



Using Inline Sampling to Help Identify Sources of Post-Pasteurization Contamination

How can strategic inline sampling help dairy processors pinpoint contamination sources when traditional troubleshooting falls short?

Strategic sampling throughout the process can help move shelf life troubleshooting from identifying that a problem exists to determining where it may be occurring.



Issues: Low-level microcontaminant (spots), requiring 2-liter samples to be taken.



Applications and
Product Guide

DOWNLOAD PDF

CHALLENGE

A large dairy plant was experiencing persistent contamination in ice cream mix products at the bulk filler, resulting in repeated complaints from food service customers. Multiple attempts to identify and correct the problem had been unsuccessful.

The plant needed to determine whether the high bacterial counts were being introduced after pasteurization or whether the organisms were surviving the pasteurization process. Because contamination levels were low, large, aseptically collected samples were needed at strategic points throughout the process to help trace the source.

SOLUTION

David Blomquist, President of DFB Consulting LLC, conducted a technical assessment of the plant's processing, sanitation, laboratory testing, and sampling procedures. QualiTru TruStream™ sampling ports were installed on the raw milk silos, providing aseptic access to the product and allowing the investigation to trace contamination back through the raw milk supply.

Strategic sampling was used throughout the process, including immediately after the High-Temperature Short-Time (HTST) pasteurizer and from the raw milk silos. Samples were evaluated using appropriate microbiological testing to compare results across locations, trace the source of the high bacterial counts, and ultimately narrow the investigation to individual supplying farms.

RESULTS

Strategic sampling and testing identified the spoilage organisms as Gram-positive bacteria that had survived pasteurization, rather than contamination introduced later in the process. Sampling at multiple points throughout the process helped trace the high bacterial counts back through the raw milk supply and ultimately to individual supplying farms.

Once the source was identified, the plant implemented targeted cleaning procedures that resolved the ice cream mix contamination issue and helped prevent recurrence.

Strategic Sampling to Help Trace Contamination

Sampling Point	Sampling	Purpose / Insight
Off HTST	2 L sample	Evaluate product immediately after pasteurization
Into Pasteurized Silo	2 L sample	Establish condition as product enters storage
Out of Pasteurized Silo	2 L sample	Help identify potential contamination associated with storage
Into Filler	2 L sample, first product from each silo	Help determine whether contamination is introduced between storage and filling
Finished Product	Full package	Evaluate product performance through end of code

BENEFITS

Strategic inline sampling gave the plant visibility into what was happening between pasteurization and packaging. Rather than continuing to troubleshoot possible contamination sources, the plant could use samples collected at key process points to isolate the problem and take targeted corrective action.

Combined with appropriate microbiological testing, this approach can help processors identify contamination sources more efficiently, evaluate corrective actions, and strengthen process control.