

Fiber roughness and blistering in heatset web offset printing

Description

Blistering and fiber roughening are phenomena associated with the drying of the printed paper in HSWO printing. At the same time as the printing ink is dried, a lot of the internal moisture of the paper is also evaporated. The water evaporating from the paper might break the structure of the paper, thus causing fiber roughening or even blistering. Paper properties affecting the tendency for blistering are the ingoing moisture of the paper, the inner strength of the paper (z-direction) and how closed the paper surface is.

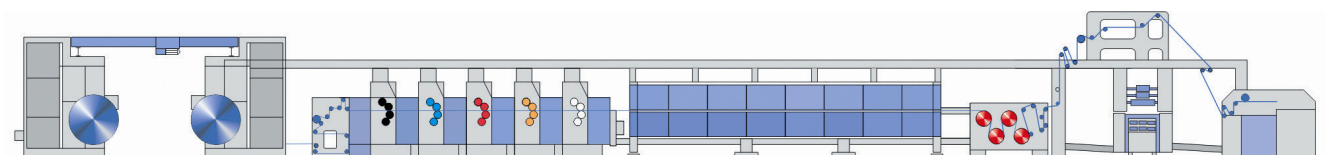
At the printing machine fiber roughening and blistering can be induced by increasing the drying power in the oven. Since the moisture of the paper entering the drying oven is high, a heavy drying in the first drying section increases fiber roughness and blistering.

In order to compare the blistering tendency of different papers, some 6000 meters of paper

per trial point is needed. Alternatively 3 identical print rolls can be made, each containing 2000 m/trial point. However, this type of trials should always be dealt with case-specifically. If the trial points are short, e.g. 2000m, there is need for a separate paper roll with which the temperature is increased before the actual trial point is run. Important is that the quality is almost the same as the trial roll. In case of heavy basis weight paper, the web temperature increase is significantly slower.

In addition to blistering, also piling and printability can be analyzed at the same time. However, thus a minimum of 15000 meters of paper is recommended.

The fiber roughness can be determined comparing the smoothness of the unprinted and printed areas. The blistering is usually evaluated visually from the different solid areas printed on both sides of the paper.

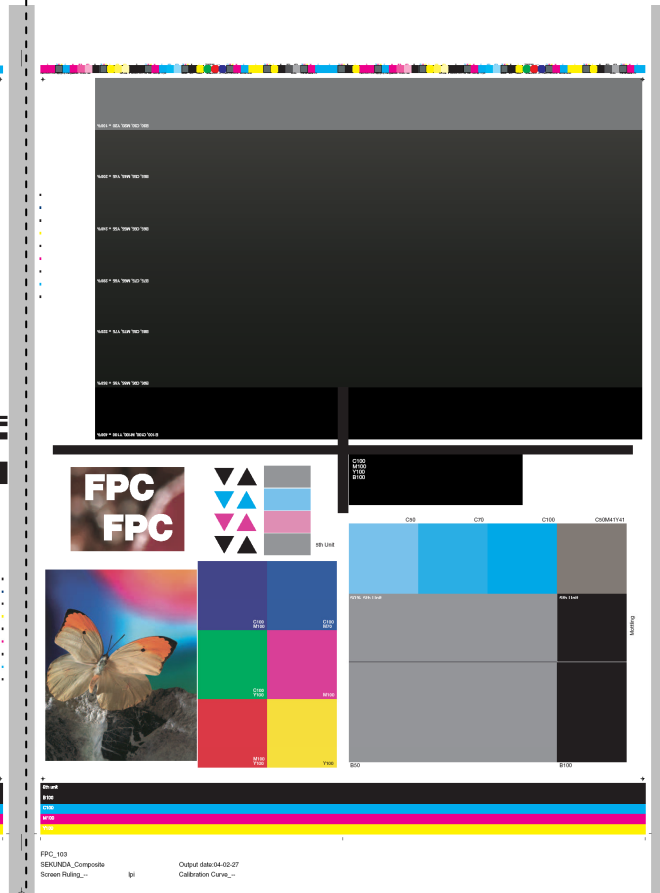


Layout

Lower units (Prima)

Upper units (Sekunda)

Blistering
(different ink coverage)



Amount of paper needed:
6000 m/trial point (alt. 2000 m/tp in 3 identical reels)

Measurements:

- smoothness of unprinted and printed areas
- visual evaluation of blistering

