

Mottling in sheet fed offset

FPC has developed a mottling printing method for its 4 colour sheet fed printing machine, which also correlates extremely well with for example a 6 + 4 unit sheet fed offset machine.

Description

Mottling is a printing defect which occurs as unevenness in halftone and full tone areas. Parameters affecting the mottling phenomena are the properties of the printing machine, paper, ink and fountain solution. The mottling phenomena can be studied in laboratory conditions, but those results do not always correlate with production scale printing.

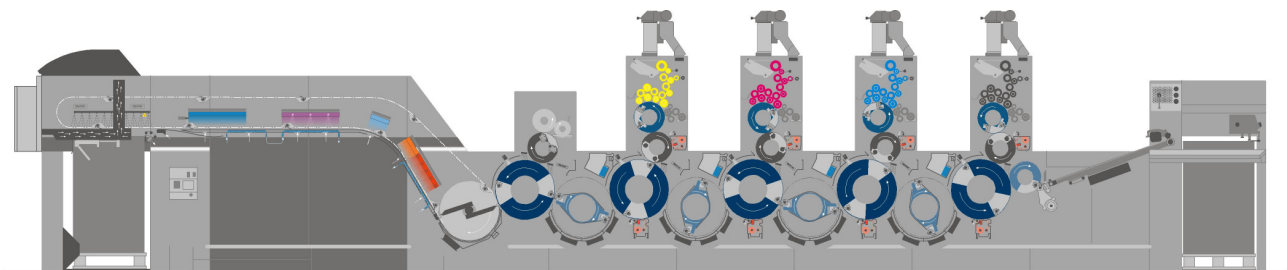
Paper-related mottling is caused by uneven absorption properties of the paper regarding printing ink, varnish and fountain solution. Mottling phenomena which occur with coated paper grades include back trap mottle (BTM), water interference mottle (WIM), wet ink trap mottle (WITM), gloss mottle, density mottle and dry mottle. The mottling printing method developed at FPC focuses on BTM, WIM and WITM.

Back trap mottle, BTM, occurs when fast setting inks are used with a paper which absorbs the solvent of the ink fast and unevenly. This phenomenon only occurs in printing machines with many units and

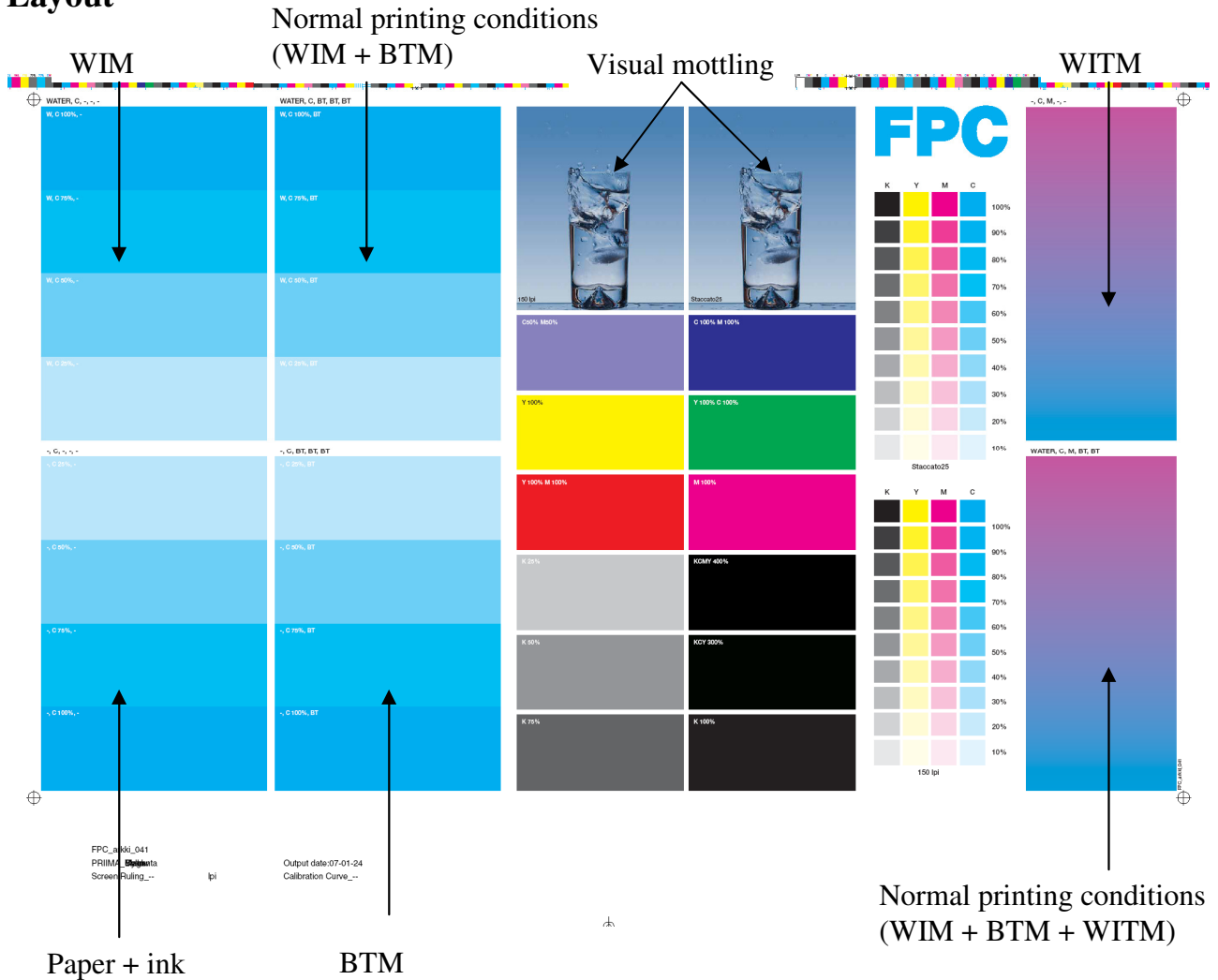
mainly with the inks in the first units, since the inks in the latter units do not have enough setting time to cause back trap mottle. Back trap mottle is also likely to appear in full tone areas with for example 100 % cyan and 75 % magenta.

Water interference mottle, WIM, occurs when the coated paper cannot sufficiently enough absorb the fountain solution transferred to the paper, or absorbs it unevenly. The fountain solution on the paper surface hinders the transfer of printing ink in the next unit, which causes WIM. Water interference mottle can occur already in the first printing unit and is most visible in halftone areas. Also the properties or amount of fountain solution as well as the water uptake of the printing ink can be causes of WIM.

Wet ink trap mottle, WITM, can be caused by the wrong ink order regarding tackiness of the inks. The mottling caused by WITM resembles to BTM, but differs from it by only occurring in overlapping areas.



Layout



Amount of paper needed:
500 sheets/trial point (if printed on both sides of the paper, then 1000 sheets)

Measurements:
- Mottling (Papeye)

