

## TECHNICAL CHARACTERISTICS

### EXPANSIMETER

■ Steady surrounding	
Running temperature	20 to 40°C
20 to 250 g / m <sup>2</sup>	
■ Samples	
- Number	10
- Width	15 mm
- Useful length	50, 100, 150, 180, 200 mm
■ Load	
- Total weight of the lower clamps	43 g
- Selection of overweights or according to ISO 8226	+100, +200, +300 g
■ Temperature / humidity sensor	
- Humidity scale	0 to 100% HR
- Temperature scale	0 to 100°C
■ Accuracy	
- Humidity	+ or - 2% HR
- Temperature	+ or - 0.5°C
Length at 25°C	+ or - 3 microns
<b>AIR GENERATOR</b>	
■ Conditioned air	
- RH minimum	15%
- RH maximum	90 %
- Accuracy	+ or - 2% HR
- Inertia	less than 10 s
- Standard flow	4 to 5 m <sup>3</sup> / H
- Output pressure	0.1 to 0.2 bar
<b>PC</b>	
■ Compatible	IBM AT
■ Data Logging	
- Number of humidity set points	24 maximum
- Stabilization yime for each est point	5 hours maximum



**INNOVATION FOR PAPER**

**VARIDIM**

VARIDIM has been set up and patented by the  
FRENCH ENGINEER SCHOOL OF PAPER AND PRINTING (E.F.P.G.)  
Registered trademark of TECHPAP

# VARIDIM \*

## Dimensional stability measurement of papers

VARIDIM is a laboratory equipment that easily carries out previously-impossible trials, including :

- length variations measurements in real time,
- any humidity between 15 and 90% RH,
- humidity series,
- calculus of YOUNG modulus, of elasticity for each humidity.



### PRINCIPLE

The VARIDIM system includes : 1 wet air generator (with a compressed air pre-treatment device and control unit), 1 expansimeter, 1 PC that controls then complete process with 2 application softwares.

The compressed air of the mill is treated (extraction of oil and moisture). The generator, because of its distilled water tank, supplies 15 to 90% RH humid air, with a flow amounting to at least 4 – 5 m<sup>3</sup>/H, with a practically zero inertia. This humid air is forwarded to the expansimeter.

The 10 paper samples are vertically fixed with magnetic clamps. Each position sensor is attached to the paper with a specific magnetic clamp. The weight applied to the paper can be selected manually (permanently) or automatically (temporary, controlled by the PC). The original length of the samples is very easily adjustable. Humidity and temperature are measured in the expansimeter.

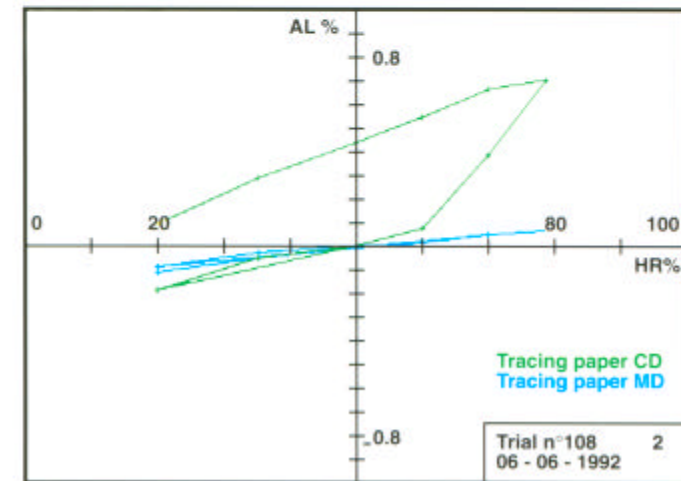
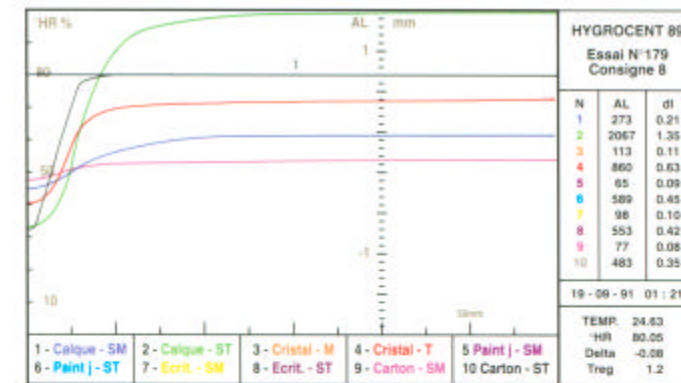
Due to its very easy to use program, the PC allows you to:

- Program the trial very easily : the number and the duration of set points, the humidity for each set point, with the possibility to achieve a series of set points,
- Easily achieve a complete range of results in the shape of tables and curves,
- Transfer these results to a spreadsheet.

## USE

The VARIDIM system is extremely easy to use. It is only necessary to position the paper samples: it is very easy (magnetic clamps), to check the distilled water level (generator), to program the parameters of the trial that will then be achieved according to the program defined by the operator.

During the trial, the operator can check the correct running on the stretch curves in real time. At the end of the trial, complete results (curves, tables) are available.



### RESULTS

After the trial, the program works out the following results :

- Tables
  - length variation (%) / humidity
  - specific elasticity / humidity, hysteresis
  - YOUNG modulus / humidity
- Curves
  - length variation / real time humidity
  - length variation / humidity, hysteresis
  - YOUNG modulus variation / humidity

### FLEXIBILITY

- At the software level : national language, flexibility, menu, access to all useful parameters. At the level of the expansimeter : selection of the weights applied to each paper sample, as per standard ISO 8226. Selection of the original lengths of paper.

### TIME SAVING – AUTONOMY

Only a few minutes are required to prepare and select a new trial, which will then run unattended for more than 15 hours.

### PERFORMANCES

- Accuracy : the selection of the materials, of the components and the quality of the results achieved, ensure a very high accuracy
- Standardization : the possibility of controlling and standardizing the length measurements is a guarantee of good results.