

Delivering for dairy

Oberweis Dairy's investment in new filling, capping, labeling, conveying, bottle-packing, and shrink-wrapping machinery begins to pay off with the introduction of single-serve milks.

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Oberweis Dairy sees so much potential in its single-serve, plastic-bottled milk and dairy beverages that it's invested upwards of \$1 million on a new filling line at its North Aurora, IL, headquarters/manufacturing facility.

The 100-bpm line is equipped with new filling, capping, labeling, conveying, bottle-packing, and shrink-wrapping machinery. Currently, the line runs about four to five hours, four days a week, as Oberweis rolls out the new 12-oz bottles.

Oberweis recognizes that the more frequently the new line runs, the quicker its return on investment. "We justify the investment in a number of ways," says Mark Leonardelli, vice president of sales and marketing for the dairy. "First, we know [the ability to fill these bottles is] important to our future, whether it's for the Looney Tunes flavored milks (see sidebar, p. 50), our own single-serve products, or other products we're considering."

Equipment purchase decisions were made based primarily on the package and limited plant space. "You start with knowing your line footprint," suggests Mark Kloster, plant

manager at the North Aurora facility. The line's dimensions, he estimates, measure 20' x 30'. "We knew there would be other machines that would work for our application, but not all of them would work in this limited space." The new line is tightly positioned between a ½-gal glass container filling line and an ice cream filling line.

While space considerations were important, the materials played a critical role in determining what packaging machinery to purchase. "Without a doubt, the materials dictated what equipment we bought," Kloster recalls.

"We wanted to use a particular bottle and a full-sleeve label," he continues. "We worked with a general contractor that was very instrumental in the line layout, and the contractor recommended equipment vendors familiar with the dairy industry."

Kloster credits that contractor, W. M. Sprinkman Corp. (Franksville, WI), with serving as the system integrator for the line. Sprinkman also recommended tabletop and cable conveyors from Concept Systems (Grand Rapids, MI).

Filling and capping

Oberweis uses a semi-automatic machine to debag the clean PET bottles from the plastic bundles in which QDC Plastic Container Co. (Lansing, MI) ships them to the dairy. Bundles are conveyed past a knife that cuts off one end of the bag. Bottles are manually placed onto a hooded and enclosed cable conveyor that carries them several hundred feet, just beneath the ceiling, through an opening in a wall, then down a decline about 10' to the filling line.

Bottles are conveyed through a feedscrew that times their release into an infeed starwheel that transfers them into the FG-185 monobloc filling and capping station from Fogg Filler (Holland, MI). The starwheel delivers bottles



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A two-station label application system uses two heads to drop a sleeve label onto every other bottle. Steam is used to shrink the full-body labels onto the bottles.

onto lift pedestals on the 18-valve rotary filling turret.

Once filled, bottles are conveyed through a transfer starwheel that delivers them to a five-station rotary roll-snap capper. The Fogg capper applies the caps as bottles ascend on a cam. Capped bottles descend and are discharged through a starwheel. Then an ink-jet coder prints a code onto the cap. The coder, from Diagraph (St. Louis, MO), provides an 18-day code from date of manufacture.

Labeling

Coded bottles are conveyed downstream through an area described as an “air knife” by Kloster. The air knife includes two tubes, one mounted along each side of the conveyor. Each tube is about 5’ long. As bottles are conveyed between the tubes, air is blown from the tubes toward the bottles.

This removes condensation that forms on bottle surfaces when bottles, filled at temperatures below 40°F, come in contact with the warmer room air. By removing condensation, shrink-sleeve labels adhere properly to the bottle.

Bottles pass the air knife station and proceed through a paddle wheel device that spaces them properly for downstream sleeve-label application. The extra space between bottles is important because the label dropped onto the bottle is wider than the bottle. If bot-

tles were placed too closely, the labels could interfere with the process. The paddle wheel device, as well as the EZ-2-200 dual-head label application system, is supplied by Axon (Raleigh, NC).

Each head uses a roll of film that’s preprinted, folded and sealed into a tube. The flat film tube opens around a mandrel, then is delivered downward toward the conveyor below that carries the bottles.

A knife cuts the material and the open sleeve label drops over the bottle. The bottle then passes two preshrinking devices, one on each side of the conveyor. Also made by Axon, the devices direct hot air along a narrow band at the base of the container. This shrinks the label in place as it enters an Axon EZ-72-SS shrink tunnel that uses steam to shrink the full-body label into place on the bottle.

“My understanding is that steam does a better overall job of shrinking than hot air,” says Kloster. “The problem with hot air is that it doesn’t surround the bottle well enough to deliver a good, consistent shrink of the label.”

Downstream duo

Shrink-labeled bottles are conveyed through a wall opening to a Model 90 Spot-Pak® bottle packaging system from Delkor Systems (Minneapolis, MN). The machine uses a cross-push arm to push bottles toward a

Custom bottle helps launch Oberweis Dairy into single-serve milks

By calling 1-888-MILK-TO-U, Oberweis Dairy consumers can order milk in ½-gal glass bottles for home delivery. While Oberweis cherishes that tradition, its new line of 12-oz single-serve fresh milks filled on a new packaging line is anything but old fashioned.

