Getting closer to optimum.

To produce the best quality paper from recycled fiber furnish is the target of Lenzing Papier. Lenzing Papier is getting much closer to optimum, thanks to a simple automation tool that analyzes dirt count online. This gives the craftsmen in the DIP plant the real-time information they need to blend a better pulp.

The anticipation was overwhelming – then the results came so quickly.

First, there were the two weeks for installing, programming, and testing the new system. Then, within eight hours after the unit was installed, a quantum leap in DIP pulp quality was made at Lenzing Papier in Austria.

"Previously we had to make handsheets in the lab to check DIP pulp quality. Between the lab checks, our operators were flying blind."
Franz Gstettenhofer, Lenzing Papier Technical Director

Franz Gstettenhofer (left), with Siegfried Troppan, Sales Director for Europe of ANDRITZ Automation Solutions (middle), and Markus Bammer, Manager Deinking Line.

The leap is the result of PulpVision®, an online measurement tool. Instead of relying on handsheets and lab tests for the latest dirt count, Lenzing Papier's DIP plant operators are now getting this vital information in virtually real-time. Armed with this information, operators can quickly adjust the mix of recycled fiber furnish to the mill's 4.84 m trim paper machine to keep paper products within spec.

Lenzing Papier is one of the leading manufacturers of poster, offset, and copy papers made from recycled fiber. While some products have up to 50% virgin fiber, the specialty of the company is paper made from 100% recycle. For recycled fiber processors like Lenzing Papier, where deinked pulp cleanliness is critical, PulpVision® has become the DIP plant operators' best friend.

An online "movie"
The PulpVision® system is simple and functional. A small flow of deinked pulp after the disperger and before the paper machine stock chest is diverted to a small pipeline where the unit is installed. The 5% consistency stock passes by a 10x10 cm measurement window in the unit. Much like a movie camera, the camera inside PulpVision® takes 24 pictures a second with a resolution from 7 to 100 microns. Dirt particles are counted and computer-analyzed for size and size distribution. The results are displayed on the operator's screen. Average results are updated every 10 seconds.

"We have to cook our soup fresh every day. Now we can dose the ingredients much more exactly and do not need to hope that the soup will be to our liking."
Markus Bammer, Manager Deinking Plant

▲ Like a movie camera, the camera inside PulpVision® takes 24 pictures a second with a resolution from 7 to 100 microns. Dirt particles in the pulp are counted and computer-analyzed for size and size distribution.

No more waiting

In the control room at the mill, the dirt count values are displayed as simple graphics and bars. The information allows operators to create the most cost-effective mixture of different wastepaper qualities and to avoid unexpected dirt contamination.

If the dirt count exceeds a limit set for the grade of paper being produced, the system gives an alarm. A dirt count exceeding limits can cause downgrades or even disqualification with respect to grade-dependent quality specifications at the paper machine – unless the operator reacts quickly. Typically, this means adding a higher grade wastepaper into the mix to raise the cleanliness.

"Our paper is produced to tight specifications," says Technical Director Franz Gstettenhofer. "If the dirt count is too low, this means we are using more expensive raw materials and lowering our margin. If the count is too high, we have to downgrade the paper, selling it at a lower price, or repulp it. It is like walking a tightrope."

The key to this balancing act, according to Gstettenhofer, is for operators to have accurate information quickly. "Previously we did the dirt count analysis in our lab by making handsheets. This process took time. In between lab tests, our operators were flying blind and could not quickly avoid critical and loss-generating situations."

"We have to cook our soup fresh every day," smiles Markus Bammer, Manager of the Deinking Plant, as he refers to the stock preparation task. "Now we can dose the ingredients much more exactly and we don't need to hope that the soup will be to our liking."

The main ingredients in Lenzing Papier's "soup" are various standards of sorted office papers (colored and white), colored woodfree magazines, white business forms,

PULP VISION®
ONLINE DIRT MEASUREMENT

- Real-time in-line sensor
- Detection and classification of dirt and ink particles
- Camera-based measurement: 6-24 frames per second
- Resolution: 7 to 100 microns
- Consistency range – 0.5-5%

Results

Savings based on cost-oriented selection of wastepaper qualities. The DIP process can be operated as close as possible to the quality limits with respect to dirt levels. Online measurement information from PulpVision® allows operators to react immediately to prevent off-spec paper production.

▲ The main ingredients in Lenzing Papier's paper from recycled furnish are various standards of sorted office papers (colored and white), colored woodfree magazines, white business forms, printed bleached sulphate board, and other wastepapers.

printed bleached sulphate board, and other wastepapers.

Excellent payback, easier production

Gstettenhofer is expecting a fast payback on Lenzing Papier's investment in PulpVision®. The savings come primarily from two areas: eliminating off-spec paper which must be repulped, and avoiding downgraded paper production due to high dirt penetration. He estimates annual savings of about EUR 100,000 in off-spec alone.

"We have not produced off-spec waste or downgraded any paper since PulpVision® was installed," says Gstettenhofer.

Upgrade planned

Gstettenhofer and Bammer are very satisfied with PulpVision®, and already have the first upgrade in sight. At the moment, Lenzing Papier's system only measures the number and size of the dirt particles. Soon it will be upgraded to detect and quantify the problematic stickies remaining after the recycled fiber processing. "This will be another big step for us to improve our process stability and product quality," says Bammer, who is looking forward to this upgrade.

"We assume that we will be able to implement this update as easily as the first release of PulpVision®," says Siegfried Troppan, Sales Director for Europe of ANDRITZ Automation Solutions. "To bring PulpVision® to run clearly took us only some hours, because the project was prepared perfectly."

FIND OUT MORE AT
www.spectrum.andritz.com