Materials & Containers

Tracks materials, sub-materials, and their containers throughout the manufacturing process

Overview

Material tracking is at the core of a Manufacturing Execution System (MES). A typical plant will have many different types of materials: WIP, raw materials, semi-finished and finished goods. Materials will change their characteristics during the course of the manufacturing process. Capturing the real-time state of every material and managing their life cycle in the plant is absolutely essential for shop-floor operations. In addition, for traceability purposes, the history of every material must be captured in the system.

In the Critical Manufacturing MES system, a material is a generic hierarchical object with a rich life cycle supported by a very comprehensive set of transactions to track all materials in the shop floor while recording their complete history and genealogy.
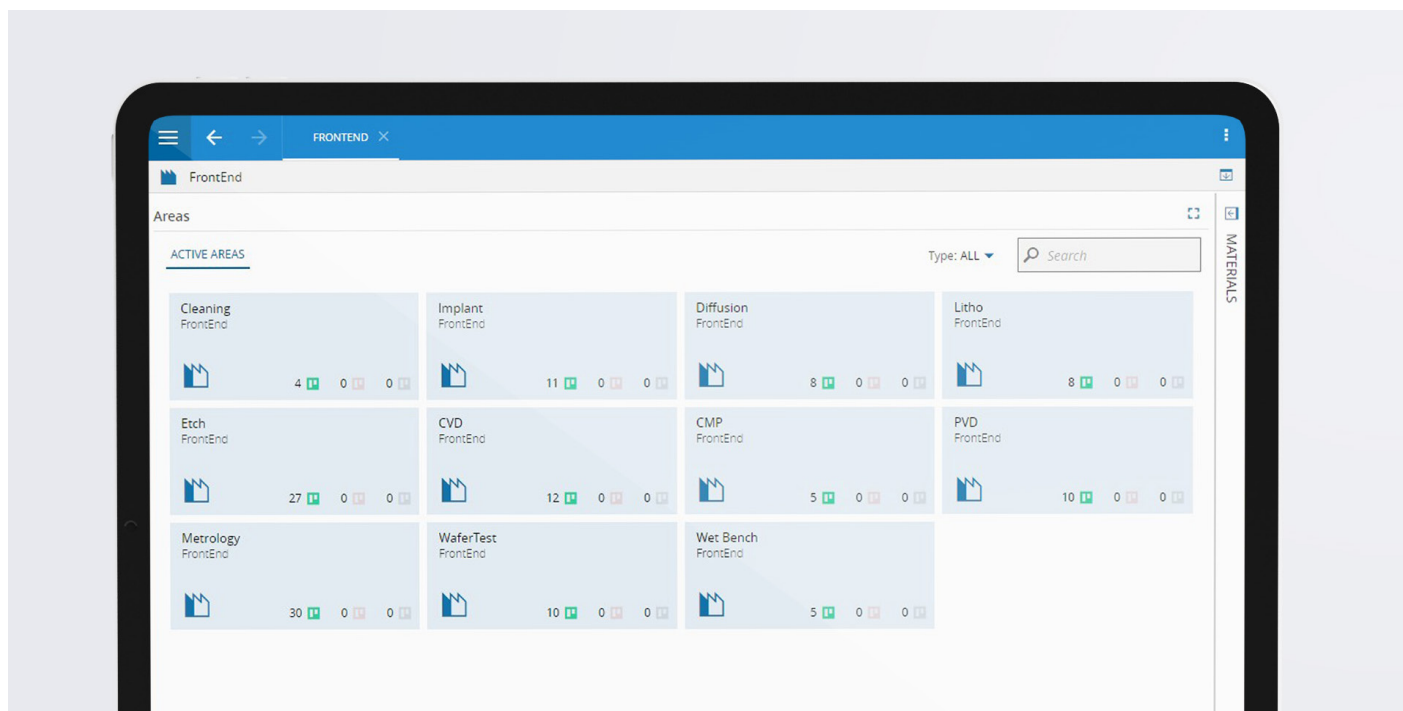

