Technical Bulletin

Setting the Standard for Food Safety and Pest Management Solutions

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Diseases Transmitted through the Food Supply

Foodborne illness can originate in many places. Often it is from sick food handlers, employees tasked with making or serving safe foods. The presence of any one of the following signs or symptoms in persons who handle food may indicate infection by a pathogen that could be transmitted to others through handling the food supply: diarrhea, vomiting, open skin sores, boils, fever, dark urine, or jaundice. The failure of food-handlers to wash hands in certain situations (such as after using the toilet, handling raw meat, cleaning spills, or carrying garbage), wear clean gloves, or use clean utensils is responsible for the foodborne transmission of these pathogens. Non-foodborne routes of transmission, such as from one person to another, are also major contributors in the spread of these pathogens.

Some pathogens usually cause disease when food is intrinsically contaminated or cross contaminated during production, processing or transportation, but may also be contaminated when prepared by infected persons. Bacterial pathogens in this category often cause disease after bacteria have multiplied in food after it has been kept at improper temperatures permitting their multiplication to an infectious dose. Preventing food contact by persons who have an acute diarrheal illness will decrease the risk of transmitting these pathogens. The following represent both types of pathogens that may be transmitted by an infected food handler: Astroviruses, Bacillus cereus, Campylobacter jejuni, Clostridium perfringens, Cryptosporidium species, Entamoeba histolytica, Shiga toxin-producing E. coli, Enterotoxigenic E. coli, Giardia intestinalis, Hepatitis A virus, Nontyphoidal Salmonella, Noroviruses, Rotaviruses, Salmonella Typhi, Sapoviruses, Shigella species, Staphylococcus aureus, Streptococcus pyogenes, Taenia solium – cysticercosis, Vibrio cholera, and Yersinia enterocolitica.

Employers have the legal and moral obligation to have policies and procedures in place and a well-trained workforce to reduce the risk of transmission of these pathogens. Employees should not report to work if they are showing signs of any illness. If they do report to work the employer must make a sound decision on what the sick employee may do that doesn't place the food supply at risk. Due diligence is crucial in protecting

Submitted by: Rich Gibson, ACE, CHA

The Sawtoothed Grain Beetle

Order: Coleoptera **Subfamily:** Silvanidae **Genus:** Oryzaephilus **Species:** O. surinamensis

The sawtoothed grain beetle is a major pest of stored food products. It is brown in color and only about 2.5 to 3 mm long. With a flat body and six tiny projections on each side, just behind the head, it is easily identifiable. These projections give the beetle its name. It helps to use a hand-lens or magnifying glass to see them.

This beetle does not infest whole grain. Its flat body allows it to enter tiny cracks and infest broken kernels. It feeds on cereal, flour, pet food and birdseeds and is also known to feed on nuts, spices, drugs, chocolate and tobacco.

The female beetle deposits eggs in cracks in food or on ground food, like flour. When the eggs hatch, the larvae feed and grow. In ideal conditions, the entire life cycle, from egg to mature adult, takes about 8 weeks. There can be several generations per year. If not controlled.
Control is best accomplished through cleaning and sanitation to break the lifecycle. The application of an appropriate insecticide is the final step. The application should be made into cracks and crevices after all attractive food sources are removed.

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Have it, Manage it

Courtesy of: www.ortez.com

While working with a large snack food manufacturer as part of a routine maintenance consultation the topic of metal complaints came up. The company had received over fifty metal complaints in a sixty-day timeframe. The only trend identified was the fact the complaints were limited to one line, but not a specific shift, day of the week, etc. The metal was small fragments of a ferrous material, not dull or rusted, which enabled the team and the Comprehensive Food Safety (CFS) Consultant to instantly rule our many potential sources. The fragments were not in the product, but were in the packaging, another method used to rule out a large section of the production line. The CFS Consultant asked to walk the line from start to finish, to refamiliarize themselves with the process.

While walking the line and inspecting, the consultant noted a large rare earth magnet across the top of a conveyor, and another, further down the line on the underside of a transfer chute, both within twenty-five feet of each other. This was an odd discovery as the consultant had never seen any logs for the inspection of the magnents and these were not included as process preventive controls on the food safety plan. When asked about the magnents, the QA Manager stated "they came with the line". The team was unaware that these are foreign material removal devices and should be monitored. Additionally, the team (including maintenance personnel) were under the impression that most of their equipment is stainless steel and non-magnetic; this is only a partial truth.

Stainless steels are iron-based alloys primarily known for their generally excellent corrosion resistance, which is largely due to the steel's chromium concentration. There are several different types of stainless steels. The two main types are austenitic and ferritic, each of which exhibits a different atomic arrangement. Due to this difference, ferritic stainless steels are generally magnetic while austenitic stainless steels usually are not. The equipment manual for the affected equipment used ferritic stainless steel and is the reason the magnets were installed.

Once the magnet was accessible and could safely be inspected the inspection team noted a thick layer of metal fragments and slivers, identical to the ones consumers reported finding in the products they were consuming. The layer of metal was so thick that pieces were connected to each other and hanging like stalactites which could fall from products contacting the ends or the simple vibration of the machinery. The facility uses metal detectors on some lines and x-ray machines on others. The fragments were too small and thin to be detected by the x-ray due to the settings of the units and the metal detectors were simply not catching these. Both units were recalibrated to ensure detection in the future.

The magnets were cleaned, the source of the fragments identified and corrected. QA Team placed the magnets on the weekly cleaning schedule. In addition, logs were created for inspecting the magnets at shift change. The magnents were also added to the food safety plan and designated as process preventive controls. After the shelf life of the product ran its course the complaint ceased.

Take Away Tips:

- If something is in-place, monitor it and manage it
- Not all stainless steel is non-magnetic
- Do not rely on metal detectors or x-ray machines to catch everything
- Educate everyone involved
- Read equipment manuals as part of the commissioning and installation process

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