SORT IT

Recovered Paper SORTing with Innovative Technologies

2009 Newsletter 1

Contents:

Diary

1 - 2 April 2009, Appingedam (NL) ***SORT IT Annual Meeting***

16 September 2009, Tulcea (RO) ***SORT IT Roundtable***
"Assessing sustainability of recovered paper sorting by LCA studies", within International Conference ICEEM 05, which will be held on 15 -19 September 2009 in the Romanian Danube Delta.

27 - 30 October 2009, Cologne (D) ENTSORGA – ENTECO 2009, International Trade Fair for *Waste Management and Environmental Technology,* SORT IT - Posters presentation on the stands of the partners participating in the event.

Project overview

Jean-Yves Escabasse
SORT IT Coordinator, PTS

Background

Rising prices for raw materials and energy put pressure on the paper industry. Virgin pulp production is strongly affected by increasing raw material prices as wood demand is subject to competition between several product uses and energy use. High demand on international markets for fibrous raw materials affects regional industries by shortage in supply and increase of costs. This environment brings the recycling of used paper products in front line of sustainable development in paper industry and the recovered paper is becoming the most important fibre raw material for paper production. At global level, a higher demand for recovered paper as raw material for paper production will increase the competition in recovered paper utilization.

Besides shortage of raw materials, the market trend also puts pressure on quality. In some cases inappropriate qualities have to be accepted to avoid raw material shortage. Unwanted materials significantly disturb production and final product quality and reject handling is an important environmental and expense factor in papermaking. At the same time, tightening legal requirements and therefore increasing costs for the treatment and disposal of waste in general and especially, of residues from recovered paper treatment will require new, effective technologies for optimal recovering and utilization of used products.

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 origin and sorting. In the past intense sorting was not economically reasonable due to low raw material prices. The proposed project SORT IT will develop the key technology to provide both, increased quality as well as increased quantities of recovered paper.

FP7 Call – Environment

SORT IT addresses the following research areas in the Call ENV.2007.3.1.3.2. – New Technologies for Waste Sorting:

- environmentally and economically important waste material flows,
- new/improved automatic identification units,
- quality assessment related to utilization,
- LCA, LC social analysis, externality/LC costing,
- improve quality and homogeneity of materials,
- increase in energy efficiency,

These issues are also targeting in the Strategic Research Agenda of the Forest Based Sector Technology Platform, which includes thematic priorities such as: the development of intelligent and efficient manufacturing processes, including reduced energy consumption; reengineering the fibre-based value chain; more performance from less inputs in paper products; reducing energy consumption in pulp and paper mills; streamlined paper recycling.

Project Concept

The concept of this project is the development of new and improved sensor and measurement technologies for recovered paper sorting. Automatic identification units will be developed and integrated into the sorting processes that provide optimal measurement conditions matching the demands for separation. With respect to initial composition of recovered papers to be sorted and specifications of the customers (recycled paper producers), new concepts for the sorting process will be developed. The developed technology and concepts will undergo evaluation and optimisation in industrial paper production. Extensive life cycle studies will deliver detailed information on the impacts of the new sorting strategies and quantify the improvement achieved. This information is important for a successful dissemination of the developed technology.

Main Objectives:

- **Enable sustainable and cost effective paper recovery at higher than 95% yield of all recyclable paper and board grades.**
- **Provide tailor made recovered paper (RP) for the best possible re-use in paper and board products.**

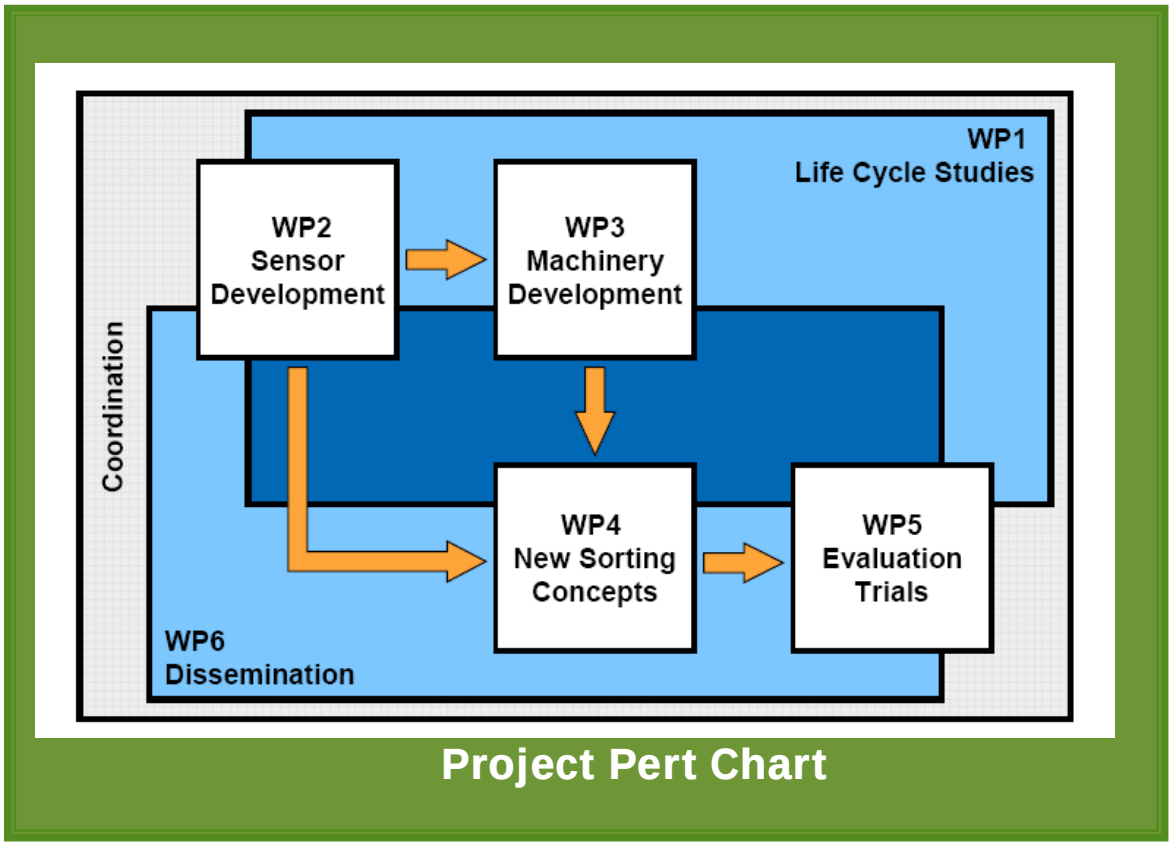
Scope / Targets

The improvement of the recovery and increasing the collection rate of used paper products: analyzing European collection systems in terms of quantitative, qualitative and cost potentials, considering typical social and geographic conditions of the EU member states; determining the collection rates of recovered paper sources (office, household, industry & trade); providing optimized sorting technologies and collection systems with great acceptance and high separation ratio.

