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System Reduces Cost and Improves Efficiency

p. 66

Global Clinical
Trials
p. 40

Patient-Safe
Parenterals
p. 44

Track and Trace:
Identifying
Matter
p. 28

plus
Bar Coding
Supplement
p. 52



Show Coverage:
Interphex and
SouthPack

CaseHistory

System Reduces Cost, Improves Efficiency

Company enhances production and packaging efficiency with Multisorb StripPax System.

Since the launch of its Mucinex brand of expectorants, Adams Respiratory Therapeutics (Chester, NJ) has become a strong company in the OTC respiratory market. Thanks in part to an award-winning advertising campaign that introduced U.S. consumers to the company's animated Mr. Mucus mascot, Mucinex product sales have skyrocketed. The company—recently acquired by Reckitt Benckiser—needed to expand its manufacturing capacity and output to meet this increased demand.

Adams made a strategic decision to reacquire the manufacturing operations of the Fort Worth, TX, facility from Cardinal Health in July 2006. Adams's goal is to turn the site into a center of excellence by including state-of-the-art packaging lines to meet the needs of its adult oral-solid Mucinex products.

For one of its new packaging lines, Adams had used desiccant canisters and dispensing equipment to protect its Mucinex SE, Mucinex DM, Maximum Strength Mucinex, and Maximum Strength Mucinex DM products from drug-formulation degradation. To improve production efficiencies, however, Adams decided to switch to Multisorb's StripPax System.

The new system saved costs and added to much-needed production-line flexibility and mobility. Adams operations staff estimates that Multisorb's

StripPax System provided approximately \$25,000 in monthly costs savings, by minimizing material costs and increasing production efficiencies. Consequently, Adams foresees an annual cost savings of approximately \$300,000.

RETHINKING PROTECTION

Chris Collins, a packaging engineer at Adams, said his team needed to ensure that new equipment and processes could handle the company's revised output requirements without



using dispensing equipment. The per-unit cost of the canisters was a concern, especially with the anticipated increase in packaging volumes.

Adams was also experiencing some quality-control issues with canisters used during dispensing operations. "We had problems in the past with machine jams," Collins says.

Adams started looking at desiccant packets as an alternative to canisters. One of the options under consideration was the StripPax System from Multisorb Technologies (Buffalo, NY), which incorporates Multisorb's StripPax desiccant packets and APA-2000 StripPax dispensing equipment. A simple review of the per-unit costs appealed to Adams.



When desiccant canisters jammed its machines, Adams opted for packets.

expanding production foot space. "Our sales have gone up dramatically over the past couple of years, and we realized we had to take a hard look at our packaging systems," he says.

The other consideration for Adams was cost. To protect its products from moisture degradation, Adams was dispensing 1- and 2.5-g desiccant canisters in its adult oral-solid Mucinex bottles

DECISION AT PACK EXPO SHOW

The Adams packaging team met with Multisorb technical and sales representatives at the 2006 Pack Expo International show in Chicago. APA equipment was in operation at Multisorb's booth, and the

Adams team was impressed with what it saw, particularly the APA-2000 StripPax dispenser.

"It was evident that Multisorb was an industry leader," says Kevin Johnson, an Adams associate operations ERP/DAX.

Given the manufacturing demands for Adams's production, the company needed to minimize the amount of time to switch over to the new equipment and

run validation testing and training. Adams outsourced testing to SMB Validation and Compliance Services Group Inc. (Kirkland, Quebec, Canada), a validation and pharmaceutical engineering firm that has long worked closely with Adams.

SMB developed User Requirement Specifications (URS) for packaging equipment suppliers that included the usage, speed, rate, and desired ROI and cost-savings based on Adams's needs. Multisorb responded to the URS, and SMB recommended Multisorb's APA-2000 dispensing unit. The decision was based on cost savings and the ability of Multisorb's technical staff to assist with validation, testing, and documentation. "We have validated Multisorb equipment in the past, and have been impressed with the company's high level of service and documentation practices," says David Buckley, validation engineer at SMB.

