

MOISTURE METERS FOR WOOD PALLET AND PACKAGING MANUFACTURERS

This is a basic and essential tool. Statistics show that over one-half of the customer related problems enquirers have with wood pallets and cases, are problems related to wood moisture content. Europallets, pallets for paper goods and pharmaceutical manufacturers require timber pallets to be dried below a certain level, often as a contractual obligation. It is therefore essential for wood product manufacturers to be able to measure moisture content in wood before and after manufacture. With all sawn and planed wood products this is very rapid task using a wood moisture meter.

High moisture content can lead to decay in wood, tainting or other damage to customers' goods and wood product manufacturers are often considered liable for this, so manufacturers must be aware of the type of damage that can be caused by wet timber. To help understanding of the sensitivity to moisture of certain goods we have produced a number of Datasheets. Reading the level of wood moisture content takes only seconds if using the type of pocket size battery operated wood moisture meter recommended in BS EN 13183 and shown in Figure 1. This type of moisture meter 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 any electrical wood moisture meter. To avoid operator strain and speed up measurements, a remote hand probe on a long lead which plugs into the moisture meter is often used; one version is shown in Fig 2.



Fig 1: GE Protimeter *resistance type* pocket size 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 *decay safety line of 20%*. Companies accredited to ISO 9000 and are required to keep equipment calibrated and to assist this, an in-house calibration instrument such as a *checkbox*, shown in Fig 2 is recommended. The principle of this electronic device is that it represents softwood specimens at several precise moisture contents without the need for constant environmental conditioning. Patented by TRADA in 1982 it determines moisture meter accuracy by checking several key points on the moisture meter scale. Details on www.verus.co.uk



Fig 2: GE Protimeter *Heavy Duty Hand Probe*



Fig 3: Verus Instruments *Calibration Checkbox*

A resistance-type moisture meter that is in-calibration can be a useful tool in avoiding problems in kiln drying. One example of a common error is packaging manufacturers assuming that heat-treated (HT) wood pallets are *dry*. This is often not so as short-term heat used for ISPM 15 is simply to kill insects in timber, not to dry it. A moisture meter will immediately show up such problems in HT wood with high moisture readings on delivery.

A checklist to help reduce problems, now and later –

- A *resistance-type* moisture meter should always be available in the production workshop
- Any moisture meters used (or the *calibration checkbox* instrument) should be externally calibrated
- The quality controller should make periodic calibration checks on production workshop moisture meters
- Written records of moisture content, as wood pallets and cases leave for delivery to customers should be retained

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