

Operating Instructions



moisture meter type PD1
for paper and cardboard

Moisture Meter Type PD1

Description:

The electronic moisture meter PD1 is used to determine in a matter of seconds the moisture in materials. The average moisture, down to a depth of approx. 3 cm is measured.

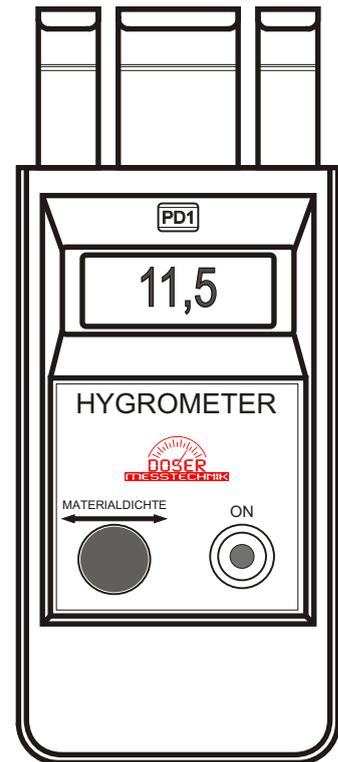
materials: paper and cardboard

measuring range: 0 - 20 % H₂O

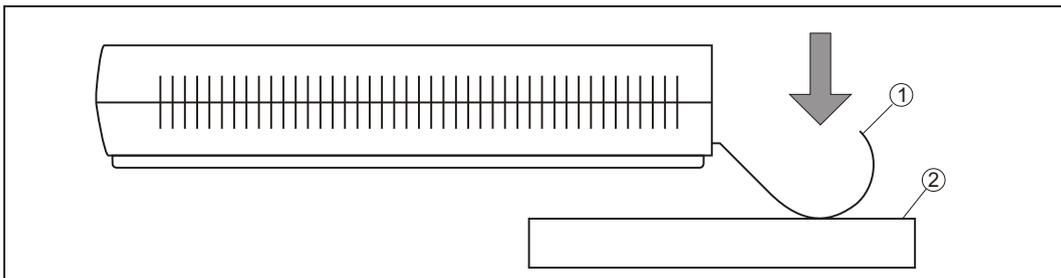
material temperature range: 5 - 40°C

working temperature range: 5 - 40°C

storage temperature range: -20 - 70°C



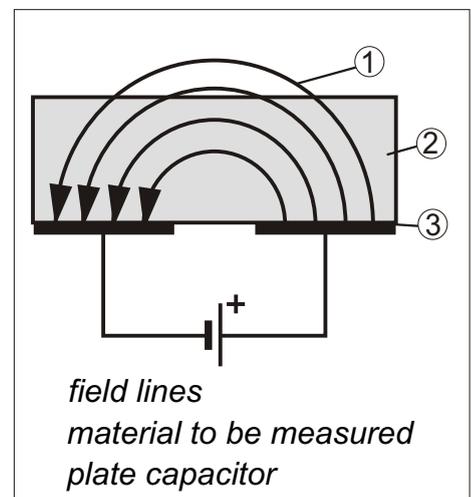
Method of Operation:



The measuring electrodes ① of the meter are pushed during the measuring process on the material to be measured ② so that a high frequency electrical field is able to pass through the material. Taking in account the material setting, the percentage water content is determined.

Measuring Principle:

The meter works in accordance with the principle of an opened plate capacitor. The capacity of the capacitor depends on the material (dielectric) constant of the material in between the plates. Compared with air ($\epsilon_r = 1$), for example water has a very high dielectric constant ($\epsilon_r = 80$). The water content of a wet material can therefore be determined by determining the dielectric constant of this material.



Moisture Meter Type PD1

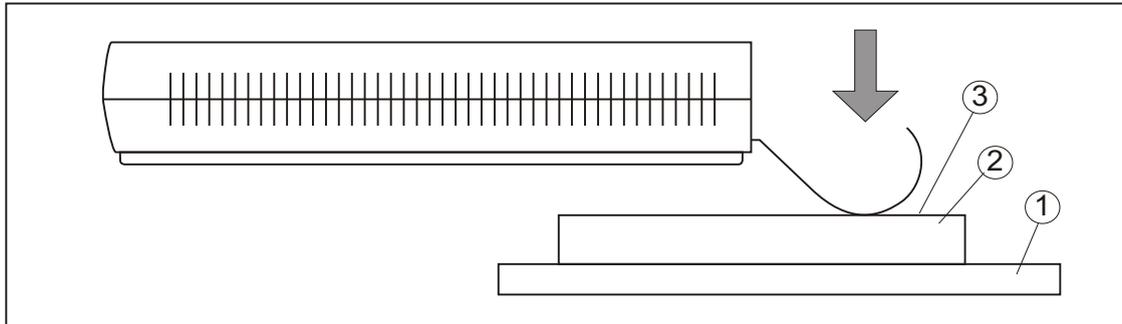
Safety Tips:

