



**Recyclability Assessment –
the Chance to develop EcoPaper Products**
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Brussels, 14 November 2012

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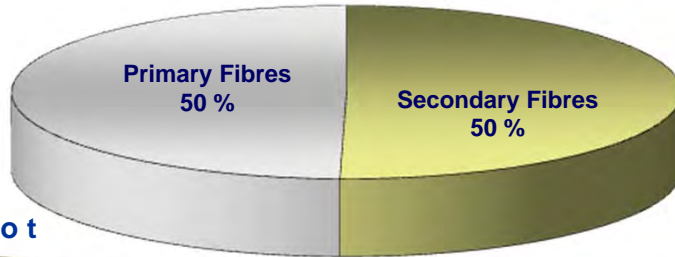
Fibre Raw Material Demand 2010 (calculated with 15 % losses in RP processing)



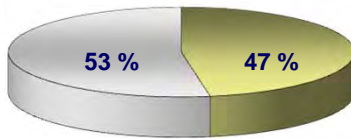
Germany: 19.9 Mio t



World: 373.5 Mio t



EU: 99.5 Mio t



Source: Neidhardt, T.: S Nachhaltige Papiererzeugung – ZELLCHEMING Annual Meeting 2012

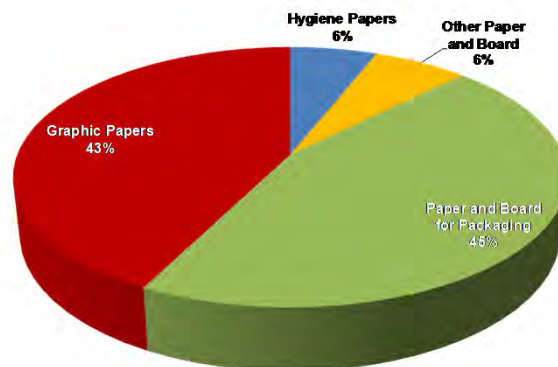


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Paper and Board Production in Germany 2011



