



AquaFit4Use

Concepts for optimal water use

PTS SystemCheck Water®

Papiertechnische Stiftung

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DESCRIPTION AND SPECIAL FEATURES

Water quality and availability are crucial to process productivity and product quality. Suitable circuitry can greatly improve water quality.

PTS SystemCheck Water is used to analyse and optimise existing plants. The optimisation of water circuits requires interdisciplinary know-how. PTS has developed specific evaluation tools that ensure complete detection and collection of all potentials.

The PTS SystemCheck Water has a modular architecture covering all relevant water topics (Figure 1).

Simulation technology using the software IDEAS™, of course, is an integral part of this process. Only with simulation technology is it possible to selectively determine solutions that achieve both the technical and economical optimum.

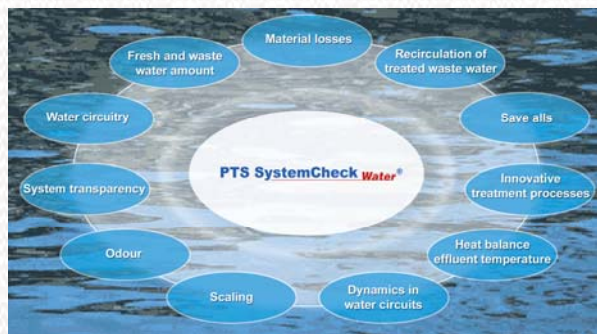


Figure 1.- Modules of PTS SystemCheck Water

PROJECT EXAMPLE – FRESH WATER USE

Water Use – Current situation

- Specific effluent volume (14 l/kg base paper) quite high compared to other mills producing coated woodfree paper.
- $K1 \ll 1$ indicates fresh water which is discharged directly to the effluent treatment plant without relieving the paper machine loop
- No loop separation and counter current arrangement

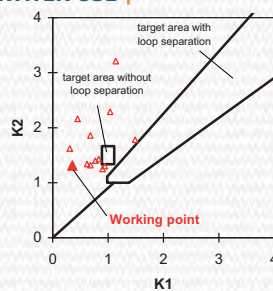


Figure 2.- K1-K2 Performance Characteristic

Identified fresh water saving potential

- An action plan with single measures, partly including several alternatives, for a reduction of the specific fresh water consumption was elaborated.
- The entire saving potential amounts to 33 % of the current fresh water consumption.

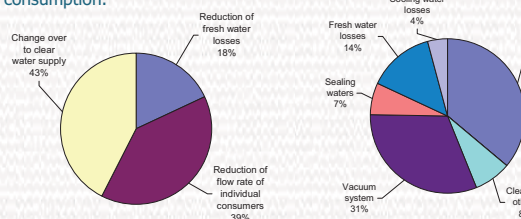


Figure 3.- Type of saving (left) and area of saving (right)

PROJECT EXAMPLE – SIMULATION STUDY

Objective of the simulation study performed within the frame of the AquaFit4Use project was the prediction of the impact of different integrated water resources management approaches (e.g. reduction of fresh water consumption) and design principles (e.g. optimisation of circuitry) on water quality (system loading) and process stability to guarantee a more efficient use of limited water resources. Furthermore, a recirculation of biologically treated water was simulated. This also included the integration of tertiary treatment units like nanofiltration and ozone treatment.

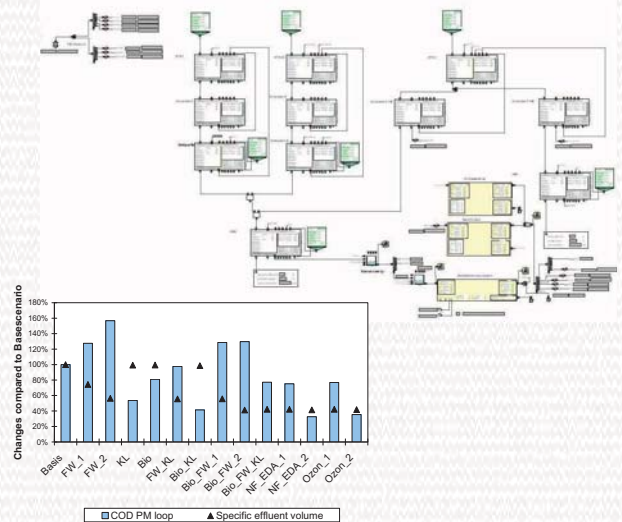


Figure 4.- Simulation model and simulation results

INDEPENDENT CONSULTANCY BY PTS EXPERTS

The optimisation of water circuits requires interdisciplinary know-how. PTS offers you many years of experience gained from numerous system analyses in all product groups. The PTS service comprises analytical data acquisition in the water circuit, evaluation, drawing up an operating concept with a set of measures, documentation and presentation. If desired, PTS consultants can take over project management entirely, carrying out the agreed concepts from basic engineering right through to project implementation.

COMPETITIVE ADVANTAGES

Reduction in fresh water and effluent costs

- Enhanced productivity and product quality due to lower loads of detrimental substances
- Minimisation of material losses discharged together with effluents
- Minimisation of emissions
- Elimination of disturbing odours



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knowledge transfer and dissemination

SP 6

DISSEMINATION AND training