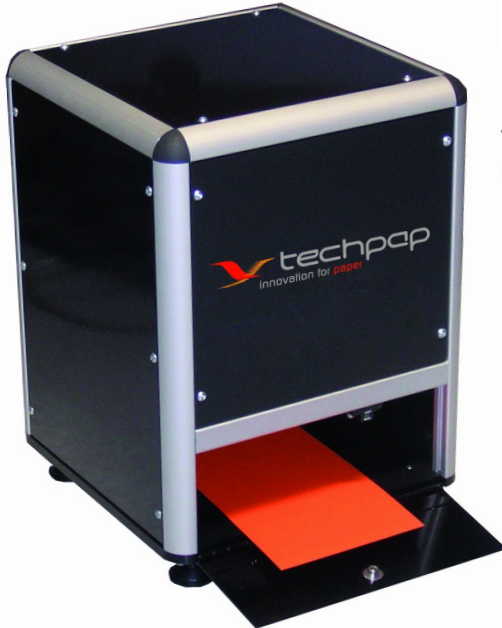


MOTTLING SENSOR

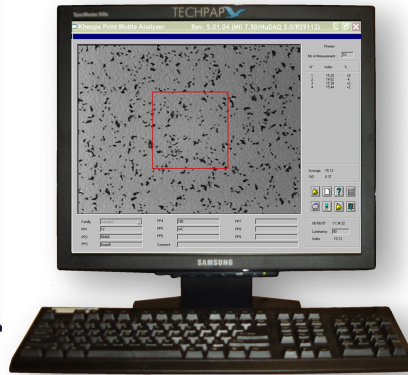
MOTTLING MEASUREMENT SENSOR



The Kheops is a laboratory sensor designed to easily provide accurate and repeatable evaluations on:

- » Quality of offset impressions, print mottling, and the quality/precision of coating application
- » Paper, Board or other flat material surface roughness

The Kheops has been specifically designed for papermakers, board makers, ink manufacturers, coating suppliers and printing operations.



User Friendly Software

The Windows software has been developed by CTP and TECHPAP engineers in conjunction with industrial users to be efficient in operation, easy to use and versatile. To make a test, the operator simply places the sample in the system, enters the sample reference and clicks on the area to be tested.

- » The result output includes the average print mottle or surface smoothness plus deviation between measurements, tolerance threshold, class distribution and class distribution standard deviation.

Kheops - Practical, Repeatable and Responsive

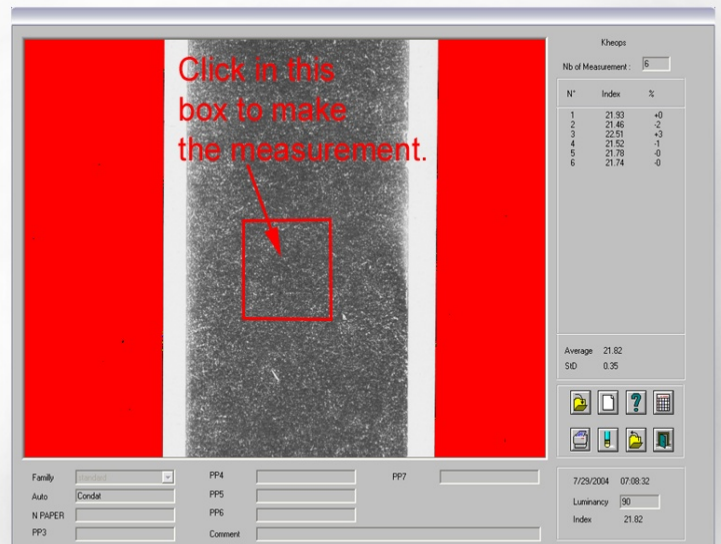
The Kheops sensor is essentially a CCD camera and two specially designed light sources (a diffused light for print mottle analysis and a low angle LED lamp for surface smoothness evaluations). The housing has a small hinged door on its front side to introduce samples for testing. The camera and lighting system is automatically adjusted to maintain a stable sample illumination during the image capture measurement process. The Kheops uses a PC to automatically set the camera, analyze the images, make calculates, display the results, memorize the results and send the results to the DCS or Data Historian.

The Kheops sensor is very sensitive to mottle or smoothness changes in the paper. The repeatability of the system is exceptional and the results have been closely correlated with visual tests. The final mottling index is the result of the combination of 5 individual class size categories. These 5 class sizes can be pre-set by the operator depending on the application requirements.

RESULTS

- » Excellent correlation with human eye evaluation and sensitivity
 - » Excellent linearity
 - » Excellent repeatability
 - » One single number index between 0 (ideal sample) and > 100
 - » Index number is the result of 5 individual categories of class size
- Minimum class: 0.5 to 1 mm
- » Size and highlight of each class are selected by the operator in order of importance

- » All results are stored on the PC and can be transferred to any spreadsheet or data historian.
- » Operational icons are easy to understand and there are 6 test reference windows plus a window for comments.
- » All class size parameters, luminosity levels and formula parameters can be adjusted and set.



