TABLETS & CAPSULES

FORMULATION PRODUCTION PACKAGING

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Desiccant selection for bottle packaging

New bottle packaging line helps Metagenics break speed barrier

For more than 20 years, Metagenics has manufactured nutritional supplements and medical foods sold to health care practitioners worldwide. Today the company holds many formula patents and produces more than 400 research-based products, including those that improve heart, joint, and gastrointestinal health; maintain hormone balance; manage body composition; and promote liver detoxification. The company's packaging and distribution facilities are located at its headquarters in San Clemente, CA. Its facilities are GMP-certified by the National Products Association, the National Sanitation Foundation, and the Therapeutic Goods Administration of Australia.

Metagenics' new line is anchored by a double-head tablet counter, which boosts capacity without increasing changeover time.

The company has grown steadily since its founding, and by early 2005, demand for its vitamin products called for an increase in capacity of its packaging lines. Although the company was operating the lines at full capacity, it established an objective to increase output capacity by 40 to 50 percent. This led the company's packaging supervisor, Erica Matson, to seek out a faster bottle packaging line.

Doing some extra homework

In search of the best line for her company's needs, Matson visited a West Coast packaging show in September 2005. She had a few requirements she wanted the supplier and the bottle packaging line to meet. First, the supplier had to demonstrate a history of supplying high-quality pharmaceutical-grade lines. "We wanted a company with a reputation for delivering quality machinery that would perform as they said it would perform," Matson said. Second, the new line had to be able to fill 90 to 100 100-count bottles per minute. Third, turnkey line integration was essential. "It was very important that the supplier could give us a turnkey operation that was

The checkweigher-metal detector verifies fill weight and accurately detects contaminants thanks to circuitry that counters electromagnetic interference from nearby process equipment.

fully integrated and could help us with some of the outline, layout, and installation logistics," Matson said.

After meeting with several exhibitors, Matson's top choice was NJM/CLI, Lebanon, NH, a manufacturer and supplier of a range of packaging equipment. The supplier met all the requirements, but to verify her decision, Matson conducted some additional research. "Not only did I visit the trade show, but I went out and viewed different machinery in other packaging environments where NJM/CLI and its competitors were," Matson said. "The feedback that I gained from outside sources was very important to me. I talked to line operators, I talked to supervisors, I talked to people who were handling the machinery directly and running the machinery daily. The common sentiment from everyone was that the company's equipment was reliable, sturdy, and highly sustainable."

That positive feedback underscored Matson's confidence in her selection. She was also encouraged by the Cremer brand of equipment that the company was proposing. "Our existing bottling line filler was a 12-year-old single-head Cremer tablet counter, and we were still running it without problems. That is one of the reasons I knew that this was dependable machinery," Matson said.

Installing the new line

NJM/CLI provided and installed the fully integrated line in September 2006, and production began that month. A Cremer CF1220D double tablet counter anchors the line. It uses two 12-channel counting heads and a two-lane filling conveyor, which enable it to provide the output of two counters in a fraction of the space. "It's an upgrade for us," Matson said. "The heads are side by side, and the funnels dispense vitamins into the bottles two at a time." The counter handles tablets, caplets, two-piece capsules, and softgels, in diameters from 2 to 25 millimeters.

Speaking with the supplier's customers reinforced a packaging supervisor's confidence in her selection.

In operation, the bottles are loaded into a Pace unscrambler, which orients them and places them on a conveyor that brings them to the tablet counter. Then they progress to an APA desiccant inserter and a Model CL-110 cottoner that inserts a cotton, rayon, or polyester coil into each bottle. Next, the bottles go through an S2 checkweigher-metal detector. The unit's Hi-Speed checkweigher is sensitive enough to detect misfills that vary as little as 50 milligrams from the target fill weight. The unit's Safeline ZMFZ metal detector uses an internal cancellation field to eliminate interference from nearby metal structures, enabling it to operate at high frequency and with high repeatability, even in small spaces. Then a Model 150 UniCap capper places caps on the bottles, followed by sealing under a Pillar Technologies induction sealer. Finally, a Model Uni 300VA labeler places a pressure-sensitive, wrap-around label on each bottle.

The line fills round plastic or glass bottles in sizes from 50 to 700 cubic centimeters. Preparing the line to handle a different product, tablet size, or bottle size takes 35 to 45 minutes, including cleaning time. "The old line took about the same amount of time," said Matson. "But the new line has much more machinery to set up. Thanks to its ease of setup and user friendliness, we've been able to maintain pace during setup, changeovers, and cleaning." And the new line fills, caps, labels, and inspects as many as 120 100-count bottles per minute, exceeding Matson's expectations and enabling the company to exceed its capacity requirements to meet growth projections. The company also fills larger bottles with vitamins, and is now able to run up to 80 180-count, 400-cubic-centimeter bottles per minute.

In addition to fulfilling all of Matson's production specifications, the supplier satisfied her third important criterion: turnkey line integration. "Not all companies provide the quality of service and technical support that NJM/CLI does. They handled the line logistics and the line assembly—everything necessary to get the line put together and running. They are my sole contact if there are any issues or if anything else needs to be integrated."

Better, more reliable productivity

The line offers some additional benefits as well, including durable drive mechanisms that Matson can count on. "The line provides more

dependable and better-built drive mechanisms than many competitors' lines," Matson said. "The drive mechanisms allow the line to withstand the demand of multiple shifts 5 days a week."

The line also continues to ensure high product and package quality with inspection sensors and reject stations placed strategically throughout the line. "We have these sensors and reject stations in place to prevent any errors from occurring and to ensure high-quality product coming off the line," Matson said.

In all, Matson's extra homework paid off for Metagenics. "We're thrilled with the new line and its performance," Matson said. "As time has gone by, we've seen nothing but positive results that have reaffirmed our decision to go with an NJM/CLI line." Since Metagenics continues to expand, Matson has a supplier in mind for future projects. "NJM/CLI will be the first people I turn to." *T&C*

To maximize production throughput in a tight space, the supplier designed the new line in the shape of a key hole.

NJM/CLI, Lebanon, NH.
Tel. 603 448 0300
Fax 603 448 4810
Website: www.njmcli.com

Metagenics, San Clemente, CA.
Tel. 949 366 0818
Website: www.metagenics.com