Getting closer to optimum

To produce absolutely the best paper from recycled furnish is the target of Lenzing Papier in Austria. In the past year, Lenzing is getting much closer to optimum, thanks to a simple automation tool from ANDRITZ PULP & PAPER. This tool analyzes dirt count online – allowing Lenzing's craftsmen in the DIP plant to get the perfect blend of the pulp.

The suspense was overwhelming – then it was over 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 pulp quality was made at Lenzing Papier in Austria.

Previously we had to do the analysis of the pulp in the lab, which took us two hours. During this time, our operators were flying blind."
Franz Gstettenhofer, Lenzing Managing Director

The leap is the result of PulpVision®, an online measurement tool. Instead of waiting two hours for a lab test of dirt count, Lenzing'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 is one of the leading manufacturers of poster, envelope, 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, 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 up 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.

Franz Gstettenhofer (left), with Siegfried Troppan, Project Manager from ANDRITZ (middle), and Markus Bammer, Manager Deinking Line.

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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 Managing 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 and sell it at a lower cost. 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 had to do the dirt count analysis in our lab with handsheets, which took about two hours. During this time, our operators were flying blind and could not quickly avoid critical and loss-generating situations in our paper production."

"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's "soup" are various standards of sorted office papers (colored and white), colored woodfree

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Markus Bammer, Manager Deinking Plant

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 – 25, 50, 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.

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magazines, white business forms, printed bleached sulphate board, and other wastepapers.

Excellent payback, easier production

Gstettenhofer is expecting a fast payback on Lenzing'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 € 100,000 in off-spec alone.

"Before we had PulpVision®, it happened that the paper did not reach the defined quality and we had to downgrade it and sell it cheaper," says Gstettenhofer. "That is now a thing of the past. We have not produced any off-spec waste and have not downgraded our paper even one time since the system was installed."

Upgrade planned

Gstettenhofer and Bammer are very satisfied with PulpVision®, and already have the first upgrade in sight. At the moment, Lenzing'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 quality," says Bammer, who is looking forward to this upgrade.

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