



Dairy Processing Plant Operations Course: Pasteurisation, UHT, Fermented Products and Cheese



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Introduction:

Dairy processing plant operations, covering pasteurisation, UHT, fermented products and cheese, is a 5-day course for dairy plant production, quality assurance and engineering staff, ending with a Dairy Plant Process Control and Quality Plan for a case plant. Dairy plants lose product and shelf life when raw milk is accepted without checks, heat treatment diverts go unexplained, cultures and rennet are dosed by habit and cleaning circuits leave milk stone behind. Nominees already run, check or maintain milk processing lines and learn through inspection walkthroughs of dairy line records. CoreConcept Training Center delivers this dairy processing plant operations course.

Course Objectives:

- Apply raw milk reception tests and composition checks to accept, segregate or reject incoming tanker loads
- Operate separation, fat standardisation and homogenisation steps to hit product grade targets with minimal fat loss
- Verify HTST pasteuriser and UHT plant performance using holding, divert and indirect or direct heating records
- Control laban, yoghurt, cheese and milk powder process steps from culture or rennet dosing to finished texture
- Validate aseptic filling, dairy CIP circuits and release tests such as alkaline phosphatase and incubation sterility checks
- Produce a Dairy Plant Process Control and Quality Plan that sets control points, checks and release rules for a case plant

Target Audience:

- Staff responsible for running milk reception, separation, pasteurisation and UHT sections of a dairy plant
 - Staff responsible for culturing, cheese vat and milk powder operations on dairy production shifts
 - Staff responsible for dairy laboratory testing, in-process checks and finished product release
 - Staff responsible for maintaining heat exchangers, homogenisers, separators and aseptic fillers
 - Staff responsible for cleaning-in-place circuits, hygiene verification and line changeovers in dairy plants
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Course Outline:

Day 1: Raw Milk Reception, Milk Composition and Plant Baseline

- Raw Milk Tanker Sampling and Platform Acceptance Tests
- Milk Composition of Fat, Protein, Lactose and Solids-Not-Fat
- Antibiotic Residue Screening and Added Water Freezing Point Check
- Raw Milk Silo Storage Temperature and Holding Time Records
- Dairy Plant Product Flow Baseline From Intake to Dispatch

Day 2: Separation, Standardisation, Homogenisation and Heat Treatment Routes

- Cream Separator Operation and Skim Fat Loss Monitoring
- Pearson Square Fat Standardisation Worksheet for Product Grades
- Homogeniser Two-Stage Pressure Settings and Fat Globule Checks
- HTST Plate Pasteuriser Regeneration, Holding Tube and Divert Valve
- Direct Steam Infusion Versus Indirect Tubular UHT Heating Routes

Day 3: Fermented Milks, Cheese Vats and Milk Powder Lines

- Laban and Set Yoghurt Starter Culture Inoculation Routine
- Stirred Yoghurt Incubation, Cooling Point and Texture Control
- Rennet Coagulation, Curd Cutting and Whey Drainage Sequence
- White Brined Cheese Salting, Pressing and Ripening Room Conditions
- Evaporator and Spray Dryer Settings for Skim Milk Powder

Day 4: Aseptic Filling, Dairy CIP, Release Testing and Product Defects

- Aseptic Filler Sterile Zone and Packaging Material Sterilisation
- Dairy CIP Caustic and Acid Circuits for Milk Stone Removal
- Alkaline Phosphatase Test to Verify Pasteurisation Effectiveness
- UHT Product Incubation Sterility Checks Before Pallet Release
- Cooked Flavour, Maillard Browning and Age Gelation Defect Diagnosis

Day 5: Inspection Walkthrough and the Dairy Plant Process Control and Quality Plan

- Case Dairy Plant Walkthrough Against a Line Inspection Checklist
 - Case Pasteuriser and UHT Records Reviewed for Divert Events
 - Case Yoghurt and Cheese Batch Defects Traced to Process Settings
 - Case CIP Verification Gaps and Release Testing Schedule
 - Dairy Plant Process Control and Quality Plan Completion
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Skills You Will Gain:

- Raw Milk Acceptance Testing
- Fat Standardisation Calculation
- Pasteuriser Divert Record Review
- UHT Heating Route Assessment
- Starter Culture and Rennet Dosing Control
- Spray Dryer Parameter Setting
- Dairy CIP Circuit Verification
- Dairy Defect Root Cause Tracing

Why Attend This Course:

- Deliver a Dairy Plant Process Control and Quality Plan to the plant manager and quality head for approval and use on the lines
- Decide whether a tanker load, a diverted batch or a UHT pallet can be accepted or released using test and record evidence
- Avoid fat give-away, post-pasteurisation contamination, sterility failures and texture defects that waste milk and shorten shelf life
- Brief operators and laboratory colleagues using reception test sheets, standardisation worksheets and CIP verification checklists

Conclusion:

Back at the plant, the participant gives the plant manager and quality head a Dairy Plant Process Control and Quality Plan covering reception, heat treatment, cultured products, cheese, powder, filling and cleaning. Production uses it to fix set points and checks on each section, engineering uses it to prioritise pasteuriser, homogeniser and filler work, and quality uses it to decide batch release. After the first month of use, the team should review rejected loads, divert events, defect batches and CIP verification results against the plan and adjust the controls.

Frequently Asked Questions FAQ:

What should participants know before a dairy processing plant operations course?

Participants should already work in a dairy plant in production, laboratory, quality or engineering roles and know the basic flow from milk intake to filling. Bringing reception test sheets, pasteuriser charts or CIP records helps them apply the walkthroughs to their own plant.

How does a dairy processing plant operations course differ from a dairy farm or general food processing course?

It concentrates on what happens to milk after it reaches the plant: reception, heat treatment, cultured products, cheese, powders, aseptic filling and dairy cleaning. Farm courses cover herds and milking, and general food processing courses spread across many sectors with little dairy depth.

Why does dairy processing plant operations rely on the alkaline phosphatase test?

Alkaline phosphatase is destroyed by adequate pasteurisation, and its destruction indicates that common milk pathogens are also destroyed. A positive result signals under-processing or raw milk entering pasteurised product, so plants use it to verify heat treatment before release.

What do participants take back from the dairy processing plant operations course?

Each participant takes back a Dairy Plant Process Control and Quality Plan for a case plant, with reception test sheets, a fat standardisation worksheet, divert record checks, culture and cheese process settings and a CIP verification checklist adaptable to their own lines.
