

## MOISTURE METERS FOR WOOD

Statistics show that over one-half of the problems enquirers have with wood are problems related to wood moisture content. Internal timber for buildings, furniture, Europallets and most food and pharmaceutical manufacturers require any timber to be dried below a certain level as a contractual obligation. It is therefore essential for wood product manufacturers to be able to measure moisture content (mc) in wood before, during and after manufacture. With all *sawn and planed* wood products this is very easy.

High moisture content can lead to decay in wood or damage customers' goods and wood product manufacturers are sometimes liable for this, so Sales Departments must be aware of the type of damage that can be caused. To help understanding of the sensitivity to moisture of certain goods Verus has produced a number of Datasheets. Reading moisture content takes only seconds if using the type of pocket size battery operated wood moisture meter recommended by EN 13183 and shown in Figure 1 (unlike measuring air humidity where there is a delay in reading). This is the most popular type of moisture meter and works on the resistance principle where two needle probes are pressed into the wood surface. A good resistance meter measures the range 10-30% (dry to very wet) which is the range of greatest interest to most users. Sawn and planed wood gives an accurate reading, but wood-based processed materials, such as chipboard and plywood are not suitable for measurement by electrical wood moisture meter.



Fig 1: Protimeter resistance type pocket moisture meter

Some cheap moisture meters on sale are highly inaccurate, which is worse than useless because a reading of 19% that is really 23% will lead to a false sense of security as regards timber being below the timber *decay safety line* of 20% wetness. Many companies are accredited to ISO 9000 and are required to keep equipment calibrated and to assist this Verus have developed an *in-house calibration instrument* we call a checkbox, shown in Fig 2. The principle of this electronic device is that it represents softwood at three precise moisture contents. It was patented in 1982 and determines accuracy in moisture meters by checking three key points on the meter scale. ISO 17025 *Traceability requirements* means that companies are not required to have both moisture meter and Checkbox *externally* calibrated, only one of them, so with most users the moisture meter stays on site, with the Checkbox alone sent for periodic external *traceable* calibration.

To avoid operator strain and speed up moisture measurements, a remote hand probe on a long lead is often used which plugs into the moisture meter; a Protimeter version is shown in Fig 3.



Fig 2: Verus Instruments Calibration Checkbox



Fig 3: Protimeter Heavy Duty Hand Probe

A good quality resistance-type moisture meter in-calibration can be a useful tool in avoiding problems: for example, it is a common error to assume that heat treated (HT) wood pallets are *dry pallets*. This is not necessarily so as the short-term heat used for ISPM 15 is to *sterilise* and not to dry timber. A moisture meter will immediately show up such problems.

Another example is Dry-Graded timber which is now required for many purposes under the UK Building Regulations and frequently it is found to be not properly dried, once again a pocket moisture meter will immediately show up such problems. If in any doubt on site as to the readings then use a Allow the pallets to cool, then pallets.

### A checklist to help reduce problems associated with moisture –

- A *resistance type* moisture meter should be available to the Production Department
- An in-house Calibration Checkbox instrument should be available to your quality controller
- Quality controllers should make periodic calibration checks on moisture meters to meet ISO 9000 accuracy requirements

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