The exploration of technological processes for optimum recovery of used paper and board: optimum sorting technologies for recovered paper; dry separation of non-paper components from recovered paper and their optimum use as secondary raw material or fuel.

The reduction of specific energy demand for recovered paper processing: evaluating the influence of collection and sorting systems of recovered paper on the specific energy demand/costs of secondary fiber production.

Project Structure



Project Pert Chart

Life cycles studies for evaluation of sorting techniques: Life Cycle Assessment –LCA, Life Cycle Costs –LCC and Life Social Cycle –LSC

Technology development: sensor technology, sorting machinery and technological concepts for sorting processes.

Implementation into sorting process: testing sorting equipment on a pilot/industrial scale, sort different RP to defined grades/composition and refusal processing.

Validation of sorting efficiency: assess RP composition and processing and log all energy aspects.

Dissemination and communication: knowledge & technology, marketing promotion, environmental policy-related results

Coordination of the project: consortium management and communication with the European Commission.

Project activities are grouped in six work packages as it is shown in the Pert Chart. Each of these working packages is described in more detail in the following sections of the newsletter.

WORK PACKAGES STATUS

WP1 – LCA studies

Cathrine Löfgren - WP1 Leader, STFI-Packforsk

The overall objective of the SORT IT project is to develop new and improved sensor and measurement technologies for recovered paper sorting. The developed technology and concepts will undergo evaluation and optimization in industrial paper production. In Work Package 1 (WP1), extensive life cycle studies will be carried out with the aim to deliver detailed information on the life cycle sustainability (environmental, economic and social) impacts of the new sorting strategies and quantify the improvement achieved. This information is crucially important for a successful dissemination of the developed technology.

Work Tasks

● **Sustainability evaluation and assessment of impacts from the current sorting technologies and processes (reference case study),** which includes several subtasks: overview of current situation, definition of current test cases and sustainability parameters, inventory/ data gathering for the test cases, inventory data analysis and sustainability assessment.

● **Sustainability evaluation and assessment of impact from developed sorting technology** by subtasks: analysis of selected scenarios and model simulation, definition of new situation, inventory / data gathering for the test cases, inventory analysis of data, sustainability assessment and market study for recovered paper price evolution.

● **Sensitivity analysis** will be carried out since it is intended to establish a hierarchy for sorting techniques. This will allow partners and general public to know more about how specific aspects could modify the sustainability results. Sensitivity analysis will be carried out considering different values for critical aspects arising from the sustainability assessment results. Moreover a sensitivity analysis within different EU regions is expected, due to the European perspective of the project. As a result of that sensitivity analysis will allow stakeholders to take decisions on the optimal sorting technology for each case.

Work status

The aim of the first task in WP1 is to study the life cycle sustainability (environmental, economic and social) impacts derived from the current situation. This information will give researchers the key aspects to be considered in the development of new sorting technologies. The first activity in this task is to get an overview of the current situation of existing sorting technologies. This is to be done by mapping the current situation: different target regions have been defined and companies have been selected.

For this purpose, questionnaires have been developed and sent out to collection companies and paper mills using recovered paper and board in many European countries in order to get an overview of the current situation. The information gathered will be evaluated at the European level. First results are expected before the end of May, 2009.

The work is also in progress in the subtask “Inventory / Data gathering”, especially for the paper mill producing packaging papers. The objective of this subtask is to collect the necessary data for the sustainability evaluation. Data gathering are related to the Environmental, Social and Economic data. Concerning environmental data it is collected according to the recommended format from the European Platform on LCA, since the results of the project are expected to be used to create a hierarchy for decisions in the European framework. Inputs from industrial partners are the main source for environmental data collection.

WP2 – Sensor Development

Daniel Sandu - WP2 Leader, EVK

The aim of this work package is to enable the improvement of sorting efficiency and the use of new sorting criteria by developing a new NIR spectral imaging sensor, applying additional spectroscopic techniques and introducing new methods for identification and quantification of paper and board components.

According to the test results of the preliminary study, the component parameters will be chosen for which the final identification and quantification methods will be developed with the new spectroscopic techniques.

All the work for the application of the measurement systems will also include extensive software developments. The new developed technologies will undergo performance benchmark with former state-of-the-art technology.

Work tasks

● **Sensor development of a new NIR spectral imaging system** giving new possibilities of identification and quantification for sorting of recovered paper, which involves following activities**:** development of Spectral imaging system consisting of a NIR camera with an extended spectral range from 1350 nm to 2300 nm; development of a sensor system with cross analysis of NIR and high-resolution colour measurements (sensor fusion); software development for measurement analysis and control of the sorting process.

● **Methods development for identification and quantification of constituents in RP sorting processes** by: preliminary studies with a multiplex diode array NIR spectrometer for the feasibility of the detection of paper components; application of additional spectroscopic methods as basis for novel sensor technologies; different wavelengths checking to determine the most efficient one; development of stable identification and quantitative online NIR methods with a high accuracy in online application of the sensor systems developed in first task; implementation of identification and quantitative spectroscopic methods with the new developed sensor systems.

● **Testing of Identification and Quantification Methods,** as following**:** on-line test measurements with the new sensor systems on a conveyor belt with a pneumatic ejection unit; testing of Identification accuracy, Quantitative determination and Sorting efficiency; testing of recovered paper sensors applicability for plastics identification and differentiation; the NIR technique presently used to separate plastic bottles (PET, PP, PE...) in sorting centres shall be tested on plastic refusals for better recovery.

