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Research area: Process aims

Pulp production // Recovered paper treatment

Key words:

Sorting, sensor, NIR, colour, image analysis, identification, characterisation, raw material, eco-efficiency

Title:**Recovered Paper SORTing with Innovative Technologies (SORT IT)****Background/Problem area**

Recovered paper is the most important fibre raw material for paper production. High demand on international markets for fibrous raw materials affects regional industries by shortage in supply and increase of costs. These trends put recovered paper sorting in perspective of suppliers and paper manufacturers. In the past intense sorting was not economically reasonable due to low raw material prices. But improved raw material quality and quantity will be of great importance for the competitiveness of paper-related industries in the future and it is of interest yet today.

For increased usage of recovered paper and thus a more environmentally and economically sound paper production, appropriate raw materials for high quality papers as well as increased amounts of recovered paper have to be provided. Homogeneity of recovered paper raw materials has to be improved as their composition varies depending on the origin and sorting. The proposed project SORT IT will develop the key technology to provide both, increased quality as well as increased quantities of recovered paper.

Objectives/Research results

The concept of this project is the development of new and improved sensor and measurement technologies for recovered paper sorting. The main objective of this work is to enable sustainable and cost effective paper recovery at more than 95% yield for all recyclable paper and board grades, and to provide recovered qualities allowing the best possible re-use in paper & board products. Another important objective is to enable paper recovery from paper-containing waste streams and provide raw materials meeting the users' specifications by implementation of online quality assessment techniques. SORT IT aims at paper recovery from pre-sorted streams with a yield of >95% and a purity of 98% for desired materials. For paper recovery from unsorted mixed waste streams an optimal balance between yield and quality shall be identified; and quality impacts by raising the yield up to > 95% shall be evaluated.

The state of the works encloses the following partial results:

The research and development is done for sensor applications in WP2. Pre-treatment options are analysed and research and development for sorting machinery and implementation of new sorting units are done in WP3. New sorting concepts are analysed in WP4. The improvement to sorting technologies was demonstrated in WP5 with full scale sorting. A Monitoring procedure was developed and realised. The public section contains general information about the project and partners, SORT IT events, scientific events organized by partners and worldwide, EC environmental legislation, CEPI and ERPA activities in the field, periodic newsletters.

Application/Economic benefits

The project will enable continuous quality control, pre-mixing will be obsolete. The recovered paper composition can be controlled by the demand of the customer. Furthermore this project will contribute to more homogeneity within the standard grades and give recommendations on EN643 in terms of more specific quality parameters describing the technical value of the raw material.

Advanced sorting of recovered paper will contribute to deliveries to the mills containing less non-recyclable material, which can result in:

- o reduction of transport costs and related emissions;
- o less amount of wet rejects in the mill and low energy consumption, respectively;
- o better solutions for valorisation of refusals and waste stream minimizing, since these will be in dry state and gathered in a high amount at the sorting place.

The results of the project in this field may serve as a basis for the development of the European environmental policy in waste management.

Project period: 01.05.2008 - 31.10.2011

Remarks

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