



Be Proactive with Food Safety through Environmental Monitoring



The Food Safety Modernization Act – known as FSMA – and other regulations around the world are emphasizing the importance of environmental monitoring in both process controls and preventive controls like sanitation. FSMA is the most sweeping change to United States food safety regulation in more than 70 years and requires environmental monitoring for food processing companies.

Food recalls have become something most of us have been aware of or impacted by. Everything from peanut butter to cantaloupe to baby formula has made headline news. Terms like *E. coli*, *Listeria* and *Salmonella* are on the tips of the tongues of not only food safety specialists, but also of reporters and the general public. Environmental monitoring programs can help work to keep a food production facility safe.

Meanwhile, industry experts are using technology and science to track, fight and prevent outbreaks. Regulations are in place to help protect consumers from foodborne illnesses. The food safety world is shifting from the traditional approach of focusing on the food itself to going to the source of contamination before it starts.

In 1998, a *Salmonella* outbreak sickened 209 people after they ate toasted oat cereal. Ten years later, in 2008, another *Salmonella* outbreak affected 28 people who ate puffed rice cereal from the same processing plant. When experts analyzed the strains, they came to a startling realization. The strains implicated in both outbreaks were of the same subtype. In other words, the *Salmonella* survived in the plant for a decade.

These outbreaks could have been prevented. With the right environmental monitoring program, many foodborne illnesses could be averted or curtailed. Focusing on preventing microorganisms cuts back on dangerous illness and prevents costly recalls in the tight-margin industry of food production.

Experts in prevention

Randy Worobo is a professor of Food Science at Cornell University and co-author of the “Environmental

Monitoring Handbook for the Food and Beverage Industries.” He advises food processing companies to focus on preventative programs.

“A lot of companies have reactive programs,” he says. “They wait until a problem arises and then they try to fix it. Environmental monitoring is important because it is a proactive way to identify potential spoilage or safety issues in their facility.”

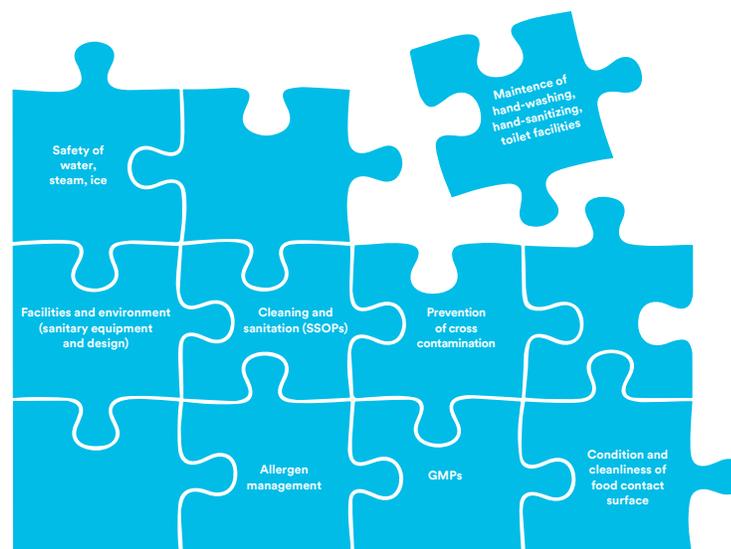


Figure 1. HACCP and selected prerequisite programs that can be validated and verified by environmental monitoring.

The environmental monitoring handbook was created to provide a resource for the food industry and academics, bringing a lot of the industry knowledge together. Martin Wiedmann, Gellert Family Professor in Food Safety at Cornell University, says there's a great need for this industry resource.

"The knowledge is out there, but not consistently in one single piece," he says. "Some people in the industry need it for training, some need it to refine and check on their systems, and it also provides a resource for academics."

Professor Wiedmann partnered with 3M and other industry experts to create the environmental monitoring handbook. He also works with them to develop training for safer practices through the 3M Health Care Academy for Food Safety.

"3M really has the company portfolio for addressing environmental monitoring in the food industry, so I was very excited to work with 3M and other partners to develop the guide."

A clear and comprehensive framework for environmental monitoring

The handbook gives a unified framework to set up a comprehensive plan for environmental monitoring, from adenosine triphosphate (ATP) and indicator organisms, to pathogens, spoilage organisms and allergens, across a range of locations in a facility.

The process should start with hazard analysis and identifying both potential safety hazards and quality issues that could be introduced into the food product during processing and handling in the facility. It should determine critical limits and strategies for corrective actions such as sanitary measures or changes to equipment design. The frequency of monitoring and record keeping should also be established.

Food recalls can be extremely costly – not only impacting human health, but also a company's brand reputation and profitability. Environmental monitoring is a critical strategy to help prevent recalls and can also enable improvements in overall efficiency by streamlining production processes and facilitating longer run-times for equipment.

What's in the handbook?

Learn more about the importance of environmental monitoring and the steps you can take to be more proactive about food safety in your facility. Download the full handbook by visiting [3M Environmental Monitoring](#).



CHAPTER 1

The Importance of Environmental Sampling in Food Safety and Quality Programs



CHAPTER 2

ATP and Protein-based Hygiene Monitoring



CHAPTER 3

Environmental Monitoring for Indicator Organisms



CHAPTER 4

Environmental Monitoring for Pathogens



CHAPTER 5

Environmental Monitoring for Spoilage Organisms



CHAPTER 6

Environmental Monitoring for Allergens



CHAPTER 7

Driving Meaningful Change in Your Organization Through Culture and Environmental Monitoring



CHAPTER 8

Environmental Sampling Guidance

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