- **Performance benchmark of sensor innovation and state-of-the-art sensor technology:** performance benchmark in multi-parameter quality control applications; offline with paper bale sensor; offline with recovered paper type sensor; performance benchmark in sensor-based sorting applications; direct comparison with optical and spectroscopic systems installed at the project partners sites.

Relevant parameters to be determined by sensor technologies

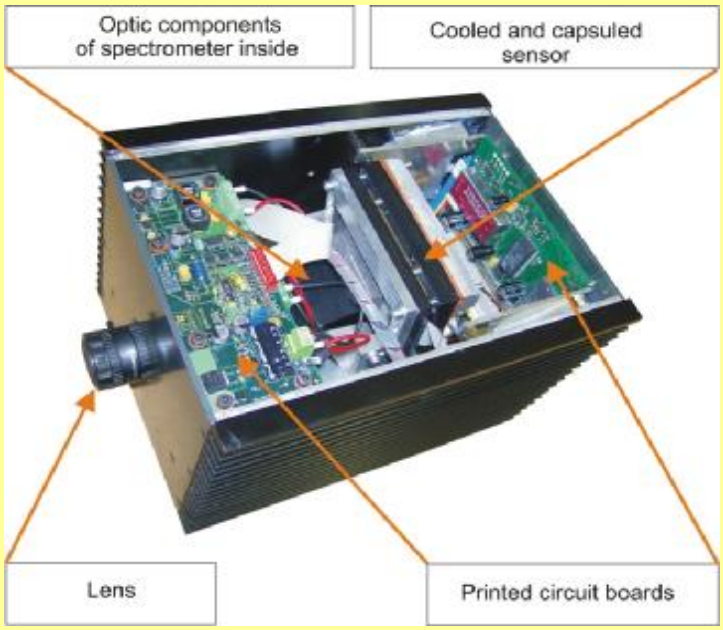
Identification	Sensor technology	Objective
Recovered Paper types	NIR / Colour camera	tailor-made mixtures of RP
Lignin	NIR, fluorescence	mechanical pulp (wood) free RP
Flexo printing inks	NIR	flexo-free RP (1.11)
ink jet printing inks	NIR	ink-jet-free RP (1.11)
Coated papers	NIR	ash control
ONP and OMG	Image analysis / NIR	ash control / brightness control
Quantification		
Ash content	NIR	ash control
Lignin content	NIR	mechanical pulp control

Work status

The partners in WP2 are developing activities in the frame of first two tasks:

PTS has done work in the definition of samples and preliminary studies on identification algorithms and 6-months report was delivered. Actually, the work is concerning the definition of experimental work-flow and data formats between sensor system(s) and PC analysis, as well as the evaluation tools.

EVK worked on the Spectral Imaging System HELIOS 1.7µm that is operationally and the test hardware is available. Consistent work was dedicated to the improvement of the software tools in order to enable streaming of spectral images and to record data on disk. Work in progress is on the visualization and selection of certain spectra. The system HELIOS 2.5µm is in test phase, thermal stability being solved and it is working on the calibration, linearity of sensor and solving of optical distortions. The availability of alternative sensor supplier is not yet ensured and thus alternative integration work set at lower priority.

