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Research area: Product aims

Raw materials / Paper for Recycling

Key words:

Paper for Recycling, pulp properties, modelling

TITLE:**Differentiated analysis of individual paper/paperboard objects to ensure the papermaking utility value of paper for recycling****Background/Problem area**

In terms of volume, the most important fibrous raw material for the paper industry in Germany is paper for recycling. The use of paper for recycling makes resource-efficient and cost-effective paper production possible. There is sufficient knowledge available concerning the actual situation and the previous changes in the utility value of the quantitatively most important paper for recycling grades on the basis of systematic monitoring conducted by the Papermaking and Mechanical Process Engineering Department (PMV) at Darmstadt Technical University.

On the other hand, changes in the economic and legal framework such as rising costs of fibre pulps, additives and energy as well as health and environmental aspects cause short-term and sometimes far-reaching changes in the input formulation and product structure of paper mills. The results both impact on the future development of the papermaking properties of the paper for recycling and make it necessary for the papermaker to acquire an in-depth knowledge of specific property characteristics of the paper for recycling grades. For example, papermaking property characteristics do not exist for the paper for recycling grades sold after the introduction of the revised EN 643.

Suitable measures for optimally utilising the papermaking potential of paper for recycling can only be taken if current, comprehensive information about the property characteristics of the paper for recycling quality sold and their mixtures are available to paper mills. Moreover, it must be known which individual components of the paper for recycling grades have an impact on the quality properties and to what extent this occurs.

Objectives/Research results

The objective of this project is to develop a process for determining the current utility value of paper for recycling quality and paper for recycling sorting fractions in the case of known qualitative and quantitative changes in the paper and paperboard contained in paper for recycling. The result of the process development will exist in the form of a utility value calculator. In order to develop this tool a definition of paper qualities and products that play a decisive role in determining the utility value of the paper for recycling grades and fractions was made. It was important to choose the optimal depth – detailed enough to reflect the property changes of interest but simple enough to be able to characterise them with an acceptable amount of effort. The selected paper and paperboard were characterised with respect to the property parameters, thus making it possible to use existing tools to model important quality- and process-relevant properties of fibre pulps.

The results open up the possibility of making statements about the utility value of the individual paper/paperboard objects as well as their mixtures in the form of paper for recycling grades and input formulations.

Application/Economic benefits

The method developed within the scope the project is being offered as a service to customers. The customers targeted are basically market participants who are involved with the secondary raw material paper for recycling either directly or indirectly. The primary users of the results are the papermaking industry as the principal user of paper for recycling.

The method developed in the project for predicting the utility value of the papermaking technology can help determine alternative recovered paper grades to replace pulp qualities that are problematic from the purchase or production side without any risks (loss of properties) in the application. The use of the service to be developed makes it possible for paper mills to save costs when purchasing fibrous raw materials as well as during the raw material adjusted operation of the production process.

The work scheduled during the project also lay the foundation for a smoother and faster revision and optimal use of the scheduled amendment of the European List of Standard Grades of Recovered Paper and Board EN 643.

Period of time: 01.01.2013 – 31.12.2014

Remarks

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