

# Drug Maker Finds Success with Desiccant System

Automating desiccant packet insertion increases speed, reliability, and savings.

**T**eva Pharmaceuticals (Sellersville, PA), a major generic pharmaceutical manufacturer, has reported lower operating costs following the implementation of a mobile high-speed automated desiccant packet system.

The desiccant packet insertion system, manufactured by Active-Pak Automation (APA; Orchard Park, NY), a division of Multisorb Technologies Inc. (Buffalo, NY), provided Teva with significant cost savings and a reliable packaging line solution. APA's highspeed equipment is engineered for continuous StripPax Sorbent desiccant packet insertion at line speeds of up to 300 bottles per minute. Able to handle various packet sizes from widths of 15 to 50 mm and lengths of 30 to 100mm, the equipment allows for customized desiccant packets for easy insertion into bottles. The process also reportedly eliminates the need for multiple insertions.

Since the installation, Teva has reported improved supply reliability at the Sellersville facility, which manufactures approximately 20 million packaged units per year. The company anticipates annual savings of \$150,000 in material costs in addition to significant improvements in

line speed. The savings can be attributed to the lower per-unit cost of packets, equipment performance, and packet size flexibility.

While having multiple sources approved for desiccants is important to Teva, having a single supplier for all of its desiccant needs was another advantage. By switching to StripPax packets, Teva eliminated the manual insertion of precut packets that was sometimes necessary during strains in canister supply, the firm explains.

## **COST CONTROL, RELIABILITY CRITICAL**

Teva's global operations achieved approximately \$250 million in annual sales in 2003. The majority of its products go to chain drugstores such as CVS, Rite-Aid, Walgreens, Wal-Mart, and Eckerd, as well as drug wholesalers such as AmeriSource Bergen, Cardinal Health, and McKesson.

As a generics manufacturer, keeping costs under control and ensuring consistency and reliability are critical. "We are the number-one generic pharmaceutical company in the world with the largest R&D pipeline in the industry. Our top priority is getting those products to our customers in a timely manner," says John Abt, senior director of manufacturing operations, Teva Pharmaceuticals USA.

Moisture protection is also a critical issue to the company, particularly for its sensitive drugs. "There are drug classes that are very moisture sensitive and tend to degrade in the presence of moisture," comments Michelle Keller, project engineer in Sellersville. Heart medications like Enalapril Maleate and Moexipril HCl, she notes, are particularly prone to moisture-induced degradation.

## **PACKET ADVANTAGES**

Prior to the APA installation, Teva had been using three sizes of desiccant canisters: 3/4-gram, one-gram, and twogram. However, the company was experiencing some challenges with its automated canister insertion into bottles. Hopper jams and line downtime often prevented Teva from running its lines at top speeds. "The canisters were often molded with a small lip on them, and this sometimes caused them to jam up in the equipment," Abt reports, adding that this led to line shutdowns.

The company had also been limited by the three desiccant canister sizes. For example, larger bottles require more desiccant protection to maintain internal stability, often requiring double drops of desiccant canisters to meet this need. Double drops also become necessary when a two-gram canister does not easily fit into the mouth of a smaller bottle. Doubledropping slows line speeds unless additional capital equipment is installed, and it increases overall material costs compared with a single large StripPax packet, which can cost on average 50% less.

By using StripPax desiccants, Teva is able to eliminate double-drop scenarios for large family-sized quantities and small-neck bottles. Teva currently uses three StripPax sizes. To streamline supply and logistics, it plans to reduce this to only two desiccant sizes.

Cost also played a role. "When we learned of the potential cost savings by switching over to packets, this immediately caught our attention," says Keller. "Improving our automated product lines goes a long way towards our vision of quality, efficiency, and speed."



Prior to cutting a StripPax desiccant packet, a servo with an integral encoder on APA equipment ensures exact positioning accuracy.

## INCREASED LINE SPEEDS

With automated canister insertion, Teva ran lines at 25 to 75 bottles per minute, depending on bottle size. These speeds often suffered due to double-drop scenarios of one-gram desiccant canisters.

The APA equipment enables faster line runs, and its technology has also raised the bar on insertion reliability for continuous StripPax desiccants. Numerous sensors, controls, and a sophisticated PLC in the APA equipment eliminate packet miscuts and ensure insertion reliability. As a result, lines are capable of running at optimal speeds with any packet size.

The machine operates in a fail-safe mode and assumes every packet is manufactured incorrectly until it confirms packet length prior to the cutting sequence. It also will not assume desiccant insertion into a bottle unless confirmed by a series of sensors and controls. If the machine detects a fault, a bottle-stop cylinder is extended to prevent bottles from traveling downstream.

The APA equipment can also place uncut strips of multiple packets into bottles at high speeds, providing additional levels of flexibility with only one cut per drop.



Teva Pharmaceuticals uses one 3/4-g StripPax desiccant packet for each 40cc bottle of its Moexipril HCl product.



## APA systems dispense desiccant packets at high speeds, enabling Teva to accommodate growth.

Another advantage of the equipment is its mobility. The portable APA units support more than two product lines and can be allocated depending on need. This mobility allows the two units to support Teva's current capacities, but as demand increases, the company plans to add units.

## REGULATIONS ENABLE QUICK SWITCHOVER

Recent FDA regulations regarding lateral changes to pharmaceutical packaging enabled Teva to institute the desiccant switch almost immediately. All that was needed was simple documentation in its annual report to FDA. No stability testing was required prior to initiating the change, and Multisorb supplied Teva with all the comparison information between the previously used canisters and the new packets. "The most difficult aspect of switching desiccants is identifying regulatory procedures and documentation requirements, and Multisorb provided us with exactly what we needed," comments Keller. "The switch from packets to canisters was a simple annual reportable change, so essentially all that was involved was changing the bill of materials and handing them over."

Once Teva had all the information in hand, the decision was finalized and approved in one month. Teva used up its remaining canister stock to maximize its previous investment while the new APA equipment was installed and tested.

## IMPROVED CUSTOMER SERVICE

Internal evaluations have revealed significant cost savings by moving from desiccant canisters and precut packets to continuous rolls of StripPax desiccants. The portable APA feeders purchased by Teva accommodate various packaging lines. To date, Teva has converted 20 products in various strengths to StripPax. Using the APA feeder, each product configuration can be easily selected from a user-friendly operator interface.

The savings analysis is based on current volumes of only three million bottles utilizing desiccants. With several products in its R&D pipeline, Teva's potential desiccant consumption could double within the next few years, substantially increasing the company's savings.

"The results we've gotten from Multisorb have been excellent, and we're expecting that to continue," says Abt. "Multisorb has helped us reduce costs and increase line speed, up-time, and supply-chain service. The advantages we're seeing have already improved our level of service to customers," he says. ■



**MULTISORB**  
Technologies  
Active-Pak Automation

### MR. ADRIAN POSSUMATO

+1 (908) 849-3005

[apossumato@multisorb.com](mailto:apossumato@multisorb.com)

[info@multisorb.com](mailto:info@multisorb.com)

[www.multisorb.com](http://www.multisorb.com)