

SoftTrace In-Process Module

INTEGRATE, MONITOR & CONTROL
MANUFACTURING DATA TO SUB-BATCH LEVEL



SoftTrace In-Process is a production management module designed to meet the needs of Dairy manufacturers that require batch traceability from raw material and ingredients intake through manufacturing to the finished product units. It provides Dairy manufacturers with real-time visibility on all data associated with the manufacturing process. That includes detailed quality data on the make-up of any batch of bulk finished product to the packed finished product units.

SoftTrace In-Process covers all aspects of :

- Raw material and ingredient intake / manufacturing / QC / stock control
- Production planning
- In-Process Recording
- Finished Product Inventory
- Cut & Pack
- Management Information and Reporting

Implement SoftTrace In-Process and achieve:

- An essential level of data visibility and control
- Continuous monitoring of plant performance
- Full traceability on finished goods to sub-lot level
- Eliminate the use of paper based records and risk of human error

Use SoftTrace In-Process to control plant efficiency and effectiveness, optimise product quality and deliver a positive effect on your bottom line.

As a plant-wide data management and reporting system SoftTrace In-Process acts as a control centre for all data associated with the manufacturing process. It integrates process control records with process automation and quality records to provide a comprehensive profile of everything that may affect the quality of the batch in progress:

- Real-time reporting on production, in-process, finished goods stocks, quality and traceability.
- Real-time trends and analysis based on laboratory and process automation data.
- Full physical traceability by recording all processes, CIP and pasteurisation data together with all movements and equipment associated with the batch.
- Enhanced production efficiency and streamlining.
- Improved inventory control for maximised yields and product value optimisation
- Full unit level traceability.

We understand the Dairy industry's process control challenges

To meet stringent regulatory, customer and consumer demands, today's Dairy manufacturers need to achieve optimal data management in raw material intake and process control with an associated focus on efficient data management and traceability.

SoftTrace has collaborated with international Dairy processors to develop the SoftTrace In-Process module as an industry specific production monitoring and management system - focused on the industry's production management challenges.



Ingredient Production

- Record batches of ingredients (e.g. cultures) received and use by dates to provide full traceability on starters and ingredients used in the cheese production process from receiving to the finished product.
- Configure make-sheets for the manufacture of in-house starter batch cultures – with associated batch code.
- Record the batch code and quantities of each ingredient used with a link to the business and quality management systems for automatic validation and draw down from inventory.
- Automatically update in-process inventory of completed ingredient (e.g. starter) batches and mark as available for use in the manufacturing process.

Production Planning

Improve plant efficiencies, traceability and quality management by providing production planning personnel with:

- Real-time, secure data from milk intake, ingredient intake, and ingredient production/inventory.
- An electronic link with sales and inventory records in the business system to generate manufacturing orders.
- An electronic worksheet to record recipe and manufacturing instructions.
- The facility to enter the start time and generate subsequent times based on user-defined intervals.
- Automatic creation of the next day's production make-sheet on completion of the current production plan.

| Product | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD | WCHEDD |
|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Stage | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE | COMPLETE |
| Recipe | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 | 603 |
| RSF-925 Qty (U) | 2500 | 750 | 750 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 |
| RSF-940 Batch | | | | | | | | | | | | | | | |
| RSF-940 Qty (U) | | | | | | | | | | | | | | | |
| RSF-945 Batch | | | | | | | | | | | | | | | |
| RSF-945 Qty (U) | | | | | | | | | | | | | | | |
| RSF-639 Batch | | | | | | | | | | | | | | | |
| RSF-639 Qty (U) | | | | | | | | | | | | | | | |
| Maximum600 Batch | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 | 4165571 |
| Maximum600 Qty (U) | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Milk Silo #1 | 85-16072 | 05-16072 | 05-16072 | 05-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 | 06-16072 |
| Milk Silo #2 | 21500 | 21500 | 21500 | 10500 | 21500 | 21500 | 21500 | 21500 | 21500 | 21500 | 21500 | 21500 | 21500 | 21500 | 21500 |
| Milk Qty (L) | | | | | | | | | | | | | | | |
| Start Time | 23:45 | 23:05 | 23:25 | 23:45 | 00:05 | 00:25 | 00:45 | 01:05 | 01:25 | 01:45 | 02:05 | 02:25 | 02:45 | 03:05 | 03:25 |
| Rennet Time | 23:05 | 23:25 | 23:45 | 00:05 | 00:25 | 00:45 | 01:05 | 01:25 | 01:45 | 02:05 | 02:25 | 02:45 | 03:05 | 03:25 | 03:45 |
| Rennet Temp. (C) | 31.9 | 32.1 | 31.9 | 31.7 | 31.8 | 32.0 | 31.7 | 31.7 | 31.9 | 31.9 | 32.0 | 31.7 | 31.7 | 32.0 | 31.7 |
| Cut Time | 23:35 | 23:55 | 00:15 | 00:35 | 00:55 | 01:15 | 01:35 | 01:55 | 02:15 | 02:35 | 02:55 | 03:15 | 03:35 | 03:55 | 04:15 |

| Line | Product | Description | Bag Type | Pallet Type | Origin | Unit Weight | No of Bags | Pallet | Start Bag | End Bag | Status | Product | Quantity | Weight |
|------|---------|--------------------------|----------|-------------|--------|-------------|------------|--------|-----------|---------|-----------|---------|----------|---------|
| 2 | 160000 | Skim Powder 25kg PF BAG3 | | PALLET | ROI | 25.0000 | 40 | 2 | 41 | 43 | Waiting | 160000 | 40 | 1000.00 |
| 1 | 160000 | Skim Powder 25kg PF BAG3 | | PALLET | ROI | 25.0000 | 40 | 1 | 1 | 43 | Processed | TOTAL | 40 | 1000.00 |

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In-Process Recording

Record in-process data and integrate this with quality, inventory management and process automation data to achieve full, bi-directional traceability from milk receiving and active ingredient inventory to the in-process batches, bulk finished product and finished goods inventory. This ensures instant access to detailed quality information on the make-up of any batch of bulk finished product to the packed finished product units.

