FOREIGN MATERIAL CONTROL

THE DRIVING FORCE BEHIND A FOOD PRODUCT BEING RECALLED IS OFTEN A CUSTOMER COMPLAINT.

With so many processes and precautions in place to prevent the contamination of food, how do foreign materials still manage to get into food products and remain undetected through the supply chain? There are instances of foreign material contamination in food on the news almost daily, and though not all occurrences are harmful, some extraneous materials can cause adverse effects and pose a significant danger to consumers. According to the USDA Food Safety and Inspection Service, recalls due to extraneous materials have increased by 48% in the last year in the US. Unlike chemical or biological contaminants, foreign bodies are visible. If found by a consumer, a public complaint could be amplified on social media and cause brand damage that can have a lasting effect.

WHAT ARE FOREIGN MATERIALS?

A simple way to understand foreign material, is to break them down into the What, the When/Where and the Why. Foreign material consists of any contaminant that does not belong in a food product and may cause illness or injury to the consumer. They can be unavoidable and endogenous to the food product such as fruit pits, bone, or shell. Or they can be exogenous and introduced at any step of the food supply chain including the manufacturing process, post-packaging during storage, transportation, and the handling of food. Contaminants that are not native to food products include metal, glass, bone, plastic, rocks, wood, rubber, hair, feathers, insects, flaked paint, grease, and personal items such as jewelry – all avoidable with the proper safeguards in place.

METAL RISKS ARE COMMON

Stainless steels are widely used in food production facilities. In the raw ingredient phase, food is exposed to different processes – from cutting meat, filleting fish, grinding spice, or mixing dry and wet baking ingredients. Later down the line, cutting larger quantities into more convenient single-serve portions or preparing ready-cut vegetables can again introduce a possible metal contaminant into the food supply chain. Equipment dysfunctions, design flaws, changeovers, and maintenance gaps are also common sources of potential metal contamination.

HOW CAN YOU PREVENT FOREIGN MATERIAL CONTAMINATION?

The fact is that foreign materials do not belong in foods and their prevention should be taken seriously. As Jeff Wilson, Vice President of Food Safety Services for Europe, Asia, and Africa at AIB International remarks, “Everyone deserves safe food every day.” Food manufacturers should take the time to understand the contaminants that are prevalent in the foods they are producing by conducting a thorough hazard analysis. This will identify any gaps in processes that may leave a product exposed to contamination. Manufacturers can then use this insight to determine the appropriate methods and protective actions to best safeguard their products and consumers. By applying, maintaining, and documenting common-sense protections from farm to fork, food processors can avoid the risk of physical contaminations entering the food chain.

FOREIGN MATERIAL CONTROL

FOREIGN MATERIAL CONTROL PROGRAMS

The following are controls that can be implemented to reduce or prevent the opportunity for foreign material contamination in food.

Vendor Approval Program	Know where your supplies come from and investigate food safety programs at the supplier level to ensure they are effective in removing contaminants from raw materials, ingredients, and product packaging. Require your suppliers to implement specific contamination controls so that once materials reach your facility, they have already been through an extensive screening process.
Receiving Program	All raw materials should be inspected for foreign material contamination and quality upon arrival at your facility. Understand what the common or naturally occurring foreign objects in your raw materials are and how to effectively remove them.
Process Controls: HACCP and HARPC	Hazard Analysis and Critical Control Point (HACCP) is a system that identifies potential hazards and specific control measures that should be implemented at critical control points through the food supply chain to prevent contamination and ensure food safety. In the US, HARPC has taken over to extend beyond Control Points, mandating that food processors document all potential product risks, including naturally occurring hazards and anything that might intentionally or unintentionally get introduced to their facility.
Cleaning and Sanitization	A cleaning program with schedules and procedures for accomplishing tasks is essential for maintaining a wholesome and safe food processing environment. Pathogens and spoilage organisms can contaminate food if not managed for raw materials, packaging materials, work in progress, finished product or micro-sensitive processes. In any food production environment cleaning and sanitation programs are critical to preventing bacteria and potential cross contamination that can cause foodborne illness. Food contact surfaces and equipment should be cleaned and sanitized before and after usage, between product changeovers, between shift changeovers, and even more frequently, depending on the type of process. Equipment that can be disassembled should be taken apart so that any contaminants that may be caught inside the equipment are removed and sanitized thoroughly.
Inspection Systems	Ingredients and supplies should be inspected for foreign material at the point of arrival at your facility before processing. Systems that can be utilized to detect and remove foreign materials include metal detectors, X-rays, magnets, sifters, filters, and strainers. In any case, it is imperative that operators clearly understand how the technology works or seek assistance from qualified technicians for correct functionality. The choice of equipment should be based upon the most prevalent risk. In most instances, metal remains the most common contaminant. Therefore, it makes sense to consider metal detection as a first option.

