emtec Innovative Testing Solutions

PDA

PENETRATION DYNAMICS ANALYZER *MST*

Prediction of gluability, printability and coating ability of paper and board

ADVANTAGES

- measurement of
  - surface sizing
  - surface hydrophobia and
  - surface porosity
- prediction of
  - gluability
  - printability and
  - coatingabilty
- accurate, reliable and repeatable
- easy to handle
- portable

USERS

- chemical suppliers
- paper and board makers
- paper and board converters
- universities and institutes

Traditionally, sizing and porosity of a paper or board are tested by standard test devices, e.g. Cobb for sizing and Gurley for porosity. Often it happens that converting issues occur, although all required parameters are within the agreed specifications. If this is the case, the mentioned standard test devices cannot help to identify reasons for these issues. In comparison to this, the emtec PDA.C02 Penetration Dynamics Analyzer (Module Standard) measures the converting process relevant parameters surface hydrophobia / surface sizing and the surface porosity.

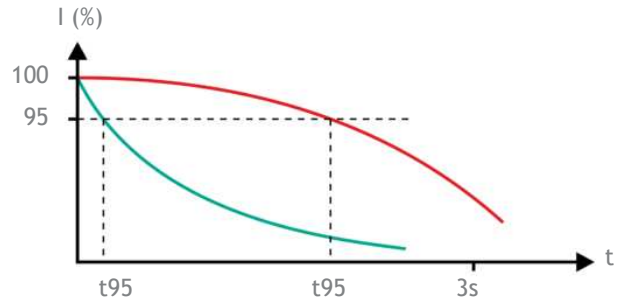
BASIC

Surface sizing and surface porosity determine the penetration of liquids into the surface of a paper or a board. This is relevant for the gluing, printing and coating process, because both parameters directly influence the quality of the finished product. If for example, the surface pore structure or the surface sizing of a paper product does not fit to the settings of the converting process, issues could be a poor gluability or a bad printing result. The PDA measures these two important surface parameters and by this helps to optimize the converting process as well as the production quality, which saves money and time and reduces fluctuations in the quality of the finished product.

PDA | PENETRATION DYNAMICS ANALYZER MST

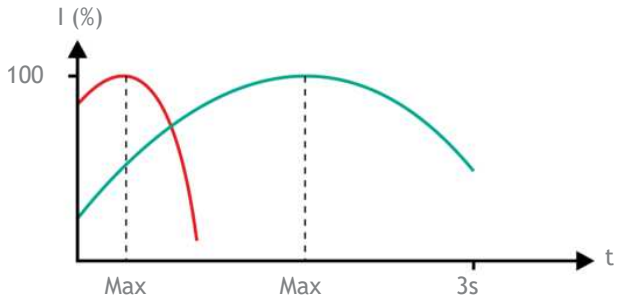
PDA MST TEST RESULTS

Testing liquid “water + IPA” for surface pore structure characterization



red curve	a more closed pore structure (slower penetration of the test liquid)
green curve	a more open pore structure (faster penetration of the test liquid)

Testing liquid water for surface sizing / hydrophobia characterization



red curve	lower surface sizing/ a less hydrophobic material (penetration starts earlier)
green curve	higher surface sizing / a more hydrophobic material (penetration starts later)

APPLICATION AREAS

r&d

process optimization

product optimization

incoming control

quality assurance

troubleshooting

complaint management

benchmarking

MATERIALS

paper

board

RESULTS

surface sizing / hydrophobia (interesting value: max)

surface porosity (interesting value: t95)

TECHNICAL DATA

basic device dimensions	42 x 16 x 32 cm (H x W x D)
MCU dimensions	11 x 16 x 24 cm (H x W x D)
device weight	approx. 16 kg
power supply	115-230 VAC, 50/60 Hz
sample dimension	75 x 50 mm
measuring frequencies	1 MHz, 2MHz selectable
measurement intervals	approx. 1ms
first measured value	approx. 10 ms after liquid contact
data structure	ASCII file

SOFTWARE

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