human touch through Hi-Touch Points, areas that are touched by many people, multiple times a day.
- Microbes spread quickly through Air Conditioning ducts, walls, ceilings, bed linens, uniforms, towels, and equipment, all of which are reservoirs for health-damaging bacteria.
- Standard cleaning chemical and protocols are often ineffective and short-lived, allowing for bacteria breeding
- Microbes rapidly adapt, mutate and multiply.
- Chemical residues and dead microbes become a food source for mutated, more resistant microbes
- Cleaning with conventional chemicals increases the risk of microbe mutation.

SparGuard works to protect surfaces from:

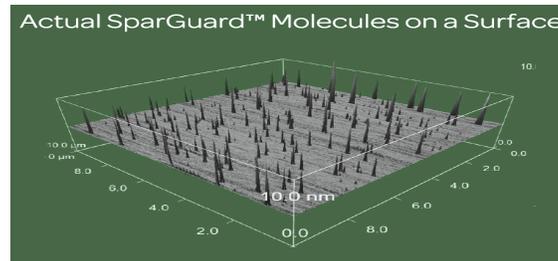
- Bacteria Gram Positive
- Bacteria Gram Negative
- Fungi
- Algae
- Yeast
- Mildew
- Mold

SparGuard has significant third party testing (non-EPA testing showing efficacy on specific microbes) on the following:

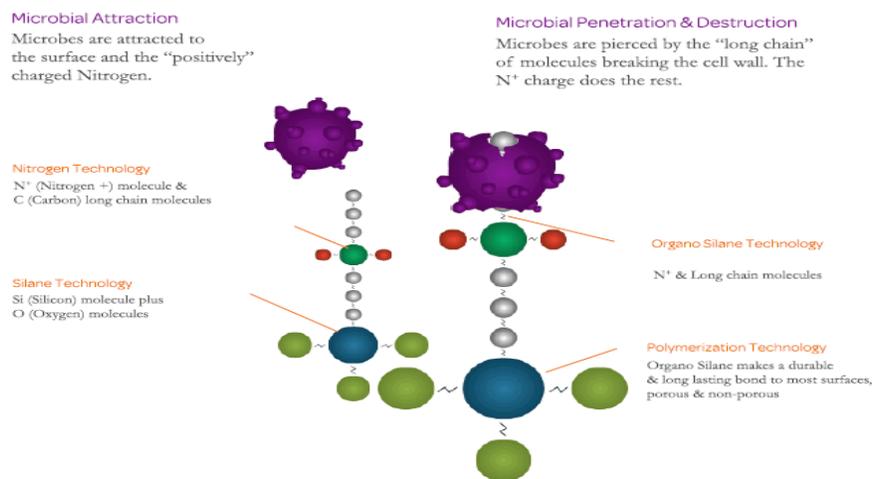
- Methicillin-Resistant Staphylococcus Aureus (MRSA)
- Influenza A (H1N1)
- Clostridium Difficile (C-Diff)
- E-Coli
- Various Salmonella strains
- Black mold
- Athletes foot
- Skin infections, and more.

How does SparGuard work?

SparGuard acts like a bed of microscopic spikes that pierce the cell walls of microbes, or super bugs, for long-lasting Antimicrobial Protection. One end of the SparGuard molecule creates a strong bond with a multitude of surfaces, porous and nonporous, forming a highly durable protective coating that is permanently bonded to the surface. The other end of the molecule forms a microscopic layer of positively charged carbon atoms, much like a bed of spikes, which punctures and kills microbes.



SparGuard physically ruptures the cell walls of these microbes without the use of poisons. With the mechanical kill, superbugs, microbes that build up a resistance to treatment, are inhibited from forming. SparGuard's molecular "spikes" are long chains of atoms that are large enough to pierce the cell walls of various microbes. Only about 1000th the diameter of a human hair, they are too small to harm large cells in mammals. These chains of atoms carry a strong positive charge that attracts negatively charged bacteria. SparGuard starts to work as soon as the microorganism comes into contact with the treated surface and



The active ingredient in SparGuard creates an invisible barrier that inhibits the growth of odor causing bacteria – bacteria that cause staining and discoloration. SparGuard's key property is its distinctive mechanical kill method that prevents microbes from mutating into even more resilient and deadly strains, such as those being seen by such organizations as prisons, healthcare facilities, hospitality industry, barracks, etc. The antimicrobial treatment lasts 60-90 days on porous and nonporous surfaces.

