



# Hygiene Monitoring in Your Food Processing Environment



*“Environmental monitoring will not reduce food safety incidents. What we do with those results will.”*

– Martin Wiedmann, Gellert Family Professor of Food Safety at Cornell University

## Testing your food processing environment

Food safety experts are shifting their focus from testing end products to ensuring the entire processing environment, including equipment and surfaces, is free of contamination. The old adage – an ounce of prevention is worth a pound of cure – has never been truer for the food and beverage industry.

Legislation is helping shift the industry focus toward prevention. The Food Safety Modernization Act (FSMA) takes a proactive approach by recognizing environmental monitoring as a key element of food safety programs. This [regulation from the United States Food and Drug Administration](#) establishes hazard analysis and risk-based prevention measures including having preventative controls, monitoring and verification, corrective actions and record keeping.



## A bright idea for proactive food safety testing in the processing environment

Testing for different microorganisms and residues in a food processing environment, including those that heighten the potential for spoilage, helps food safety experts take a proactive approach. By measuring adenosine triphosphate (ATP) and protein-based residues, plant sanitation and quality assurance professionals can measure the hygiene of a surface in a quick, simple way. ATP is the energy molecule that is in all living biological cells and it indicates residue from food, biofilms from bacteria and surfaces that were touched by human operators.

Tests for these residues can provide an objective assessment of the cleanliness of equipment and surfaces. Removing organic matter, which serves as a food source for microorganisms, reduces the chances for bacteria and mold to grow. By measuring for these residues, food manufacturers can reduce both direct and indirect risks.

[ATP-based hygiene monitoring](#) tests use a bioluminescence reaction to indicate the presence of ATP, and [protein-based tests](#) use a color reaction to indicate protein residues. Both types of tests provide rapid results allowing immediate corrections to be taken. ATP results are quantitative, enabling identification of trends over time.

## Direct and Indirect Risks

The [Environmental Monitoring Handbook](#), authored by food safety experts from universities, 3M and other companies in the food industry, lays out three steps for development of environmental hygiene monitoring programs to test for ATP- or protein-based residues:

1. **Set up a program to validate cleaning.**
2. **Establish routine verification.**
3. **Review and adjust the program regularly.**

To ensure inclusive sampling, map out sites for testing using a risk-based approach – considering the significance of the hazard (i.e., how close a surface is to the food), and the probability that a hazard may occur (i.e., how hard it is to clean the surface or equipment).

**If you obtain a failing result, it is important to take immediate corrections.** As part of your plan, determine what steps must be taken to ensure contamination is eliminated and avoided in the future. Ongoing monitoring and planning are also imperative to maintaining a safe food processing and handling environment.

## 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

[Download the Handbook](#)



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