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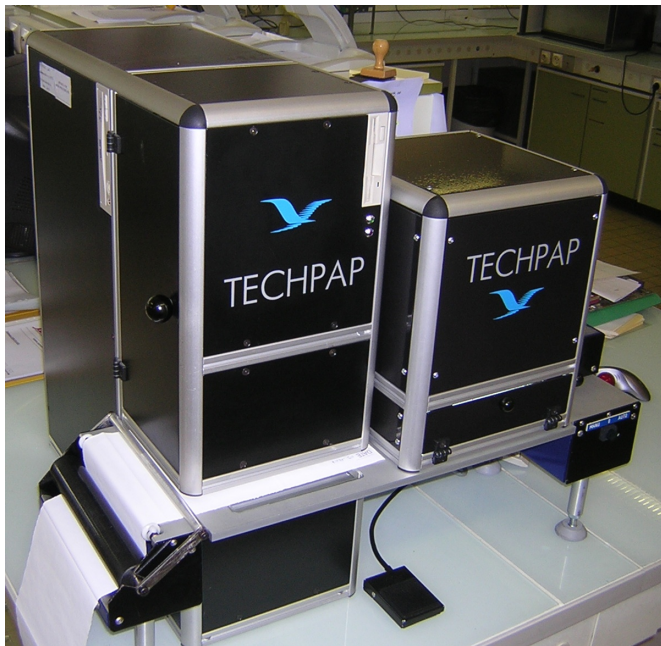
MOTTLING SENSOR

Sensor Dimensions: 14.5"x14.5"x15.75" (37x37x40 cm)
 Weight: 26.5 lbs. (12 kg)
 Hinged door width: 8.7" (22 cm)
 Light sources:
 * Diffuse light for mottle measurement
 * Low angle LED light for smoothness measurement

Connections Supply: 220v / 50Hz or 110v / 60Hz
 Power: 50 watts
 Video output and regulation input (cables delivered)
 Vacuum connection and porous stone to maintain the sample flatness for smoothness measurements.

Sample Measurement area: 1"x1" (25x25mm) or 0.5"x0.5" (12.5x12.5mm)
 Maximum thickness of sample: 0.15" (4mm)

PC Needed Windows 2000 or XP Pro with 1394 Cards



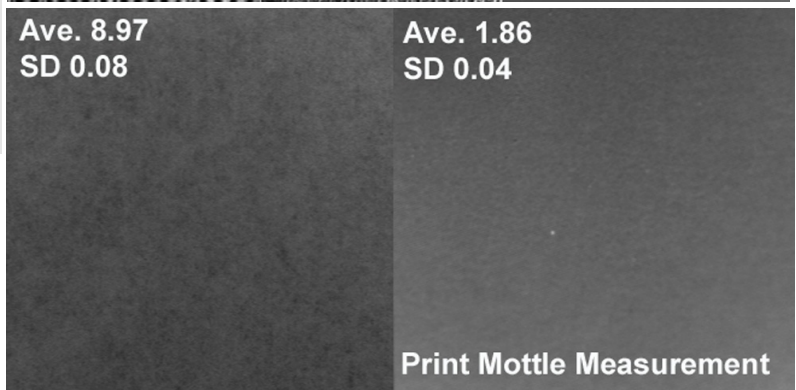
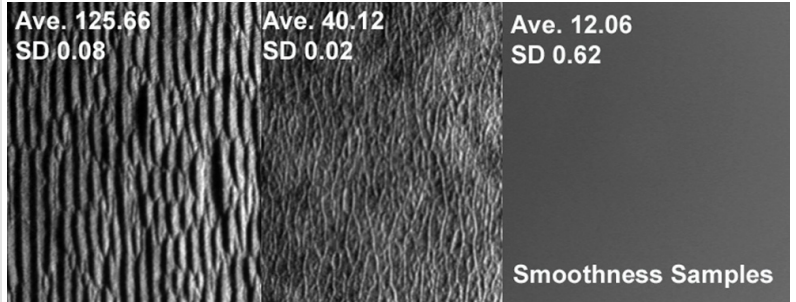
Kheops with Feeder

The Kheops print mottle analyzer can be combined with the 2D Lab Formation Sensor to give a complete picture of your paper quality. Using an auto feed, the system performs automatic control of your paper Surface & Formation.

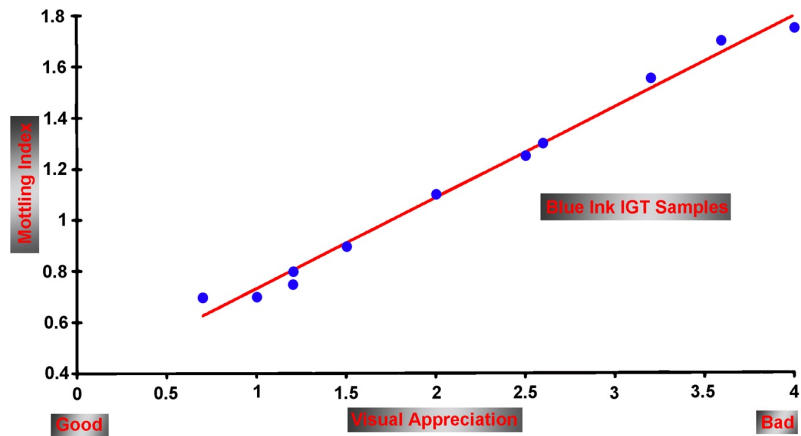
Special Applications:

- » The New Kheops is a perfect tool to evaluate and classify the covering quality of the bleached layer of White top board.
- » Cigarette paper opacity should be high enough to prevent the transparency, or look-through, of the sheet allowing the tobacco to be seen through the paper. The Techpap Mottling Sensor is a perfect tool to evaluate and classify the covering quality or look-through of tobacco for cigarette paper.

PASSWORD PROTECTION FOR FOR USER AND ADMINISTRATOR ENTRY
 INDIVIDUAL MEASUREMENT TIME IS LESS THAN 1 SECOND



Correlation Between Mottling Index / Visual Appreciation - Size Class 2 - 4 mm



Interpretation and Correlation of Results:

- » The results provide an excellent correlation with visual inspection. In fact, the camera is much more sensitive than what can be seen by the human eye.
- » Excellent result linearity
- » The repeatability of the measurement algorithm is superb.