

Test Procedure Guideline

Test Method: **PRINT-TO-PRINT REGISTRATION**

PURPOSE OF PROCEDURE:

The purpose of this specification is to standardize test methods and terminology of the tolerances related to print-to-print relationships. It will also give a common frame of reference in judging test results.

DEFINITION OF TERMS:

Print-to-print: This term references the distance from one printed graphic to the next on a given label. In multiple color labels each color has a position in relation to the other colors on the same label. The print-to-print tolerance is the difference in distance between the printed colors on a given label.

EQUIPMENT/MATERIALS NEEDED:

Measuring devices:

1. Ruler that is calibrated on a scheduled basis. Ruler should be broken into no less than 1/64 inch increments (0.4mm).
2. Magnifier (also known as linen tester, loop, or glass.) This is a graduated magnifying glass used to view print to print registration in small increments. This magnifier will show registration tolerances as small as .0005" (0.01mm).

TEST PROCEDURE:

1. The printed label must be in a position that the measuring device can be accurately placed on the label. If the label is applied to a curved surface, it will be difficult to get an accurate measurement.
2. The type of printing will dictate the measuring device. If the printing is line colors, a ruler can be used to measure the relationship between one color to the next. If the printing is four color process, a magnifying glass will be needed to get an accurate measurement of the tolerances.
3. The print-to-print tolerance is measured between two points of reference of two separate colors on a single label. In the case of line colors, points must be selected to measure the distance between. This distance is related to the expected distance as specified by the customer. Throughout the press run, this distance will vary, and it is the responsibility of the printer to measure this distance at predetermined intervals.

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4. When the printing is four color process, it becomes necessary to view the printing under a magnifier. The printer must be able to see variances in print tolerances of .0005" (0.01mm). It is visually apparent in four color process if the printing is out of registration. There are areas in the printing that require the multiple colors be printed directly on top of each other. When viewed under a magnifier, the multiple colors will either form a single color (in registration), or they will not create a clear line (out of registration).
5. As a history is developed through a single order, and throughout multiple runs of a given label, the distance between the print stations will fluctuate. This fluctuation is caused by many issues that are not addressed in this test method. It becomes the printers' responsibility to observe this movement and measure the differences between the largest distance between printed graphics and the smallest distance. This fluctuation becomes what the printer has as a print-to-print registration tolerance.
6. This registration tolerance becomes the printer's responsibility to control from one order to the next. The amount of tolerance allowable must be agreed upon by the printer and the customer. If the customer is not the bottle manufacturer, or a contract packager for an end user, the allowable registration tolerance must be communicated to all of the involved parties.

DOCUMENTATION:

The allowable tolerance of print to print registration that is agreed upon by the customer and printer should be in a written specification provided to the printer from the customer.

The frequency of the test to be performed by the printer must also be agreed upon by the customer. That is to say that the customer should provide in their specification a frequency that the printer is to pull samples from the press and observe them for registration. These will be used to record results.

Many customers may require the printer to maintain representative samples (retains) of the press run in inventory, in the case that the customer observes samples they believe to be out of tolerance.

REFERENCES: