

SilvaClean[®] For Sports

A Transformative Addition to Player Health, Wellness, and Environmental Cleanliness

Frequently Asked Questions

Q. How do infections impact athletes?

A. Keeping athletes healthy in the locker room is key to winning on the field. Infections can drastically prolong the players' recovery process from injuries when they occur. They can end careers. The player environment is conducive to infections with athletes being ten times more vulnerable to infections by *S. aureus* (Staph) and MRSA. Infections are preventable.

Q. What role do textiles play in the spread of infections in sports facilities?

A. Contaminated surfaces, including soft surfaces, breed and spread pathogenic, disease-causing microbes. In athletic facilities, these include towels, athletic gear, carpets, and upholstery. These soft surfaces get contaminated by the athletes themselves or via contact with contaminated hard surfaces including lockers, benches, and equipment.

Q. What is SilvaClean[®]?

A. SilvaClean is a smart patented technology platform that is installed at the laundry facility. It infuses textiles with silver ions during the laundry rinse cycle, where they bond the fabric to residually kill pathogens, mold, and mildew, reducing odors and static. SilvaClean chemistry is EPA-approved as a laundry additive with residual activity against post-laundry contamination and risk of infections.

Q. How does SilvaClean benefit a sports infection control program?

A. SilvaClean doses silver ions into the final rinse of any laundry process to make all launderable athletic gear and towels residually antimicrobial. This means that the treated textiles kill pathogens (Staph/MRSA), mold, and mildew that comes in contact with the textile before, during and post-use-protecting players from contracting and spreading infections through contact with contaminated towels and gear. The product is implemented in athletic facilities to enhance player health and wellness. Some other key points are below:

- The treated textiles also cause other environmental contamination to decline in locker rooms and drops the odor which is caused by bacteria, mold, and mildew.
- There is not another technology that can be simply applied through the laundry process that provides this level of protection.
- It gets re-applied at each laundering and integrates into the existing laundry process.
- It reduces static.
- The technology is currently used and clinically validated in healthcare and is now being introduced to pro and collegiate sports.
- It is EPA approved and meets their stringent safety and environmental requirements.

SilvaClean® for Sports: Frequently Asked Questions

Q. Why are professional sports teams adopting SilvaClean?

A. Professional teams that have adopted SilvaClean understand the infection risks present in sports gear, towels, and the facilities. These teams feel strongly that this added layer of protection for their athletes provides them with a competitive advantage. A safer environment with stronger protection, cleaner facilities, and fewer infections are solid talking points for players, the media and to others in the league.

Q. Why are collegiate sports teams adopting SilvaClean?

A. Collegiate teams that have adopted SilvaClean understand the infection risk present in sports clothing and facilities. These teams feel strongly that this added layer of protection for their athletes provides them with a competitive advantage. Student-athlete health is an important decision factor for parents and prospective students in the college decision process. A safer environment with stronger protection, cleaner facilities, and fewer infections are solid talking points with potential recruits.

Q. How does SilvaClean® work?

A. The SilvaClean system is a dispensing device enabled by the Internet of Things (IoT) that doses the EPA-approved SilvaClean chemistry onto textiles, leaving fabrics with residual antimicrobial properties even after laundering (e.g. in storage, during handling, and in use). When textiles are being used, SilvaClean remaining in them will reduce levels of *Staphylococcus aureus* and *Candida albicans* by 99.9% after 6 hours of contact; *Klebsiella pneumoniae*, Vancomycin-resistant *Enterococcus faecalis*, Extended-spectrum positive *Escherichia coli* and *Acinetobacter baumannii* by 99.9% after 3 hours of contact; and Methicillin-resistant *S. aureus* by 99.9% after 9 hours of contact. As part of a diligent infection control program, experts recommend that sports infection control programs should seek to reduce or eliminate exposure to pathogens to the greatest extent possible. One practical, cost-effective way to aid in this effort is to use SilvaClean laundry additive.

Q. How does SilvaClean attach to the textiles?

A. SilvaClean's silver ions attach to the fabric through a charge-based interaction. Once attached, the silver ions provide a residual antimicrobial effect throughout the linen use cycle.

Q. Does SilvaClean treatment change the way fabric looks, feels, smells, etc.?

A. No. SilvaClean treatment does not change the way the fabric looks or feels. Silver ions are much smaller than the eye can see and cannot be seen on textiles and do not result in any discoloration of the treated textile.

