



PROTEIN SOLUTIONS OVERVIEW

As an industry leader in sanitation and microbial challenges, Sterilex is uniquely positioned to bring together multiple parts of the food supply chain and is a total food safety solution provider. Sterilex products not only kill pathogens found in biofilm, but also penetrate and remove the biofilm structure. Removing biofilm and killing biofilm-forming pathogens can increase shelf life, reduce the risk of product recalls, and drive operational efficiency.



THE STERILEX DIFFERENCE

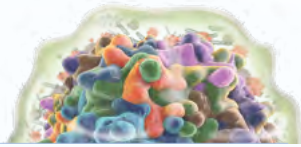
Sterilex products are indispensable tools in any processor's toolkit, showing real world results in areas that directly impact the bottom line.

- + Reduce environmental pathogen positives
- + Remove biofilm from hard-to-scrub areas and equipment
- + Save energy with improved heat transfer equipment and freezer efficiency
- + Prevention of micro-failures and spoilage
- + Prevention of product recalls
- + Increase product shelf life
- + Decrease quality-related downtime
- + Reduce labor hours





YOUR BEST DEFENSE AGAINST BIOFILM



Biofilms are the root cause of 60% of foodborne disease outbreaks¹. Biofilm is a complex matrix of bacteria, fungi and algae that stick together, embedded in a self-produced matrix of extracellular polymeric substance (EPS). The EPS is a long, sugary molecular strand that not only attaches biofilm to a surface, but also traps nutrients, provides structural support, and protects microbes from antimicrobial treatments and disinfectants. It thrives in moist, undisturbed niches where hand scrubbing may not be feasible, making protein processing environments the ideal space to grow. Because of biofilm's superior resistance to traditional antimicrobial treatments and disinfectants, up to 1,000 times the normal dose of a commercial sanitizer may be required to completely remove biofilm. This strong dose is not only costly, but introduces additional issues, such as health, safety and corrosivity concerns. Additionally, because traditional biocides leave biofilms intact, the biofilm harbors microorganisms, often leading to higher use volumes of continuous feed biocides to control the bacteria load.

¹ Han et. al (2017) Removal of Foodborne Pathogen Biofilms by Acidic Electrolyzed Water.



PERQUAT® TECHNOLOGY



Sterilex PerQuat Technology was the first chemistry to receive EPA-registered anti-biofilm claims for industrial and public health use sites. PerQuat is based upon alkaline peroxide chemistry with phase transfer catalysis. This innovative proprietary technology has the unique ability to penetrate and remove biofilms and simultaneously remove spoilage organisms such as *E. coli*, *Salmonella*, and *Listeria*.

APPLICATIONS

Sterilex offers products that provide disinfection and biofilm removal in a wide range of applications and surfaces. Our experienced food safety experts can meet with you to create a customized biofilm control program that is tailor-fit to your facility and needs.

Use Sterilex's EPA-registered products to control foodborne pathogens like *E. coli*, *Listeria* and *Salmonella* as well as biofilm on a variety of surfaces and equipment:

- + Spiral freezers
- + Cooling tunnels
- + Cutting boards
- + Entryway control
- + Brine injectors
- + Complex grinder parts
- + Drains
- + Slicers
- + Environmental surfaces (walls, floors, etc.)
- + HVAC units, cooling coils, cooling tunnels



Ask us why EPA registration matters.

Controlling biofilm is the key to ensuring product safety.



STERILEX ULTRA STEP



Sterilex Ultra Step is an EPA-registered solid floor sanitizer that is designed to sanitize low-moisture processing areas. It utilizes the same proprietary PerQuat technology as our liquid systems in a single-part, dry powder.

Benefits of Solids

- + Proprietary PerQuat technology
- + EPA-registered solid sanitizer effective against foodborne pathogens such as *Listeria*, *E. coli*, *Salmonella* and *Campylobacter*
- + Effective against a variety of viruses
- + Easy to use
- + Adds traction and prevents slippage
- + Fine, sand-like crystals provide complete coverage
- + Blue color for easy identification
- + Reduce excess water and chemical usage

Solid Applications

- o Plant floors
- o Entryway control
- o Floor mat/boot pan sanitizer
- o Low moisture processing areas – no additional water needed
- o Warehouse and loading docks
- o Trash areas
- o Construction project barriers
- o Reduces cross-contamination between plant and construction areas

STERILEX LIQUIDS



Sterilex's PerQuat line of liquid cleaners and disinfectants are the first line of defense for facilities looking for protection from biofilm and biofilm pathogens.

Benefits of Liquids

- + Proprietary PerQuat technology
- + Removes biofilm structure and kills pathogens found in biofilm
- + Broad spectrum, EPA-registered liquid disinfectants effective against foodborne pathogens like *E. coli*, *Listeria*, *Salmonella*, *Campylobacter* and biofilm-forming bacteria
- + Effective against a variety of viruses
- + Easy to mix and apply
- + Versatile, cost-effective applications
- + Compatible with many surfaces (see compatibility chart on last page for full list)

Liquid Applications

- o Overhead air unit/structure disinfection
- o Deep cleaning and disinfection of processing equipment
- o Removal of biofilm and other hard-to-clean organic contaminants
- o Food contact surfaces
- o Environmental surfaces (walls, floors, drains)
- o Fogging
- o Part soaking
- o Process storage

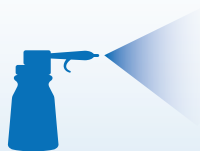
STANDARD STERILEX PROGRAMS



Drains



Floors + Floor Scrubbers



Fogging



Part Soaking



Overhead Air Units



CIP





METAL COMPATIBILITY REFERENCE

Compatibility chart for dilutions of Sterilex Ultra Disinfectant Cleaner Solution 1 and Ultra Soft Metal Activator. Compatibility testing conducted for 10 consecutive days (14,400 minutes of use). Simulates 3.95 years of daily treatments.

Metal	Compatibility	Plastic	Compatibility
Aluminum 1100	Compatible	HDPE	Compatible
Aluminum 5052	Compatible	LDPE	Compatible
Aluminum 3003	Compatible	Polyethylene	Compatible
Aluminum 6061	Compatible	Polypropylene	Compatible
Aluminum 7075	Semi-Compatible ¹	PVC	Compatible
304 Stainless	Compatible	Teflon	Compatible
316 Stainless	Compatible	Kalrez	Compatible
Bronze	Compatible	Delrin (Polyacetal)	Compatible
Copper	Compatible	EPDM	Compatible
Brass	Semi-Compatible ²	BUNA-N	Compatible
Carbon Steel	Semi-Compatible ³	PET	Compatible
Cast Iron	Non-Compatible ⁴	Viton	Semi-Compatible ⁶
Galvanized	Non-Compatible ⁵	Polycarbonate	Non-Compatible ⁷

¹Light oxidation

²Some darkening of surface

³Minimal rusting observed, same compatibility as water

⁴Can cause rusting on clean cast iron surfaces over time

⁵Corrosion, same compatibility as water

⁶Causes material tackiness after 3 days of continuous exposure (4,320 minutes)

⁷Causes material decomposition

Sterilex products are available from sanitation chemical providers. Please contact us for more information.

1.800.511.1659 | www.sterilex.com | marketing@sterilex.com