- follow the operating instructions
- only use the meter as directed (see page 2)
- keep the meter away from live and current carrying parts
- keep the meter dry
- avoid impacts
- protect the meter from heat
- keep the meter dry and try to prevent dirt from entering the case
- protect the meter from electrostatic discharge.
- the meter must be repaired or serviced only by qualified specialists



Damages caused by failure to follow the above mentioned Safety Tips are not covered by the warranty!

Measurement Preparation:

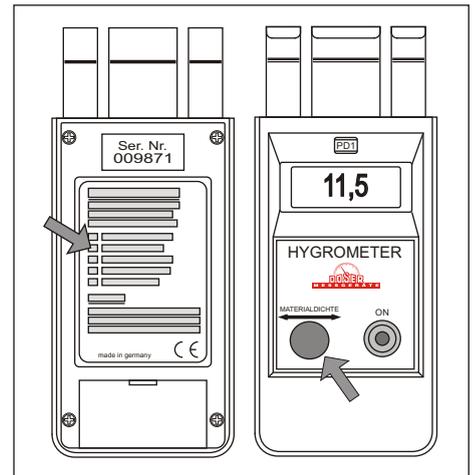


- **material thicknesses < 5 cm** ②: use suitable bases ① (for example: polystyrene or foamed plastic plates - no metal!) or even better: hold the material to be measured into the air
- **thin materials (< 2 cm)** ②: measure on a pile (pile thickness at least 2 cm, avoid air gaps between the individual layers)
- look for an **even, smooth surface** ③ (minimum size for the measurement 4 x 10 cm)
- **minimum distance of the electrodes** from the edge of the surface: 1 cm

Moisture Meter Type PD1

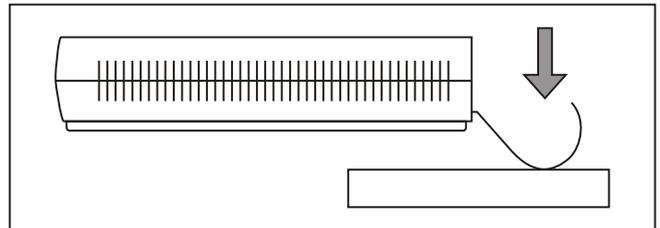
Material Adjustment:

- chose the material group from the back of the meter
- switch the meter on, hold the meter into the air and adjust the corresponding offset with the rotating knob "MATERIALDICHTE"



Measuring:

- press the meter on the material
- press the „ON“-button
- read the moisture value



Turn off the Meter:

- release the „ON“ -button, the meter switches of automatically

Battery:

The meter works with a commercial 9V block battery. The capacity of this is continuously controlled. If the battery is running low, the display shows an alarm.

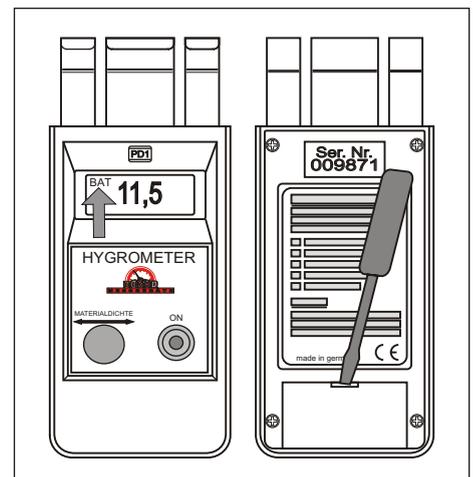
Change battery:

- open the battery box for example with a small screw driver
- take out the battery
- insert new battery, observing the correct polarity

Attention!

In accordance with battery legislation, all used batteries must be disposed off in special battery collecting bins.

The disposal of old or used batteries as part of normal waste is not allowed!



Moisture Meter Type PD1

Checking Measuring Quality:

We recommend carrying out regular periodical controlling check measurements, as different local circumstances might need different material adjustments.

(recommendation: controlling measurements by oven drying method (EN 20 287 or ISO 287))

Oven Drying Method:

The oven drying method is the most accurate way to measure the material moisture in paper (EN 20 287 or ISO 287).

We recommend this for testing and calibrating of all electronic moisture meters.

