

Introduction

Intaglio is a very important printing technique for the security printing industry as e.g. bank notes, shares and so on. The ink is printed in a very thick ink film as a security item. To test dry characteristics of the ink as e.g. light fastness, adhesion and colour it is necessary to have an ink film thickness as printed in practice. Also it can be wished to test different ink film thicknesses.

With the IGT AIC2-5T2000 or Global Standard Tester 2/3H a print can be made with an intaglio ink on a security or other paper or other substrate in a very thick ink film layer. After drying the ink the dry properties of the ink can be tested.

Principle

For this test the printing form is a steel printing disc in which a 30, 60 or 120 µm deep groove has been ground. This disc is inked with the Westvaco Inker. This inker consists of a doctor rod in a lever system, mounted in a special housing. The doctor rod is pressed against the grooved disc by means of the lever system. A small amount of intaglio ink applied to the disc and subsequently the disc is rotated and the groove is filled. Using this disc on an IGT tester a print is made on a strip of the substrate at a constant speed. After drying the ink the print can be used to determine the desired dry properties.

Because the ink in the printing press is heated up to a certain temperature (about 80°C) to make the ink sufficiently fluid, the disc can be heated in an oven at the desired temperature. After heating it can be used with the inker and printability tester. In this case it is advised to use a set of three discs of the same type to make it possible to work continuously: one disc with the inker and tester, two discs in the oven to be heated.

Method of operation

- It is recommended to execute the test in the standard atmosphere; to most standards it is 23,0 ± 1,0 °C and 50 ± 2% rh.
- For the operation of the AIC2-5T2000 and Global Standard Tester 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.
- If desired, place the discs during >6 hours in an oven at the desired temperature. In most cases this will be 80°C.
- 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 material.
- For AIC2-5T2000 only:**
 - Mount the packing on the sector. See W100.
 - Adjust the printing force of the top printing disc shaft to 700 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 only:**
 - Mount the packing on the sector. See W100.
 - Switch "Fixed menus" in the menu "Options" to OFF.
 - Select the menu "Colour/density" in the display.
 - Adjust the printing force to 700 N.
 - Adjust the printing speed to 0,2 m/s.
- Slide the rod into the rod holder.
- Slide the rod holder with the rod upward and pointing to the right on the pin of the Westvaco inker and fasten it with the screw.
- Move the handle under the rod holder to the left, so that the rod is in the lower position.
- Degrease the printing disc with rags and naphtha.

Materials / Testing conditions

1	IGT AIC2-5T2000 or IGT Global Standard Tester 2 or IGT Global Standard Tester 3H	710.000.000 412.000.000 467.000.000
2	Intaglio/Westvaco inker	413.060
3	Packing, paper, 55 mm	404.001.005
4	Printing disc, grooved, 10 mm, groove depth 30 µm and groove width 3 mm or Printing disc, grooved, 10 mm, groove depth 60 µm and groove width 3 mm or Printing disc, grooved, 10 mm, groove depth 120 µm and groove width 3 mm	402.322.030 402.322.060 402.322.120
Strips of paper to be tested, preferable 55*340 mm ² , 5 strips per sample Lint free rags and cleaning naphtha Desired equipment to test the desired properties		
Printing force		700 N
Printing speed		Constant, 0,2 m/s
► The numbers 1 thru 4 are available at IGT Testing Systems.		

Execution

- Attach a test strip into the front clamp of the sector.
- If the discs are in the oven, take one out of the oven.
NOTE 1: Pay attention to the high temperature!
NOTE 2: To prevent cooling of the disc, follow the next points until point 12 as quick as possible
- Place the printing disc on the printing disc shaft of the inker.
- Apply some drops of the intaglio ink onto the printing disc.
- Move the handle of the rod holder to the right so that the rod has contact with the printing disc.
- Place the handle in the grip of the disc and make some rotations of the disc in clockwise direction so that the groove of the disc is filled with the ink.
- Move the handle of the rod holder to the left so that the rod is in the lower position and has no contact with the disc.
- Take the disc from the inker and place it on the top printing disc shaft of the tester.
NOTE: Pay attention to the high temperature!
- Make a print. See W100.
- Remove the test strip from the tester.
- Remove the disc from the tester and clean it with rags and cleaning solvent and let it dry.
- If desired place the disc into the oven during ½ hour so that it has the right temperature again.
- Repeat points 1 thru 12 for every test strip and use the next disc. It is recommended to perform the test at least 5 times per sample.
- After having finished the tests, clean and store all parts as described in the manual and grease the printing disc with acid free Vaseline.
- Make an accurate record of the conditions and the results of the test and refer to W85.



Fig. 1: Intaglio/Westvaco Inker

Assessment

- Measure the desired property of the print.

► 2012: This leaflet is valid for the AMSTERDAM 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.