Research institute:

PTS Munich
Hess-Strasse 134
80797 Munich

Internet: www.ptspaper.de

Head of the research institute:

Dr. P. W. Rizzi

Project leader:

Dr. Elisabeth Hanecker
Tel: 089 / 12146-495
Fax: 089 / 12146-36
E-mail: E.Hanecker@ptspaper.de

Research area: Process aims

Pulp production // Recovered paper treatment

Keywords:

Recycled fibre treatment, deinking, yield

Subject:
Process solutions for an optimum fibre recovery from deinking plant circuit waters and rejects.

Background/Problem area

The state of the art for graphic product recycling has dramatically changed during the last decade. The deinking technology has become increasingly complex and now includes a lot of different steps. Accordingly, operating costs and reject volumes are undergoing a drastic increase.

Increasing amounts of contraries contained in recovered papers and the ever more stringent quality requirements on recycled fibres necessitate more extensive cleaning operations. As a result, the residue arisings from recovered paper treatment continue to grow. The relatively high quantities of residues present in deinking plant effluents and sludges force recycling mills to increase their spending on utilisation of wastes or disposal processes. Higher utilisation rates of recovered papers in papermaking contribute to this development. To maintain their competitiveness, recycling mills need adequate and cost-efficient processes enabling an optimum fibre recovery from deinking plant sludges and effluents.

Objectives/Research results

Against the background of increasing residue volumes from recovered paper treatment, the project aims at increasing the efficiency of recovered paper treatment plants (deinking plants) and reducing the waste arisings and the resulting disposal/recycling costs and costs for recovered paper.

Accordingly, the quantities of fibres contained in the circuit waters and reject flows of deinking plants were determined. It was shown that the fibre content in the flotation rejects and circuit water of deinking lines is low. Fine elements, including cellulose fines, fillers, coating pigments and flakes as well as inks, stickies or other microscopic contraries, represent with more than 95 % the essential part of solid losses.

Due to the low amount of long fibres and the high content of impurities (inks and stickies) there is no potential regarding fibre recovery from the rejects. The main conclusions about fibre recovery from the rejects are that further process steps for concentrating and cleaning the long fibre fraction should not be economically.

Application/ Economic benefits

Result is a data base about amount and composition of rejects from denking lines showing the limits of cost-efficient processes enabling a fibre recovery from deinking plant sludges and effluents.

These findings can be used as a basis for investment decisions and further more in deciding future services in development and consultancy covering the area of reducing the amount of waste in deinking lines.

Project period: 01.02.2005 – 31.01.2006

Remarks

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