In August, the North Aurora, IL-based dairy introduced single-serve milks (and half-and-half and lemonade) in 12-oz polyethylene terephthalate bottles. The bottles provide the portability, reclosability, and graphic appeal to compete better at retail with other beverages.

"We've had a lot of people asking for our products in a single-serve container," notes Mark Leonardelli, vice president of sales and marketing for Oberweis. "But our milks have been in glass for many years, primarily because our customers believe that taste is better preserved in glass. We considered glass for single-serve milks, but decided against it because of factors related to convenience, handling, and all of the issues that give plastic an advantage.

"We sell super-premium-quality milk, so we could not compromise taste in our packaging decision," he continues. Oberweis conducted limited taste testing of its own milk brands with consumers. When consumers knew what materials were used for the test, they chose glass containers first. However, PET fared well enough that the dairy selected it for its single-serve milk launch.

'Looney' launch

Oberweis found an appropriate supplier in QDC Plastic Container (Lansing, MI). "They're well-known in the dairy industry," says Leonardelli. QDC injection/stretch blow-molds the 38-mm, 22-g bottles from preforms manufactured by an unidentified company.

"The bottle shape is unique to

Oberweis," he adds. "We had a special mold customized for us. It's an expensive container, but we liked its appearance, and that it's easy for children to hold."

The bottle's handling qualities are especially important since Oberweis first used it to introduce a new line of five flavored milks (shown) for children (see *Packaging World*, Oct. '01, p. 10, or packworld.com/go/oberweis). These bottles are shrink-sleeve labeled with colorful graphics of Warner Bros.' Looney Tunes cartoon characters.

Each 2-mil heat-shrink polyvinyl chloride label is printed gravure in



10 colors by Seal-It (Farmingdale, NY). Labels are color-coordinated to match their respective closures, which are injection-molded of low-density polyethylene by International Plastics & Equipment (New Castle, PA). The screw-on caps include a tear-away band for tamper evidence.

The Looney Tunes beverage line is marketed under an unusual licensing arrangement. For more information about this arrangement, visit packworld.com/go/licensing. At this Web location are photos from Oberweis's facility. Included is an image of U.S. Rep. Dennis Hastert (R-IL), Speaker of the House, taken during a late-August reception at the plant in his honor. The event served to introduce the single-serve Looney Tunes beverages.

Promising future

Leonardelli projects that the same bottles could also be used for Oberweis-brand fat-free and 2% milks. "And we're looking at introducing another line of Oberweis-brand flavored milks for adults in this bottle," he notes.

For now, Leonardelli says the new bottle gives Oberweis an opportunity to sell in markets it could not reach with previous packages. "We really didn't have a good package selection for convenience stores, vending machines, or schools," Leonardelli realizes. "Our only container was a half-gallon glass bottle. The new plastic bottle gives us opportunities to sell at locations beyond the grocery stores and our 20 Oberweis retail stores in the Chicago area.

"We're talking to convenience stores, and trying to get the milks into vending machines, perhaps at businesses or schools," he continues.

The 12-oz bottles for the five Looney Tunes flavors and for the Oberweis-brand lemonade, chocolate milk, and half-and-half are currently sold throughout Illinois and St. Louis. Suggested retail prices range from 99¢ to \$1.50. The refrigerated milks have an 18-day shelf life from date of manufacture.

"They're doing pretty well in the market," observes Leonardelli. "The new bottle and our new packaging line present us with a lot of exciting opportunities for the future."

Seal-It, Inc.

Phone: 800/325-3965.

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International Plastics & Equipment Corp.

Phone: 800/377-4732.



Above, a new rotary filler/capper monobloc operates at speeds of 100/min at Oberweis's North Aurora, IL, facility. A bottle-packing system (right) lifts a group of 12 bottles and slides a corrugated pad underneath them. Nozzles then deliver strips of glue onto the pad, and the bottles are lowered onto the pad. That keeps bottles in places on the pad as they're conveyed a few feet to a downstream shrink wrapper and heat tunnel.



staging area. It does so in three rows of four bottles.

The 12 bottles are held in place by a metal stop gate. Once the 12 are assembled, the gate opens, releasing the bottle group into a pickup area where a vacuum head lifts them up a few inches.

A pick-and-place module, positioned at a right angle to the pickup area, pushes a corrugated pad along a conveyor into the pickup area. Just before the pad reaches this area, nozzles deliver three strips of removable hot melt adhesive to the pad. The pad is pushed into the pickup area before the pneumatic-powered head lowers the bottles onto the pad.

The hot melt temporarily holds bottles in place on the pad as they're conveyed a few feet to a Delkor Model 112 wrapper and heat tunnel. The pack is pushed into a 2-mil low-density polyethylene film curtain that envelops the bottles, and then seals and cuts the film. The film-bundled pack is

then sent into the shrink tunnel. The multipacks are palletized by hand, and pallet loads are shipped to Oberweis stores or to retail customers.

Based on the initial success of the dairy's single-serve bottles, Oberweis's investment of more than \$1 million for the new filling line is beginning to reap dividends.

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Reprinted from Packaging World® November 2001
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