

CHAPTER V

CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

Studying the effective plate to ink transfer it was found that the amount of ink transfer depends on the following factors:

- Press type
- Plate type
- Thickness of the flexography plate
- Room temperature
- Type of UV ink
- Speed
- Angle of doctor blade

In this case we changed only the plate type and we found that the effective factors of ink transfer are as follows.

- Proceeding plate (digital or conventional)
- Plate hardness surface
- Compressibility
- Contact angle

The importance of the hardness surface and contact angle can be measured by the instrument but for the saturation factor we have to weigh the plate and calculate. The saturation conditions will depend on the type of each plate.

In this test, we separate printing quality into two categories, digital and conventional, primarily because the different processes of plate making that ultimately result in images of different qualities. Conventional plate nyloflex[®] ACE 170 plates have a greater ink transfer capability than nyloflex[®] FAH 170 because it has a greater compressibility and a more desirable contact angle. The nyloflex[®] FAH DII 170 digital plate has a little bit more ink transfer than nyloflex[®] ACE DII 170 because the test results of nyloflex[®] ACE DII 170 showed an excess range of compressibility in this plate type. Except for the contact angle factor, which was higher than nyloflex[®] FAH DII 170 they exhibited a similar amount of ink transfer. DuPont[®] DPU 67 plates have low amounts of ink transfer because the excess range of contact angle and higher rate of consistently harder surfaces than both nyloflex[®] FAH DII 170 and nyloflex[®] ACE DII 170.

It can be concluded that the good ink transfer of the plate could cause darker edges of fonts of the reverse print, good print uniformity and less gradation. Note that the total dotgain results showed complexity as there were other factors involved such as surface energy, compressibility and surface hardness of the printing plate too.

5.2 Suggestion

It was interesting to discover that three factors for each plate type effected the ink transfer, they are surface hardness, compressibility, and contact angle. We can find the relationship between plate and ink transfer factors. If we can control these three factors as mentioned above in order we can achieve the necessary ink transfer conditions and required printing quality.

Another interesting study is the effectiveness of each anilox roll type which makes the differing characteristic of ink transfer coefficients in order to get the optimum result, which is achieving maximum ink transfer from anilox to substrate.

The final consideration is the choice of the correct size and type of anilox roll for maximum quality at the same time adhering to the producer's requirements.



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