



BY AMERICAN MEAT SCIENCE ASSOCIATION

Practical Tips to Avoid Biofilms in Drain Traps

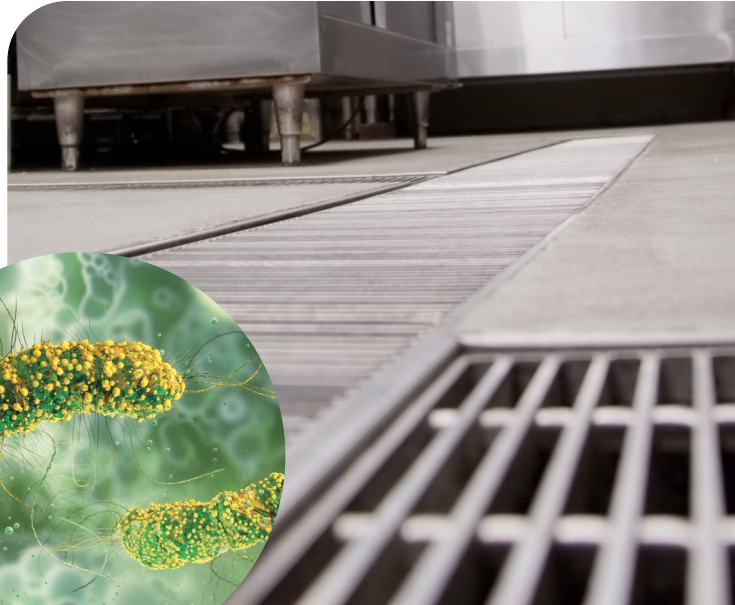
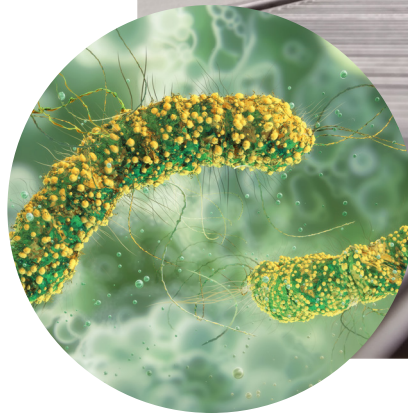
What are biofilms, and why are they a concern?

Biofilms are persistent mixtures of bacteria, proteins, and biological materials that accumulate on food processing surfaces, including drains.

Listeria monocytogenes, a common foodborne pathogen, can form biofilms that contaminate products and pose a serious food safety risk.

How common is *Listeria* contamination in drains?

Floor drains are a common location to find *Listeria* monocytogenes and frequently test positive for *Listeria* in processing plants. Drains often harbor *Listeria* as during facility cleaning, bacteria can be moved from the surrounding area into the drains. Additionally, drains are not cleaned and sanitized as often as food contact surfaces, and the humid and protected environment in the drains promotes both the growth of *Listeria* and the formation of biofilms.



What steps can be taken to prevent biofilms in drains?

By implementing these strategies, processing plants can minimize the risk of biofilms, *Listeria* contamination, and food safety issues in drain systems.

1

Remove residue effectively – Fat and protein buildup in drains encourage biofilm formation. Proper Sanitation Standard Operating Procedures (SSOPs) in ready-to-eat (RTE) areas can reduce biofilms.

Clean drains daily—weekly cleaning allows biofilms to grow.

Use sanitizers such as hypochlorites or peracids, followed by detergents.

Use hot water ($\geq 100^{\circ}\text{F}$) to enhance biofilm removal.

Ensure employees are properly trained in sanitation procedures.

2

Ensure sanitizers reach the drain trap – Drains should be “blown out” with high-pressure cleaning to push sanitizers into the trap.

Simply pouring hot water and sanitizer down a drain won't guarantee proper coverage.

Specialized hose attachments can help sanitize drain traps.

Remove covers during cleaning when possible to ensure thorough sanitation.

3

Improve drain design when possible – If updating facilities or constructing a new plant, consider modifications to reduce biofilm risks.

Use proper drain materials—stainless steel is common in Ready-to-Eat (RTE) areas, but even different stainless steel types vary in biofilm resistance.

Ensure raw and RTE drains are separate to prevent cross-contamination.

A clean-in-place (CIP) system can periodically backflush drains with detergents and sanitizers, reducing bacteria buildup.