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» BIO MATERIALS / » PACKAGING / » PRINT PRODUCTS / » RESOURCES EFFICIENCY

SORT IT

Neue Technologien für eine verbesserte Verwertung von Altpapier
New Technologies for an improved valorisation of recovered paper

Jean-Yves Escabasse

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PTS Multinational projects (Since 2007)

www.ptspaper.de/eu_research.html

- **AquaFit4use** – completed
- **SORT IT** (PTS coordinator) – completed
- **SUNPAP** – completed
- **BOOSTEFF** – running
- **CAPWA** – running

- **PAPRIQUA** (PTS coordinator) – completed
- **SOTIPA** (PTS coordinator) – running
- **ALBAQUA** (PTS coordinator) – running
- **SONOPULP** (PTS coordinator) – running
- **PrintIP** (PTS coordinator) – running
- **AOP4Water** (PTS coordinator) – running
- **W2PHeat** (PTS coordinator) – running
- **SOLAPACK** (PTS coordinator) – running
- **FLEXINAD** (PTS coordinator) – running
- **ALBAPRO** (PTS coordinator) – accepted for funding
- **SUBWEX** (PTS coordinator) – accepted for funding

- **DEMOWOOD** (PTS proposal coordinator) – running
- **PowerBonds** – running

- **SERECARB** (PTS coordinator) – completed
- **NATUBAR** – completed

Key facts

Topics in resource and water management, product quality, sustainability

A strong focus on **industrial applications**, **SMEs** and collective research

52 proposals submitted since January 2007 (22 as coordinator)

46% success rate

Partners in all of Europe

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Introduction to the Project “SORT IT”

- Project objectives
- Project partners & structure

Technological developments

- Development of innovative sorting devices
- Sorting concepts, Integration and new sorting plant

Results

- Improved sorting
- Environmental aspects

Summary

SORT IT (2008-2011)
Concept and objectives

Concept

- 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
- provide **optimal measurement conditions** matching the demands for separation

Main objectives

1. enable sustainable and cost effective paper recovery from pre-sorted streams with a **yield of >95% and a purity of 98%** in wanted materials
2. reduce **energy consumption and environmental impact** of sorting and recycling operations

Project partners

Participant	Country
PTS	Germany
CTP	France
Innventia	Sweden
TU Iasi	Romania
ITENE	Spain
Bumaga	Netherlands
Bollegraaf	Netherlands
EVK	Austria
Rauch Recycling	Austria
VRANCART	Romania
Norske Skog	Norway
RTT Systemtechnik	Germany
Europac	Spain

SORT IT 8 Partner countries cover:

- **51% of European P&B production**
- **48% of European P&B consumption**

Type of Business

- 4 Research institutes
- 1 University
- 8 Companies (**4 SMEs**, 4 large companies)

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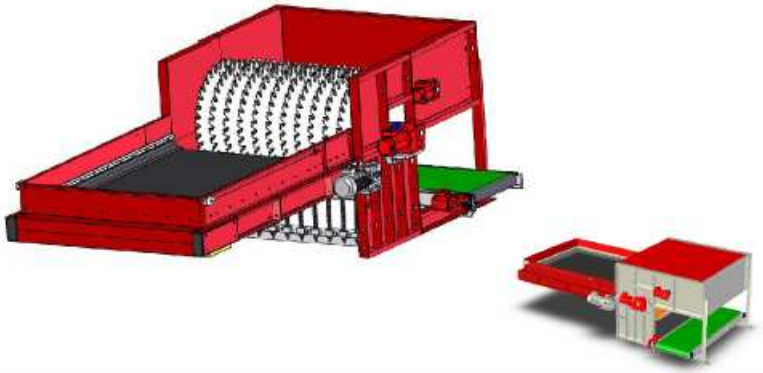
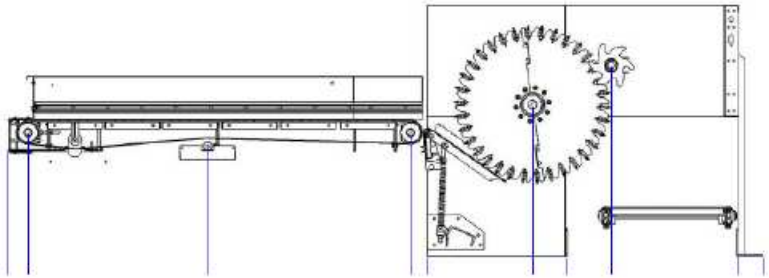
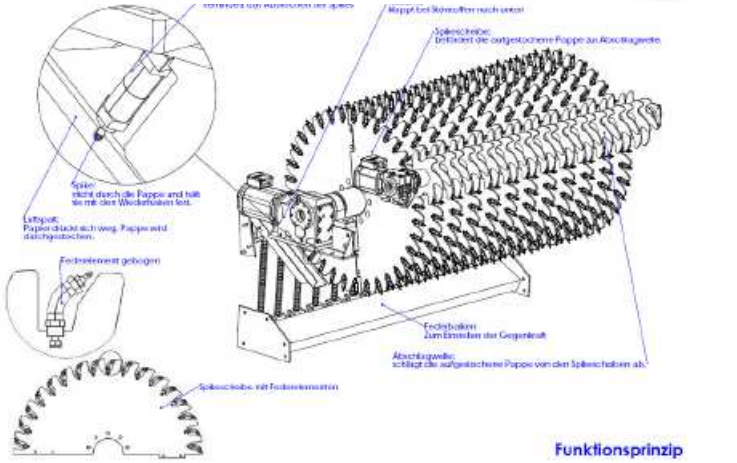
PaperSpike 2nd Generation