Source:
German Pulp
and Paper
Association,
2012

- Total production: 22.7 Mio t
- Mainly graphic papers and packaging papers

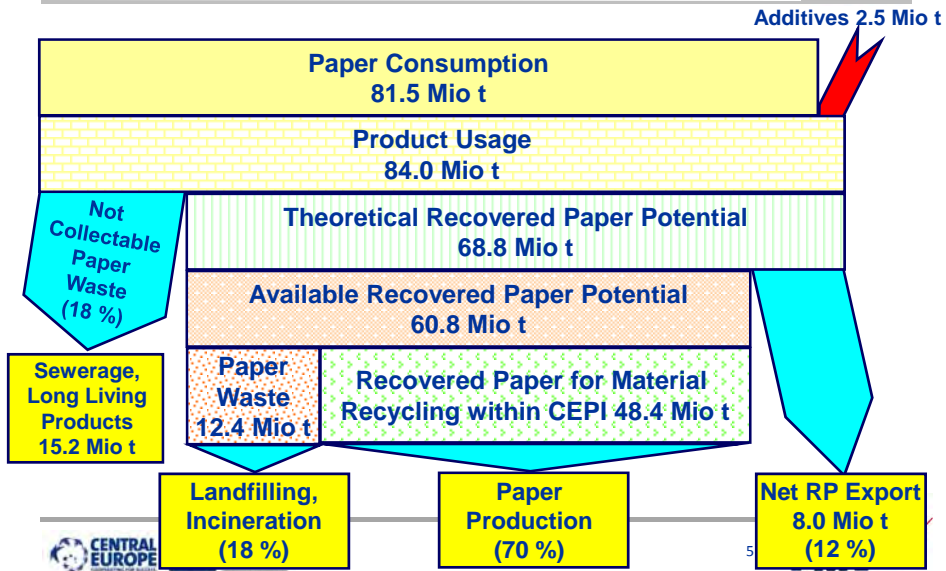


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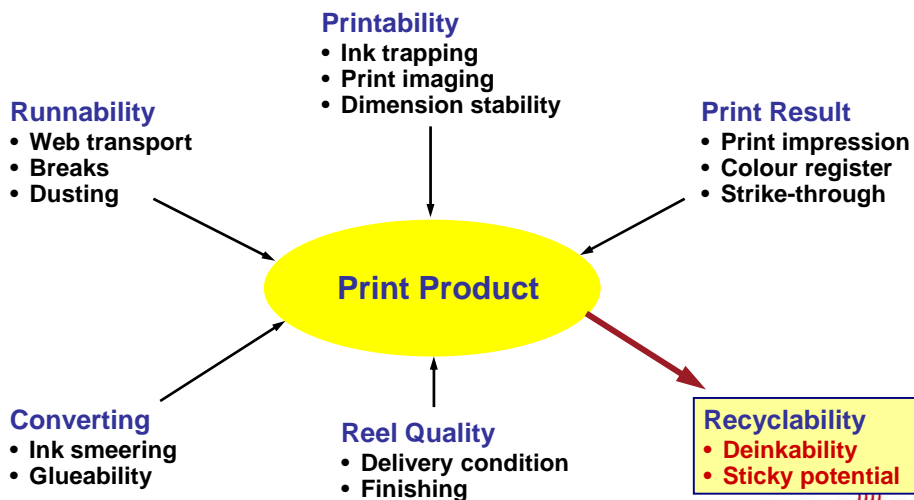
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Paper – Recovered Paper – Balance 2011 (CEPI)



Criteria for Print Product Quality and Impact on its Recyclability



Challenges of Paper Recycling



- For good recyclability, paper products have to be:

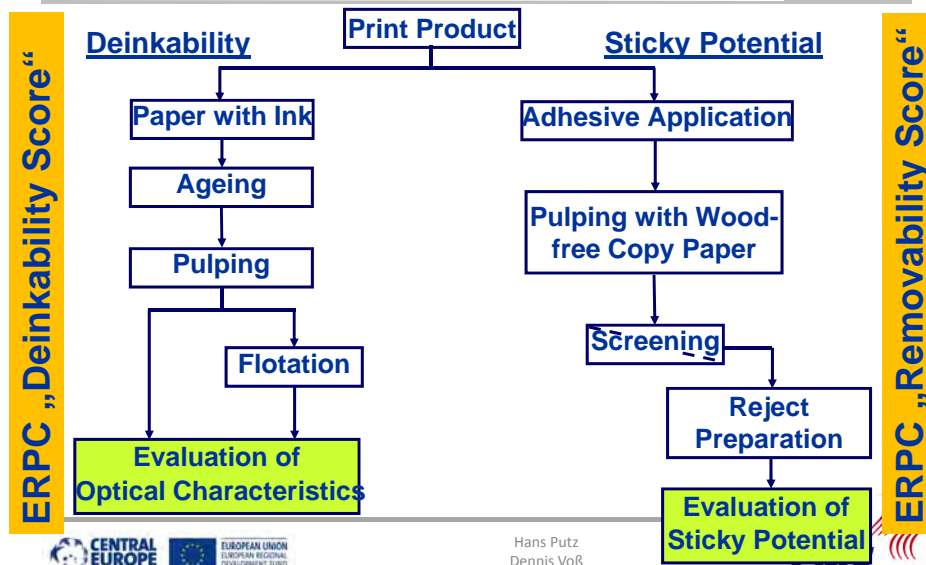
Repulpable – important for all types of paper products

Adhesives have to be removable – important for all types of paper products and additionally

Deinkable – important for all white grades

→ Test Method: Simulated Stock Preparation

Recyclability Evaluation for Print Products



Recyclability Evaluation for Print Products - Deinkability



Objectives	Evaluated Parameters
High Reflection	Luminosity Y of Deinked Pulp
High Optical Cleanliness	Dirt Area A of Deinked Pulp (in two size class categories >50 & >250)
No Color Shade	a* of Deinked Pulp
High Ink Removal	Ink Elimination IE
No Discoloration of Process Water	Filtrate Darkening ΔY

Quality Parameters

Process Parameters

→ Results transferred into “ERPC Deinkability Score”



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Deinkability Score



Score	Evaluation of Deinkability
71 to 100 Points	Good
51 to 70 Points	Fair
0 to 50 Points	Poor
Negative (fails one threshold or more)	Not suitable for deinking



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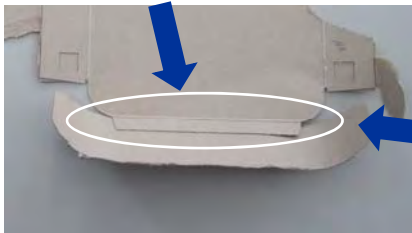
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Typical Packaging Products



Packaging Products



Non-paper components,
adhesives
→ Problem for recovered paper
processing?