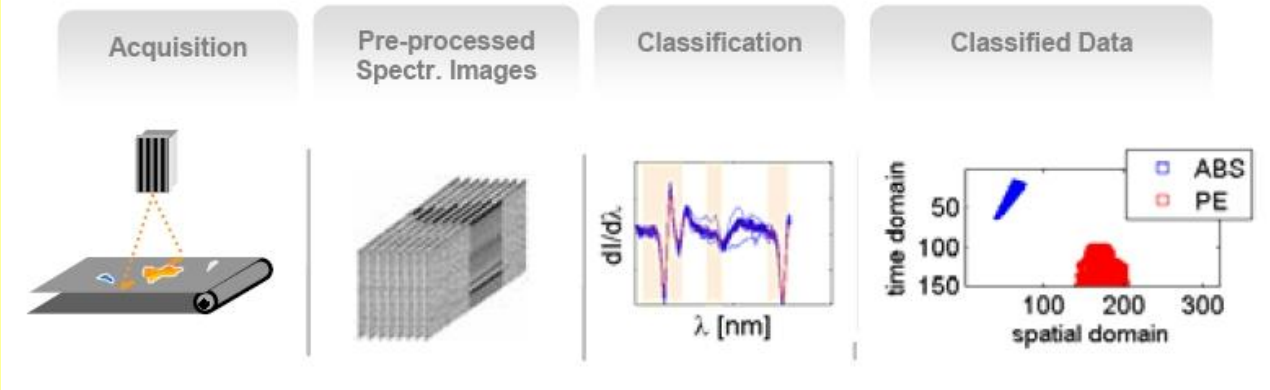


Spectral Imaging Apparatus - HELIOS OEM

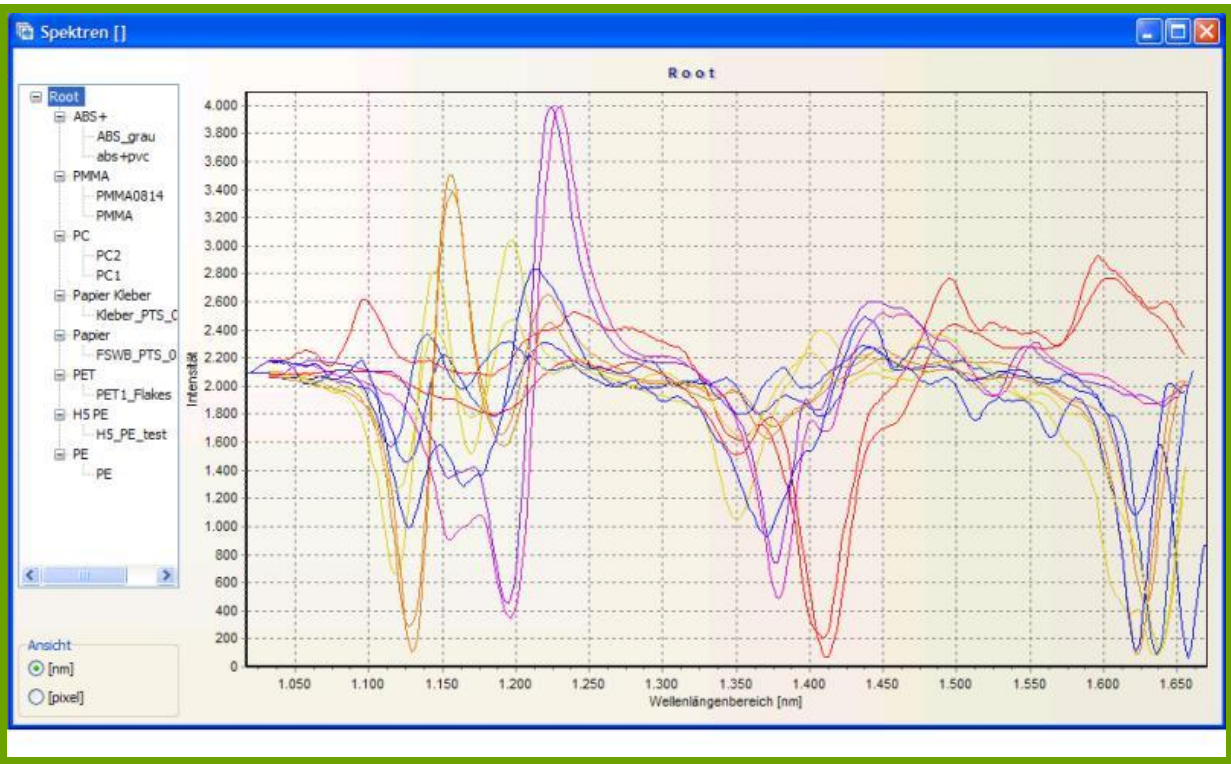
CTP has investigated different (non-NIR Hyperspectral Imaging) measurement techniques for recovered paper sorting. Paper samples are defined. The technology list contains both available CTP technologies – VIS image analysis and UV fluorescence - and new technologies – microwave and terahertz systems. These investigations are performing with several French university/public laboratories. If proposed techniques will be feasible for this task, first results of these external laboratories are expected next month...

RTT and **Bollegraaf** are preparing to implement sensor systems and developing next two tasks of the project - testing of the identification and quantification methods and benchmark of sensor innovation and state-of-the-art sensor technology.

A brief illustration of work with the Spectral Imaging System HELIOS is given by following pictures: HELIOS OEM apparatus; scheme of spectral data processing line; representative NIR Spectra.



Spectral data - processing line



Representative NIR Spectra

WP3 – Machinery Development

Gert Niewland - WP3 leader, Bolleggraaf

The main objective of this work package is the development of new sorting process-units including automatic identification and corresponding separation techniques, which will allow the implementation of the sensors developed in WP2. Research and development on sorting machinery will take care of optimal preparation of the incoming material entering the sensor based sorting step. Also options for more efficient separation of the flow respectively, the removal of detrimental substances will be assessed and developed. State-of-the-art options for dosage, screening or other pre-treatment will be assessed in detail and the most effective installations checked for further improvement. The determination of the most promising combination (sensor + sorting unit) as a function of the tailor-made recovered paper to be produced (both for deinking and recycling furnishes) is final goal of this work package.

Work tasks

Preparation options by state-of-the-art sorting machinery for: selection of promising RP sorting and pre-treatment process steps; evaluation of the optimal combination for pre-treatment steps; assessment of the options for further optimisation; integration of the NIR spectral imaging system into various individual sorting unit.

Assessment and development of shredding as pre-treatment for sensor based sorting, which requests: development of shredding pre-treatments to control RP size distribution; development of improved shredding machinery to be applied previous to post-sorting or application of the sorted material., shredding both paper and plastic at different size levels; evaluation of the technique at semi-industrial plant scale; analysis the impact of shredding on the recycling process: pulping, contaminant screening and deinking ability.

Building new sorting apparatus with incorporated sensor technologies and integration in process will involve: assessment of optimal sensor location and adjustment; evaluation of the maximum possible and most effective conveyor speed; identification of optimal load for measurement and separation; developing a control method for separation techniques; assessment of the installation options for quality control by developed sensors.

Separation techniques will be developed by integrating sorting apparatus and pneumatic ejection units into paper recovery process.

Sorting lines will be defined by developing and testing of different recovered paper (RP) sorting lines to produce RP raw materials according to specifications. Optimal sorting lines for the two test cases will result from the combination of process steps, which will be evaluate for final sorting efficiency (yield and grade purity).

Work status

The partners in WP3 were developing activities concerning the influence of pre-treatment of raw materials on sorting and identification of the solution for efficient separation. The research work is mainly dedicated to the existing deinking recovered paper grades and is aiming to answer to following questions:

- How to increase the yield and the quality by sorting?
- What should be sorted to improve THE quality and to allow papermakers to reduce treatment costs?
- What kind of pre-treatment could be performed on recycling/ deinking furnish?

Most part of the work was dedicated to the shredding as new process step for pre-treatment of the recovered paper. The studies at laboratory scale lead to the conclusion that RP shredding in paper mills can have a positive influence on pulping process. But it appears that a separation of unwanted material (metal, glues, etc.) will be necessary before shredding. This has to be checked by trials on a pilot plant.

The work is in progress to building a new sorting apparatus that will incorporate sensor technologies. The activities in this task are strongly connected to the development of specific sensors in WP2. First results will be reported at the end of April, 2009.

WP 4 New sorting concepts

Ania Stawicka - WP4 Leader, Bumaga

This work package will develop concepts to enable optimised sorting processes with respect to specific prerequisites and final application of the recovered paper. The activities are devoted to the development of optimized sensor-based sorting processes of recovered paper for nonfood-contact and food-contact purposes. Paper sorting installation for food-contact purposes must be able to detect and isolate paper load in which unwanted and unacceptable components were detected and enable tracing origin of the material. Paper sorting installation for non-food-contact purposes is to enable sorting the so called white grades brown grades and non-paper fraction.

Work tasks

The optimized sorting concepts will be designed on the basis on summarized results of the following tasks.