Bollegraaf RECYCLING MACHINERY | Lubo Systems SCREENING & RECYCLING

PaperSpike®2G 2000







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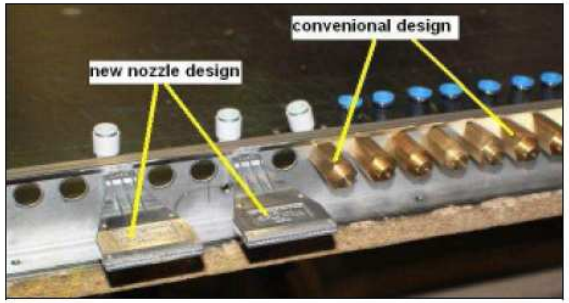
PaperSpike in operation

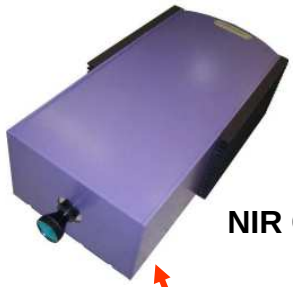
New optical sorting unit

Components of the new sorting unit

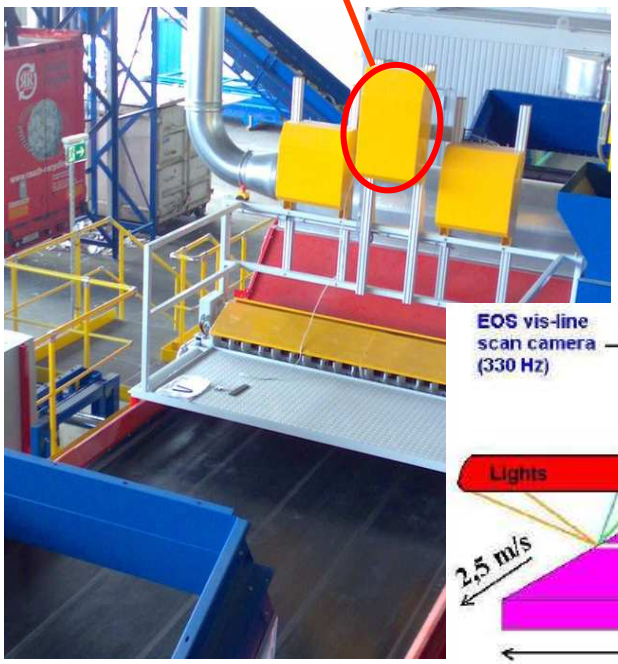


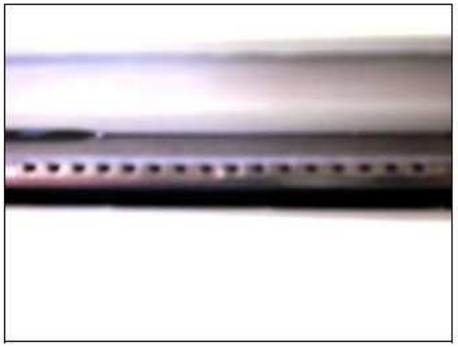
New nozzle design

Complete nozzle bar

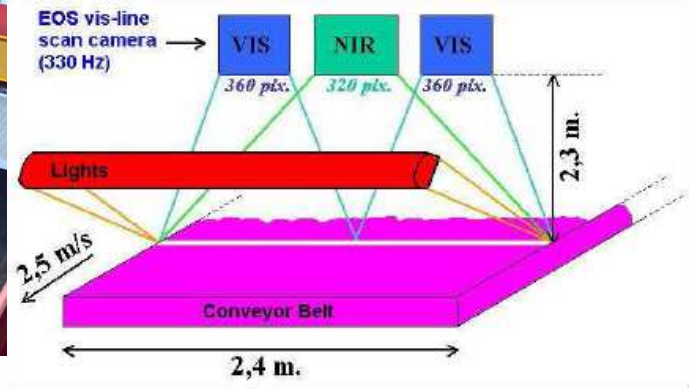


NIR Camera

