

Introduction

When ink is printed on paper a part of the ink is partially absorbed by the paper. For the offset process this property is very important. If the ink is absorbed too slowly or too fast, it may result in a change of the dry ink properties. An absorption, which is too slow, may result in e.g. smearing because the ink does not dry fast enough. An absorption, which is too fast, may result in a reduction of e.g. gloss; in this case the absorption of the ratio of binding agent and pigments has been changed.

This information leaflet describes a method to make a print with a printing disc with rubber to measure the gloss:

W49: Printing disc with rubber 85 Shore A for very smooth papers.

W71: Printing disc with rubber of 65 Shore A for smooth and very smooth papers.

Often this method is used as a quality control test.

To test inks, the method can be executed in the same way, but instead of a test ink the ink to be tested is used together with a reference paper as IGT code C2846.

Principle

A paper strip to be tested is printed with a standard gloss ink with the help of a printability tester. After drying the ink, the gloss is measured.

Method of operation

- It is recommended to execute the test in the standard atmosphere; to most standards it is $23,0 \pm 1,0$ °C and $50 \pm 2\%$ rh.
- For the operation of the AIC2-5T2000, Global Standard Tester, Inking Unit and ink pipette follow the instructions of the manuals, IGT information leaflet W100 and the displays accurately.
- Handle the samples carefully.

Preparation

- Condition the papers, the ink and the equipment during >6 hours in the standard atmosphere.
- Cut the paper strips and mark them with top and/or bottom side, machine and/or cross direction and a code for the type of paper.
- For AIC2-5T2000 only:
 - Adjust the printing force of the top printing disc shaft to 625 N and pay attention for the right backlash. See W100.
 - Adjust the printing speed to 0,2 m/s in the constant speed mode (□).
- For GST 2/3H: Select the menu "Colour/density" in the display.
- Fill the ink pipette with the gloss ink or the ink to be tested.
- For High Speed Inking Unit only:

Adjust the unit with the following settings:

 - Water bath: 23,0 °C
 - Top roller: 4-segmented, rubber for conventional inks
 - Mode: 2
 - Startup time: 10 s
 - Distribution time: 20 s
 - Distribution speed: 0,5 m/s
 - Inking time printing discs: 15 s
- For inking unit AE FOUR only: see manual or W100.

Execution

- Apply 0,10 or 0,21 cm³ (2,4 or 4,8 µm) of ink to a segment of the top roller of the inking unit and distribute the ink during the preset or desired time.

NOTE: Indication for ink layer: 2,4 µm for art paper and 4,8 µm for less smooth paper.

NOTE: It is not advised to add some ink after a test.
- Place the printing disc on the printing disc shaft of the inking unit and ink the disc during the preset or desired time.
- Attach a test strip into the front clamp of the sector.
- Remove the disc from the inking unit and place it on the top printing disc shaft of the printability tester.
- Make a print. See W100.
- Remove the printed strip from the sector.
- Store the printed strip in the standard atmosphere at a safe place so that it cannot be damaged for at least 5 hours.
- Check the test result after 5 hours as pointed out in the chapter "Assessment".
- Remove the printing disc from the tester and clean it with the rags and naphtha and let it dry.
- Clean the rollers of the inking unit or use the next segment for the following test.

Materials / Testing conditions

1	IGT AIC2-5T2000 or Global Standard Tester 2 or IGT Global Standard Tester 3H	710.000.000 412.000.000 467.000.000
2	IGT High Speed Inking Unit 4 or IGT inking unit AE FOUR	466.000.710 465.000.710
3	Top roller with 4 segments for conventional inks	466.003.003
4	IGT ink pipette	408.000.200
5	Printing disc, rubber, 85 Shore A, 50 mm or Printing disc, rubber, 65 Shore A, 50 mm	402.634 402.687
6	If desired, reference paper strips, IGT code C2846, 55 mm	404.009.029
7	Gloss ink (Lorilleux Red brilliant standard)	404.380.010
8	IGT Gloss meter G 60 or IGT gloss meter G 75	555.000.060 555.000.075

If desired ink to be tested

If desired strips of paper to be tested, preferable 55*340 mm², 3 strips per sample

Lint free rags and cleaning naphtha

Printing force	625 N
Printing speed	Constant, 0,2 m/s
Ink film thickness (volume)	2,4 or 4,8 µm (0,10 or 0,21 cm ³)

► The numbers 1 thru 9 are available at IGT Testing Systems.

- Repeat the points 1 thru 10 for the next test. It is recommended to perform the test at least three times per sample.
- After having finished the tests clean and store all parts as described in the manuals.
- Make an accurate record of the conditions and the results of the test and refer to the printing disc used:
 - W49: Rubber 85 Shore A, gloss 60 or 75.
 - W71: Rubber 65 Shore A, gloss 60 or 75.

Assessment

- Measure the gloss on the dried ink of the printed sample with a gloss meter on every strip.
- Calculate the average and if desired, the standard deviation. Sometimes it can be useful to mention the highest and lowest values as well.

Notes:

- The storage life of the ink in the original packing is 3 years maximum; in an opened packing 1 year.

► 2006: In comparison to older IGT leaflets, this leaflet is valid for the AIC2-5T2000 and Global Standard Testers as mentioned.

► 2012: This leaflet is valid for the AMSTERDAM and AE FOUR as well and contains some small text corrections.

► 2017: This leaflet is valid for the AIC2-5T2000 and GST 2/3H only and contains some small text corrections.