Design of specific sorting processes with the sensors developed in WP2: sensors detecting unwanted and unacceptable components in recovered paper flow for food-contact purposes and sensors for separation of white and brown grades and non-paper components in recovered paper flow for non-food-contact purposes.

Study on the impact of recovered paper shredding on recycling process (pulping, contaminant screening and deinking ability) and end product's quality. This study will allow the selection of most promising combinations of RP sorting and pre-treatment process steps.

Design of optimised sorting concepts for both food-contact and non-food-contact purposes, which will include: concept of sorting installation of food contact products focusing towards fibre qualities, not acceptable components for food contact purposes and traceability of the origin; concept of sorting installation for non-food contact purposes focusing solely towards fibre quality.

Evaluation of the composition of paper containing waste-flows removed from recovered paper flow in sorting process: paper and board content, non-paper materials content , paper and board composition (un-/wanted p&b, chemical composition, printing), non-paper materials composition, microbiological load, other contaminants which may restrict further utilizations.

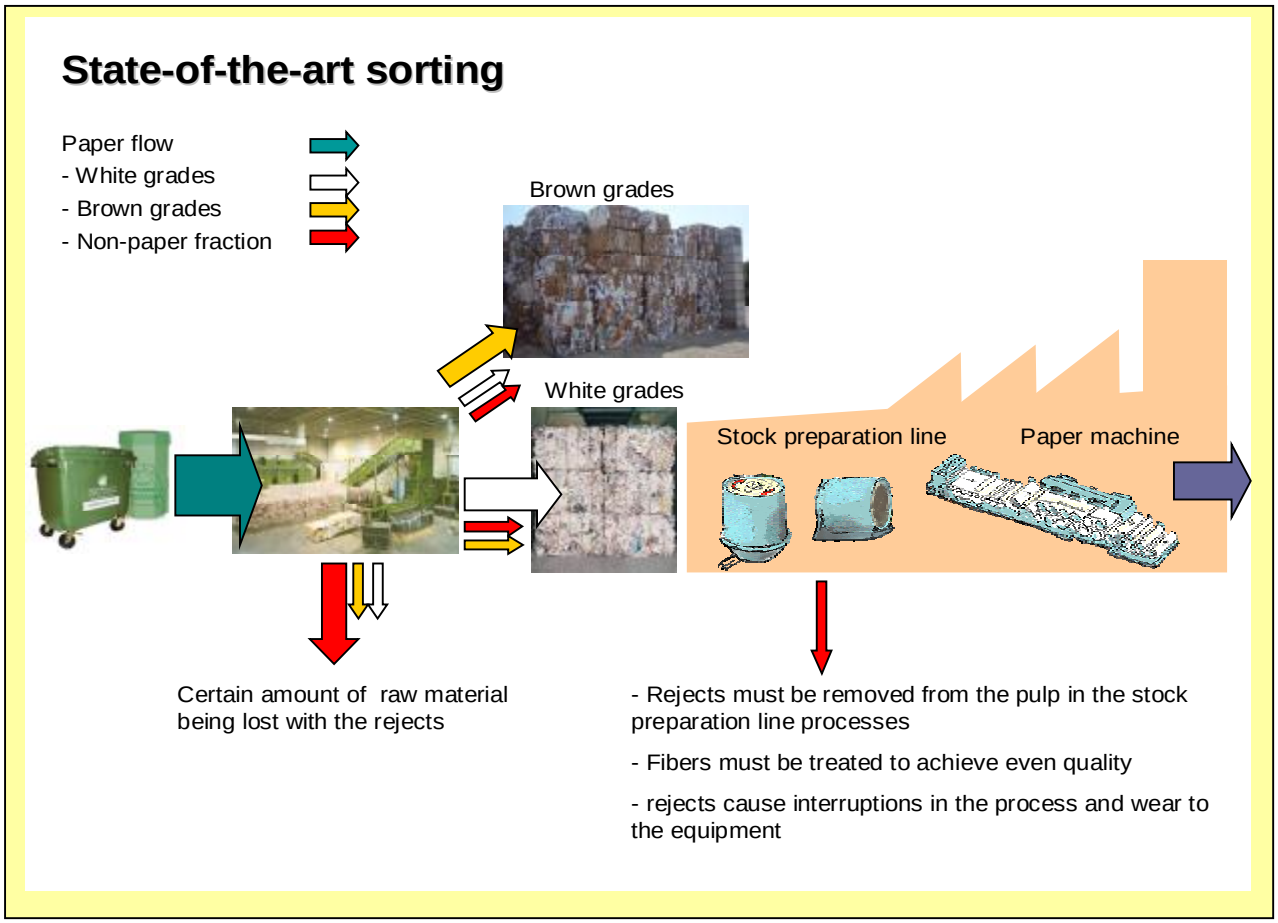
Research on industrial needs on raw material quality and quantity, which will allow us to constitute a data base for optimal raw materials in paper and board manufacturing.

Assessment of paper flow behavior on sorting equipment, with regard on: the impact of non-sensor sorting on recovered paper fractions; quality of identification and characterization by sensor systems; behaviour and yield of paper & board grades in sensor controlled separation.

