

THE CHALLENGE



Expanding to New Markets

For wider distribution, a multinational fruit-based beverage manufacturer needed to change the way it took their product to market with a new packaging strategy.



New Aseptic Filling System

Transitioning from glass and cartons to PET plastic packaging is a complex project involving smart packaging system solutions for a long-term strategic change.



Aseptic Filling System Enables Expansion

Solution: Packaging Transition with Emulation

Before installation, a digital twin of the existing bottling line was created to allow virtual commissioning of the integrated control system. Operations personnel were trained and the digital line was pretested before commissioning the line - completing the startup process four weeks ahead of schedule. The aseptic filling system transition was successful and completed under budget allowing the manufacturer to expand to new markets.



EXECUTIVE SUMMARY

▶ Aseptic Filling System Enables Expansion to New Markets

Client: Multinational Fruit-based Beverage Manufacturer

Challenge:

Implement new packaging and aseptic filling system to support company growth.

Solution:

Partner with Polytron to develop smart packaging system solutions

- Create “digital twin” of new system
- Transition packaging to aseptic filling system
- Demolition and replacement of existing building
- Installation of equipment
- Commission of the new aseptic process

Results:

Successful and significant packaging transition performed under budget and ahead of schedule.

New Packaging and Aseptic Filling System for Wider Distribution

In order to support growth, a multinational fruit-based beverage manufacturer needed to change the way they took their product to market.

The company needed to transition from glass and cartons to PET plastic packaging, a long-term strategic change that would affect the entire business.

The Vice President of Engineering was charged with the huge and consequential job of executing the new strategy and meeting numerous challenges, including:

- Shifting its offering and how it goes to market
- Meeting production deadlines and commitments to its retail customers
- Addressing limited production space constraints
- Launching an aseptic juice-filling line
- Transitioning to new labeling
- Establishing an integrated and flexible packaging line
- Hiring and training new staff to operate the new line

Working with an Experienced Partner for Smart Packaging Solutions

With his job at stake, the VP needed clarity about the options available to him and a reliable partner to develop the appropriate smart packaging system solutions.

The VP chose Polytron as his partner in package transitioning for its deep experience in complex bottling operations, including the change to aseptic filling systems.

Complex Bottling Project with Many Moving Parts

The engagement with Polytron included complete turnkey project responsibility, including demolition and replacement of an existing building, equipment installation, start-up and commissioning of the new aseptic process, and packaging system for a newly designed, single-serve PET bottle.

Functioning as project manager throughout, Polytron was able to address and reduce the VP's concerns, giving him confidence that the new product line could hit targets and meet market needs for new product on schedule.

Project Responsibilities

Additional Polytron responsibilities:

- Definition of facility requirements, including process and production capabilities, utility requirements, material flow, warehousing needs, and general plant configuration
- Procurement of all equipment and services, along with full capital responsibility
- Design and start-up of ancillary process and production systems, chemical storage and delivery, treated water, and chilling systems
- Plan and schedule quality and microbiological testing
- Bottle sterilization and first-of-a-kind cap sterilization system
- First-of-a-kind bottle labeler at 600 bpm to implement new full-length shrink sleeve
- Integrate flexible packaging line
- Technology, transfer and training of new personnel in the operation and maintenance aspects of the packaging and process areas
- Concept through start-up implementation of the power distribution, automation, and line monitoring systems for the process, utilities, and packaging systems

Creating Breathing Room and Supporting Project Success

Using PolySimsm, Polytron's emulation solution, the team created a digital twin of the bottling line that allowed virtual commissioning of all integrated control system before it was installed. Potential stumbling blocks were identified and corrected before launch, allowing the product to launch ahead of schedule.

Anticipated Issues Resolved Before Causing Project Delays

PolySimsm created further breathing room by providing a model on which new maintenance and operations staff could train in advance of new line commissioning. On the day the line launched, operators were fully trained and prepared to work with the new equipment.

The new line relied on equipment from a number of different suppliers and from different countries, a situation that could have amplified challenges once it was installed on the plant floor. Fortunately, Polytron had experience with these systems and was able to anticipate and resolve issues before they could cause project delays.



Ahead of Schedule and Under Budget

The project was completed nearly \$1 million under budget, and the startup curve was shortened by four weeks by implementing PolySimsm emulation, pre-testing the line's digital twin, and pre-training the new operations personnel.

New Production Line Increases Productivity

Working together, the VP and Polytron brought the project to completion, going from breaking ground on the new facility to sending cases of new product out the door in ten months.



By utilizing PolySimsm emulation, pre-testing the line's digital twin, and pre-training the new operations personnel, the project startup curve was shortened by four weeks.



The project also came in nearly \$1 million under its budget of \$28 million.



The VP met the manufacturer's commitment to its retailers and enabled a significant and successful strategic transition for the company.



About Polytron, Inc.

Since 1983, Polytron has been an industry leading system integration and engineering consulting firm delivering a broad spectrum of innovative manufacturing solutions. Polytron serves manufacturers in the food, beverage, consumer packaged goods, chemical, and life sciences industries across North America.

To learn more about Polytron, visit us online (www.polytron.com) or contact us (www.polytron.com/contact-us) to talk to a specialist today.

