Track and Trace

In this section, we'll be using the Track & Trace module to provide production control and lot tracking for our Nut Mixing process.

- Download and import the MES_2_0_Training - Base TT.proj. This contains some pre-built screens and templates that we will use during the tutorial.
- Save your changes.

Before we dive in though, let's take some time to familiarize ourselves with the Track & Trace module and the ISA-95 standard on which our modules are built.

Help Manual - Track & Trace Overview

Overview

Knowing where product is and has been in a production facility can be very valuable. In a typical production environment, time series data is collected by the SCADA or HMI system, and by giving that data context to the specific product being produced, or other criteria, you can obtain a valuable picture into your process when diagnosing quality issues, narrowing down product recalls and ensuring regulatory compliance. By adding the Track & Trace Module, your system can have the capability to look up where any product has been in its manufacturing process, and where it is now. This paperless and fully integrated solution allows you to do the following:

- Track products from the raw materials to the finished state, including consumables and byproducts
- Tracing lot genealogy information
- Serialization of items and sub-assemblies
- WIP Inventory Management
- Work Order Management and Operations Scheduling
Automated Traceability Software

Track and Trace is the process by which manufacturers obtain and record important information about where and how products are made. Track and Trace software automates this process and has become a modern necessity for manufacturers as their industry faces increasing economic and regulatory challenges. The Track and Trace module records the start and end of each production run and the materials lots consumed. This information is desirable to manufacturing plants for many reasons. Managers can evaluate the manufacturing process and access critical production data during a recall. Production Control can easily be implemented to prevent operators from consuming the wrong materials. For every product and finished good, you will be able to track all the consumed parts, the suppliers that supplied the parts, the people that worked on the product and when they worked on it, as well as the equipment that was used to manufacture the part, Lot numbers, Serial Numbers, measurement data that was acquired and additional factors such as rework etc.

The Sepasoft Track & Trace Module extends Ignition to manage and track production and then provide trace results. It is ideal for quickly implementing track and trace systems without the need to design database schemas because it is all handled by the module. Trace components are included that eliminate the need to build custom screens with entry boxes for each of the values accepted by the user or barcode scanner. Also included, is a powerful visual management component to define material, personnel, equipment, production tasks, routes, etc. Trace results can be visually analyzed using the trace graph component.

Tracking Product

In the real-world production environment, tracking product is not as easy as it sounds. It impacts production staff and can hinder their efficiency. In some cases tracking information may be provided by another system and in other cases it might require user input. It is preferable that the user input is done real-time as opposed to the operator writing on paper and a data entry person entering it into the system. In general, an effective system will have a minimal impact of operations staff.

Tracing Product

A standard requirement of a Track and Trace system is the ability to trace what materials were used to make a finished product and what processes were employed during the manufacturing process. Understanding the details of the type of end user analysis required will drive how granular the material flow tracking will be and what data (custom properties) need to be stored. The Sepasoft MES system provides the ability to link data such as data from the historian, OEE, SPC, and Recipe Modules or even data from external systems.
Production Control

Production Control can enforce where certain operations occur, who can perform the operations, what materials may be received, where they can be stored and how they are stored (random lot, single lot or blended lot). Our Track & Trace Module can be configured to tightly control the transfer of materials within the manufacturing environment. This level of control is implemented by the Operations Definition and the structure used to define Material Groups. Production Control can only be implemented via a User Interface, where an operator will interact with a screen to select an operation, the incoming material, and where it will be stored. When the Track & Trace system obtains its information through tag values (i.e. pumps and valves turning on), a much looser implementation must be employed to correctly track the transfer of materials from one location to another.

Onhand Inventory

Onhand Inventory of what materials are available and where there may be a system requirement as well as historical inventory. The Track & Trace module can provide Onhand and WIP Inventory.

Estimated time to complete this section: 3hrs 30 min