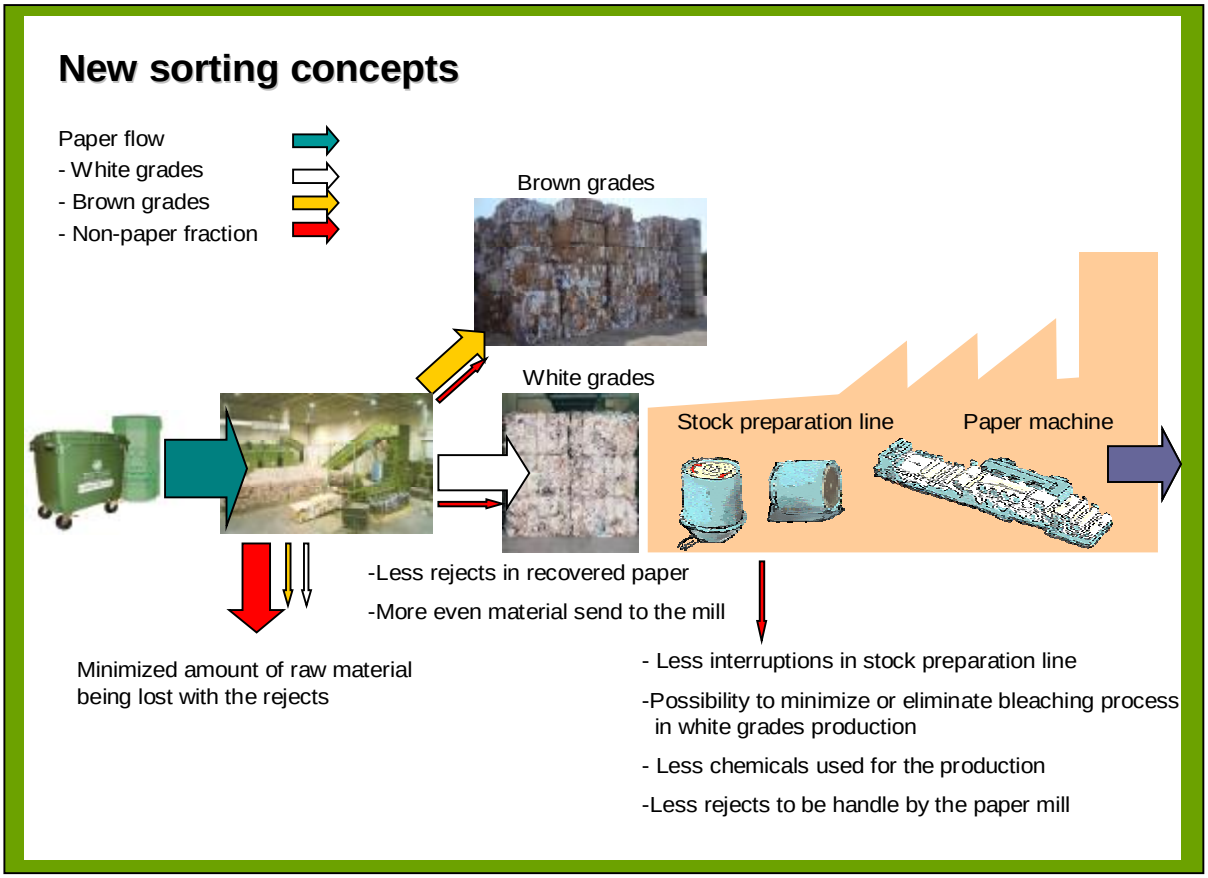
Work status

The activities of WP4 are scheduled in second year of the project. Actually, only theoretical concepts are preparing. A representative example of new sorting concept is presented below, comparatively with state-of-the -art sorting system. The two schemes reflect the limits of current sorting technology and potential benefits of new sorting concept, respectively.

Limits of current technology



Benefits of new technology



WP5 – Evaluation Trials

Armand Klem - WP5 Leader, Norske Skog

This work package will assess the industrial application of the developed sorting technology. The results from WP 2, 3 and 4 will be applied in combination. The sensor based sorting unit is to be integrated in industrial scale recovered paper sorting lines. The developed machinery, partly integrated in sensor based unit already, will be tested in large scale trials. The newly developed sorting concepts will be realized as far as possible at the participants' sites.

The aim in this work package is to produce recovered paper to be utilized in the paper industry, including packaging and graphic papers applications. When processing the produced raw materials, all relevant data in stock preparation and papermaking will be analyzed for detailed information to the life cycle studies.

Work tasks

Testing of sensor techniques and sorting device in separate installation at pilot scale: basis calibration of sensors; assessment of optimum prerequisites for identification and characterization; assessment of optimum prerequisites for separation.

Installation of new sensor and sorting device in industrial scale sorting plant: transportation of equipment; preparation of sorting line and installation of sensor and sorting device; calibration of sensor in industrial application.

Sorting paper containing waste flows in order to produce raw materials according to sorting concepts.

Quality control of recovered paper flows by: log and analyze sensor data; evaluation of raw materials produced by new sorting concept (monitoring).

Process sorted raw materials in papermaking: deinked paper and liner boards production from the sorted raw material using new developments; assessment of pulp properties in stock preparation (yield, rejects, quality); assessment of paper quality; assessment of energy demand in sorting and papermaking processes.

Work status

The activities in WP 5 will start effectively in 22nd Month of the project. At present, single activity in WP5 is related to the identification of representative paper mills (producers of packaging and deinked paper grades) for industrial trials. Therefore, the two paper mills for trials were identified and necessary agreements were established for: Europac Paper Mill in Portugal, producing packaging papers of 100% recycled fibres; Norske Skog Paper Mill in The Netherlands, producing newsprint of 80% deinked pulp and 20% TMP pulp.

WP6 - Dissemination and Communication

Elena Bobu -WP6 Leader, UTI

Main objectives of the activities in the WP6 are: dissemination of project results to the European level through internet, publications, conferences and workshops; development of training procedures for providing tailor made recovered paper grades for most effective re-use in the paper and board production; licensing and promotion of the sorting technologies in the recovered paper market; communication with European Commission on the project results related to the environmental policy.

The information exchange, dissemination and promotion of the results are permanent activities of the project. Training activities will follow the sensors and sorting technology development and implementation. Communication with the Community Institutions and Bodies on the project results related to the environmental policy in the area of waste management, as well as on the recommendations for extending quality description of EN643 grades, will be achieved with the help of a dedicated stakeholder group. The group will include experts from the consortium and from professional associations like CEPI and INGEDE.

Work tasks

Dissemination is performing by: interactive website; newsletter issued on a periodical basis to provide brief information on project status and progress; workshops and roundtables, which will be organized periodically in the frame of different events that are regularly organized by the participating institutes in the project; publications of scientific articles in the international relevant journals, which are published in partners' countries and worldwide.

Market promotion is going to be carried for each marketable product, technology or methods. Industry partners will use the foreground of the project to develop and improve sorting equipment and technologies, i.e. to introduce more efficient sorting tools on the market. Sorting devices such as NIR sensors, sorting robots, etc. will be brought to the market by EVK, RTT and Bollegraaf. They will use their conventional marketing tools to advertise and present the products to the market

Assessment and training manuals with procedures, processes and equipment handling will be produced for training of persons in relevant SMEs and industrial partners.

