

Dimensional stability of Cyrel® Plates

The issue of dimensional stability of Cyrel® Plates, resp. photopolymer printing plates in general, might not be easily covered in a comprehensive and practical way - only by help of technical specifications.

The reason for that is that during the workflow of plate processing, transport, and handling in mounting and printing, various factors might come up, which have a major impact on the final dimensional performance. Those different factors are complex, hardly to be quantified by data and at least hardly to be controlled during the workflow.

In general the stability of the polyester base of the plates is the major limiting factor on the dimensional stability of the plate.

Different stretching of the image, caused by exposing the plates in a flat position, the print direction and also different area coverage of the image also have an important impact on the dimensional stability.

The performance of the polyester base of Cyrel® plates is comparable to those of artwork.

The register accuracy of digital imaged plates is higher than those of analog plates as the impact of the artwork – in general – and during the main exposure process is eliminated.

Polyester bases show a high sensitivity to variations in temperature and humidity. Based on the manufacturing technology, the support base features a certain running direction, therefore their dimensional stability is not unbounded.

These are the specifications of the polyester support base (Standard polyester base, thickness 0,127 mm):

Reversible Thermal Expansion Coefficient = 0.018 +/- 0,002 mm / m / ° C

Hygroscopic Expansion Coefficient = 0.006 mm / m / % RF

➔ Based on the above-mentioned characteristics of the polyester base, the following recommendations arise:

- Plates should be processed for a job with a constant running direction on the press
- Plates should be exposed to similar conditions e.g. constant process and drying conditions.
- Drying temperature should not exceed 60°C.
55°C +/- 5 °C are recommended.
- Plate transport during the plate processing workflow – especially with large formats – should be carried out by help of a transport table which allows a gentle plate handling, avoiding any mechanical stress.



The dimensional accuracy from plate to plate results in a tolerance of +/- 0.15 mm, based on a measuring length of 1 m = 0.015 %.

Those data have been evaluated based on a number of plates of thickness types 45 and 67, which have been processed due to practical needs of the workflow.

Processing parameters:

Various job design, CDI Imaging, 2001 Exposure Frame, Smart XL Processor, FlexoSol washout solvent, 3 hours drying time at 55 °C (+/- 5 °C tolerance) , measurement of length using a MICROFLEX.

We like to point out that the register accuracy - besides the plate precision - is influenced on a large number of various effects that arise from plate mounting and printing process.

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