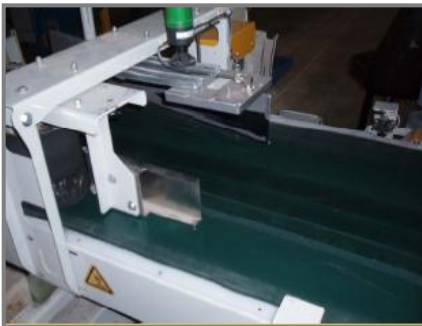**Industry:**
Chemicals
Agricultural Products

Revenue:
Over $5B Annually

Overall Benefits
- Improved manufacturing efficiency and throughput
- Minimized scrap product and raw material inventory
- Reduction in labor costs and exception handling
- Automated process control

Fortune 500 Process Manufacturer Automates High-Volume WIP Tracking Reduces Raw Material Inventory

Business Problem:

A leading manufacturer of agricultural products and chemicals had set significant revenue and profit goals for a new product line, but did not have the operational systems in place to track higher product volumes across multiple manufacturing facilities and distribution centers.

Existing manufacturing processes were error-prone: product formulations with specific batch # and lot # attributes were often blended incorrectly, resulting in high volumes of scrap material. To improve operational efficiency and control cost of goods sold, the company put a task force in place to RFID-enable manufacturing and logistics processes. The team initially focused on batch tracking, material handling and replenishment

Solution:

To track raw materials, product batches and finished goods through manufacturing, distribution and reverse logistics, the company used OAT Asset Tracking software to automate data collection for their existing SAP ERP system. The company defined use cases for production and distribution scenarios and configured the OAT Asset Tracking software to handle the new process steps and exception handling in each workflow.

RFID tags are affixed to product containers (in this case, heavy-duty polypropylene bags) by the packaging vendor and encoded with batch number, lot number and material attributes as the containers are filled. As product moves through the manufacturing facility, additional work-in-process updates are added through RFID readers at each station. Over one million units are processed annually.

If an unrecognized container enters the system or the RFID tag cannot be updated, the line operator receives a visual alert and the PLC (Programmable Logic Controller) at the station shuts the line down.

The RFID system tracks materials as they are processed, palletized, shipped and stored, tracking individual characteristics and handling instructions.

Inventory status messages are generated automatically by the OAT application when the container passes by an RFID reader. By passing the container ID to the SAP ERP system, the company has real-time visibility to inventory at each step and location in the process lifecycle.

Hardware technology

Readers:
- High-sensitivity fixed readers for reading high volumes of tightly packed containers on a single pallet
- Handheld readers for inventory management
- RFID-enabled forklifts

Tags:
- Heavy duty, designed to last several years as product moves from manufacturing through reverse logistics
-Applied to packaging prior to manufacture

System interface

Status messages sent to SAP ERP system contain:
- EPC number
- Batch number
- Lot number
- Materials used
- Material attributes

Pre-configured reports

- Visual track and trace
- Historical analysis
- Real-time asset visibility
- Status and exception reports to highlight process anomalies

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In this high-volume environment, production managers can easily track the location of each container at any time and, more importantly, identify exceptions at any stage of the process.

The company plans to use the RFID-enabled system to automatically generate Advance Shipping Notices (ASNs), track customer deliveries and automate reverse logistics.

Results:

The RFID-enabled SAP ERP system provides automated tracking of raw materials and finished product through the manufacturing process, resulting in multiple benefits:

- Reduction in labor cost and exception handling
- Reduction in scrap material and raw material inventory costs
- Reduced duplication of audits and checks
- Fewer labor hours searching for product, faster response
- Automatic validation of batch and lot numbers
- Increased warehouse efficiency, automatic replenishment using SAP inventory systems

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