Introduction

The fictional detective Sherlock Holmes had a fantastic ability to look beyond the obvious and see things that others had missed. He would use his years of experience and creative intellect to play out various scenarios until, in his mind, the correct sequence of events clicked into place. Plant sanitarians, like the famed detective, need to acquire the same problem-solving skills… looking past the obvious to find hidden threats and microbial hotspots that lurk inside every food processing environment.

The Usual Suspects

Some of the most notorious microbial hot spots include floor drains, standing water on floors, gaskets and seals inside food contact equipment, and difficult to disassemble and clean machinery (e.g., meat slicers). During the cleaning and sanitization process, these areas receive copious amounts of attention, and with good reason. Time and again, these hot spots are the origin of many food safety and quality issues in manufacturing plants.[1]

In 2008, a Listeria outbreak claimed over 20 lives in Canada, resulting in one of the largest food product recalls in that nation's history.[2] Following an exhaustive investigation, the source of the bacteria was traced to slicing equipment at a Toronto meat processing plant.[3] Soon after the deadly outbreak, the FDA's Food Code recommended more stringent cleaning and sanitizing requirements for meat slicing equipment held at room temperatures in the United States.[3]

The intense focus on highly problematic microbial hot spots in food facilities is demonstrably warranted. It is necessary, however, to be mindful that the processing environment is a multidimensional universe to itself, teeming with possible hot spots that are often out-of-sight or out-of-mind, such as cooling coils on air handling units. It is these less obvious areas that need more consideration.

"There is nothing more deceptive than an obvious fact."

— Sherlock Holmes

Look Beyond the Obvious

In order to truly safeguard our facilities, we need to look beyond the obvious, and analyze all the "what ifs" to find where real and potential problem areas might exist. Dr. Jeffrey L. Kornacki, a leading food microbiologist and safety consultant, has inspected hundreds of processing facilities, ranging from slaughter houses to dairy plants. He possesses over four decades of food industry experience with 30 years as an active food safety consultant.

Kornacki, who began his career in the mid 1980's and now heads Kornacki Microbiology Solutions in Madison, WI, has a large trove of frontline stories on finding microbial hot spots in some innocuous places. Not too long ago, during a Salmonella plant investigation, he came across a fan belt cover and, out of curiosity, decided to remove the metal facing. Eyeing the belt, he noticed that a multitude of inch-long slits had nearly permeated the hard and worn rubber. Later, to little surprise, the belt tested positive for the hazardous organism.

Kornacki, who edited the 2010 book, "Principles of Microbiological Troubleshooting in the Industrial Food Processing Environment,"[4] proclaims numerous inconspicuous entities, such as electrical boxes, cracked hard plastics, and hollow structures in equipment, can easily be contaminated due to their proximity to water and food residues.

continued

Identifying the Perpetrator Before the Crime Even Happens

In the continuous struggle against microbial hot spots of escalating notoriety, Kornacki notes that it is crucial for processors to give increased attention to preventative maintenance programs, hygienic equipment design, and adhere to standard verified sanitation protocols.

Stating that preventative maintenance is "a big area where companies fail or don't do well," the food safety consultant says many food processing facilities generally give little thought to replacing equipment parts, such as bearing seals and gaskets, until the components are withered, failing, and more prone to microbial contamination.

"It is intrinsically not logical to expose your facility to a potential shutdown due to preventative maintenance failures," he imparts.

Plant management, Kornacki emphasizes, should provide quality assurance team members with unswerving support to perform their duties. Rigorous preventative maintenance programs, according to a consortium of sanitarians, can help ensure the production of safe food, extend equipment life and enhance operating efficiencies through significant cost savings.[5]

It's Elementary My Dear Watson

Microbial hot spots can be anywhere and everywhere in a food manufacturing facility. As food safety experts we need to become proficient at analyzing each environment and piece of equipment, then ask ourselves, "where could microbes be hiding?". We need to become creative problem solvers… modern day sleuths to ensure that all potential hotspots have been identified. Equipment user manuals and equipment manufacturers are a great resource for identifying potential areas of microbial harborage. The next step of the equation is to design cleaning and sanitizing programs that effectively address these problematic areas.

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