

A Graphic Argument for RFID Labels

By modifying their requirements for shipping-container graphics, Wal-Mart and Target could give CPG makers a way for RFID compliance to pay for itself.

By Ken Rohleder

June 12, 2006—CPG manufacturers are beginning to understand how the graphic requirements of their largest customers drive complexity in their own supply chains and create sustainability issues upstream. By allowing CPG manufacturers to mark kraft shipping cases with a single RFID label—corner-applied to two adjacent panels—retailers would have a flexible graphic interface without driving complexity and cost upstream.

The Challenge

Consumer packaged goods (CPG) are generally sold in standard case packs across most retail channels. For example, a standard case pack might contain 12 bottles of pancake syrup, packaged in a corrugated shipping container. For each base product sold in a standard case pack, there are often dozens of variations, such as different flavors, colors and seasonal promotions. Even though the length, width and depth of the boxes might be exactly the same, each product variation still requires its own unique corrugated shipping container, or shipper. The UPC code and product description are printed by the box manufacturer, with maple-flavored, butter-flavored, blueberry and sugar-free syrups each requiring its own unique shipper even though all four products are all packaged in the same size bottle, 12 to a case pack.

It is not unusual for a CPG manufacturer to have 50 or more shipping container variations for a single base product (consider Reese's Peanut Butter Cups, Pop-Tarts and Campbell's soups). When major retailers require unique graphic treatments to facilitate shipments into their systems, the number of cases required double or triple. Wal-Mart and Target, for example, often require color-coding by department, as well as four-panel printing to help stockers organize and find products in the back room. Their printing requirements preclude the CPG from shipping the same case to Kroger, Albertson's or retailers with more generic requirements.

Manufacturers have known for years that if they could buy unprinted kraft cases, their spending on corrugated shipping containers would drop incrementally, and box inventories would drop dramatically—which would reduce complexity and virtually eliminate shrinkage and obsolescence—saving an average of 8 percent on even the most efficient corrugated purchases. The challenge, then, is how to imprint each box in-line in a way that meets each retailer's requirements.

The Solution

With current technology, white pressure-sensitive labels can be applied in-line on adjacent sides of each case (wrapping around the corner of the box) with very high resolution and in any color. The labels can include product descriptions, bar codes and brand identities, as well as color-coding (click [here](#) to view a graphic illustrating how this would work). If manufacturers were given the option by retailers of labeling a case's corner, rather than directly printing that same information on all four of the case's sides, they could buy generic, unprinted corrugated boxes and still provide a flexible graphic interface on the carton.

Ink and the Environment

The cost and environmental impact of printing kraft corrugated containers is often understated by the corrugated industry. The process of cleaning the press between color changes can take 20 to 40 minutes per print station, depending on the colors and the level of automation on the press, thereby increasing the cost of corrugated boxes. In general, changing ink colors on a flexographic press requires 50 gallons or more of hot water and detergent, which either enters the waste-water stream directly, or is diverted to an ink separation plant, where the solids are reclaimed and land-filled. Wal-Mart, however, recently launched an initiative to attack just these kinds of upstream environmental issues.

One environmental solution is to limit kraft shippers to black ink. However, Wal-Mart and Target both require color coding for some products, and most CPG manufacturers have their brand identity printed according to their own graphic requirements, which often necessitates a specific Pantone ink color.

Consequently, to reduce clean-up time, plants that make corrugated cardboard boxes often schedule their flexo presses to run lighter inks in the morning and progressively darker colors throughout the day. This practice makes it difficult and costly to interrupt the production schedule with a hot order, since the ink color will invariably be different than the one already in the press, so CPG suppliers must carry larger inventories to buffer against the longer lead times.

Resistance to Change

Given the complexity, environmental impact and production constraints that direct printing creates, why haven't manufacturers changed to a label system? At first blush, the cost of a pressure-sensitive label might appear to be more than the incremental cost of direct-printing the box. However, when the effects of SKU consolidation, inventory reduction and the lessening of shrinkage and obsolescence are all factored in, labeling is always more cost-effective than buying preprinted boxes. It also creates greater flexibility for both the corrugated box supplier and the product manufacturer.

Furthermore, not every retail mandate can be met with a label. Technology exists to label a single corner (two adjacent sides) of virtually any size box in-line during the case-packing process. If the retail mandate requires graphics on all four sides of a box, a label becomes prohibitively expensive to apply. However, applying a label to two adjacent sides of a box allows for the identification to appear on all four sides of a pallet of boxes, and handling protocols could be instituted, dictating that boxes always be placed with the label visible.

A white label applied to a kraft box focuses the attention of the distribution channel worker to the data he or she needs. The benefits of printing on a bright white background generally outweigh those of printing all four sides. UPS and FedEx, for example, use white label stock and only imprint one side of each box.

Enabling RFID

Manufacturers are reluctant to commit to label technology for fear that Wal-Mart and Target will choose not to accept labeled cartons, either now or in the future. However, manufacturers with labeling capability will be in the unique position to apply and encode RFID tags, as technology is commercially available today for printing an RFID label, attaching it and programming its tag during the case-packing operation.

If RFID tags are applied to the corrugated cases by box makers (as many in the corrugated industry have suggested they be) RFID will further explode the complexity and cost of corrugated container requirements by adding yet another layer of packaging cost. With a labeling protocol, however, RFID could actually simplify corrugated requirements if Wal-Mart and Target encouraged labeling instead of direct printing. The corrugated savings derived from the simpler system would be an attractive offset to the cost of RFID compliance.

Ken Rohleder (502-412-0123) is president of Rohleder Group, an independent consulting firm specializing in packaging supply chain management and design. Rohleder Group provides strategy and training to

companies focused on optimizing their packaging program performance.

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