

The group visited six state of the art facilities in Germany to learn more about corrugating and converting lightweight recycled containerboard grades.

By Jackie Schultz

A recent study tour of German box plants and mills was an eye-opening and educational experience for a group of North American corrugated manufacturers who visited six facilities in May. Organized and led by Chris Heusch of ARCH Inc. and Randy Banks of Sharp International, the tour focused on testliner-based packaging, which is a 100% recycled grade of containerboard. Converters on the tour had an opportunity to talk with plant production personnel about the technical details necessary to print and corrugate testliner grades.

The limited supply of virgin fiber combined with high labor costs and stringent environmental regulations require a very specialized approach to making

paper-based packaging in Europe. As a result, box plants are focused on the optimization of technology, automation, less use of fiber and measuring production in square meters, not raw tonnage.

The group visited several family-owned companies. The European corrugated industry consists of primarily privately-held, independent converters. This is in stark contrast to the U.S. where five companies control 74% of the containerboard market. "We saw this tour as an opportunity, particularly for independent corrugated converters in the U.S., to work around the oligopoly and learn how to make good packaging out of different raw materials," Heusch said.

EUROPEAN TOUR

A Technical Delight for North American Converters



MEMBERS OF THE GROUP AT GOEPFERT MASCHINEN

Euro Study Tour



COOLER CORRUGATING TEMPERATURES ARE KEY WHEN RUNNING LIGHTER WEIGHT RECYCLED GRADES. AT BROHL WELLPAPPE THE GROUP WAS GIVEN THERMOMETERS TO CHECK THE TEMPERATURE AT THE SINGLEFACER AND DOUBLEBACKER.

Hands On Detail

The study tour included stops at two corrugator plants, two mills, a sheet feeder plant, an offset printer, and a machinery supplier. All of the facilities confirmed the technical skills needed to successfully produce and convert lightweight recycled grades. "We didn't want to just tour the plants. We wanted to confirm the temperature at the singlefacer and doublebacker, as well as discuss the starch solids, types of printing plates, and the ink properties," Banks said.

At Brohl Wellpappe, a family-owned corrugator plant founded in 1887, the group was given thermometers to take

temperature readings on the corrugator. The plant uses 28.7# clay coated test liner white, 18# medium and 26# liner for a lot of its packaging. "You have to step back and look at the corrugator in order to understand how they can print on such a light paper combination," Heusch said. "How you create the board is important." The Agnati corrugator runs much cooler than U.S. corrugators with paper temperatures under 185F. In addition, the starch formulation is 0.9 lbs per 1000 sq ft compared to the U.S. where the average is 2.8 lbs per 1000 sq ft. "One of the reasons they can do this

in Europe is because they use modified wheat starch, not corn," Heusch said.

The state of the art facility specializes in higher-end flexo direct graphics printing. It has a seven-color Bobst Martin 924 NT flexo folder-gluer with infrared and UV. In order to print on uncoated testliner white, which is the European version of U.S. mottled paper, the plant uses a higher amount of ink. Anilox volumes are as much as 30% higher. In addition, all of the plate mounts are thin and flexible.



BROHL WELLPAPPE SPECIALIZES IN HIGHER-END PRINTING ON ITS SEVEN-COLOR BOBST MARTIN 924 NT FLEXO FOLDER-GLUER.

No Score Cracking

Niederauer Muhle, another stop on the tour, is one of the few mills that is certified to recycle Tetrapak. The mill produces uncoated white testliner. "It has a 78 brightness and a nice smoothness. It's a grade that box makers can print on," Heusch said.

Eichhorn, a 100-year-old family owned brown box plant runs the Niederauer testliner white on its BHS corrugator. The highly automated box plant, typical of European box manufacturers, specializes in low or no crush converting. Board weights range from 18.5# to 35#.

"One of the big topics was scoring on the flexo folder-gluer and diecutter without cracking on these types of papers because of their higher recycled



RAINER BRAUN, BROHL WELLPAPPE PRODUCTION MANAGER, IN FRONT OF THE COMPANY'S ASSORTMENT OF CORRUGATED PRODUCTS.



DR. WERNER HARTUNG VON LIPSKI (LEFT) OF INTER-PAPIER AND RANDY BANKS OF SHARP INTERNATIONAL AT EICHHORN, A 100-YEAR-OLD FAMILY OWNED BROWN BOX PLANT.

content," Heusch said. "The answer to that begins at the corrugator. By not overheating and drying out the paper you prevent a lot of score cracking." Another component to that is the plant's Emba 245 Ultima flexo folder-gluer, which has three different score nips.

