AVEVA™ Recipe Management

Digital formula management and recipe execution

Secure process and product quality while increasing operational agility and the ability to manage more product variations.

The control system agnostic software enables standardization of formula and recipe management across the business and helps speed up new product introduction processes.

AVEVA

Summary

Simplify recipe optimization, deployment, adaption, and execution in manufacturing operations with a commercial off-the-shelf formula and recipe management software. Digital recipe management secures consistency in product quality and increases efficiency through automation of equipment setup processes and recipe execution. The automation system neutral software enables standardization and central management of product formulations for use in multiple production locations and is designed for operational team collaboration to adopt new recipes faster.

Business value

Increase business agility by managing more product variation with reliable consistency and quality, and the ability to take new products to market faster.

Benefits

- Reduce machine setup and changeover times

- Consistent batch to batch production results

- Improve operational performance and flexibility

- Reduce risks of managing product variation

- Improve productivity and quality with reports and records of execution history

- Lower cost of compliance with electronic change and execution history, including electronic signatures

- Facilitate standardization to reduce the number of systems used for recipe management in plants today and to improve the new product introduction process

- Fast time to value with rich out-of-the-box functionality

Overview

Effective formula and recipe management provides recipe agility and increased operational efficiency while securing process and product quality.

Scalability for formula or recipe management:

- Formula management and download enables fast and consistent equipment setup — the key to flexibility for many CPG or food and beverages manufacturing processes

- Recipe management and execution provides automation and repeatability of recipe execution on production units, work cells or production lines for batch-oriented and hybrid processes

The web-based application and user interface enables role-based collaboration across R&D, process engineering and the people and systems operating production equipment on the plant floor.

Connect to any control system through integration with AVEVA™ System Platform or OPC UA (DA spec) support.
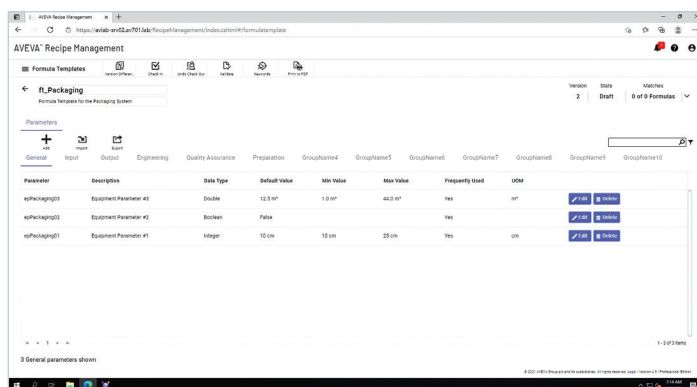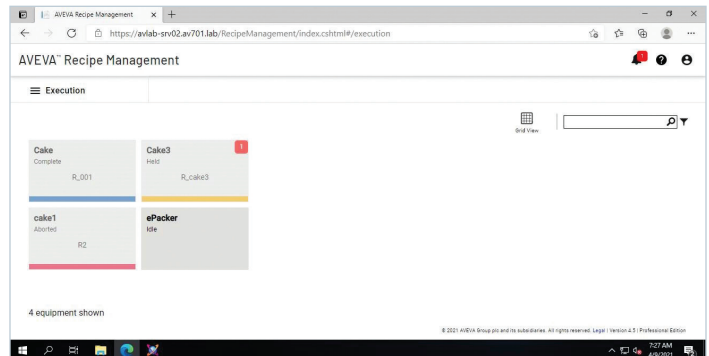
Formula management and download

A formula template defines a set of parameters with default values. Parameter extensions are offered to extend the default parameter structure by adding columns for individual needs.

Users can quickly generate formula variations by saving formula instances with specific parameter values. Changes made to a formula template will be populated to unmodified (default) parameter values in its formula instances.

Equipment contains a set of related parameters and is managed as part of the system's equipment model. Equipment parameters are mapped to control system variables and IO through AVEVA System Platform or OPC UA.

Formula download is easy, using the web-based user interface. Operators assign a formula by browsing and selecting from a list of available formula instances for specific equipment. Operators can then review the assigned target values, adjust them within given limits, and download the formula to the connected automation system.

An electronic record is automatically created for each formula download, documenting the parameter values and, when configured, the electronic signatures provided — for example, when changing default values or downloading a formula.

Recipe management and execution

Recipe management and execution adds the ability to create procedures defining the order in which capabilities are executed in a recipe.

A capability is a generic item that can be used across any equipment that features a specific functionality. Manual capabilities are available for manual entry and acknowledgment.

A recipe template contains the defined procedure and a mapped formula template, associating formula parameters with capability parameters.

A recipe is derived from a recipe template by selecting a specific formula instance. Recipes define the make of a product using a defined procedure with a set of product specific parameter values.

To execute a recipe an operator simply assigns a recipe to equipment and starts, monitors, and controls the execution. Parameter values can be adjusted within the defined limits either prior to a recipe start or even prior to a capability being executed.

The recipe procedure is coordinated with the control system using a state interface that can be configured to provide full alignment with ISA-88 standards.
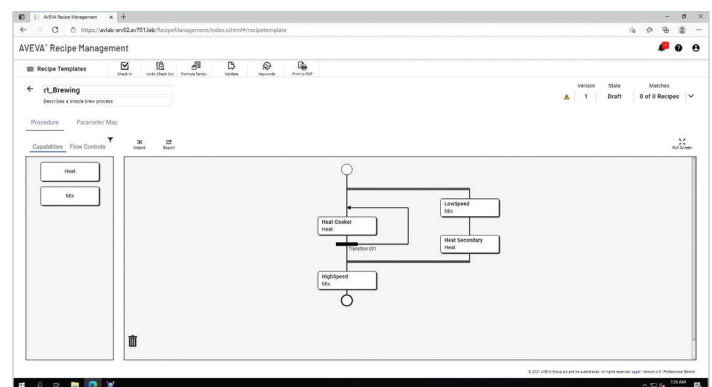
Role-based security and electronic signatures

The software includes the configuration of users and user groups with individual permissions for viewing, editing and execution. Electronic signatures (done by / check by) are available to facilitate implementations that comply with life science industry regulations such as FDA 21 CFR Part 11 or cGMP guidelines (EudraLex Vol. 4 Annex 11).

Version control and audit trail

Equipment, capability, formula, and recipe templates, as well as all instances, are "versioned" items. An updated template provides change notifications and enforces updates of related instances. New formula, recipe, equipment or capability versions require approval prior to production use. A modification and status change audit trail is automatically captured and can be viewed in an audit trail report.

Electronic history records and reporting

A comprehensive electronic record and reporting allows users to view historical information about formulas and recipes that have been created, changed, and executed, including done by and check by information.

Equipment, formula, and recipe execution reports and version difference comparison views help to capture and replicate the 'golden batch' setup.

To reduce the efforts for creating individual reports, the software comes with a set of Microsoft SQL Server Reporting Services (SSRS) report samples.

Technical specifications:

Operating systems

- Client: Windows 10 or newer
- Server: Windows 2016 LTSC or newer

Database technology

- Microsoft SQL Server 2016 or newer, Express, Standard or Enterprise Edition

Browsers

- Microsoft Edge on Windows OS
- Google Chrome on Windows OS
- Mozilla Firefox, on Windows OS
- Apple Safari, on macOS and iPad devices

For more information on AVEVA Recipe Management software please visit:
aveva.com/en/products/recipe-management