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Enhance Environmental Monitoring: 5 Common Questions and Answers for Food Processors

Proactive, preventive, environmental monitoring can often be overlooked in food processing facilities. Shifting testing priorities from finished product testing to a more strategic approach that identifies contamination sources, will enhance overall food safety and quality.

Dr. Martin Wiedmann, Gellert Family Professor in Food Safety at Cornell University, has worked with the 3M Food Safety education team to create a five-part webinar series on the topic of environmental monitoring. Course participants took part in a question and answer session, below is a recap that discusses some of the questions that were covered:

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Question:
What's the best way to define limits or goals for some of the various types of tests used in environmental monitoring, such as ATP testing and pathogen testing?

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Answer:
Setting goals for environmental monitoring programs can be challenging; unlike finished product testing, there are typically no regulatory requirements that prescribe specific goals or limits. Therefore, individual facilities will need to set their own environmental monitoring goals to drive continuous improvement.
While 100% negative results would be the best case, this may not be feasible and does not lend itself to continuous improvement. For example:

- For ATP testing , starting limits will be set based on initial guidance, for example, from the test manufacturer. As the facility and equipment is monitored, continuous improvement targets should be set below the starting limits.
- For pathogen testing , the overall objective is to reduce number of positives. This will depend on zones within the facility; for example, in zone 1 (food contact surfaces), the ultimate goal would be 0% while the goal may be less than 1-2% in other zones.

With a goal of continuous improvement, limits will change and get more stringent, and triggers for corrective actions will also get more stringent.

Question:
What is the relevance of allergen testing as part of an environmental monitoring and control program?

Answer:
Allergen testing is part of a comprehensive environmental program. Testing for allergens should occur if there are allergens present in the food product being manufactured, or if contamination from the environmental or cross-contact are potential risks. A robust allergen testing program can be used to verify or validate cleaning and sanitation procedures at changeovers. Additionally, the U.S. FDA Food Safety Modernization Act (FSMA) Preventive Controls Rule also requires allergen preventive controls, and therefore verification activities such as environmental monitoring are needed to ensure the preventive controls are consistently implemented.

Course: Environmental Sampling for Verification

Question:
How stringent should an environmental monitoring program be in a non-sensitive or low risk food, such as fresh asparagus?

Answer:
First, perform a risk assessment to determine if the food is at low or high risk. 5-10 years ago we would have labeled produce as low risk, but today, with recent produce-linked outbreaks, we wouldn't necessarily agree with this anymore.

It is also important to remember that environmental monitoring programs manage not only food safety risks, but also business risks. For example, if a company exports product to the U.S. and it is tested positive for *Listeria* or *Listeria monocytogenes*, there is a huge business issue even if no illness is caused.

In summary, perform a risk assessment, considering both food safety and business risks. Based on these risks, as well as how customers may use the food product, decide the amount of environmental testing that is appropriate.

Course: Environmental Sampling for Regulatory Compliance and Validation

Question:
Is environmental sampling for Listeria required in plants that product non ready-to-eat (RTE) foods?

Answer:
While the food safety risk for *Listeria* in non-RTE foods may be considered low due to the intended use of the food, some amount of environmental testing should still be performed. The scale of the program – number of samples and frequency of collection – should be determined using a risk-based approached considering the type of food.

For example:

- For food products that are contained in a bag labeled with cooking instructions, such as frozen vegetables. In this case, the cooking instructions are validated to kill *Listeria*, so one could argue that no environmental monitoring is needed for this food. However, food safety and business risks still exist as you cannot be sure consumers will use this product according to instructions. For example, the food could be used to create smoothies, and if contaminated with *Listeria monocytogenes*, represents a public health hazard. A *Listeria* environmental monitoring program, while not necessarily at the same stringency as a high-risk food, is still needed to prevent these risks.
- For raw meats, such as raw chicken and raw beef meat, the risk is typically low. However, customers in certain markets may require the finished product to be tested for *Listeria*. In this case, testing for *Listeria* in the environment should also be performed to ensure safe processing conditions. We are also seeing a shift driven by regulatory agencies – a raw meat product contaminated by *Listeria* from the processing environment could be considered "adulterated" product even if there was an initial low risk present due to the nature of the food.

Course: Root Cause Analysis, Continuous Improvement and Environmental Testing Metrics

Question:
Root-cause analysis was designed to identify the true cause of contamination to prevent it from reoccurring. Is there a baseline for how frequent the contamination must occur for it to be considered an event that requires root cause analysis?

Answer:
It is importance to recognize that you do not need persistent contamination to use root cause analysis. A single positive in a zone 1 can and should trigger root cause analysis. For example, if a facility that hasn't had a positive result in a specific room for 3-4 weeks finds a single positive, this should trigger a root cause analysis.

Events that trigger root cause analysis can include:

- More than three linked positives – such as two consecutive positives from a site (subsequent samplings) and one positive from a vector swab follow-up
- Sporadic positives from the same site, for example, 3 consecutive positives from the same site over 6-9 months
- If overall frequency of positives increases without it being a specific site – from 1% positives, to 2%, to 3%

Initiate root cause analysis sooner rather than later, and as your team practices root cause analysis it will enable them to take a closer look at your system and discover things that are important.

Learn more about environmental monitoring best practices, take the entire on-demand 3M Food Safety course curriculum to increase your skills and monitoring procedures in your food processing facility.

Need more information on the total 3M Food Safety testing solution? Simply reach out and we'll be happy to help you with any questions you have. Contact a rep here.

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