Q. Is SilvaClean registered with the EPA for public health uses?

A. Yes. Under the product registration "Laundry additive to reduce post-laundry contamination", the EPA has approved SilvaClean for public health uses. SilvaClean can be recommended as a useful addition to aid Infection Control at hospitals and sports programs. When linens are being used, SilvaClean remaining in the linens will reduce levels of *Staphylococcus aureus* and *Candida albicans* by 99.9% after 6 hours of contact; *Klebsiella pneumoniae*, Vancomycin-resistant *Enterococcus faecalis*, Extended-spectrum positive *Escherichia coli* and *Acinetobacter baumannii* by 99.9% after 3 hours of contact; and Methicillin-resistant *S. aureus* by 99.9% after 9 hours of contact.

SilvaClean® for Sports: Frequently Asked Questions

Q. Is SilvaClean registered with the EPA for non-public health uses?

A. Yes. Under the product registration “treated article exemption”, the EPA has approved SilvaClean for use in the protection of treated textiles from stain- and odor-causing bacteria mold and mildew.

Q. How does SilvaClean compare to other products?

A.

SOLUTION ATTRIBUTES	Antimicrobial impregnated fabrics (e.g. silver-threaded athletic wear)	SilvaClean residual antimicrobial laundry additive	Standard laundry additives (chlorine, quats., peroxide)
Residual Antimicrobial Effect	Degrades over time	✓	Requires moisture
Public Health EPA Registration	X	✓	✓
Registered to Aid Sports Infection Control Programs	✓	✓	X
Maintains Look and Feel	✓	✓	✓
Utilizes Existing Processes	X	✓	✓
Utilizes Existing Gear	X	✓	✓
Designed For All Fabric Types	X	✓	✓
Relative Cost	\$\$\$\$	\$\$	\$
Low Environmental Impact	Metals degrade from fabric and release into the environment	✓	Harsh, flammable with skin sensitization concerns
Reduces Odor	✓	✓	✓
Reduces Static	X	✓	X

Q. How is the SilvaClean product registered and/or approved for use by the government?

A. SilvaClean is an antimicrobial laundry additive that reduces post-laundry contamination. SilvaClean product registration falls under the regulatory authority of the Environmental Protection Agency (EPA), specifically, the Antimicrobials Division (7510P) under the Office of Pesticide Programs (OPP). EPA regulates pesticides under the statutory authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which defines an Antimicrobial pesticide as that which is intended to disinfect, sanitize, reduce, or mitigate the growth or development of microorganisms; or protect inanimate objects from contamination caused by microorganisms.

SilvaClean® for Sports: Frequently Asked Questions

Q. What is included in the SilvaClean system?

A. The SilvaClean system gets installed at the laundry facility to deliver SilvaClean laundry additive to the laundry machine. The SilvaClean system consists of:

- **Cartridge:** Contains the EPA-approved SilvaClean chemistry solution. Each cartridge can treat approximately 200,000 pounds of textiles.
- **Dispensing device (SC REVOLUTION):** Delivers SilvaClean chemistry to the washer (during the laundry rinse cycle) when connected to the laundry machine.
- **Remote cloud monitoring:** Controls the system, collects data remotely and sends alerts to the Applied Silver technical support team to ensure overall quality control of the process.



Q. What are the site requirements for installing the SilvaClean system at an athletic facility?

A. SilvaClean system installation requires four things:

1. Dedicated water supply (continuous pressure above 20 psi is recommended)
2. Dedicated power supply at 120 volts and below 15 amps
3. Ethernet connection
4. Access to a drain

Applied Silver can provide a deionized water filtration system as part of the installation when an existing system is not available to supply water to the SC REVOLUTION dispensing device.

Q. How will installing the SilvaClean system impact the existing laundry process at the facility?

A. Once installed, the SilvaClean system is specifically designed to have minimal impact to any current laundry process. After the new SilvaClean recipes or formulas have been programmed into the washing machine, initiation to treatment simply requires selection of the right recipe, with the rest of the workflow remaining the same. Applied Silver technical support staff will provide best practices and training to the appropriate laundry staff before the system is in routine use. If the laundry requires segregation of SilvaClean-treated textiles from untreated textiles as part of the workflow, Applied Silver technical support can provide consultation and share best practices.

SilvaClean® for Sports: Frequently Asked Questions

Q. How much space is required to install the SC4700 SilvaClean dispensing unit?

A. The SC4700 unit is 27" by 14.5" by 52". Applied Silver recommends a 9-square feet footprint to allow enough space for the doors to open. If the facility already has a deionized water filtration system, an additional installation is not required. When required, an additional 72" by 18" footprint will be needed. This additional space does not need to be directly next to the SC4700.

