

# New SCA tissue machine on track at Alabama mill



Well into its startup curve, SCA's No. 14 machine at Barton is the newest part of its "close to the customer" approach

KEN PATRICK



The new 36-ft. tall, 6,500-fpm Andritz dry crepe tissue machine adds 70,000 tpy of light-weight tissue and toweling capacity to the Barton complex, boosting its total capacity to 180,000 tpy.

Following one year of actual construction and some 19 months from initial project announcement, SCA started up its new No. 14 tissue machine at the Barton mill in northwest Alabama on Oct. 19, 2008. Now several months into the startup curve, the new machine is "beating plan by about 20% per month," according to Jim Haeffele, who managed the expansion, and Mark Phiscator, VP of engineering and maintenance at SCA Tissue North America in Neenah, WI, who served as lead engineer.

Describing the past few months as "a successful startup that we are all very happy about," Haeffele adds that the new machine is meeting all specified quality parameters.

The US\$145 million expansion boosts tissue production capacity at Barton by 70,000 tpy, to 180,000 tpy. At the heart of the project is a 36-ft. tall, 18-ft. wide, 6,500-fpm (2,200-m/min) Andritz dry crepe tissue machine and a new 100,000-tpy Andritz deink line. The new No. 14 machine has a crescent former and produces

the company's Tork brand of tissues and two-ply dinner napkins for the away-from-home (AFH) markets.

PM 14 complements production from PM 12, which started up with the new mill in 2004. PM 12 is a C-wrap, twin wire former, wet crepe tissue machine that makes both brown and white grades for conversion into Tork AFH toweling and dispenser-type napkins. Both machines are equipped with 18-ft.-diameter yankee dryers, and together they supply all of the paper used by Barton's 34 converting lines, which can produce more than 14 million cases annually.

The expansion includes a 250,000-sq.ft. building that houses the new machine, deink line and associated additional capacity for wastepaper storage and handling. The project also includes an expansion of the water treatment facility and a second boiler that produces process steam.

## DESIGN & CONSTRUCTION

For both production lines at Barton, Haeffele explains that he and Phiscator used a unique layout concept. Instead of building a separate deink plant and a tissue machine, everything was built as one.

"Number 12 has its own deink plant and tissue machine, and one team runs the entire operation. We did exactly the same thing for PM 14. One team is responsible for everything from wastepaper at the truck docks to finished tissue mother reels ready for converting. Everything for each machine is in its own separate building."

All buildings at the Barton mill are separated by 60-ft.-plus corridors for fire prevention and



control. These gaps double as “bridge” tunnels for a fleet of unmanned AGVs (automated guided vehicles) and shuttle carts/rails that move rolls into and around converting, warehousing and distribution.

Haeffle explains that mill operations were designed so that everything is in the shape of a horseshoe—truck wastepaper unloading and storage at one end, followed around the horseshoe by the deink plants, paper machines, converting and distribution. In the middle is centralized maintenance. Across the street are the mill’s energy complex and separate waste treatment operations.

The mill was designed for expansion from the outset. Extra piping tees, tie-ins, lines, etc., were installed in most areas so that new equipment and systems could be added without having to dig up roads.

“We built in the capacity, for example, to add four more clarifiers and more aeration basin and sludge press capability, with little excavation. We also had sized intake and outfall lines at the river to support a total of four paper machines. Just a little foresight can reduce costs significantly in the future. You only get the chance to do this once, so we tried to do it in a very logical fashion, thinking about the future,” Haeffle says.

One challenge in particular, Phiscator recalls, were the expansions in effluent treatment, where all of the tie-ins had to be made on the run so that PM 12 could continue running. Similarly, the second boiler was installed and tied-in on the run.

Baisch Engineering provided detail project engineering, and C.R. Meyer was the general con-



tractor. “Both companies were excellent,” Haeffle acknowledges. “Commodity price escalation was a challenge on this project. From the time we did our estimates and turned in the investment proposal to the time we purchased materials for construction,

material cost increased more than 30 percent. But it nevertheless was a very successful project in all aspects.”

SCA brought on an additional 30 people for the new production line, including the deink plant and PM 14. Altogether, Barton employs some 500 people in the mill, converting and distribution operations.

“The team spirit of our employees led to our success at Barton. The best-designed and most automated plants will fail without the winning attitude of the plant employees. We have these kinds of employees at Barton,” says Phiscator.

### PM 14 TISSUE MACHINE

The new tissue machine has a single press, while the existing PM 12 has two presses.

PM 14, Haeffle notes, has a two-layer headbox compared with the single layer headbox on PM 12. He adds that excellent CD profile is achieved on PM 14 through dilution profile control (weight) coupled with moisture control via a Honeywell steam box (on 3-in. centers) located at the suction pressure roll.

