



Sage ERP X3

# Process Manufacturing

Designed to support the dynamics of process manufacturing, Sage ERP X3 Process enables manufacturers to achieve greater product and process consistency, while improving the ability to satisfy increasing customer demand.

In particular, Sage ERP X3 Process' advanced planning and control capabilities use real time and historical information to help manage inventory levels and costs, optimize product mix, reduce waste and shorten product development cycles. Its industry focus and modular design promote faster implementation of key process and business functions to provide a rapid return on investment.

## Formula Management

Formula management is the basic building block of the Sage ERP X3 Process Suite. Unlike its bill of material equivalent in the discrete world, formulas specify the ingredients required to make an end item. And, because ingredients can be expressed in different proportions (e.g., gallons, liters, pounds), Sage ERP X3 Process provides a powerful unit of measure conversion engine that accounts for this inherent variability and integrates it with the production process. This natural integration is important because it allows ingredients to be added at different times during the manufacturing process. And, it permits specified routing steps to be run simultaneously, such as when a batch must simmer at the same time another operation commences.

Formula Management takes the complexities out of dealing with specific gravity calculations, calculations for theoretical vs. actual yields, multiple formulas for the same product and decimal point precision for managing unit quantities.

Sage ERP X3 Process supports multiple packaging variations per product by permitting individual items to be tracked and processed in different package or container units than those in which they can be produced or sold. This feature allows users to view inventory availability and to process transactions for products according to their unique packaging unit. It not only minimizes the number of product numbers that need to be maintained, but it allows products to be priced and sold in ways that satisfy specific customer requirements.

Measurement of the production process, as well as sound pricing strategy, is based on valid cost information. Using traditional legacy software, process manufacturers have long had difficulty setting up and maintaining such vital information. With Sage ERP X3 Process, cost data is integral to defining and producing product. Once formulas are created, costs for intermediate and finished goods are automatically calculated based on user-specified methods, overhead and batch cost factors. Both standard production reporting and purchasing functions automatically update actual costs, ensuring timely updates and accurate cost calculations. Armed with timely decision-making tools such as variance reports, margin analyses and work-in-process reports, managers can make more informed decisions.

Sage ERP X3 Process also accounts for by-products coming out of the production process, as well as maintaining raw material potency and other key product attributes.

## Lot Control and Tracking

Either by government regulation, or to satisfy company requirements for quality assurance and warranties, many process manufacturers have a critical need to maintain lot-related information and trace its use. Sage ERP X3 Process provides such tracking and control to the extent that any product or ingredient defined as lot-controlled will have its identity recorded on any material transaction. It is also possible to immediately allocate inventory from a specific lot on demand to meet

any specific customer requirements prior to an order being placed. In addition, the system provides complete expiration date management, affording users the opportunity to pull material from lots prior to their expiration date, resulting in reduced waste and lower inventory costs.

## Quality Management

A key success factor for many process manufacturers is knowing the quality characteristics of finished goods at various stages in their life cycle. Sage ERP X3 Process is designed to track and maintain quality specifications and test results for raw materials, intermediates and finished goods. It tracks material quality from procurement and production – all the way to the customer. As batch production runs of finished goods are completed, test results are recorded and maintained together with production history.

## Regulatory Compliance

Dealing in a simple and accurate way with the complex procedures demanded by government hazardous material reporting and labeling is a major concern for process manufacturers. Sage ERP X3 Process provides users with alternatives – as attachments linked to the products or via full-featured, integrated third-party solutions – for maintaining appropriate safety information for both raw materials and finished goods MSDS. The system also issues container labels, as needed, for any drum, pail, carton or box containing potentially hazardous materials.

## Batch/Continuous Processing

Sage ERP X3 Process affords complete command of process production. Production runs can be scheduled based on user-defined criteria: an hour, a shift, or any other period of time that fits the production cycle. Work orders are updated as production moves through work-in-progress, while any required changes in ingredient quantities are easily reported as they occur. Standard quantities can either be backflushed or recorded as completed production. Sage ERP X3 Process also allows the user to plan a production run and, based on availability, instantaneously rescale the batch up or down to reflect availability of ingredients or resource constraints. Ingredient quantities may be scaled by automatically calculating the expected batch yield.

## MRP/MPS/CRP

Sage ERP X3 Process provides the capability to analyze purchase orders, scheduled batches, and batches in progress so planners can view the impact of demands against available inventory. Independent demand (orders, forecasts, etc.) and dependent demand (lower level demands generated by a top level or intermediate level need) are matched against available inventory. When demand exceeds supply, the system recommends placing either a production or purchase order to satisfy the need. This suggestion takes the form of time-phased requirements so that material is either completed or scheduled to arrive exactly when needed.

Sage ERP X3 Process supports both finite and infinite capacity requirements planning. Finite capacity planning can be done automatically through use of a powerful, integrated optimization facility that helps resolve bottleneck areas according to user-defined constraints. Material planners can also use an interactive drag-and-drop scheduling tool – in GANTT format – for manual viewing, simulation and update of outstanding work orders and routing operations.

# Functions and Features

## Comprehensive Product Data

- Product attributes and categories
  - Families of products for MPS
  - Multiple manufacturing modes – ATO, MTO, CTO, MTS, process
  - Multiple replenishment rules with seasonality
  - Multiple material handling controls – lots, expiration dates, potency
  - Multiple units of measure
- Bills of material
  - Multi-level
  - Supports variants and options
  - Validity dates
  - Mass maintenance

## Technical Data Management

- Factory calendars
- Work and cost center management
  - Machine, labor, subcontracting
- Routings
  - Multiple routing
  - Operation dates and times
  - Master routing
  - Library of standard operations
- Set up rules
  - Subcontracted operations
  - Forward and backward scheduling
  - Plan association

## Replenishment

- Min/max
- MRP
- User-defined replenishment rules (net requirements, lots, fixed period coverage and safety stock adjusted for seasonality)
- Pegging
- Intersite based on contracts and transfers between two partnering sites

## Cost Accounting

- Definition of cost elements
- Calculation of planned costs (standard, revised standard, simulated, budgeted)
- Actual production costs
- Variance analysis per item
- Accounting interface

## Planning

- MPS (multi-site, planning bills of material, bills of labor, operational orientation, budget, simulation)
- Calculation of material requirements
  - Multi-site
  - Analysis of suggested requirements
  - Replanning messages

## Order Release

- Multi-item release
- Feasibility reasons
- Material and load allocations
- Forward and backward scheduling
- Order smoothing
- Shop traveler
- Production status reporting (by work order or batch)
- Control without production order (rate-based scheduling)

## Decision-Making Tools

- MPS and MRP schedules
  - Analyze multiple sites by product families or products
  - View of stockouts and past due orders
- Work plan
  - Analyze single sites and single products
  - Order grouping
  - Material planner workbench
- Manufacturing analysis
  - Resource utilization
  - Late order analysis
  - Delayed operation analysis
  - Operational yield
  - Material yield
  - Production yield
- Interactive drag and drop scheduling using Gantt Diagram
  - Load simulation
  - Finite capacity planning

## Inquiries

- Work-in-process by product
- Work-in-process by load
- Projected stock by date
- Analyze loads in graphical format
- Allocation details
- Order replanning
- Progress of production orders
- Production order status reporting

## Automatic Processing

- Mass allocation and de-allocation
- Mass forward and backward scheduling
- Work order releases
- Automatic work orders

