

Blommer Tracking Chocolate with RFID

The cocoa-processing company has launched a warehouse management system and an RFID tracking system to improve inventory control and visibility.

By Mary Catherine O'Connor

June 6, 2006—Blommer Chocolate needed more control over (and visibility into) its inventory. The Chicago-based, family-run business has been manufacturing chocolate since 1939 and is now, according to the company, the largest cocoa-bean processor in North America. When President Bush signed the Bioterrorism Act of 2002, Blommer knew deploying a warehouse management system (WMS) and RFID-tracking system would help the company comply with the new law. The act requires food suppliers to track the custody and quality of its raw materials and finished products closely—and to do so in real-time. Toward that goal, and to make its warehouse operations more accurate and efficient, Blommer has contracted with AGI Worldwide, a provider of supply chain software and systems integration services, to deploy both an RFID tracking system and a warehouse management system for the company.

"The Bioterrorism Act clearly defined the chain of information we need to maintain on our records," says Ernie Redfern, Blommer's CIO. This means tracking raw materials as they arrive at Blommer's manufacturing plants, ensuring that samples of each shipment of raw materials are tested, and tracking the ingredients that go into each finished product, such as cocoa powder. It also requires the tracking of each shipment of finished product leaving Blommer's plants, bound for Nabisco and other Blommer customers that use the chocolate for consumer products, or for small, specialty chocolate makers. Though it doesn't brand its own products for distribution through resellers, Blommer also makes confections that it sells directly to consumers through an outlet store at its Chicago plant.

So far, the WMS and RFID systems are up and running at Blommer's Chicago plant. Redfern says the company's other manufacturing facilities in Union City, Calif., and East Greenville, Pa., will deploy the system, as will third-party logistics providers Blommer uses.

Redfern believes the food industry will embrace RFID as companies attempt to improve the tracking of products from suppliers, through transportation systems and on to end users. Still, he says, the use of RFID will come hand in hand with the development of standards-based information exchange. "We don't have standards on how data is shared in the food industry," Redfern states.

Before contracting AGI, Blommer used Microsoft's Business Dynamics enterprise resource planning (ERP) software application to track its inventory. By using RFID tags attached to pallets of goods, Blommer can now update its inventory in real time, which its ERP is not configured to do. What's more, the ERP platform does not interface with the quality-control software—known as a laboratory information management system (LIMS)—Blommer uses to track test samples of its raw ingredients and finished products. Thus, Blommer has had to identify manually, through stickers affixed to pallets of goods, the raw ingredients and finished products being tested by Blommer's quality-control department. Doing so prevent untested ingredients from being pulled into the manufacturing process, and untested products from being shipped to customers.

AGI's WMS platform now automates this process, using an interface between the WMS and the LIMS platform that flags raw materials and finished goods during testing, then removes the flag once they've have been tested and have passed safety regulations. AGI also ties this into the RFID system at the Chicago plant via a middleware layer developed by AGI.

How the System Works

As pallets full of raw materials, such as cocoa beans, are received at the plant, workers attach an RFID smart label containing an UHF EPC Class 1 Gen 1 inlay onto the pallet. Encoded to that pallet is a unique ID number generated in the WMS and associated with the SKU, lot number, expiration date, manufacturer and quantity of the incoming materials on the pallet. The WMS flags this ID when the materials on the pallet are being tested.

The WMS directs the warehouse workers to pull pallets of raw ingredients from the inventory area into the manufacturing facility. It will not direct a worker to pull a pallet of product being tested. To verify that the correct ingredients are being pulled, however, each pallet must pass through an RFID interrogation portal placed between the two locations. If the worker accidentally pulls the wrong pallet, such as one that is undergoing testing, both visual and audible alarms alert the worker to return the pallet to inventory and pick the correct one.

As the finished goods are packaged and built onto pallets, workers place an RFID smart label onto each pallet. This label is encoded with an ID number associated with the pallet IDs linked to the raw ingredients used to make the goods, and also with the order for finished goods. As a worker transports a tagged pallet onto the loading dock, the WMS directs that worker to load the pallet into a particular trailer. As the pallet moves through an interrogation zone around the entrance to the trailer, the interrogator reads the tag and uses the middleware to send the pallet's ID to the WMS, where the ID is compared with the order information. If the WMS shows that the pallet is not being placed in the correct trailer, or that the product on the pallet is still being tested by the quality-control department, it will use the middleware to trigger alarms so the worker does not place the pallet in the trailer.

In addition to improving the visibility of its raw ingredients and finished goods, the WMS and RFID tags are also being used to ensure that the first, or oldest, raw materials to arrive at the warehouse are also the first ingredients used, following the first-in-first-out model. This used to be a manual process at the Chicago plant, but now the WMS directs workers to pull the oldest ingredients first by directing them to the ingredients' locations in the warehouse.

Moreover, the company believes the new system—which has only been online for a couple of weeks—will help the company speed up its shipment-loading processes. Redfern says the firm will assign new tasks to 12 employees who previously performed the manual operations manual operations. of placing a hold of pallets of goods being tested by the quality-control department and of ensuring that the first ingredients placed into the raw ingredients inventory are also the first used.

Blommer's main third-party logistics provider, the Melrose Park, Ill., firm Diversified, is also linked into the WMS and RFID systems. As trucks carrying tagged pallets of Blommer's finished products arrive at Diversified's facilities for distribution, workers use handheld interrogators to read the pallet tags and confirm receipt. According to Redfern, this confirmation data is sent back to Blommer's back-end systems through a virtual private network.

Going forward, says Richard Meremonte, AGI's director of WMS solutions, Blommer might expand its RFID system to include work-in-progress tracking in the manufacturing facility. "They'd use RFID to validate what lot numbers are going to each batch of chocolate. Right now, that's a manual process," he says.

