Problems with current paper categories
Paper categorisation meeting,
Leeds 15th June 2006
### Paper classification in ISO 12647-2

<table>
<thead>
<tr>
<th>Paper type</th>
<th>( L^a )</th>
<th>( a^a )</th>
<th>( b^a )</th>
<th>Gloss</th>
<th>ISO brightness</th>
<th>Mass per area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Gloss-coated, wood-free</td>
<td>93 (95)</td>
<td>0 (0)</td>
<td>-3 (-2)</td>
<td>65</td>
<td>89</td>
<td>115</td>
</tr>
<tr>
<td>2: Matte-coated, wood-free</td>
<td>92 (94)</td>
<td>0 (0)</td>
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<td>38</td>
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<tr>
<td>3: Gloss-coated, web</td>
<td>87 (92)</td>
<td>-1 (0)</td>
<td>3 (5)</td>
<td>55</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>4: Uncoated, white</td>
<td>92 (95)</td>
<td>0 (0)</td>
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<td>6</td>
<td>93</td>
<td>115</td>
</tr>
<tr>
<td>5: Uncoated, slightly yellowish</td>
<td>88 (90)</td>
<td>0 (0)</td>
<td>6 (9)</td>
<td>6</td>
<td>73</td>
<td>115</td>
</tr>
<tr>
<td>Tolerance</td>
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<td>( \pm 2 )</td>
<td>( \pm 2 )</td>
<td>( \pm 5 )</td>
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- Classification is almost the same in 2004 version as with 1996 version
- Paper world has changed in last 10 years quite a much!
Traditional classification of printing paper grades as in early 90's

"QUALITY" (Brightness, Surface & Print Quality)

“VALUE” (Traditional Price)

Clear classification according to fibre content and surface properties

Newsprint

LWC Std

MWC

WFC

WFC Art

Paper type 1&2 in ISO 12647-2

Paper type 3 in ISO 12647-2
Classification of printing paper grades nowadays

Paper grades overlap much more and optical and surface properties are more important that fibre content

“QUALITY” (Brightness, Surface & Print Quality)

“VALUE” (Traditional Price)
## Pain points in ISO 12637-2 paper classification

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1. Paper shades – do they reflect reality nowadays?
2. Matte-coated – what is meant with that?
3. Gloss – does it have anything to do with CM?
4. Is grammage important from CM and standardization point of view?
5. Slightly yellowish uncoated papers – very minor product group – is it worth mentioning?
1. Paper shade and luminance – case study

Spektrolino D50, 2°, white backing
2. Matte-coated

- Matte-coated in the standard actually refers to silk grades (semi-matt)
- Difference between silk and glossy grades in much smaller than with "true" matt grades
3. Gloss

- Paper surface has different properties
  - roughness
  - porosity
  - gloss
- From CM point of view important are properties that affect
  - print density
  - dot gain
- In both cases most important paper property is
  - Ink demand, which is controlled
    - mainly by roughness (with coated grades)
    - partly by porosity (especially with uncoated grades)
Ink demand – an example (publication papers)

Ink amount for print density of 1.4, g/m²

PPS-roughness

- 115 g Coated fine/MWC
- 80 g Coated fine/MWC
- 65g MWC/LWC
- 48-54g LWC
- 45-56g SC

M·real
Classifications – shade vs ink demand

Paper shade and brightness

Ink demand (dot gain) increases

SC

MFC

Std LWC

Hi-brite LWC

MWC

WFC

UWF

Jouni Marttila
ECI/WOWG

- Web Offset Working Group under European Color Initiative
  - Work started in 2004 by evaluating the usability of current ISO profiles in web offset printing
  - It continued by developing new profiles for SC and MFC papers
  - Chairman: Olof Druemmer
ECI/WOWG – ICC profile naming

- ECI/Fogra will publish new set of characterisation data along with profiles in near future (autumn06?)
- WOWG made suggestion, which influences also to paper classification

<table>
<thead>
<tr>
<th>Profile naming</th>
<th>Paper grade</th>
<th>TAC</th>
<th>Characterisation data</th>
</tr>
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<tbody>
<tr>
<td>ECI_ISO_Web_WFC</td>
<td>Woodfree coated, Medium weight coated</td>
<td>320%</td>
<td>Fogra xx (39?) same as in sheet-fed</td>
</tr>
<tr>
<td>ECI_ISO_Web_LWC</td>
<td>Light weight coated</td>
<td>300%</td>
<td>Fogra xx (40?) same as in sheet-fed</td>
</tr>
<tr>
<td>ECI_ISO_WEB_SC</td>
<td>Supecalandered</td>
<td>270%</td>
<td>Fogra xx created by WOWG</td>
</tr>
<tr>
<td>ECI_ISO_Web_MFC</td>
<td>Machine finished coated</td>
<td>tba</td>
<td>Fogra xx to be created by WOWG</td>
</tr>
<tr>
<td>ECI_ISO_Web_NP</td>
<td>Newsprint (in heatset)</td>
<td>tba</td>
<td>Fogra xx to be created by WOWG</td>
</tr>
<tr>
<td>ECI_ISO_Web_WFU</td>
<td>Woodfree uncoated</td>
<td>tba</td>
<td>Fogra xx</td>
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Summary

• Classification from CM point of view should be based on
  • paper shade and brightness
    • needs to be fine-tuned in future revisions of ISO 12647-2
  • dot gain (which can be predicted through ink demand)
• Clear categories can be found
  • WFC/MWC
  • LWC
  • MFC
  • SC
  • UWF
  • NP
• However there will always be papers on the borderline and decisions have to be made case by case