

## Printing offset HGW and HG Board™ (Ink drying)

issued: 30-11-2009

### Introduction

Due to the fact that there are various applications in printing and used substrates, the demands on a printing ink are that high that one standard type can not cover it all. That is why printing ink manufacturers offer a broad range of inks for different applications and substrates. For cast coated paper and board the ink drying is performing with a combination of penetration into the substrate and oxidative reaction with the atmospheric oxygen. Please ask your ink supplier about suitable inks and necessary additives.

General parameters for ink drying to consider:

#### A. Printing ink and damping water

- Especially with multi-colour prints high ink deposits are easily achieved. The higher the ink deposit the longer the drying time. High ink deposits can be already reduced in the prepress stage when using a under colour removal system (UCR). Chromatic colours like magenta, cyan and yellow are replaced by black resulting in the same optical appearance.
- Sometime the change of colour sequence in the press can help to increase the drying speed depending on the print design.
- Print designs with low ink deposit can cause strong emulsion. Damping water will dilute the ink in the inking unit because of a lower flow rate resulting in a slower drying speed. To increase the ink flow rate and reduce emulsification some additional ink bar can be printed beyond the trim edges of the sheet.
- Generally speaking the amount of damping water should be set as low as possible and as high as needed to avoid scumming.
- The pH value for dampening water should not be lower than pH 4,5. Ideal settings are at pH 5,5.

#### B. Support of drying speed

- In some cases a drying agent (siccatives) can increase the drying speed of the ink. But consider a careful and exact dosage as too much agent could even increase the drying time (not more than 2%). Please ask your ink supplier about the suitable additives and their treatment.
- Even if the ink is still wet, but not sticky yet (test by a thumb print) the sheets can be put again into the press for a second print run. As soon as the ink enters the “sticky phase” any further converting is not recommended until the ink is really dry (does not stick anymore). A proper ink drying requires very often 24 to 48 hours.
- If available a IR radiator will increase the oxidative drying of the ink. But consider that the pile temperature should not exceed 40 °C (measure with a sword-type hygrometer). Too high pile temperatures can create layflatness problems.



### C. Substrate

- Ink set off in the pile of the press' delivery unit can be reduced by a combination of low stacked piles and usage of a powder sprayer. The amount of powder should be as low as possible, especially if the printed sheets are lacquered afterwards. No powder should be used when the sheets are going to be laminated.
- Too small powder grain size can increase the drying time as less air is trapped air between the sheets resulting in slower oxidation of the ink. A heavier board traps due to its weight less air than a lighter paper. Therefore the stacked piles should be lower.
- Between the sheet edges and the printing image there should be a certain non-print area. Print images which lead to the sheet edges can create additional ink set off at the edges.
- Avoid ink set off due to hustling and stumbling of the printed sheets in the press delivery unit.
- The climate condition in the printing room is ideally at 22 °C and 50 % rh. Before printing the pallets should be stored at least 48 hours in the printing room having enough time to acclimate to the climate conditions.