FOREIGN MATERIAL CONTROL

Metal detectors can be customized to suit pipeline, gravity, bulk, and even low-profile products such as cookies or burgers. Farms also install robust conveyor metal detectors to inspect root vegetables before processing. Metal detection systems must be failsafe to ensure that in the event of a system problem, the line will stop automatically until the situation is resolved. This prevents any metal fragment from continuing through the production process undetected. Both the detector performance and fail-safe capability should be monitored and documented regularly by trained personnel. The facility follows corrective action and reporting procedures to respond to foreign material control devices failures. These procedures may address isolating, quarantining, and retesting all food produced since the last acceptable test of the device.

Automatic Testing

Automatic testing improves the repeatability of routinely monitoring a metal detector's performance. These systems are designed to complement manual testing with physical test samples to reduce the labor costs associated with owning a metal detector and improve testing effectiveness by eliminating the human error associated with testing. Halo is Fortress' version of automatic testing which simulates testing with all metal types (ferrous, non-ferrous, and stainless-steel) and ensures that the metal detector is reliable and accurately detecting to the desired performance level.

Glass Controls

Prepare and document a glass breakage procedure that details glass usage, prevention controls and what do if glass should break within your manufacturing facility. Where possible, shatterproof glass should be utilized in the production area for windows, equipment screens, and eyewear. Plastic coverings are also effective in containing glass breakage. If there is the possibility of glass contaminating a food product, production should stop immediately and if necessary, a recall procedure should be implemented.

Monitoring and Documentation

To document all potential risks and facilitate traceability, data capture is critical. Equipment monitoring and documenting data trends can assist food processors to discover problems that may be occurring upstream in their production process and fix them before it results in a safety issue. Documentation of everyday procedures demonstrates that processes have been followed correctly. Contact Reporter is an automated record keeper developed by Fortress to help food processors keep track of and record logs for rejects, tests, settings, etc. This all helps to narrow the time frame during which a problem can go undetected and reduces the number of suspect products that must be discarded or recalled in case of an incident.

Food Safety Inspection Team

Establish a formal Food Safety Committee. This Committee should schedule and conduct self-inspections of the entire facility, at least monthly. The FSC documents the results of the self-inspection and these results are brought to the attention of the personnel responsible for the activity inspected. Together, the FSC and the responsible key personnel, set deadlines for corrective action implementation. The results of the Corrective Actions are verified, to ensure satisfactory completion.

Facility Inspection

Food manufacturing facilities should be inspected regularly to ensure the plant is in an optimal condition and there are no underlying issues that could become a potential source of contamination. In older buildings, chipped paint, ceiling leaks and rusting pipes or structures must be identified and addressed with regular building maintenance. Inspections should take place at least once per month and include an assessment of the outside grounds of the facility. Use appropriate tools when undertaking a facility inspection, such as a flashlight, spatula, and stainless-steel mirror.

Education and Training

Employee training must be standard in any foreign material program so that there is knowledge of potential sources of contamination and to ensure that controls are properly implemented every day. There should be policies in place so that employees are aware that contamination can occur as result of personal items being accidentally introduced to the production process. Items such as jewelry, hair, pens, earplugs, staples, and other common items can cause a serious and potentially harmful hazard to consumers should they go undetected.

INVESTIGATION IS CRITICAL

A thorough and diligently followed Foreign Material Control program can catch physical contaminants in food products before they become a real health hazard for consumers. Food safety personnel must investigate each instance of contamination whether the object was detected within their facility or resulted from a consumer complaint. Determining the cause of contamination can assist you to prevent a recurrence in the future and should be documented. With a robust Foreign Material Control Program in place, you can build trust with your consumers and safeguard your brand.

Originally recorded in Fortress Technology's Food Safety First podcast with guest Jeff Wilson, Vice President Food Safety Services, EAA at AIB International. Listen to the Foreign Material Control podcast here: https://www.fortresstechnology.com/news-events/podcasts/