- **Configure electronic make-sheets** to reflect current work practices.
- **Configure screen views and data entry requirements** to eliminate input duplication.
- Provide operators with the facility to **open multiple worksheets** and operating procedures / work instructions simultaneously.
- **Integrate production make-sheets with quality and inventory** management to eliminate data islands and achieve a comprehensive view of all manufacturing data (CIP, pasteurisation, calibrations etc.).
- **Integrate in-process data with inventory records** to achieve real-time usage control on ingredients and real-time monitoring on release status of ingredient batches (including quantities and expiry dates).
- **Make in-process analysis results from test instruments instantly available** in graphical format to production personnel to facilitate taking appropriate action based on developing trends in any of the production parameters.
- **Achieve an electronic link between bulk milk inventory records and the milk intake area** for continuous updates. This provides real-time control of bulk raw materials and ingredients, mass balance, and real-time waste and leakage management.
- **Interface to the scales system** to include individual unit weights and complete pallet manifests.
- **Integrate bulk production completion records with data from the scales system** to automatically generate accurate inventory records.
- **Facilitate the automatic transfer of pallet manifests** to the business system to eliminate the risk of error in recording finished product inventory.
- **Integrate with process automation and packing line systems** to send and receive data at critical points in the production cycle and provide an essential level of real-time information visibility and control on equipment used, key performance events etc. and provide a trend analysis for the continuous monitoring of plant performance.
- **Integrate with the business system for enhanced inventory control** via full validation of ingredients usage and automatic updates on the inventory quantities held in the business system.

Finished Product Inventory

- Configurable interface to reflect current work practices, meet current needs and emerging needs.
- Automatically create production records for finished goods from the completion of electronic production make-sheets.
- Integrate data from packing scales and palletising systems to automatically create inventory records and transfer pallet details to the business system.
- Establish a link between finished product test results and inventory records.
- Establish a customised protocol for positive release of product based on QA criteria.
- Automatically update the business system with released product.





Monitor Plant Performance

Implement SoftTrace In-Process to easily monitor every step in the supply and production chain and gain insights into process and manufacturing performance:

- Determine daily production costs and yields.
- Easily establish a daily mass balance.
- Determine the real-time process adjustments needed to achieve yield improvements.
- Monitor yield variation on an individual unit basis.
- Link yield with suppliers for preferential purchase decision making.
- Reduce ingredient losses.
- Track costs, usage, delivery and invoice data.
- Monitor and control environmental load.
- Achieve production traceability by dispatch.
- Monitor and control waste.
- Establish optimal production levels.
- Reduce recall expenses.

Reporting / Management Information

- Reconcile silo batch quality sample results against weighted averages of the tanker load quality results.
- Reconcile milk purchased ex farm against milk used in production.
- List tanker loads by specified period, product, source / destination with all associated quality results.
- Easily track silo batches back to the associated tanker loads and individual farm collections.
- View details of certificates of analysis issued.
- View daily production costs and yields, with the real-time process adjustments needed to achieve yield improvements.
- View yield variation on an individual unit basis, and link yield with suppliers for preferential purchase decision making.
- View daily mass balance.
- View costs, usage, delivery and invoice data.
- Efficient waste and environmental load monitoring.

System & Instrument Interfaces

SoftTrace In-Process captures data directly from laboratory instruments and makes the data immediately available to production personnel in graphical format. This facilitates making timely process adjustments to minimise reprocessing or downgrading of manufactured product.

Process Automation

- Interface easily with 3rd party systems.
- Integrate key process information.
- Provide process operators with real-time trends and analysis information.
- Full traceability on finished goods to sub-lot level.

Business System

- Export key quality, production and inventory data in real-time to 3rd party business systems.
- Export dispatch details for financial recording and invoicing.

Quality Management System

- Real-time raw materials and in-process analysis results.
- Batch control / ingredients usage.
- Product tank traceability to filling lines.
- Checklists.
- CIP records.
- Plant operations records.
- Calibration records.





Security & Compliance

SoftTrace In-Process Module supports Dairy industry users in meeting regulatory and accreditation needs. It conforms with GAMP, ISO 17025, GLP, HOKLAS, EN requirements for audit trails, security via multiple levels of permissions, data integrity, sample ID and tracking, corrective actions, control methodologies, access to SOPs, and data archiving. This includes compliance with CFR 21 Part 11 requirements for integrated security features, electronic records, and signatures.

Expert Support Services

- Technical and business consultancy
- Risk analysis and needs assessment
- Project management and implementation
- Software customisation
- Hardware implementation
- Customised training and on-going technical support

SoftTrace Systems Technology

To meet the technological challenges of today's business environment, the SoftTrace modules have been developed using the latest object oriented, rapid application development (RAD) technology. This facilitates efficient and rapid new product development. This means that we have the ability to easily customise and configure aspects of the SoftTrace modules for new customers, and efficiently provide updates to existing customers. The Client/Server, open systems architecture guarantees:

- High performance
- Superior data management capabilities
- Data access security
- Easy integration with 3rd party systems - ERP, process automation, laboratory instruments etc.
- The adaptability to meet evolving business needs

Designed and tested to meet rigorous Windows standards, SoftTrace provides users with a consistent, intuitive working environment incorporating:

- Windows compliance
- Client / server distributed networking
- Availability on a number of platforms
- Open databases - Oracle, MS-SQL, MySQL etc.