The APA equipment is designed to be used with StripPax packets, which are compact, nondusting packets that are accurately dispensed from StripPax dispensers at high speeds. Multisorb offers customized packets depending on the requirements for each drug formulation. For its adult oral-solid Mucinex line, Adams used 1-, 2.5-, and 5-g silica gel StripPax packets.

FACTORY ACCEPTANCE TEST

Working within a short time frame, Adams required additional validation

and factory acceptance testing (FAT) above and beyond what is typically involved for such equipment installations. "Adams wanted to minimize time spent on installation qualification by performing extensive testing during the FAT execution," Buckley says. "We produced FAT documents that tested all equipment functions, and Multisorb was very cooperative and facilitated the process at their location. They obviously knew what was required from a current Good Manufacturing Practices (cGMP) point of view, rather than just from an engineering point of view."

During the FAT testing, SMB performed high- and low-speed runs of multiple packet sizes, along with different bottle sizes (ranging from 100 to 625 cc). The qualified accepted reject rate was specified at 0.05%. The end result, however, was even better. "We actually achieved reject rate during multiple qualification runs of less than 0.01%," Buckley says.

In addition to cGMP, the testing was performed in accordance with Good Documentary Practices, and the documentation produced became part of the regulatory package, enabling it to be referenced rather than repeated once installed at Adams's facility. "The process was painless; not a single discrepancy came out of the FAT, which is highly unusual," Buckley adds.

The new packaging line became operational in May 2007, and so far the

results have impressed Collins and his team. "The efficiency and reliability of this machine is very good and dependable," he notes.

The APA-2000 StripPax dispenser is designed to dispense more than 300 units per minute, which is faster than Adams currently needs, but which will accommodate future requirements. Adams previously dispensed about 100 bottles per minute with its canister line, but based on new volume demands, the Multisorb dispenser runs at rates of up to 180 bottles per minute, with room for additional capacity in the future.

SMALL SIZE AND MOBILITY

The dispenser occupies a relatively small footprint and is separate from the unwind system. In Adams's facility, the dispenser operates in one corner of the line, and the unwind system stays out of the way until needed—a flexibility that maximizes available space.

The mobility of the unit has also proven to be an asset to Collins and his team. "We had some work to do on a conveyor, and we were able to take the machine off-line very easily, reducing our downtime," Collins says.

Managing the higher volumes has kept Collins extremely busy. As Adams prepares for new product launches, the switchover to this system has helped the company in its efforts to extract greater efficiencies as it ramps up production. ■



MR. MUCUS

Adams Respiratory Therapeutics first launched its Mucinex product to the U.S. market in 2003. In 2004, it began the "Mucinex in, mucus out" concept, showcasing the animated character Mr. Mucus in television and print ads. Each advertisement typically featured Mr. Mucus and/or his friends living inside a cold-sufferer's chest, until they were expelled after the sufferer ingested Mucinex.

Increased brand awareness more than doubled unit sales of Mucinex by March 2005. An ad campaign in October 2005 introduced Mrs. Mucus under the theme of "Married to

Mucus" and, once again, the campaign boosted sales. In September 2006, Junior Mucus—the son of Mr. and Mrs. Mucus—was successfully introduced to consumers with the new Mucinex Mini-Melts product line.

In 2007, Adams launched nine products, including Maximum Strength Mucinex, Maximum Strength Mucinex D, Maximum Strength Mucinex DM, plus Mucinex Full Force and Mucinex Moisture Smart nasal sprays.

In addition to Mucinex products, Adams acquired the Delsym liquid cough syrup product line in 2006. After only one year of marketing, Delsym ranked No. 1 in Pharmacy Time's 2007 OTC Survey of Pharmacist Recommendations in both the adult and children's cough syrup categories.



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