<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Recycled newsprint on the press.</th>
</tr>
</thead>
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<tr>
<td><strong>Author(s)</strong></td>
<td></td>
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<tr>
<td><strong>Date</strong></td>
<td>1995</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10220/1353">http://hdl.handle.net/10220/1353</a></td>
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<tr>
<td><strong>Rights</strong></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)
Deinkability of different printed products

Deinking coefficient DEM (%)

<table>
<thead>
<tr>
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<th>DEM (%)</th>
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</thead>
<tbody>
<tr>
<td>25 newspapers</td>
<td>69</td>
</tr>
<tr>
<td>24 magazines</td>
<td>67</td>
</tr>
<tr>
<td>11 catalogues</td>
<td>79</td>
</tr>
<tr>
<td>6 inserts</td>
<td>67</td>
</tr>
</tbody>
</table>

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
- 1990
- 1994
- 2000

**Western Europe**

- 1988
- 1990
- 1994
- 2000

**Source:** Jarakko Pöyry

**Figure 4**
**Figure 5**

Source: Institut für Papierfabrikation Darmstadt
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

<table>
<thead>
<tr>
<th>Year</th>
<th>Groundwood pulp</th>
<th>RMP</th>
<th>TMP</th>
<th>Waste paper stock (without fillers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
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<td>1993</td>
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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  © ifra April 94
Comparison of tension/stretch characteristics of different newsprints

**Newsprint, 49g/m²**
- 70% recycled fibres
- Cross direction
- 10% water
- 5% water
- Dry

**Newsprint, 49g/m²**
- 100% TMP
- Cross direction
- 10% water
- 5% water
- Dry

**Machine direction**
- 10% water
- 5% water
- Dry

Source: E. Glöckner, KBA

Figure 8

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Comparison of tension/stretch characteristics of different newprints

Newsprint, 49g/m2
Gapformer

10% water
5% water
dry

Cross direction

Machine direction

Hybrid former

10% water
5% water
dry

Cross direction

Machine direction

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

**Newsprint, 45 g/m²**
- **Middle of tambour**
  - Cross direction
  - 10% water
  - 5% water
  - Dry
- **Machine direction**
  - 10% water
  - 5% water
  - Dry

**Newsprint, 45 g/m²**
- **Edge of tambour**
  - Cross direction
  - 10% water
  - 5% water
  - Dry
- **Machine direction**
  - 10% water
  - 5% water
  - Dry

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.

\[ \frac{\Delta L}{\Delta q} > \frac{1}{2.5} \]

**Figure 11**

Source: E. Glöckner, KBA
3. In the lower range of the longitudinal tension/stretch characteristic (up to app. 60 daN/m), the ratio between tensions ($\sigma_{dry}$ and $\sigma_{hum}$) 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 ($\Delta l = q_{hum} - q_{dry}$) at 10 daN/m should not exceed 0.26%.

Figure 11
Age structure and composition of waste paper in South Germany

**Age structure**
- 1 month
- 2 months
- 3 months
- 3-6 months
- 6-9 months
- 9-12 months
- 12-18 months
- 18-36 months
- Older than 3 years

**Composition**
- Newspapers: 56%
- Magazines: 25%
- Inserts: 7%
- Catalogues: 6%
- Other: 6%

Source: Haindl
Schongau mill