

## RFID Ripens Cheese

**Sachsenmilch AG, a German cheese maker, tags and tracks carts of cheeses to improve quality control during production and comply with European Union regulations.**

By Rhea Wessel

Jan. 8, 2007—[Sachsenmilch AG](#) produces 25 different cheese and milk products sold in supermarkets around Germany, particularly in the company's home state of Saxony, formerly part of East Germany. At its production site in Leppersdorf, some 4.2 million liters of milk are processed daily, much of which goes into the three main types of cheeses the company makes.

Sachsenmilch wanted to make its cheese-production process more efficient, and to ensure that each type of cheese ripened for the correct amount of time, under precise conditions—the right temperature, humidity and air circulation. The company also wanted to automate the data collection needed to be compliant with [European Union \(E.U.\)](#) regulations requiring food manufacturers to document their entire production process. Sachsenmilch had been collecting this data by hand, but that proved to be too labor-intensive and open to error.



"We wanted to simplify the process for the people running the production line, and we wanted better data about our production," says Frank Altmann, a project manager for



safe distance from the metal racks and shelves, to avoid signal interference and to keep transponders safe if carts are knocked around. Only 10 tags have reportedly been replaced since the application was first implemented in 2004.

The loaded carts are moved via an automatic transport belt to the first reading station at the beginning of the ripening line, where an operator programs the production machine for a specific batch of cheese. Two RFID interrogators from Brooks read each cart's unique ID. The interrogators are enclosed in protective encasements from Rittal GmbH & Co. KG.

A transponder is located on one side of the cart's square frame, but a cart can turn on the automatic transport system by up to 180 degrees. Therefore, two interrogators are used at each station. Alpma considered putting the transponder on the middle of the cart, but that would have made the reading distance too long.

The start time for each batch of cheese is recorded in software provided by Brooks. As the carts move along the line, the interrogators read each cart's unique ID. That information, along with the arrival time of every cart at each point along the way, is collected in the Brooks' software. This information is then transferred via an Ethernet connection into software from Alpma, which allows analysis of the data. Finally, the system saves the data in a backup database.

Four interrogators along the line are connected to touch screens from Siemens, including one at the beginning of the line, used for programming a cart's destination. These screens can be utilized to monitor the entire system.

For example, a worker could confirm that a cart's unique ID number was entered into the system after its tag was interrogated, though the automated belt is designed to stop if an interrogator fails to read a tag. Read rates for the project are close to 100 percent, says Andreas Marx, an application engineer for Brooks.

Sachsenmilch keeps a handheld interrogator from Brooks in a back office in the event of failure, says Johann Pfeiffer, an Alpma electronics engineer. The handheld device also has a write function and can be used to initialize new carts being added to the system.



When the carts reach the end of the ripening line, the automatic transport system directs them to the packaging station for the final step, in which machines wrap each cheese for sale. The system's software generates an electronic batch report based on the information

acquired from the RFID system, including the time each batch arrives at a particular station. These reports are backed up on a separate database, making Sachsenmilch compliant with E.U. regulations. The information could be used to prove the origin of each piece of cheese if ever the company were audited by health officials, or if other questions arose.

Sachsenmilch says the RFID system makes the entire ripening process more precise, because managers know the exact location of each rack of cheese at any given time and can confirm exactly how long it stayed in each of the various ripening rooms. The company also uses the information to improve other processes, such as cheese development, by supplying engineers with precise data on the ripening process.

Sachsenmilch's Altmann declined to discuss any information related to the company's return on investment. "The main benefit for us is better control," says Altmann. "It's more of a theoretical benefit than a financial benefit."

At the time of implementation, read rates were low for some carts, and Brooks was called in to investigate the problem on site. The company found that, in such cases, antennas were not positioned properly. To fix the problem, Brooks adjusted the antennas and achieved the high read rates the system continues to log.

"In general, the system seemed quite sensitive," says Altmann. "It had to be installed very precisely, or [else] it couldn't read." The company had problems with some of the transponders, but they were replaced free of charge.

At present, Sachsenmilch says it has no plans to expand its use of RFID. "If we saw an application, we would look into it," says Altmann, "but we don't have anything in the pipeline."

