



Facility Hygiene and Infection Prevention

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 and can even end careers. Athletes are ten times more vulnerable to infections by *S. aureus* (Staph) and MRSA. Infections are preventable.

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

A. Soft surfaces breed and spread pathogenic, disease-causing microbes. In athletic facilities, these include uniforms, athletic gear, towels, face masks (PPE), carpets, and upholstery. These soft surfaces are contaminated by the athletes themselves or via contact with contaminated hard surfaces like 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 fabrics with silver ions during the laundry rinse cycle, where they bond to fabrics to residually kill pathogens, mold, and mildew and reduce odor and static. The SilvaClean chemistry is EPA-approved as a laundry additive with residual activity against post-laundry contamination and infection risk.

Q. How does SilvaClean work?

A. The SilvaClean system includes a dispensing device enabled by the Internet of Things (IoT) that doses the EPA-approved chemistry onto fabrics during the laundry rinse cycle, infusing them with antimicrobial properties even after laundering. SilvaClean's silver ions attach to the fabric through a charge-based interaction. Once attached, the silver ions provide residual antimicrobial protection throughout the fabric cycle: while in use, during handling, and during transport.

Q. How does SilvaClean improve overall facility cleanliness and hygiene?

A. SilvaClean is unique in that it uses the laundry process to address both soft and hard surfaces. This is because soft surfaces spread contamination to hard surfaces. So, by addressing pathogenic, disease causing microbes on soft surfaces, you are contributing to an overall cleaner environment. A <u>case study</u> with the San Francisco 49ers demonstrates that with with routine and repeated use of SilvaClean, germ levels on uniforms, towels, as well as on locker room hard surfaces, are negligible.



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

- A. SilvaClean makes all launderable uniforms, athletic gear, towels, etc. residually antimicrobial. The treated fabrics kill pathogens (*S. aureus*, MRSA), mold, and mildew that come in contact with the fabric before, during, and after use reducing the risk of contracting and spreading infections. SilvaClean is implemented in facilities to enhance player health and wellness. Some other key points are below:
 - SilvaClean reduces overall contamination to create a cleaner and more hygenic environment.
 - The SilvaClean technology is currently used and clinically validated in healthcare.
 - SilvaClean reduces static on treated fabrics to eliminate the need for laundry additives and extend the life span of treated fabrics.
 - It is the only technology offering this comprehensive approach to hygeine and infection control that is applied through the laundry process, so it is not only highly effective, but also convienent and easy to use.

Q. Is SilvaClean registered with the EPA for public health use (kills disease-causing pathogens)?

A. Yes. Under the product registration "Laundry additive to reduce post-laundry contamination", the EPA has approved SilvaClean for public health use. SilvaClean begins to take effect immediately and will reduce levels of Methicillin-resistant *Staphylococcus aureus* by 99.9% after 9 hours of contact; *S. aureus* and *Candida albicans* by 99.9% after 6 hours of contact; and *Klebsiella pneumoniae*, Vancomycin-resistant *Enterococcus faecalis*, Extended-spectrum positive *Escherichia coli*, and *Acinetobacter baumanii* by 99.9% after 3 hours of contact.

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

A. Yes. The EPA has approved SilvaClean for use in the protection of treated textiles from stain- and odor-causing bacteria, mold, and mildew. Routine use of SilvaClean protects fabrics from degredation and improves fabric life span.

Q. Does SilvaClean reduce odor?

A. Yes. SilvaClean removes odor-causing bacteria and odor from mold and mildew. With repeated use, users will observe a dramatic reduction in odor build-up within facilities.

Q. How does SilvaClean compare to silver-threaded or other antimicrobial threaded fabrics?

A. SilvaClean works on your existing fabrics. SilvaClean efficacy is maintained as silver is added during each laundry cycle. Silver-threaded fabrics require the costly purchase of new uniforms, towels, etc., and its residual antimicrobial effects degrade over time. Finally, silver-threaded fabrics have only non-public health claims, while SilvaClean has both public and non-public health claims.



Q. How does SilvaClean compare with standard laundry additives (chlorine, quats, peroxide)?

A. Unlike chlorine, quaternary ammonium compounds (quats), and peroxide additives, SilvaClean remains effective when the fabrics are in use and reduces static. In addition, many standard laundry additives are harsh, flammable, and have skin sensitization concerns.

Q. What are the potential environmental impacts of a 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. Any residual silver ions in the wastewater are at levels significantly below the EPA and city Publicly Owned Treatment Works (POTW) requirements.