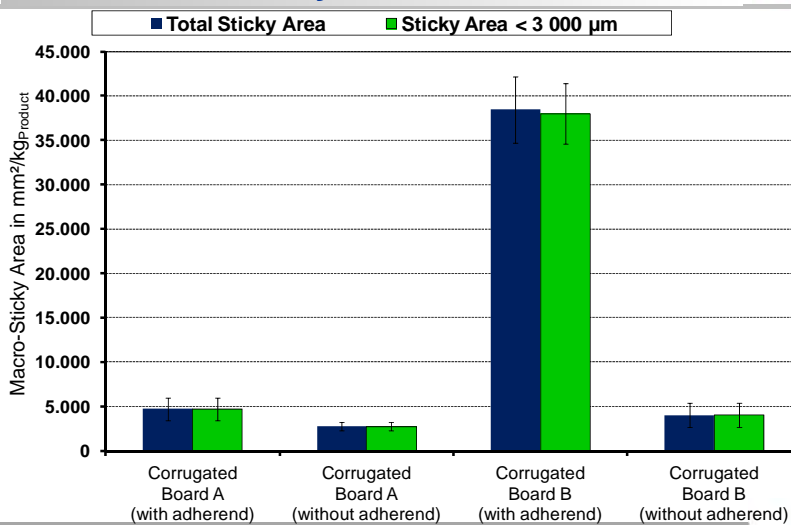


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Typical Packaging Products Results for Sticky Area



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Packaging papers have to fulfill recyclability requirements to ensure improved recycling cycles

- **Recyclability Requirements**
 - Low fragmentation behaviour of adhesive applications (stickies → sheet brakes)
 - Low flake content (sheet faults, optical properties)
 - Low content of undesirable materials (high losses)
- **Lack of laboratory method for testing the recyclability**



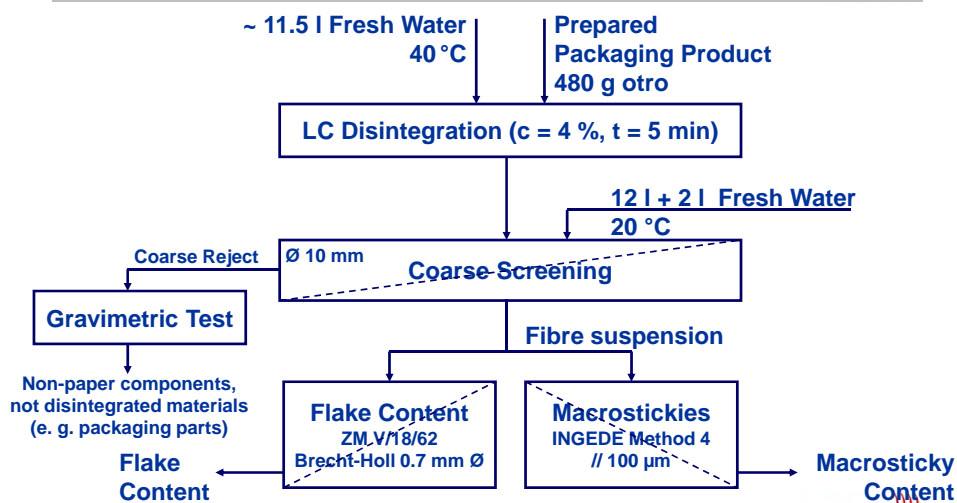
- **Responsible for developing recyclability test methods for packaging products**
- **Responsible for scoring system development for packaging products**
- **Perform lab tests to expand the database about recyclability of**
 - **Print products and**
 - **Packaging products (partly)**
- **Train other PP in recyclability evaluation**
 - **Workshop**

Approach: Assessment of Recyclability of Paper Based Products



- **Main Objectives:**
 - Create a shared knowledge data base on the recyclability of paper based products in Central Europe by:
 - Print product recyclability assessment following ERPC “Deinkability Score”
 - Packaging product recyclability assessment development
- **Actions for the first six months:**
 - Paper based products body of knowledge (BoK) architecture by:
 - Internal workshop on packaging recyclability
 - Development of the new packaging recyclability method
 - Validation of new method for the assessment of packaging recyclability

Approach: Draft Test Method



Major Equipment



LC-Disintegration



Coarse Screening



Flake Content &
Sticky Evaluation
PMV



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Possible Assessment



- Non-fiber Components
- Flake Content (for disintegration behaviour)
- Sticky Content
 - e. g. Share of stickys < 3.000 µm
 - Theoretical total sticky area after screening



Scoring System Analogue to
Deinkability or Removability Score



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Conclusion



- **Main production in Europe: graphic and packaging paper products**
- **Recycling friendly products are necessary to support the EcoPaper Recycling Loops**
- **Packaging products must fulfill recyclability standards as well as graphic paper products**
- **Recyclability evaluation for packaging products necessary**

Thank You!



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