Communication with Community Institutions on the project results is related to: foreground for recommendations to CEN on EN643 revision; foreground for potential recommendations and suggestions on environmental policy developing. Stakeholder Group will communicate environmental policy-related results to Community Institutions.

Work status

Current activities in the WP6 are concerning: website development, updating and upgrading; workshops and publications to promote and disseminate project results; planning the work in the frame of the Stakeholder Group in order to produce and communicate the foreground on environmental policy developing.

SORT IT website (http://www.sortit.eu.) is on line starting with 1st September 2008. The website is updating permanently with information about the project events and publications, as well as with announcements on the events of interest for the project. This newsletter can be downloaded from the website. The website includes also an intranet system that is used as a tool for direct communication among project partners. Intranet section of the website contains various documents related to the project work and it is accessible only for project partners, registered by user name and password.

SORT IT project was presented and promoted by different ways, such as**:** presentation at CEPI Workshop on October 7, 2008, which can be accessed on CEPI website (http://www.cepi.org); project summary in Newsletter No.12 - part 2, European Commission, WG- Environmental Technologies Research; presentation in all 2009' issues of the Environmental Engineering and Management Journal; brief description in the international journal - Cellulose Chemistry and Technology (Vol. 43 issue 1-2, 2009); presentation in Romanian Journal -Celuloza si Hartie (Vol.58, all issues of 2009); articles in Spanish publication Infopack - Nº 143, December 2008 and Nº 144, January 2009. All materials can be accessed as PDF files by dissemination link (left side) of **www.sortit.eu**

SORT IT Roundtable "Sustainability assessment of recovering paper sorting by the LCA, LCC and LCS studies" is organizing in the frame of the *5th International Conference on Environmental Engineering and Management - Sustainable production and consumption (ICEEM05/2009)* which will take place in three locations of Danube Delta, Romania, 15-18 September 2009. The call for paper is launched on the website.

The work methodology and communication rules in the frame of Stakeholder Group were discussed during an informal meeting on 24 February, 2009, in Brussels.

SPECIAL FEATURES

Revised Waste Directive for better support to recycling

Jori Ringman
Recycling and Product Director, CEPI

The EU has adopted a new Waste Directive which replaces the previous, over-30-years-old Directive and repeals some others. In thirty years the thinking has changed radically from seeing waste as a problem to managing it as a valuable material for reuse and recycling.

The new measure, Directive 2008/98/EC, establishes the generic environmental standards for waste to be re-used or recycled, sets material-specific recycling targets for 2020, modernizes and clarifies a whole lot of recovery and disposal definitions, amongst which the by-products are clearly defined not being waste, and introduces a mechanism for waste ceasing to be waste. After entering into force on 12 December 2008, the Directive sets a deadline for the member states to transpose it into their national law by 12 December 2010. Reporting on the progress in implementation is set for every three years thereafter.

After the revision the situation looks promising for paper recycling: in particular several amendments were adopted that support the vital points on segregating paper from other materials and prioritize recycling over incineration. Waste materials shall be collected separately and shall not be mixed with other waste or other material with different properties where appropriate to meet the quality standards for the relevant recycling sectors. In particular member states have an obligation to set up separate collection for paper, metal, plastic and glass in all member states by 2015.

The Directive states that member states should support the use of recyclates, such as recovered paper, in line with the waste hierarchy and with the aim of a recycling society, and should not support the landfilling or incineration of such recyclates whenever possible. The Directive sets a target of 50% recycling rate for domestic waste. This is considered impossible to achieve without a high rate of paper recycling, hence effectively protecting recovered paper from incineration.

These points will, however, all require a proper transposition to national legislation in all member states and good implementation after. To that end the Confederation of European Paper Industries (CEPI) has published guidance to point out the vital Articles of the Directive that should be paid particular interest to during the transposition and implementation. Annex to this guidance is a legal advice to interpret the freedom of discretion the national competent authorities may exercise in setting up a separate collection systems. **Read more** (http://www.sortit.eu/rec-015-09.pdf).

ERPA welcomes the revising of Waste Framework Directive

Brussels, 17th June 2008, *Source: www.erpa.info*

The European Recovered Paper Association (ERPA) welcomes the vote of the European Parliament in Strasbourg today, which endorses the compromise to revise the Waste Framework Directive reached by the Rapporteur Caroline Jackson with the Council of Ministers. This modernization of waste management in the EU in favour of a priority order of waste prevention, re-use and recycling will help with climate protection given that recycling in particular saves on greenhouse gas emissions in comparison with primary production. At the same time, recycling saves resources of both energy and materials.

“ERPA had since the 1990s been promoting the need for a legal process to determine when waste ceases to be waste,” said Ross Bartley, Environmental and Technical Director of ERPA’s umbrella federation BIR. “Early waste management laws defined so easily what constituted waste.

But now, to encourage higher standards of recycling and the marketing of better-quality recyclables, the European Parliament’s setting of conditions for ‘Waste to cease to be waste’ is much needed.”

The revision of the Waste Framework Directive brings much-needed legal clarity in particular to the definitions and distinctions used by the law. Higher standards are demanded for the technical and organizational requirements regarding collection, segregation and treatment of wastes. The revised law enables the wished-for “Recycling Society”, recognizing the need for higher recovery and recycling quotas now and in the future, and the need for incentives to prevent waste. All the elements included help towards proper resource protection.

ERPA strongly approves and encourages better regulation for recyclers around the globe. This revised EU law paves the way for resource efficiency and sustainable materials management.

Impact of Economic Crisis on Paper Recycling

CEPI Statistics and Impact Assessment

(Source: www.cepi.org)

Preliminary statistics 2008 evidences clearly the impact of the economic crisis on the European Pulp & Paper Industry:

Paper and board output by CEPI member countries falls by around 4%, a lower production levels compared to 2007 being recorded in the majority of grades.

Pulp production falls by over 2.5%.

Overall paper consumption decreases by more than 2%.

