<table>
<thead>
<tr>
<th>Title</th>
<th>Recycled newsprint on the press</th>
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<tr>
<td>Author(s)</td>
<td></td>
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<tr>
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<tr>
<td>URL</td>
<td><a href="http://hdl.handle.net/10220/1353">http://hdl.handle.net/10220/1353</a></td>
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<td>Rights</td>
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Recycled Newsprint On The Press
Session 3:

Recycled newsprint
on the press

The results of an IFRA Forum
(IFRA Special Report 1.10)
Deinking ability of different printed products

Deinking coefficient DEM (%)

- 25 newspapers: 52 (Lower), 69 (Average), 96 (Upper)
- 24 magazines: 44 (Lower), 67 (Average), 79 (Upper)
- 11 catalogues: 28 (Lower), 59 (Average), 93 (Upper)
- 6 inserts: 33 (Lower), 67 (Average), 96 (Upper)

Maximum value: 96
Average value: 67
Acceptable value: DEM = 60%
Minimum value: 28

Source: PTS Munich

Figure 1
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Deinkability of different ink types according to two laboratories

**Deinking coefficients**

- IfP Darmstadt
- PTS Munich

**Yield values**

- IfP Darmstadt
- PTS Munich

Source: IfP Darmstadt and PTS Munich

**Figure 2** © ifra April 94
Specific energy consumption for the treatment of waste paper

- Waste paper use (in tonnes air dry / day)
- Specific energy consumption (in kWh/tonne waste paper)

Source: Haindl Schongau mill

Figure 3 © ifra April 94
Estimated use of deinked pulp as a percentage of total furnish for the main grades

**North America**

- 1988: 70%
- 1990: 60%
- 1995: 50%
- 2000: 40%

**Western Europe**

- 1988: 70%
- 1990: 60%
- 1995: 50%
- 2000: 40%

**Sanitary tissues**

- 1988: 70%
- 1990: 60%
- 1995: 50%
- 2000: 40%

**Newspaper**

- 1988: 70%
- 1990: 60%
- 1995: 50%
- 2000: 40%

**Printing & writing papers**

- 1988: 70%
- 1990: 60%
- 1995: 50%
- 2000: 40%

*Source: Jatakkö Pöytönen*

*Figure 4*
Age distribution of fibres for German newsprint (Scenario 2000)

- One-parameter-model (a)
- Multi-parameter-model (b)
- Mod. multi-parameter-model (c)

Source: Institut für Papierfabrikation Darmstadt

Figure 5
Laboratory simulation of recycling for two different types of pulps

Source: Institut für Papierfabrikation Darmstadt

Figure 6
Development of the strength index of different pulps at the Haindl Schongau mill

Strength index = BF (N) + 0.1 TI (mJ/m)
BF: breaking force
TI: tear index (measured according to Brecht-Imset)

Source: Haindl Schongau mill

Figure 7
Comparison of tension/stretch characteristics of different newsprints

Newsprint, 49g/m²
70% recycled fibres

Cross direction

Machine direction

Newsprint, 49g/m²
100% TMP

Cross direction

Machine direction

Δl (%) vs. σB (dN/m)

Source: E. Glöckner, KBA

Figure 8

© ifra April 94
Comparison of tension/stretch characteristics of different newsprints

Newsprint, 49g/m²
Gap former

Cross direction
10% water
5% water
dry

Machine direction
10% water
5% water
dry

Hybrid former

Cross direction
10% water
5% water
dry

Machine direction
10% water
5% water
dry

Figure 9

Source: E. Glöckner, KBA
Comparison of tension/stretch characteristics of different newsprints

**Newsprint, 45 g/m²**
- Middle of tambour
- Edge of tambour

<table>
<thead>
<tr>
<th>Stress (dN/m)</th>
<th>Strain (%)</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10% water</td>
<td>2,0</td>
</tr>
<tr>
<td>5% water</td>
<td>1,6</td>
</tr>
<tr>
<td>dry</td>
<td>1,2</td>
</tr>
</tbody>
</table>

Source: E. Glöckner, KBA

Figure 10 © ifra April 94
**Tension/stretch specification for offset newsprints according to E. Glöckner (KBA)**

1. At approx. 25°C and 55% relative humidity, the **tensile strength** must be greater than 200 daN/m.

2. The **ratio between longitudinal and cross tensile limits** must be greater than 1:2.5.

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**Figure 11**

Source: E. Glöckner, KBA

© ifra April 94
Tension/stretch specification for offset newsprints according to E. Glöckner (KBA)

3. In the lower range of the longitudinal tension/stretch characteristic (up to app. 60 daN/m), the ratio between tensions (\(\sigma_{\text{dry}}\) and \(\sigma_{\text{hum}}\)) must be less than 2:1 at 10% moisture content.

4. In the tension/stretch characteristic in cross direction, the difference between stretch when dry and with 10% water added (\(\Delta l = q_{\text{hum}} - q_{\text{dry}}\)) at 10 daN/m should not exceed 0.26%.

Source: E. Glöckner, KBA

Figure 11 © ifra April 94
Age structure and composition of waste paper in South Germany

Figure 12

Source: Haindl
Schongau mill

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