The twin wire, C-wrap PM 12 is designed for high water volume handling, Haeffle explains, which is well suited for toweling. Crescent formers

such as those used on PM 14, he adds, have limited dewatering but make a soft tissue sheet, with high bulk and high stretch, using a single press.

The crescent former produces a nice filled-in sheet for lightweight grades.

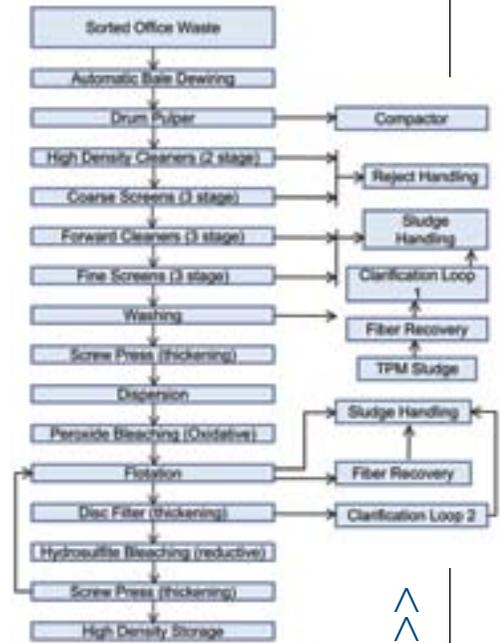


Figure 1.

The deink line for No. 14 machine is basically a two-loop process, with separate stages of oxidative and reductive bleaching.



(far left)

Wastepaper in No. 14 deink line passes through automated bale dewatering, a bale breaker and into the drum pulper.

The mill’s aeration basin was large enough to accommodate the new production line, but primary and secondary clarification was added and sludge processing was expanded with a new rotary thickener and a new sludge press.



## It's who we are

SCA Tissue North America President Don Lewis shares his views with *Paper360*:

**P360°: Tell us a little about SCA Tissue's regional manufacturing approach.**

Making products in regions where they will be shipped follows our "close to the customer" approach. Through our SmartFit initiative, for example, we maximize the trailer cube to reduce costs. We optimize shipping units to reduce fuel usage and warehouse storage needs. When we launched SmartFit, we optimized nearly 7 million cubic feet of trailer space that was previously unused. That has allowed us to annually save 2,200 trucks and 200,000 gallons of diesel fuel.

**P360°: How will SCA Tissue position or focus its products in the future?**

Two key drivers for SCA Tissue are hygiene and sustainability. By helping our customers reduce consumption, we're helping their bottom line. Less consumption means less product needed. We also make products that are 100% recycled with more than 750,000 tons of wastepaper per year. Products like our Xpressnap deliver one-at-a-time dispensing to reduce napkin usage. In fact, we guarantee a 25% reduction in consumption.

**P360°: Does SCA have any interesting "paper" developments on the drawing board?**

Last year we launched our Tork



Don Lewis, president of SCA Tissue North America

Premium Cloth with Microban. This wiper has a protective antimicrobial formula that inhibits the growth of odor-causing bacteria, mold and mildew. It's also stain resistant, which helps keep the wipers looking clean and fresh.

**P360°: SCA Tissue has received several significant pollution prevention awards in the past few years, and it was named "second greenest company on the planet" by British newspaper *The Independent*, in conjunction with Ethical Investment Research Services. Is such recognition important to the company?**

SCA was recently recognized as one of the world's 100 most sustainable companies by Corporate Knights—for the fifth year in a row. We're proud of third-party feedback like this because it recognizes our focus on sustainability, which is important to our customers. Last September our plant in

South Glens Falls, NY, became a member of OSHA's Voluntary Protection Program with Merit status. We don't focus on things like sustainability, safety and ethics for the recognition—it's who we are.

**P360°: How does the U.S. AFH import/export situation look?**

Tissue trade between Asia and the U.S. has grown, while Latin American imports have declined, creating a major import deficit due to the rapid increase of China/Indonesia imports. We also expect North American tissue net imports to continue to grow. Since we are dealing with a commodity market and based on the nature of our industry, the impact should be relatively low compared with other markets.

**P360°: What emerging trends do you see in the U.S. AFH marketplace?**

Green products are important to our customers. However, under the current economic conditions customers are not likely to pay a premium for green products. With all things equal, customers prefer products that minimize environmental impact. We'll continue to innovate aggressively, especially in the area of touch-free dispensers that offer numerous benefits, especially in the area of hygiene. Customers only touch what they use. One-at-a-time dispensing also cuts down on waste, a key economic benefit.

"When you're making a sheet of tissue that's only about a fiber and a half thick, it's got to be pretty filled in," Haeffle says. With a dry crepe, "you want bulk, and the single press helps us in that regard. With the crescent former, there is no wire-to-felt transfer, which dramatically improves performance at high speeds."