Q. How long does it take to install the SilvaClean system?

A. The SilvaClean system can be installed and operational at the laundry facility within four weeks of receipt of a purchase order. A typical installation consists of the following steps:

1. Site survey: A preliminary questionnaire to gather site information.
2. Onsite visit (1 day): To gather additional information, scope the site and meet with the site engineer/manager and chemicals provider.
3. Installation visit (4 days): To physically install the system including:
 - a. Plumbing, mechanical, and electronic integration into tunnel washer, incorporation of SilvaClean chemistry recipes into tunnel recipe list
 - b. Line verification and qualification
 - c. Training of site personnel on how to handle and store SilvaClean cartridges

These steps require Applied Silver technical support staff to work directly with site engineers and other relevant personnel to ensure the successful integration of the SilvaClean system into your laundry process.

Q. Is the SilvaClean system fully automated?

A. Once installed and qualified, the SilvaClean system is fully automated. It only requires the replacement of the SilvaClean cartridge when it runs out (approximately every 200,000 pounds of treated textiles).

Q. When should the SilvaClean cartridge be replaced?

A. The SilvaClean cartridge is to be replaced approximately every 200,000 pounds of laundry treated. The remote alert light and the SC REVOLUTION status indicator light will notify the laundry staff when the cartridge is low and ready to be replaced.

Q. Does SilvaClean treatment replace existing laundry processes?

A. SilvaClean treatment augments existing laundry processes to provide a new level of textile care for athletes and facility staff. Laundered athletic gear and towels now have active, residual antimicrobial properties, effective anytime a microbe touches the textile post-laundering: in storage, during handling, and in use.

Q. Will the silver in SilvaClean chemistry interact with other laundry chemicals?

A. Since SilvaClean chemistry is only added in the final rinse of the laundry process, it minimally interacts with other laundry chemicals. It is fully compatible with current laundry processes and chemistries including detergents, sours, softeners, etc.

SilvaClean® for Sports: Frequently Asked Questions

Q. Does water quality impact SilvaClean treatment?

A. SilvaClean works optimally in industrial water (i.e. softened water), and also works efficiently with varying water profiles.

Q. Does SilvaClean react with the washer equipment?

A. SilvaClean does not react with the washer equipment.

Q. What about silver discharge?

A. The SilvaClean product is registered for use as a residual laundry additive by the Federal EPA and the California Department of Pesticide Registration for industrial use. SilvaClean has been intensively tested for the concentration of silver in effluents as part of that approval process. Any residual silver ions in the wastewater are at levels significantly below the EPA's and the city Publicly Owned Treatment Works (POTW) requirements.

Q. Are there any OSHA implications for SilvaClean product use? Is the product safe to use?

A. SilvaClean handling practices are simple and comparable to other laundry chemicals used in the existing industrial process. In fact, SilvaClean concentrate falls into the same category as most concentrated laundry soaps, sharing the same hazmat packaging group (II), corrosive rating (II), and UN identification number (1760). Employees handling SilvaClean should consult the cartridge label for safety information and handling instructions. Site personnel will be trained to handle SilvaClean cartridges as part of the basic training given by the ASI technical support staff. SilvaClean uses silver ions. At the concentrations used in the product, it is a potent antimicrobial and does not impact mammalian cells, including human cells. It is safe to use and is approved by the EPA to be used for all industrial use including use in healthcare and sports. SilvaClean has been in use at multiple hospitals and sports facilities for the last several years.

Q. What is the difference between SilvaClean technology and other Bactericides and Fungicides?

A. Unlike chlorine, quaternary ammonium compounds (quats.) and peroxide additives, the SilvaClean, when treated onto textiles, is effective when the fabrics are used. When textiles are being used, SilvaClean® remaining in them will reduce levels of *S. aureus* and *C. albicans* by 99.9% after 6 hours of contact; *K. pneumoniae*, Vancomycin-resistant *E. faecalis*, Extended-spectrum beta-lactamase positive *E. coli*, and *A. baumannii* by 99.9% after 3 hours of contact; and Methicillin-Resistant *S. aureus* by 99.9% after 9 hours of contact.

Q. What are the potential environmental impacts of SilvaClean treatment?

A. SilvaClean is registered for use as a residual laundry additive by the Federal EPA. SilvaClean has been intensively tested for the concentration of silver in effluents as part of that approval process.