

## 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 W49 describes a method to make a print to measure gloss for testing very smooth and smooth papers. The printing form is covered with coated rubber of a hardness of 85 Shore A. Information leaflet W71 describes the method with coated rubber of 65 Shore A. 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 standard paper as APCO II/II, IGT code Ka.

## 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 ( $73.4 \pm 1.8$  °F) and  $50 \pm 2\%$  rh.
- For the operation of the AIC2-5T2000, Global Standard Tester, High Speed Inking Unit 4 and ink pipette follow the instructions of the manuals, IGT information leaflet W100 and the displays accurately.
- Handle the samples carefully.

## Preparation

- 1 Condition the papers, the ink and equipment during > 6 hours in the standard atmosphere.
- 2 Cut the paper strips (preferable 55 x 340 mm, 3 strips per sample) and mark them with top and/or bottom side, machine and/or cross direction and a code for the type of material.
- 3 For AIC2-5T2000 only:
  - 3.1 Adjust the printing force of the upper printing disc shaft to 625 N and pay attention for the right backlash. See W100.
  - 3.2 Adjust the printing speed to 0.2 m/s in the constant speed mode (□)
- 4 For GST2/3/3H: Select the menu "Colour/density" in the display.
- 5 Check the functioning of the tester following the instructions in the chapter "Execution".
- 6 Fill the ink pipette with the gloss ink.
- 7 Adjust the High Speed Inking Unit with the following settings:
  - Water bath: 23.0° C (73.4° F)
  - Top roller: 4-segmented, rubber for conventional inks
  - Mode: 2
  - Starting time: 5 s
  - Distribution time: 10 s
  - Distribution speed: 1.2 m/s
  - Inking time printing disc: 5 s
- 8 Check the functioning of the High Speed Inking Unit.

## Execution

1. Apply  $0.10$  or  $0.21$  cm<sup>3</sup> ( $2.4$  or  $4.8$  μm) of ink to the inking unit and distribute the ink. It is not advised to add some ink after a test. NOTE: Indication for ink layer:  $2.4$  μm for art paper and  $4.8$  μm for less smooth paper.
2. Place the printing disc on the printing disc shaft of the inking unit and ink the disc during the preset time.
3. Mount a test strip on the sector of the printability tester.

## Materials / testing conditions

1	IGT AIC2-5T2000 or Global Standard Tester 2 or IGT Global Standard Tester 3 or IGT Global Standard Tester 3H	710.000.000 412.000.000 416.000.000 467.000.000
2	IGT High Speed Inking Unit 4	466.000.710
3	(Top roller with 4 segments for conventional inks)	(466.003.003)
4	IGT ink pipette	408.000.200
5	Printing disc with coated rubber, 85 Shore A, 50 mm, ø 68 mm	402.333
6	Comparison test strips, APCO II/II, IGT code Ka, 55 mm	404.009.025
7	Gloss ink (Red brilliant standard)	404.380.010
8	Strips of paper to be tested, preferable 55 x 340 mm, 3 strips per sample	
9	Lint free rags	
10	Cleaning naphtha	
11	Gloss meter	
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 <sup>3</sup> )
► The numbers 1 thru 7 are available at IGT Testing Systems. ► The numbers 5 thru 7 can be obtained as Gloss Test Set for AIC2-5T200 and GST 2/3/3H, article number 476.000.710.049. ► <i>This leaflet contains article numbers per January 1st, 2006</i> ◀.		

4. Remove the disc from the inking unit and place it on the (top) shaft of the printability tester.
5. Make a print. See W100.
6. Take off the printed strip from the sector.
7. Store the printed strip in the standard atmosphere at a place that it cannot be damaged for at least 5 hours.
8. Check the test result after 5 hours as pointed out in the chapter "Assessment".
9. Remove the printing disc from the tester and clean it with the rags and naphtha.
10. Clean the rollers of the inking unit or use the next segment for the following test.
11. Repeat the points 1 thru 11 for the next test. It is recommended to perform the test at least three times.
12. After finishing the tests clean and store all parts as described in the manuals.
13. Make an accurate record of the conditions and the results of the test.

## Assessment

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

## Notes:

1. The test results of the AIC2-5T2000, AIC2-5 and Global Standard Testers 2, 3 and 3H compare well with one another on the condition that the tests have been carried out under the same testing conditions.
2. The storage life of the ink in the original packing is 3 years maximum; in an opened packing 1 year.

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

This information leaflet has been compiled with the utmost care. However, may you find any inadequacies or if there are any comments, we kindly request you to send these to IGT Testing Systems, Sales Department.