PTS offers a system analysis methodology for the evaluation and optimisation of stock preparation plants. It is comprised of an evaluation of results, balancing of the plant as well as a proposal for the simulation of ink particles and resulting optical treatment stages or implement complex process solutions, all of which raises the production costs significantly, which is mainly due to the following reasons:

To counteract these trends, papermakers add more chemicals, put up with larger reject and flotate quantities at various savings would amount to 3,600,000 – 10,500,000 €. Based on experience, investments for the necessary process treatment plants. It includes the following steps: on-site process analysis, analysis of the samples collected, presentation
resulting evaluations the tools for planning, evaluation, assessment and simulation were gradually developed.
The status-quo of the dirt speck removal was determined in three deinking plants. Based on the system analysis and the
applications the tools for planning, evaluation, assessment and simulation were gradually developed.
Innovative methods for sample preparation and new tools for the evaluation of the measurement results were developed. For the first time it is possible to measure the absolute loading of dirt speck particles in all pulp and water streams. New as well is the measurement of the loading across the whole size spectrum from 1 – 5000 µm. For the first time small and large dirt speck particles can be evaluated in a summarized way by joint characteristics, and used for process assessment. For the first time the new method measuring the size distribution of ink particles could be used successfully in all process steps of deinking plants. The analysis method could be applied in undeinked and inked pulps, in flotates and filtrates.

To counteract these trends, papermakers add more chemicals, put up with larger reject and flotate quantities at various
Optimisations by means of the System Analysis Deinking can lead to reductions in raw material and disposal costs and in chemicals consumption. Based on the current averages of these three cost factors, the savings potential amounts to approx. 2.5 – 7.4 € per ton of paper produced. For a five-year period with an average paper production of 310,000 t/a, savings would amount to 3,600,000 – 10,500,000 €. Based on experience, investments for the necessary process modifications and the system analysis itself can be estimated at approx. 500,000 €/5a, which would allow net cost savings of 3,100,000 – 10,000,000 € within five years.

Subject:
Development of a system analysis for dirt particle control in paper production from deinked pulps

Background/Problem area
Papers produced from deinked pulp (DIP) must meet high optical requirements. An important evaluation parameter in this context is the number of dirt specks. In recent years, the dirt speck numbers of DIP-based papers have increased significantly, which is mainly due to the following reasons:
- the steadily growing share of printed papers in the recovered papers used as raw material,
- increases in production capacity lead to treatment plants being operated close to their load limits, i.e. outside the optimum range. This results in an undesired comminution of dirt and ink particles, which renders their removal more difficult.

Application/Economic benefits
Optimisations by means of the System Analysis Deinking can lead to reductions in raw material and disposal costs and in chemicals consumption. Based on the current averages of these three cost factors, the savings potential amounts to approx. 2.5 – 7.4 € per ton of paper produced. For a five-year period with an average paper production of 310,000 t/a, savings would amount to 3,600,000 – 10,500,000 €. Based on experience, investments for the necessary process modifications and the system analysis itself can be estimated at approx. 500,000 €/5a, which would allow net cost savings of 3,100,000 – 10,000,000 € within five years.


Remarks
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