Why use SparGuard?

The World Health Organization recognizes microbe and the infections they spread as the leading cause of death in the world today. Infection is the #1 cause of death worldwide and the #3 cause of death in the USA. Today, less than 50% of infections are controllable due to superbug mutations, caused by sterilant and chemicals.

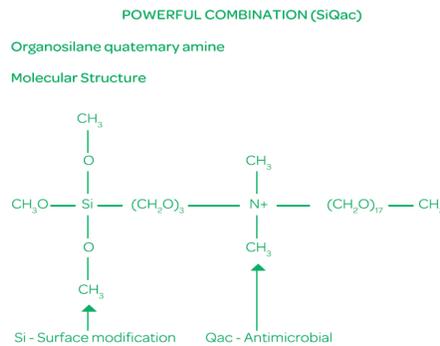
- 80% of infections spread through high touch-points (door handles, desks, cleaning equipment, phones, computers, medical equipment, walls, beds and chairs, toilets, etc.)

- Absenteeism due to sickness in the USA costs \$50billion per year
- 25 years ago 80% of infection controlled by antibiotics; Today, less than 50% infections are controllable due to Super Bug mutations caused by sterilants, chemicals

SparGuard is safe, effective and durable. It does not use poisons or chemicals. It does not contain leaching poisons, Triclosan, heavy metals, or phenols, making it environmentally friendly. This product’s Mode of Action is completely safe. SparGuard uses a mechanical action to destroy microbes. It is a physical kill, not a chemical kill, which completely destroys microbes with no chance of survival, reducing the risk of creating mutated and adaptive microorganisms known as “super bugs.”

SparGuard is effective as the molecule never depletes itself as all other antimicrobials do. SparGuard is a non-leaching bound technology. It does not off-gas from the surface in any way, which is what makes it last so long.

This long lasting non-scale protection kills and protects from microbes, mold, mildew, fungus, and some viruses during and in between cleanings. Its stable molecular structure results in a protectant that is permanent for the life of the product in some cases due to its tenacious bonding property to most substrates, making it extremely durable. While many disinfectants kill germs on contact, they fail to provide the long-term protection provided by SparGuard; without this extra level of protection, germs rapidly re-populate. SparGuard allows for the use of green cleaning procedures because the molecule remains in place taking care of problems after disinfectants dissipate, and even makes treated surfaces easier to clean. SparGuard is not a replacement product, but rather an additional step that provides protection while maintaining regular cleaning methods.



SparGuard leaves no discernible trace. Treated surfaces and materials have the same look and feel as untreated.

SparGuard can be applied in a laundry cycle and is effective up to 100 washes.

How Often Do I Need to Use SparGuard?

Normal cleaning of SparGuard treated surfaces is necessary in order for the antimicrobials to continue their effectiveness. Dirt buildup, paint, dead microbes, etc. will cover the treatment, prohibiting it from killing microorganisms. The active ingredient in SparGuard polymerizes to all surfaces. Colorless and odorless, it is active within three minutes of application and begins to work as soon as the microorganism comes into contact with the treated surface. It works continuously to maintain a consistently lower bio-burden that would be expected on a surface that is not treated with SparGuard. Since nothing is transferred to the now dead cell, the antimicrobial does not lose its strength and the sword is now ready for the next contact.

