

BTG system delivers fast payback for Spain's Stora Enso

Faced with increasingly competitive markets for its board products, Barcelona-based Stora Enso needed to boost profitability fast. Installation of a closed loop control system from BTG's wet end expert Mütek has helped the company achieve savings of more than €500,000 a year on chemical costs.

Deployment of a Mütek™ PCT-20 Charge Analyzer on Stora Enso's Tampella board machine has paid for itself in under six months by allowing the company to dramatically cut expenditure on chemical fixatives, strengthening agents and retention aids.

The Stora Enso mill, located about 20km northwest of Barcelona, produces three-layer white lined chipboard (WLC) based on recycled fibres from recovered paper such as white waste, newspapers, magazines, telephone directories, household collection and tetrabricks. Its Tampella machine currently produces 160,000tpy of board in basis weights ranging from 210gsm to 475gsm.

High quality – but at a high price

Strong downwards pressure on the price of its chipboard, combined with the spiralling cost of energy, chemical additives and raw materials, meant Stora Enso Barcelona needed to find a way of reducing overheads without compromising the high quality of its finished product. BTG was charged with the task of developing a solution that could cut chemical costs while boosting overall productivity.

The main chemicals used in the board production process were a sizing agent to achieve the necessary release properties on the Yankee; PAC, which served as a fixative; and cationic starch, which served a dual function as a dry strength agent and retention aid. Chemical costs associated with the production of the top layer of the three-layer WLC were highest, owing to the need for an attractive finish.

The new BTG solution has meant:

- no more need for starch
- no more need for sizing agent
- dramatic reduction in PAC dosing

Accurate analysis pinpoints the problem

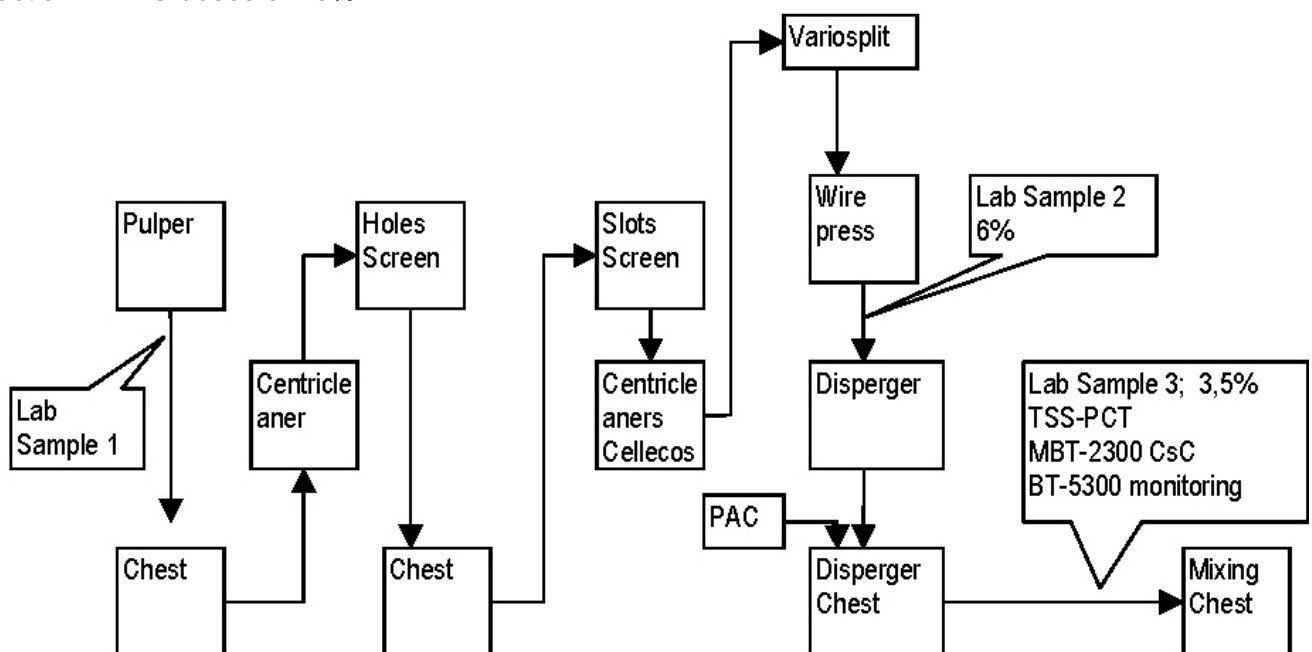
BTG engineers began by evaluating measurements taken 1 - 2 times a week with a Mütek™ PCD-03 Particle Charge Detector. Measured charge values were shown to be very close to zero, and a lowering of chemical doses was attempted on the basis of these readings, with PAC doses reduced and the temporary elimination of the sizing agent and starch. However, the addition of size and starch had to be quickly resumed when it was found that their absence resulted in unstable machine runnability and intermittent quality problems.

Against this background, a Mütek™ PCT-20 Charge Analyzer equipped with a Mütek™ TSS-70 Filtration Sampler were installed to perform charge measurement in the thick stock and direct charge measurement in the white water of the top layer.

The new instruments quickly revealed that the instabilities in the system had their origins in high charge variations in the thick stock – a typical scenario when waste paper is used as the primary raw material.

Dosage of PAC to the thick stock was put on closed loop control to help keep charge levels stable. This approach proved highly successful, allowing for the total elimination of size and starch additions to the top layer furnish, and a reduction in PAC doses of 40%.

Stora Enso's Mütek charge control solution greatly reduced the need for chemical additives



PCT-20 is receiving the following samples:

- 1-TSS outlet of disperger chest
- 2-WW Top layer
- 3-WW Intermediate layer
- 4-WW Back layer

The Mütek™ PCT-20 and TSS-70 were installed in the top layer circuit before the mixing chest. The PAC is dosed into the disperger chest. The PCT-20 receives the following signals: (1) TSS-70 outlet of disperger chest, (2) white water top layer, (3) white water intermediate layer, and (4) white water back layer.

In light of these positive results, the white waters of the medium and bottom layer were connected to the PCT-20, and PAC dosing to these layers was also put on closed loop control, with the same highly beneficial outcome.

Monitoring over the following weeks revealed that not only was the need for chemical additives greatly reduced, but web breaks came down considerably.

Several months on, the optimization measures introduced by BTG based on closed loop charge control via its Mütek™ PCT-20 are helping Stora Enso save more than €500,000 in chemical costs alone, and the company's engineers are full of praise for the system's highly accurate, reliable measurement values and low maintenance requirements.

Technical data

First put into service when the mill began operations in 1968, Stora Enso's four-metre board machine is equipped with three fourdrinier headboxes and a Yankee. Production speed ranges from 175m/m to 475m/m, according to the basis weight of the board being produced.

The top layer of the triple-layer board is triple-coated using bent blade/air knife/bent blade, while the bottom layer is single coated only. Coating is performed using BTG's Duroblade® technology.

The top layer is composed of 100% white waste paper, the medium layer of 85% waste paper and 15% TMP and own broke, and the bottom layer of 100% waste paper and own broke.

To learn more about Stora Enso, visit

www.storaenso.com