Q. Is the SilvaClean system fully automated?

A. Yes. Once installed and qualified, the SilvaClean system is fully automated. There are no changes in day-to-day handling of fabrics and no manual intervention is required until the SilvaClean cartridge runs out and needs replacement (approximately every 200,000 pounds of laundry treated).

Q. Does SilvaClean replace existing laundry processes?

A. No. SilvaClean augments existing laundry processes to provide a new level of fabric care for athletes and athletic staff. Laundered uniforms, athletic gear, towels, etc. now have active, residual antimicrobial properties, effective anytime a microbe touches the fabric post-laundering: in use, in storage, and during handling.

Q. Is SilvaClean compatable with other laundry products?

A. Since SilvaClean is only added to the final rinse of the laundry process, there is very little interaction with other laundry products. SilvaClean is fully compatible with current laundry processes and chemistries including detergents, sours, softeners, etc.

Q. Does SilvaClean change the way a fabric looks or feels?

A. No. SilvaClean does not change the way the fabric looks or feels. Silver ions cannot be seen on fabrics. Use of SilvaClean does not result in any discoloration of treated fabrics.

Q. Why have professional sports teams been adopting SilvaClean?

A. Professional sports teams that have adopted SilvaClean understand the infection risks present in uniforms, atheltic gear, towels, etc. and the overall environment of their facility. 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 their respective leagues.





SilvaClean System Implementation

Frequently Asked Questions

Q. What is included in the SilvaClean system?

- A. The SilvaClean system includes a dispensing device (SilvaClean Revolution), a cartridge, a deionized (DI) water panel, and remote cloud monitoring.
 - The SilvaClean Revolution delivers SilvaClean chemistry to the washer (during the laundry rinse cycle) when connected to the washing machine.
 - The cartridge contains the EPA-approved SilvaClean chemistry solution. Each cartridge can treat approximately 200,000 pounds of fabric.
 - The DI panel with three DI cylinders delivers deionized water to the washing machine.
 - Remote clound monitoring controls the system, collects data, and sends alerts to the Applied Silver technical support team to ensure overall quality control of the process.

DI Panel Remote Cloud Monitoring DI Cylinders SilvaClean Revolution

Q. What are the site requirements for installing the SilvaClean system?

- A. A SilvaClean system installtion requires five things:
 - Dedicated water supply (continuous pressure above 30 psi is recommended).
 - Dedicated power supply at 120 volts and below 15 amps, and within 15 ft of the revolution.
 - Ethernet connection.
 - Access to a drain.
 - Capability to place the SilvaClean Revolution within 30 ft of target washers (in any direction).

Q. How much space is required to install the SilvaClean Revolution dispensing device?

A. The SilvaClean Revolution is wall-mountable with dimensions of 17" wide x 27" tall x 14 " deep. Applied Silver can also provide a stand for the Revolution if wall-mounting is not possible.



Q. How much space is required to install the DI panel?

A. The wall-mounted panel is 3.5' wide x 2' tall x 8" deep. Three cylinders are required and are about 8" in diameter and about 4' tall and located beneath the wall-mounted panel. If the facility has a deionized water filtration system, the DI panel is not needed.

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

A. Once a site survey and site requirements are addressed, the SilvaClean system can be installed in approximately two days.

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

A. Once installed, the SilvaClean system is specifically designed to have minimial impact on current laundry processes. Specific dosing formulas are programmed into the washing machine and treatment only requires selecting the correct program - this is typically done in coordination with your existing chemical provider. The rest of the workflow will remain entirely the same.

Q. Does SilvaClean react with any washer equipment?

A. No. SilvaClean does not react with any washer equipment. In fact, with routine use SilvaClean will limit microbial build-up in washers.

Q. When does the SilvaClean cartridge need to be replaced?

A. One SilvaClean chemistry cartridge can treat approximately 200,000 pounds of laundry. The remote alert light and the SilvaClean Revolution status indicator light will notify users when the cartridge is low and ready to be replaced.

Q. Are there any OSHA implications for SilvaClean use?

A. SilvaClean handling practices are simple and comparable to other laundry chemicals used in existing industrial processes. In fact, SilvaClean concentrate falls into the same category as most concentrated laundry sours, 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. ASI technical support staff will train customers on how to handle SilvaClean cartridges during the system installation.

Q. Is SilvaClean safe to use?

A. SilvaClean uses silver ions. At the concentration used in the product, it is a potent antimicrobial and does not impact mammalian cells, including human cells. SilvaClean does not cause any allergic reactions. It is safe to use and is approved by the EPA for all industrial uses, including use in sports and healthcare. SilvaClean has been used at multiple sports facilities and hospitals for the last several years.