Microbial Control

Fungi

Aspergillus flares
Aspergillus flavus
Aspergillus niger
Aspergillus sydowii
Aspergillus terreus
Aspergillus versicolor
Aureobasidium pullulans
Chaetomium globosum
Cephalosporium fragans
Gloeophyllum trabeum
Penicillium chrysogenum
Penicillium funiculosum
Penicillium pinophilum
Penicillium variable
Poria placenta
Pullularia pullulans
Trichoderma sp. madison P-42
Trichoderma viride
Trichophyton interdigital
Trichophyton mentagrophytes

Bacteria (grBioProtect positive)

Bacillus sp. (vegetative cell)
Bacillus subtilis
Enterococcus sp.
Micrococcus lutea
Micrococcus sp.
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus faecalis
Streptococcus mutans
Streptococcus pyogenes
Streptococcus salivarius

Bacteria (grBioProtect negative)

Aerobacter aerogenes
Aeromonas hydrophila
Citrobacter deversus
Citrobacter freundii
Enterobacter agglomerans
Enterobacter cloacae
Escherichia coli
Klebsiella oxytoca

Yeast

Candida albicans
Candida pseudotropicalis
Saccharomyces cerevisiae
Algae
Anabaena cylindrica
Chlorophyta (green) protococcus
Chlorophyta (green) selenastrum gracile
Chlorophyta (green) sp.
Chlorophyta (yellow-green) sp.
Chrysophyta (brown)
Cyanophyta (blue-green) anabaena
Cyanophyta (blue-green) oscillatoria
Cyanophyta (blue-green) sp.
Gonium sp. (strain LB 9c)
Pleurococcus sp. (strain LB 11)
Selenastrum gracile

Klebsiella pneumoniae
Morganella morganii
Mycobacterium tuberculosis
Proteus mirabilis
Proteus vulgaris
Pseudomonas aeruginosa
Pseudomonas fluorescens
Pseudomonas putida
Salmonella choleraesuis
Salmonella choleraesuis
Salmonella typhi
Salmonella typhimurium
Salmonella typhosa
Serratia liquifaciens
Serratia marcescens
Treponema hyodysenteriae
Xanthomonas cBioProtectpestrisa

Protect and prevent with SparGuard

Where Can I Use SparGuard?

SparGuard is applied in a fog dispersant – any surface it settles on, porous or nonporous, is protected within three minutes of application.

Any Surface Area, Porous or Nonporous

This includes walls, floors, chairs, desks, doors, windows and any miscellaneous items that may be exposed and treated. Use SparGuard to treat fabric including clothing, bedding, and towels.

Medical and First Responders

SparGuard is extremely beneficial in hospitals and other medical facilities including clinics, assisted living homes, and gymnasiums or athletic clubs. Along with medical facilities, similarly, paramedic and first responders gain protection through treatment of the vehicles, uniforms, and equipment

School Facilities

Schools and childcare facilities are at an advantage when protected by SparGuard as these are generally high breeding grounds for bacteria. Veterinary and pet boarding facilities are also prime areas that will benefit from SparGuard.

Hospitality

Living areas and all interior and exterior surfaces may be SparGuarded for mold and mildew control. Kitchens and dining areas, and any food preparation area are breeding grounds for foodborne illnesses. SparGuard can be applied in hotels and motels in rooms, food preparation areas, offices and workout facilities. It can be applied to linens by using VALEN's Fabric Softener with SparGuard and is effective for up to 100 wash cycles.

Oil & Gas

Land camps and off shore facilities where petroleum industry professionals stay for months at a time in a communal environment, subjected to airborne bacteria in a concentrated area, are treated for control of the spread of bacterial disease, transmitted on surfaces or in the air, and other foodborne illness that can form within the cafeteria or kitchen area. Treatment for such environments is recommended at a more frequent rate of every sixty days rather than ninety.

Industrial & Janitorial

Production facilities, factories, janitorial services, wood mills, warehousing, manufacturing plants, toll blending and packaging facilities, and other industrial complexes benefit from mold and mildew control, protecting equipment and supplies used in the supply chain and production.

Is SparGuard a Disinfectant?

No. SparGuard is not a disinfectant; it is an antimicrobial protection. Disinfection is a process that eliminates many or all of pathogenic microorganisms on the surface after the surface has been cleaned. Disinfectants used today can only initiate a “flash kill” on surfaces and have no residual benefit whatsoever. Unlike disinfectants, which can only be used on hard, non-porous surfaces, SparGuard can be applied to all surfaces both porous and non-porous.

