

*EU PTS- R&D Proposals no 1
Developing alternative methods for improved materials recycling
and energy recovery of recovered papers*



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*Alf-M. Strunz
Ingrid Demel
Johannes Kappen*

Initial situation/background



- **Growing demand for recovered paper as a raw material for papermaking**
- **Tightening legal requirements and therefore increasing costs for the treatment and disposal of waste and residues from recovered paper treatment**
- **Rising energy costs**
- **Increasing competition among the users of recovered paper!**

Objectives



- **Increased recovery of papers for materials recycling by the paper industry**
- **Non-paper components (and adhesives) are to be removed from recovered papers by efficient separation methods, and used for materials recycling or energy recovery**
- **Minimising the costs of recovered paper use and recycling**

As alternatives to conventional methods and systems, virtual “recovered paper mills“ will be developed and assessed on their economic, environmental and energy performance.

Analysing the initial situation

- **Performance and capacity of collection systems (quantities, recovered paper composition, costs)**
- **Performance and efficiency of sorting techniques (sorting efficiency, share of unusable materials, costs)**
- **Cost structures of paper recycling operations in companies of the paper industry**

- II. Designing tailor-made secondary raw materials (tailor-made recovered papers, TRP) for recycled-fibre based paper production**
 - **Developing requirement profiles for several TRP, e.g. for the production of corrugating base, paperboard, graphic and sanitary papers**
 - **Using CAPD to develop the material composition of these TRP**
 - **Developing new sorting methods for TRP production, using innovative online techniques based on image processing/analysis (IPA) and NIR spectroscopy**
 - **Production and testing of TRP in pilot-scale facilities**

III. Developing a virtual “recovered paper mill (RPM)” for TRP production

- **Selecting the necessary sorting techniques,**
- **Quality assurance methods (IPA and NIR)**
- **Methods for the treatment and processing of residues from recovered paper treatment (materials recycling, energy recovery)**

IV. Evaluating the economic efficiency

- **RPM/TRP as compared to conventional solutions for paper recycling**
- **Use of simulation techniques for these processes**

Co-operation partners



- **Waste disposal and paper recycling industries**
- **Paper industry**
 - **CEPI, VDP, INGEDE,**
 - **Paper mills (graphic, packaging, sanitary paper producers)**
- **Consulting firms**
 - **.....**
- **Energy industry and materials management**
 - **.....**
- **Mechanical and chemical process engineering**
 - **Universities, institutes: TUD, PMV, CTP, TUD, PMV, VTI**
- **Sorting plant manufacturers**
(plant engineering and construction)
 - **.....**

RA 2 Radically new concepts for production

- **RP 2-3 Energy efficient pulp and paper manufacturing**
- **RP 2-5: New strategies for secondary processing of wood-based materials**

RA 3 More and better forest-based raw-materials for use

- **RP 3-3: Streamlined paper recycling**