Short description:

1. for measuring the weights we recommend a balance with an measuring range of 200g and an accuracy of 0,01g
2. for drying you need an oven with an adjustable temperature of 105°C
3. take a probe from the paper or cardboard, avoid edge parts, the probe should be at least 20g
4. it is very important to measure the weight of the first probe immediately, as air humidity may change the moisture content, name of the first weight: wet weight (WW)
5. the probe must be dried in the oven until the weight is constant, the maximum drying temperature: 105 °C (ISO 287)
7. the name of the dry weight is DW
8. the moisture content is calculated with the formula:

$$\text{MOISTURE} = \frac{(\text{WW} - \text{DW})}{\text{WW}} * 100 \%$$



Optional Extras:

- manufacturer certificate
- test modul to check the sensitivity of the moisture meter (with manufacturer certificate on request)
- plastic case for better protection
- customer specific calibration



Our operating instructions are intended for guidance and to provide information on our products and their uses. They should not be taken to imply special characteristics or suitability for any specific purpose, other than those stated.

We constantly work to improve our products and reserve the right to alter our products and operating instructions without advanced notification.

OTHER INSTRUMENTS OUT OF OUR PRODUCT RANGE:

Universal Meter Type DOMA for Determination of Material Moisture in Wood and Building Materials, Air Humidity, Air Temperature, Dew Point and Surface Temperature.

measuring range for material moisture measurement:

for wood: 0,0 - 50,0 % H₂O

for building materials: 0,0 - 20,0 % H₂O

non-destructive - done in seconds - just lay it on the material and read off the answer -

measuring depth approx. 3 cm

- material group setting by means of a membrane-type keypad
- memory for 50 measurements with automatic determination of median, maximum and minimum value
- 2 sensors can be connected
- automatic dew point calculation
- simultaneous display of air temperature, relative humidity, dew point and surface temperature



Air Sensor Type LFLT

for use with the DOMA unit to determine relative humidity air temperature and dew point

measuring range: -20 bis 70 °C
10 bis 95 %rF



Sensor Type WT

for use with the DOMA unit to determine surface temperatures (e.g. on walls)

measuring range: -20,0 bis 70,0°C



Moisture Meter Type A10/20 for all Kinds of Construction Materials

analog, hand-held, with capacitive measuring principle

measuring range: 0 - 20% H₂O

non-destructive - done in seconds - just lay it on the material and read off the answer -

measuring depth approx. 3 cm

- material group setting by means of a rotary knob
- very large display scale
- especially good detection of differences in moisture levels.
- Threshold level for audible alarm, to indicate excessively high moisture levels, can be set



Moisture Meter Type PD2 for Paper and Cardboard

digital hand-held instrument with capacitive measuring principle

Measuring range: 0,0 - 20,0% H₂O

- material group setting by means of a membrane-type keypad
- the material group set can always be seen in the display
- the calibration curves for specific materials can be changed



Moisture Meter Type P12/20 for Paper and Cardboard

analog hand-held instrument with capacitive measuring principle

Measuring range : 2 - 12% H₂O
10 - 20% H₂O

(automatic changeover of measuring range)

- material group setting by means of a rotary knob
- very large display scale
- especially good detection of differences in moisture levels



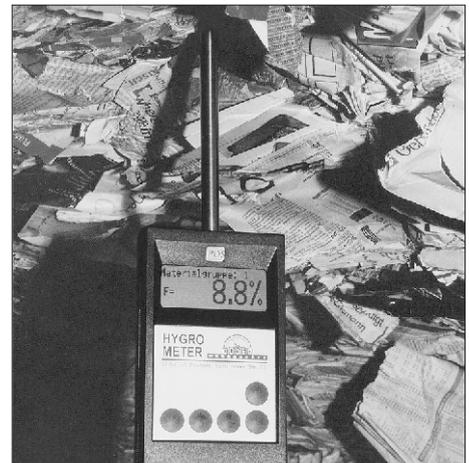
Moisture Meter type PD5 for Waste Paper

digital hand-held instrument with capacitive measuring principle

Measuring range: 0,0 - 50,0 % H₂O

Plug-in probe: Ø 10 mm x approx. 420 mm,
with sharp point

- material group setting by means of a membrane-type keypad
- the material group set can always be seen in the display
- the calibration curves for specific materials can be changed



ATROTEST

In addition to our range of small units we also produce customised measuring units for continuous moisture content determination for a very varied range of materials such as boards pallets, chopped materials, paper, cardboard and leather fibres. Do not hesitate to contact us if you have a requirement so that you can profit from our more than 50 years of experience.