A comprehensive analysis of CEPI (Trade & Competitiveness Department) related to the impact of economic crisis on the European Paper and Paper Industry evidenced following conclusions:

Loans are more difficult to obtain despite interest rates cuts;

The EU business environment has rapidly deteriorated at end-2008 and beginning-2009;

No economic recovery foreseen before 2010;

Industrial production, retail sales as well as consumer confidence have plunged in Europe;

Unemployment rate expected to increase substantially and inflation to come back to low levels;

Advertising expenditures in EU are expected to decrease substantially in 2009;

At the end of 2008, paper industry has recorded a real decline of its activity;

Most of pulp & paper grades have seen their markets deteriorating;

US Dollar could weaken stepwise against the Euro over 2009, but rather unpredictable;

Decreasing production costs and raw material prices is a relief;

Freight rates have substantially decreased, making competition even tighter.

The paper and board recycling rate in Europe reached 64.5% in 2007, which confirms that the industry is on track to meet its voluntary target of 66% by 2010. The outlook for recovered paper in 2008 shows that European utilization has decreased significantly and this could impact the recycling rate target of 2010.

CEPI analysis evidences that the recovered paper consumption decreased globally, with 3% in 2008, comparatively with 2007. But, the trend is more important than this figure because recovered paper consumption decreased with 5.0% for November on October, and with 12% comparatively for December on November.

Economic Crisis Puts Future Danger of paper recycling in Spain

Source: National Association of Paper and Cardboard Recovers -REACAR

After many years of development and improvement of recovering systems, Spain has achieved during the first half of 2008 a collection rate of paper and paperboard of 68.9%. The paper recycling industry has traditionally been able to absorb the entire amount recovered by buying materials at prices sufficient to cover the cost of recovery, and, often representing an economic incentive for the producer of the waste.

During last October, the market for this type of raw materials, has experienced the biggest price decline ever recorded in both the U.S. and in China (Pulp and Paper Week; nov.7, 2008), now coming to Europe with the same virulence.

During last October, the market for this type of raw materials, has experienced the biggest price decline ever recorded in both the U.S. and in China (Pulp and Paper Week; nov.7, 2008), now coming to Europe with the same virulence. In Spain, the members of REPACAR (National Association of Paper and Cardboard Recovers) show that the volume of orders from the paper industry has been drastically reduced this month at the levels well below the volumes being recovering. This lack of demand has caused prices fall about 50%, reaching their lowest levels in the last 15 years.

Mr. Michael Celaya, REPACAR President, said that "simply is not economically viable to maintain the structures and flows collected at the current level of prices. The entire sector will be doomed to extinction, and what is worse, all paper and cardboard used to be doomed to be buried in landfills, but this situation is corrected soon subsidiaries measures, such as billing for services rendered obtain funding for local authorities .... "

The volume of paper and cardboard collected in Spain in 2007 was 4.9 million tons, of which 10.5% went to export (primarily China). The paper industry recycled 5.68 million tons, of which 22.5% were imported.

These figures imply that 17.04 million m^3 of waste stopped going to landfills intended for recycling, saving on emissions of 9.1 million tons of CO_2 into the atmosphere. The sector of the recovery of paper and paperboard has been playing a work in support of sustainable development and combat climate change.

REPACAR publishes the report of external trade statistics of recovered paper for the period January-September 2008 that produced the statistics from the Customs Department of the State Agency for Public Administration.

At the close of the third quarter of 2008 the total volume of imports has remained stable compared to the same period of 2007, registering a slight decline of 0.12%. However, the volume of exports has registered an increase of 59.63% over the same period of 2007.

In volume terms, imports declined by 1030 tons, reaching 867,520 tons, representing a decrease over the last year same period of 0.12%. The most significant months were July and August, which registered a decline in the import volume of 19.71% and 21.54% respectively, compared to the same months in July and August last year. By country, France and Portugal with 606,980 tons with 204,022 tons have focused almost total volume of imports of this period.

Exports increased by 216,600 tons, reached 579,872 tons, representing an increase over the same period of last year's 59.63%. The most important market remains China, with a volume of 359,519 tonnes is the main destination of Spanish exports of recovered paper to Asia.

EVENTS OF INTEREST FOR SORT IT

RISI European Pulp & Paper Outlook Conference
March 29-31, 2009 **Berlin, Germany**
http://www.risiinfo.com/events/euro_conf/

Waste-to-Resources 2009
12th to the 15th of May 2009 **Hanover, Germany**
www.waste-to-resources.com

Laser World of Photonics 2009
15.06.2009 - 18.06.2009, **Munich, Germany**
www.world-of-photonics.net

ZELLCHEMING 2009
Hauptversammlung und Expo 2009
23.06.-25.06.2009, **Wiesbaden, Germany**
http://www.zellcheming.com/veranstaltungen/500,,,0.php

Management of Technological Changes (MTC 2009)
3-5 September 2009, **Alexandropoulis, Greece**
http://www.cetex.ro/mtc2009/

Environmental Engineering and Management (ICEEM05)
The 5th International Conference – ***Sustainable production and consumption***,
15-18 September 2009, **Danube Delta, Romania**
http://www.iceem.eu/

ENTSORGA – ENTECO 2009
International Trade Fair for *Waste Management and Environmental Technology,*
27 to 30 October 2009, **Cologne, Germany**
http://www.simatradefairs.com/Entsorga-Enteco-M516/Cologne.html

PRODUCTRONICA
International fair of electronic production
10- 13 November 2009, **Munich, Germany**
http://www.messen.de/images/spacer.gif

Project Partners

Research organizations and universities

- Papiertechnische Stiftung (DE)
- Centre Technique de l'Industrie des Papiers, Cartons et Celluloses (FR)
- STFI-Packforsk AB (SE)
- Universitatea Tehnica “Gheorghe Asachi” Iasi (RO)
- Instituto Tecnológico del Embalaje Transporte y Logística (ES)
- Bumaga BV (NL)

Industrial partners:

- Bollegraaf Recycling Machinery (NL)
- EVK DI Kerschhaggl GmbH (AT)
- Rauch Recycling Dienstleistungs GmbH (AT)
- Vrancart S.A. Adjud (RO)
- Papeteries Grégoire SA (FR)
- Norske Skog AS (NO)
- RTT Systemtechnik GmbH (DE)
- Papeles y Cartones de Europa S.A. (ES)

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