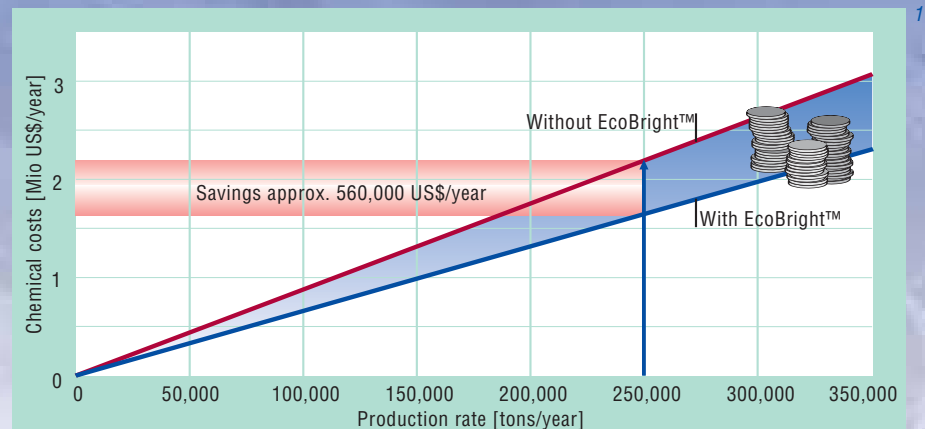


EcoBright™ – a quantum leap in product quality constancy

Wouldn't it be fantastic if papermakers could produce fibre stock and paper with a significantly more consistent quality and even save money at the same time? Can't be true? EcoBright™, our intelligent new brightness control system, will help you achieve this objective.



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Stock Preparation



The first EcoBright™ control package has been operating successfully since October 1998 in a recovered paper stock preparation line in a Central European newsprint mill. Here, final brightness of the finished stock is controlled in a peroxide bleaching stage by dosage of hydrogen peroxide directly at the disperger.

This installation has proved to be highly successful. Compared with the previous year, EcoBright™ has reduced hydrogen peroxide dosage by 30%, with similar savings in bleaching additives such as caustic soda and waterglass. Precise automatic control and extremely good correlation between on-line and laboratory brightness measurement has meant that the minimum brightness requirement for the finished stock has been reduced from 61% to 60.5% ISO. The mill no longer needs to set higher brightness levels to ensure a certain minimum brightness and so avoid the production of paper with an unac-

ceptable brightness level. By registering variations in furnish quality and specific bleaching characteristics, EcoBright™ ensures chemicals are dosed precisely.

While direct cost-savings in bleaching chemicals can be accurately assessed, – here they amounted to US\$ 1.90 per tonne of finished stock, – further benefits of the EcoBright™ system are not so easily quantifiable. As mentioned, these benefits mainly include a more consistent product quality, leading to reduced off-spec quality and lower loopwater loading thanks to less use of caustic soda and hydrogen peroxide. Reduced operator duties is a further significant advantage. Only the required brightness has to be set, which EcoBright™ then automatically targets and maintains by appropriate adjustment of chemical dosage.

The EcoBright™ control system uses high-precision optical on-line sensors

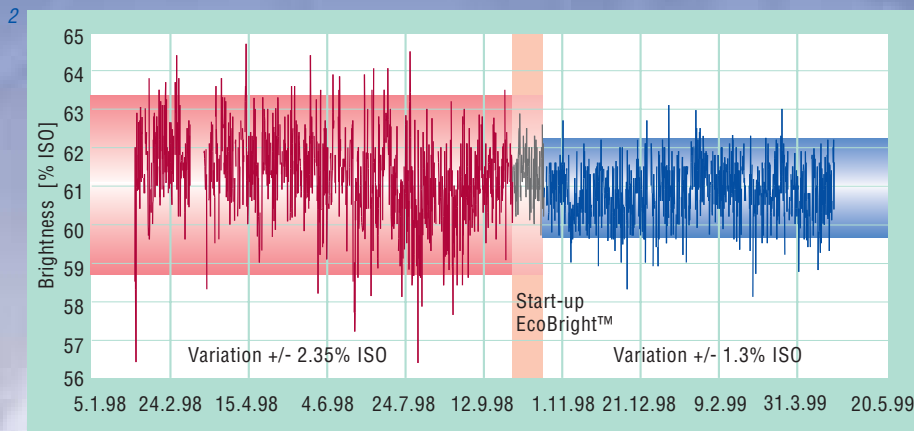


Fig. 1: Bleaching chemical savings with EcoBright™
 Chemical costs:
 1.3% peroxide (0.56 US\$/kg, 100% concentration)
 0.65% NaOH (0.26 US\$/kg, 100% concentration).

Fig. 2: Final brightness values in 1998 and 1999 before and after installing EcoBright™.

which can be easily calibrated and require minimum maintenance. On the software side innovative control strategies such as SPC (Statistical Process Control), fuzzy logics and neural nets which have been “trained” beforehand in extensive laboratory and mill tests, are used. A feed-forward strategy is systematically applied so that action is immediately taken as soon as process changes occur, rather than waiting until they cause deterioration in product characteristics. EcoBright™ thus solves problems beyond the scope of conventional or manual control systems.

An important innovation of the EcoBright™ brightness control package is that for the first time more than one process stage is analysed and controlled. With EcoBright™ all stages following bleaching, such as post-flotation, are also integrated into the control system. For example, the synergy effects which hydrogen peroxide from bleaching brings

in post-flotation are registered and taken into account. This makes EcoBright™ the first intelligent control system to be used in recovered paper stock preparation.

EcoBright™ is fully customizable since it can be adjusted to suit the specific conditions of the individual stock preparation system and technology. With EcoBright™ Voith Sulzer Stock Preparation therefore offers individual solutions for individual stock preparation plant, while at the same time drawing on the company’s extensive technological know-how as leading equipment supplier in this field.

The chemical savings achieved with the EcoBright™ system cannot, of course, be precisely forecast. In general, however, the highest cost savings can be expected in cases where furnish quality fluctuates widely and/or large amounts of chemicals are used. Here, return on investment is fast, depending on production tonnage.

EcoBright™ – our services:

- Definition of a customized brightness control concept to suit your individual needs
- Determination of measuring points
- Preparation of planning documentation for control and instrumentation
- Commissioning and calibration of brightness sensors
- Bleaching trials in the laboratory and in the mill
- Calculation of process dead times and process gains
- Software implementation for your customized brightness control system
- Implementation of the EcoBright™ system in your stock preparation line
- EcoBright™ system tuning
- Final system fine-tuning.

EcoBright™ hardware:

- Brightness sensors with optional self-cleaning module. The number of sensors depends on the individual system configuration
- Windows NT work station
- Link-up to your existing process control system (DCS) via OPC, various bus systems and/or serial interface.