Products such as All Purpose 409, Windex and Lysol, and other general surface cleaning products, work to removal visual dirt, grime, grease and oils. We do not discourage nor criticize the use of everyday surface cleaners and current practices; rather, we are showing the benefits of advanced chemistry and technology when added to the daily protocol. Using an antimicrobial surface protectant before, after and/or during proper cleaning and disinfection provides a new level of protection for all. A

healthier environment helps maintain a strong and active workforce, helps reduce the risk of spreading infection, and helps reduce Healthcare Associated Infection rates.

Air Quality Control

Significantly improve air quality with SparGuard. A treated facility is especially helpful to those who suffer from Asthma, CODP and allergies. Reduce wear and tear on HVAC systems and save on maintenance. Eliminate objectionable odors at the source rather than masking with scented products or air fresheners. Provide near-HEPA or HEPA filtration. Great for seasonal use (flu, pollen, etc). Works with existing HVAC system. Traps particles the size of known pathogens, including Influenza A, viruses, bacteria and fungi. Easy to install on return vents.

Fabric and Textile Protection

Fabrics and textiles are infused with SparGuard Fabric Softener, protecting for up to 100 wash cycles after one application. SparGuard penetrates into natural and most artificial fibers and bonds to textiles, new or worn, for ultimate protection and defense. Preserve hygiene and cleanliness and enhance longevity of equipment and treated fabrics. Third party testing has shown up to 99.9% reduction of Staphylococcus Aureus.

Testing bacteria levels

ATP Testing with the SystemSURE Plus

General ATP Testing Guidelines

Environmental Cleaning Surface Contamination

Microbial Abatement Cleaning, HVAC, Bio-Contamination, Water Damaged Building Materials, etc.

Guideline for Threshold Setting **

Pass < 50

Fail > 50



Higher Risk Surface Contamination **

Healthcare Environmental Surfaces: Operating Rooms, Medical Equipment, Pharmacy, etc.

Guideline for Threshold Setting **

Pass < 10

Fail > 10

Guideline for General Surface Contamination **

Food Contact Surfaces: Food Processing Surfaces and Equipment, General Custodial Surfaces, Etc.

Guideline for Threshold Setting **

Pass < 10

Caution 11-29

Fail > 30

** These guidelines are currently tentative and based on existing testing data.

Threshold settings have been determined based on comparable microbial plate counts on various surfaces, instrumentation, and materials. The above charts are guidelines only and should be used to determine the relative level of bio burden risk given the material sampled and location of the sample point.

VALEN Methods recommends determining a specific threshold depending on the associated risk identified. Determining a specific threshold may also include performing comparable microbial plate counts in conjunction with ATP testing to develop a consistent confidence in the data collected or by using one of the two following “Recommended Practices” provided below.

When using the **Guideline for General Surface Contamination** threshold setting, readings less than 10 *relative light units* (RLUs) indicate the surface is considered quite clean and **PASSES**.

Readings between 11 – 29RLUs indicate a warning that the surface is not completely or adequately clean and is a **CAUTION**.

If the reading is greater than 30 RLUs, the surface is considered dirty and **FAILS**. See additional threshold guidelines based on the general categories for comparison.

Information provided by Hygiena, maker of ATP Luminometer and Snap It swabs.



SparGuarding dispersal service

Personal Protective Equipment (PPE)

Full-length, chemical-resistant, long-sleeve jumpsuit
Breathing mask
Chemical-resistant gloves

Preparing and Treating the Area

Any area being treated with SparGuard should empty of customers, employees, or anyone besides the SparGuard applicator. Anyone present must use PPE.

All exposed surfaces, porous and nonporous, will be covered at a slow pace to ensure even coverage as the fogger disperses a fine mist, beginning to implement a physical kill on any preexisting bacteria and prevent what's to come until the next dispersal service at 60-90 days. SparGuard takes about 15 minutes to dry. The treated area will then be aerated. Continuous testing is conducted to show the progressive and consistency in protection provided by this antimicrobial treatment. For utmost protection, scheduled treatments are recommended for maintenance. ATP testing should be performed at least once every period.