PM 14 is suitable for lightweight grades, with low to moderate dewatering at very high speeds. PM 12 is suited for lots of dewatering on heavy weight grades at fairly high speeds. With the two machines, "we can now make the full line of our Tork products," Haeffle says.

PM 14 has a conventional reel for AFH mar-

ket grades. Everything, Haeffle notes, “is slit on the reel using Paprima water slitters.” The fully automated reel section with spool return was supplied by Andritz. Automatic Handling Inc. supplied the system that has automated shafting and unshafting, and carries/ramps parent rolls into an existing roll handling system.

PM 14 fills a void for the Barton mill in its southeastern U.S. AFH market portfolio. The mill produces folded brown and white towels, napkins, and single- and two-ply bathroom tissues. Before PM 14, a high percentage of paper for this facility’s converting capacity was being purchased from external sources.

“PM 14 supports the SCA regionalized approach, where we’re concentrating production and converting to serve four U.S. quadrants—the Southeast, Northeast, Midwest and West,” Haeffle says.

In addition to the deink line and tissue machine, Andritz supplied the stock approach system, which is relatively short and compact. “The old construction trend was to install large chests and lots of them. But as automation has improved, the need for large tanks and vessels has gone away. So we have a short, highly-automated approach system to the Number 14 machine,” Haeffle explains.

The DCS and QCS are a joint effort by Voith Automation and Rockwell Automation, which provided the Allen-Bradley ControlLogix drives for PM 14. Albany International is the primary clothing supplier and Voith is the secondary clothing supplier.

## NEW DEINK LINE

The No. 14 recycled fiber system was designed to process 100% mixed office wastepaper (MOW).



“With Number 14, we’re not swinging from brown to white as with the Number 12 line, which uses batch pulping. Thus we chose to use drum pulping with PM 14,” Haeffle explains.

The new 100,000-tpy deink plant receives about 350 tpd of pre-sorted, purchased MOW from suppliers primarily around the Southeast. Phiscator notes that the MOW is mainly shredded, and is generally “dirty” in that it contains a lot of paper clips, compact disks, various plastics and sometimes a high percentage of groundwood.

Together with PM 12, the mill processes around 800 tpd of recovered papers. The yield from this supply, after removal of contaminants and a high percentage of filler and coating minerals, averages between 60% and 75%.

The same trucks that deliver SCA’s finished products also pick up wastepaper for return delivery to the mill. So wherever the mill sells product generally dictates where it gets its recycled fiber. The mill’s horseshoe design allows trucks to unload raw material on one end of the horseshoe, be cleaned out, and then reload with finished product on the adjacent end of the horseshoe.

As shown in the schematic (Figure 1), sorted



Jim Haeffle, who managed the expansion (left), and Mark Phiscator, VP of engineering and maintenance at SCA Tissue North America who served as lead engineer.



## Tissue machine by Andritz

“Machine startups always get very dynamic, because it’s a three-fold issue—between the supplier, the construction company and the paper company.

Collectively, as a team, we worked really well together to get everything done and get the machine running. The three team members worked out every problem almost flawlessly. SCA was very patient with the startup process, which of course is still going on. We’re working hip-to-hip with the other two groups and in a couple of months we should be completely through the startup process. A six-month learning curve, including a complete deink plant, is a good result.”

— John Schamell, VP Andritz N.A. Paper Machine Division

office wastepaper passes through automated bale dewiring, a bale breaker and into the drum pulper. In Loop 1, pulper accepts go to a dump chest, and from there through two stages of high density cleaners, three stages of coarse screening, three stages of forward cleaners, and three-stage fine cleaning. This loop has its own fiber recovery and clarification.

The second loop is the bleaching loop, which has flotation and two stages of non-chlorine bleaching—oxidative with peroxide followed by reductive with hydrosulfite.

### WASTE TREATMENT, POWER

Another 70,000 lb./hr Nebraska Boiler (duplicate of the existing boiler) was installed as part of the expansion. Both boilers are fired on 100% natural gas and provide steam for the process. The mill installed an additional 15 KV switch gear, and Sheffield Utility installed more electrical transformers. Interstate high pressure gas lines go through this

area, so there is an abundance of available natural gas. TVA energy costs are also an advantage, along with water and other utility costs.

The waste treatment plant was expanded with a couple of new clarifiers. Aeration diffuser density was increased, and another blower and sludge screw press were installed. "Our aeration basins (biological section) were big enough. But to handle the higher hydraulic loads, we added one primary clarifier and one secondary clarifier.

The Barton mill has been operating its waste treatment operations at 10% to 20% of permit levels, Haeffele says, which means it is very environmentally friendly. The mill has received several environmental awards, including a state pollution prevention award, a state waste recycling award, and an award from the Alabama Department of Environmental Management. 

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