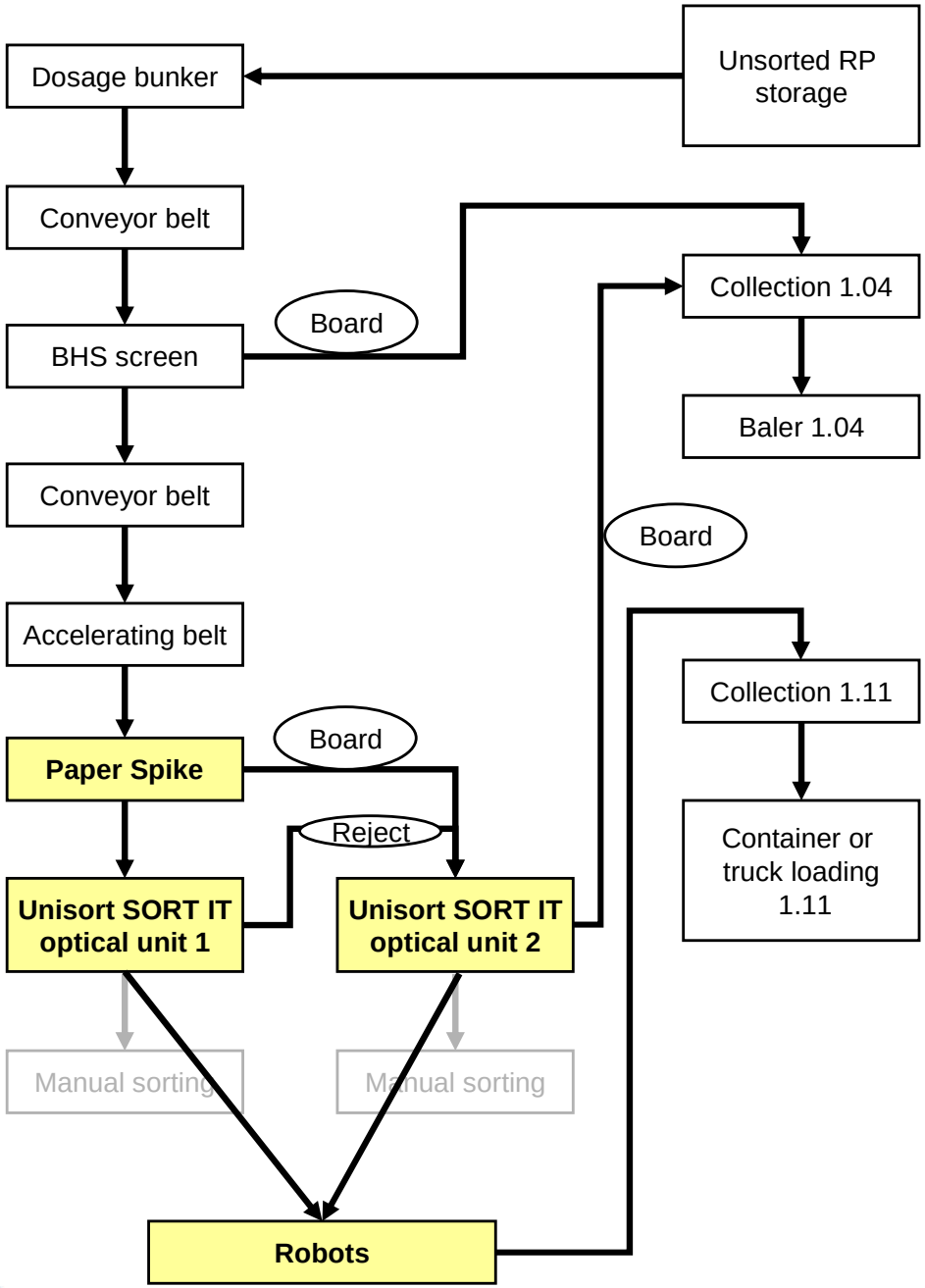




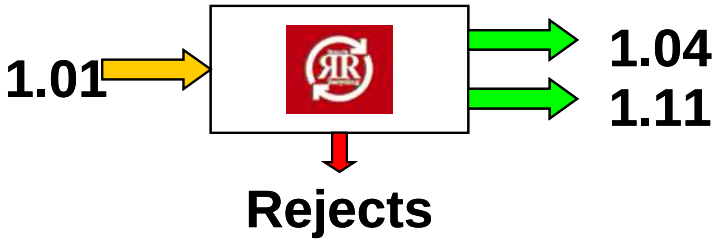
Injection line



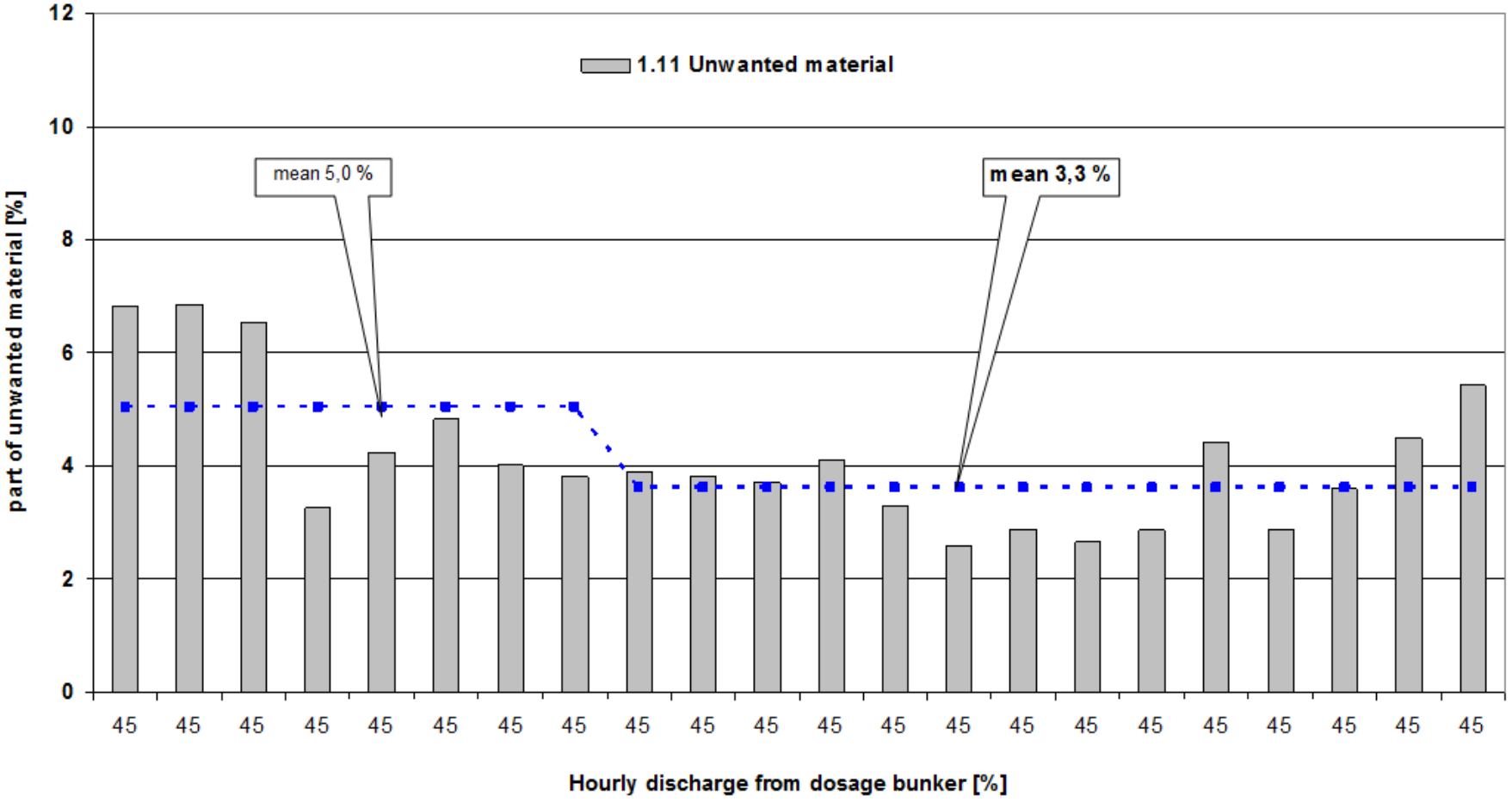
Sorting Robot



Rauch Recycling sorting line (Linz, Austria)



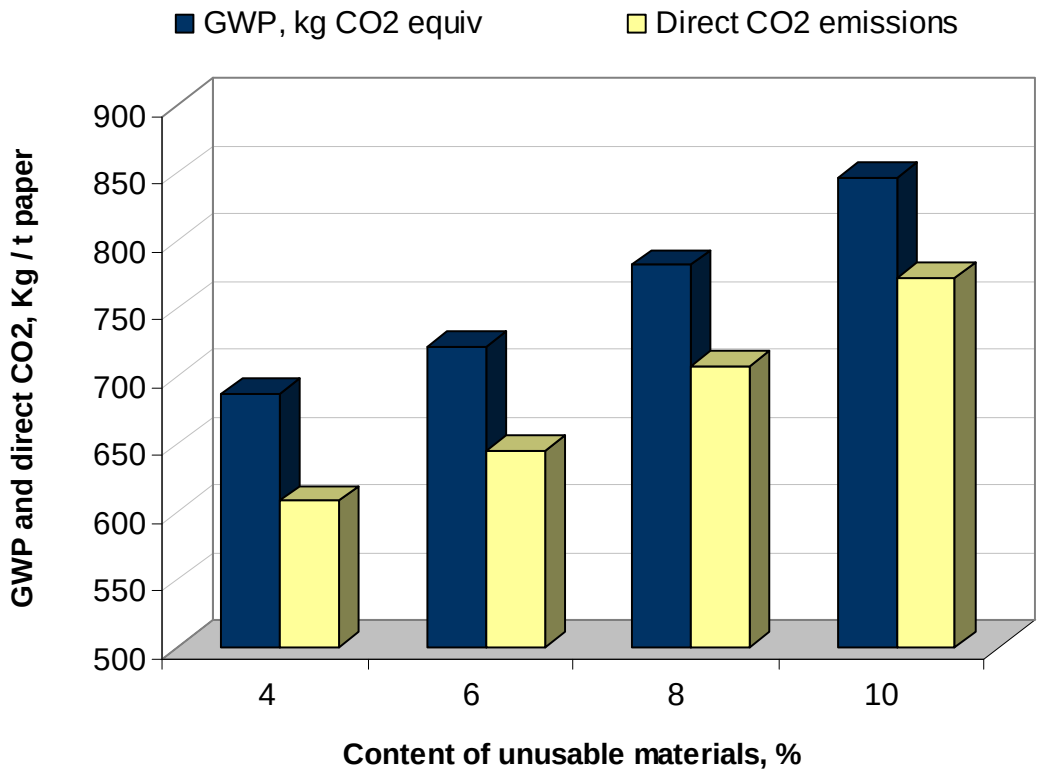
Example: Improved quality of deinking paper



Impact of RP quality on GWP & CO_2 emissions

When RP contamination is increasing from 4% to 10%:

- **GWP** (Global warming Potential) **is increasing by 23%**
- **Direct CO_2 emissions are increasing by 27%**