Figure 1 fabExplorer example

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Key Features

- Hierarchical Material model with different levels of Material tracking.
- Rich set of material transactions, including: Dispatch, Undispatch, Track-In, Track-Out, Abort, Rework, Temporary Off-Flow, Move-Next, Special Move-Next, Split, Merge, Store, Retrieve, Change Quantity, Change Product, Attach, Detach, Combine, Compose, Assemble, Disassemble, Hold, Release, Ship, and Receive.
- Support for primary and secondary units of measures as well as automatic unit of measure conversions.
- Remote Ship & Receive for sending and receiving material data across different sites.
- Material Future Actions (including Change Flow, Temporary Off-Flow, Terminate, Hold, Collapse, Split and Merge)
- Hierarchical Container model with a rich set of transactions (Manage Positions, Empty, Make Available, Make Unavailable, Store, Retrieve, Dock and Undock).
- Tracking of Containers and the Materials that are stored in each position of the Container.

- Support for multiple levels of tracking within a resource cluster (e.g.: in a Line).
- Material Time Constraints (Minimum and Maximum time intervals between process Steps).
- Material dependencies, so that sub-components can be linked with the materials where they will be incorporated.
- Support for different assembly modes (Automatic at Track-In, Automatic at Track-Out, Explicit, Explicit Add, Explicit Long Running and Replace and Disassemble)
- Grade, Binning and Sub-Product management.
- Floor Life and Moisture Sensitivity Level handling.
- Complete history and genealogy.
- Integration with Resource Tracking, Data Collection, SPC, Exception Management, Recipe Management, Exception Management, Labor Management, Sampling, Costing, Advanced Layout & Printing, Mapping, Warehouse Management, Weigh & Dispense and Scheduling modules.

Benefits

- Increased operational efficiency
- Increased visibility and monitoring capabilities
- Reduction in the opportunity for errors

- Improved traceability and genealogy
- Paper reduction
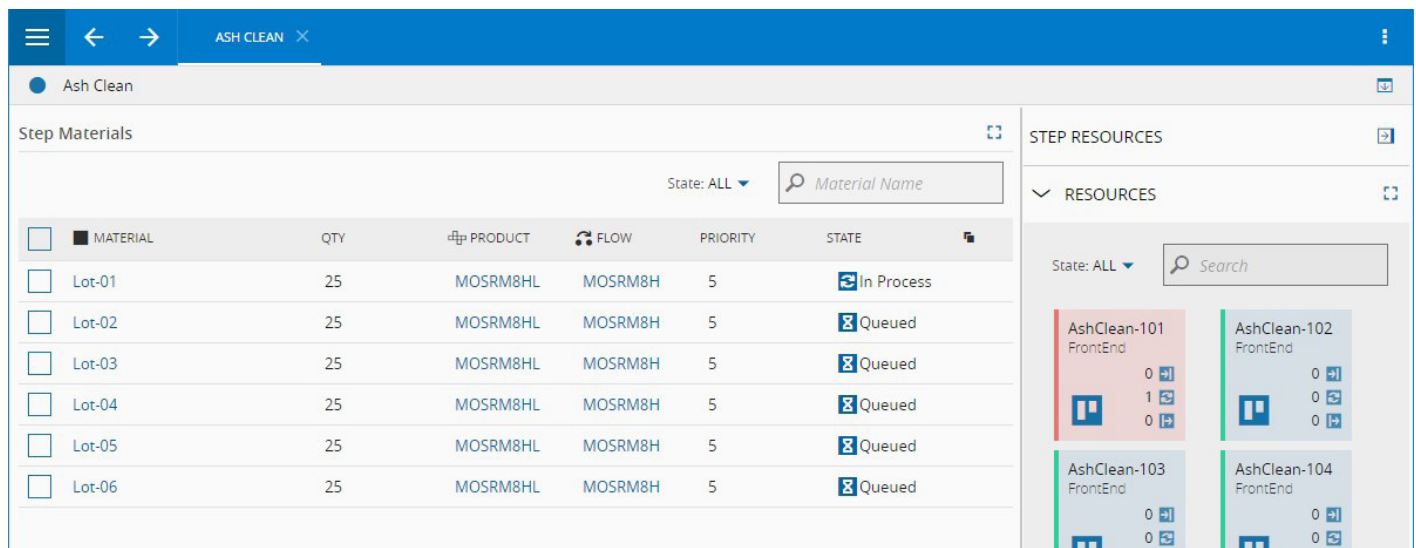- Increased process automation

Figure 2 Step View

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