130-inch Corrugator

A highlight for many on the tour was a visit to ProWell, a sheet feeder with a 130-inch corrugator running 1155 sq ft a minute. "The thing that I was really surprised about was the 130 inch corrugator. I knew that they existed. But to see a machine run 11 million sq ft a day on a consistent basis was pretty amazing," said Shane Old, Plant Superintendent at Lawrence Paper.

Greg Arvanigian, President and CEO of Arvco Container, agreed. "The ProWell sheet feeder was probably the coolest stop of the trip – the 130-inch machine that ran nothing but 130-inch. It was totally automated. They may have had about 17 people and that included maintenance, fork lift drivers, material handling and machine operators."

Fewer People

In a bit of a departure from corrugated box making, the group toured the Mayr-Melnhof FS-Karton mill, which makes a 4-ply coated white top linerboard. The four layer sheet is triple coated with a special blade coating that ensures a very high gloss level. The linerboard is used for both flexo and litho offset top sheets. The next stop was Gissler & Pass, which prints the MM Karton liner on its three large format Manroland offset presses.

"Throughout the week we had to

discuss what we could realistically transfer into our own business environment," Heusch said. "I think if you tried to build an identical plant in the U.S. you would set yourself up to fail but using certain technical details can help you."

"It was a very interesting tour to me, from front to back I thought it was well organized," Old said. "There was good cooperation from each of the plants we were in. They let us go and see anything we asked about. They were very open with their metrics."

Arvanigian said the tour was eye opening. "The Germans are running the same equipment we are. The biggest difference is in the material handling. It's eliminating people. They've got Dücker systems on the back of everything. If money is not an object, it's a great idea. One of the things that we're doing is trying to make sure that we plan the space for when we can put that stuff in. But it's a lot of money and since the labor costs here are significantly lower than what they are in Germany there just really isn't the return that they have. But it's cool to see that stuff in action."

Part of the tour included stops to



PART OF THE TOUR INCLUDED A VISIT TO RETAIL OUTLETS. RETAIL-READY PACKAGING AND HIGHER-END GRAPHICS ARE COMMONPLACE IN EUROPE.

Euro Study Tour



BOX PLANTS IN EUROPE ARE HIGHLY AUTOMATED WITH MATERIAL HANDLING SYSTEMS ON THE FRONT AND BACK END OF EVERY MACHINE CENTER.

retail outlets to see how end-users take advantage of corrugated packaging in the store. Retail-ready packaging and higher-end graphics are commonplace. "Everything that we saw was on coated liner, but the overwhelming majority of what we saw for boxes was point of purchase," Old said. Several refrigerated items consisted of lightweight doublewall in place of heavy kraft liners.

While the tour provided some interesting information on how to run lightweight board, Old said his options are limited in the U.S. because of the availability, or lack of, lightweight paper. "What I got out of it was the consistency. Several corrugator plants preached about the consistency of the paper that they receive. Even though it's highly recycled they were getting a very consistent product from the mill. I don't think we necessarily get as consistent a paper as I saw being produced over there."

Arvanigian doubts lighter weight packaging will be as popular in the U.S. as it is in Europe. "I don't ever see the

"THIS TOUR WAS ABOUT BEING PROACTIVE AS OPPOSED TO BEING REACTIVE TO THE U.S. MARKET," RANDY BANKS SAID.

European trend taking over in the U.S. You have too much capital invested in heavyweight containerboard mills, but it's a great opportunity for independents."

Banks said end-users like Unilever and Nestle have been the drivers for lightweight packaging in Europe. The trend has had a significant impact on the processes used for corrugating and printing. "European plants are motivated to be very creative with less fiber and extremely efficient because of high labor costs.

"This tour was about being proactive as opposed to being reactive to the U.S. market," he added. "Lightweight containerboard is coming to North America and the early adapters will certainly reap the benefits."

Heusch and Banks have announced plans for a study tour in 2015. The tour will be in May and will include visits to companies in Berlin, Dresden and Coburg, Germany. ■



MANY OF THE STOPS INCLUDED HISTORIC LANDMARKS LIKE THE COLOGNE CATHEDRAL THAT CHRIS HEUSCH (CENTER) LIKED TO JUXTAPOSE WITH ULTRA MODERN EUROPEAN BOX PLANTS. FROM LEFT ARE PETER CROSTON OF PRATT, FRANCISCO TREVINO AND EUGENIO AGUIRRE OF SULTANA, HEUSCH AND SHANE OLD OF LAWRENCE PAPER.