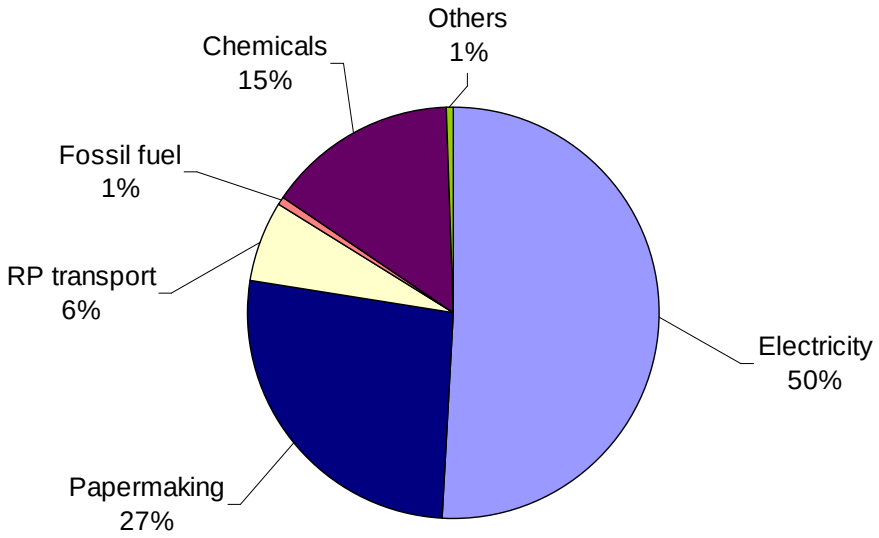


Direct CO_2 emissions are responsible for 90% of total GWP

Impact of RP contamination on CO_2 emissions

When RP contamination increases from 4% to 10%, direct CO_2 emissions increase:

- from **Electricity, by 36%** (higher electric energy consumption in RP processing plant)
- from **RP transport**, **by 41%** (higher contamination means more refuses transport to paper mill)
- in **Papermaking, by 25%** (higher volume of wet solid waste to boiler)

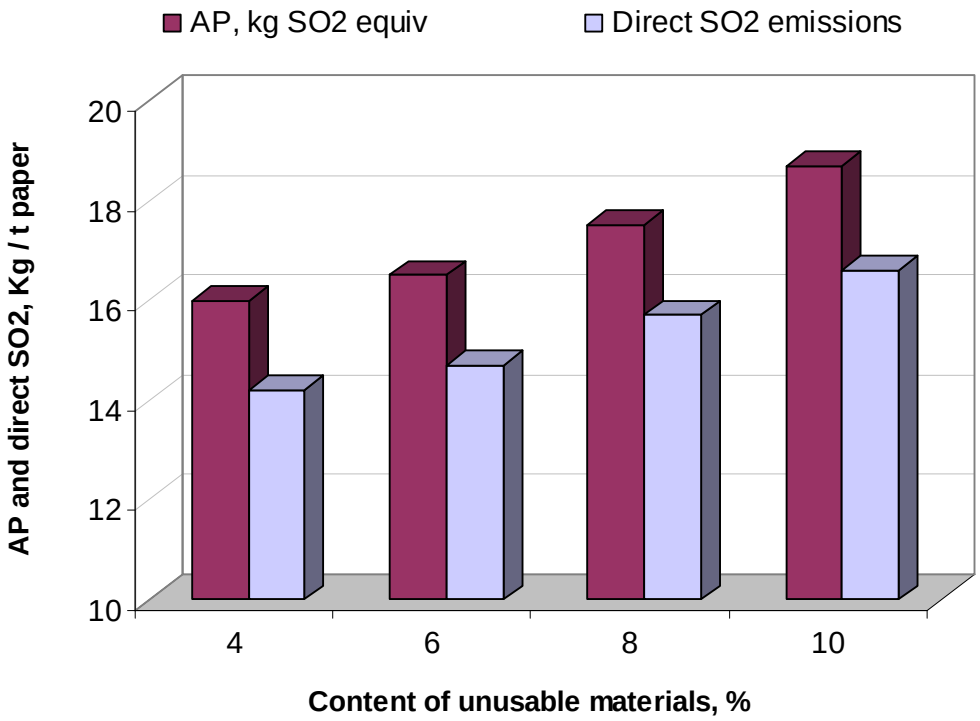


CO_2 emissions of a paper mill

Impact of RP quality on AP and SO_2 emissions

When RP contamination is increasing from 4% to 10%:

- Both AP (Acidification Potential) and SO_2 emissions increase by 17%
- Direct SO_2 emissions are responsible for 70% of AP



The emissions contributing to AP are mainly inorganic oxides (SO_2, $NO_{x,}$) resulting from fuels combustion.

Summary

- Paper recycling is indispensable to the Economy and the Environment
- Adapted collection systems must be further developed in Europe
- Recovered paper sorting is an essential condition to Recycling
- In Europe, there is a high improvement potential for both quantity and quality of Recovered Paper
- SORT IT brings forward an essential contribution with new sorting equipment and concepts

Thank you for your attention

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