

Advisory & Guidance Note



South African Wood Preservers Association

October 2025

Verifying the Accuracy of Resistance Type Moisture Meters

General

- Moisture readings above Fibre Saturation Point (FSP) is inaccurate and should be regarded as qualitative only. FSP can be taken as 28-30% for commercially grown Eucalyptus and Pine.
- Perform a built-in battery check to verify the condition of the battery as this may influence readings.
 - o Select the A scale and hold on/off switch in OFF position.
 - o The indicator needle should be within the indicated "BATT OK" area above the A scale, i.e. $\geq 54\%$.
- Perform a built-in calibration check to verify that the meter is within acceptable accuracy parameters.
 - o Select the B scale and hold on/off switch in the ON position.
 - o The indicator needle should be within the GREEN BAND area on the B scale, i.e. $20 \pm 1\%$.
- Verify the condition of the cable by wiggling it while the moisture meter is on. Movement of the indicator needle indicates a defective cable, which requires maintenance or replacement.
- Insulated needles shall be used that is in good condition, i.e. undamaged insulation.
- Resistance type moisture meters used in South Africa are mostly USA type moisture meters, e.g. Delmhorst RC-1E, calibrated at a temperature of 20-21°C, parallel to the grain, with Coastal Douglas Fir as the standard calibration specie.
- Moisture readings shall be taken with the probes inserted parallel (in line) with the grain.
- Typically wood temperature is equal or close to ambient temperature, and temperature may effect moisture readings the most and adjustment may be needed when relevant.
 - o As wood temperature increases its conductivity increases (electrical resistance decreases), and when temperature decreases its conductivity decreases (electrical resistance increases), resulting in higher or lower indicated readings than actual MC respectively.
 - o If the temperature is between 15°C and 25°C, there is no real need to apply a correction.
 - o Correction factors of the moisture meter manufacturer should be consulted when needed.

NOTE - Some newer generation digital moisture meters have built in correction capabilities. Meters without built-in correction capability, such as the Delmhorst RC-1E commonly used in South Africa, requires that manual corrections be made by a competent technician, when relevant.

Periodic verification of accuracy against known standard values

- Apart from using the built in calibration check for consistent quality control purposes, it is good practice to periodically verify the accuracy of your pin type moisture using a verification device such as the VeriMoist block with known standard values.
- Verification with the device should preferably be done within temperate conditions e.g. between 15 and 25°C.
- The device provides for 5 different standards ranging from 120 g/kg or 12% to 290 g/kg or 29%.

- Verification is done by placing the probes with one needle on the bottom “COM” (common) terminal and the other needle on the terminal, starting from the lowest standard of 120 through to 200 with the moisture meter set on the B scale and for 290 set on the A scale.
- Record the indicated readings measured for all the standards and repeat the process to obtain averages of the two readings for each standard.
- Compare the average of each moisture level taken against the standard value to see if the meter reads within acceptable parameters.
- Re-calibration and maintenance service by a competent technician should be considered if:
 - any average reading differs by more than 2-3 % against the standard, or
 - the correlation coefficient of the collective readings vs the standards is below 0.97